

What strategies influence general practitioners to deliver public health

programmes? An example using the National Chlamydia Screening

Programme

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Doctor of Public Health Integrating Statement

When I qualified as a general practitioner (GP) in 2000, I did not envisage that one day I would be involved in research and public health practice 15 years later.

I took a year out of my GP training to work in a genitourinary medicine (GUM) clinic in Central London as well as some sessions in family planning clinics in South London. At the same time, I sought career advice from a Professor (now Dame) Anne Johnson. She was one of the principal investigators of the National Sexual Attitudes and Lifestyles (NATSAL) studies; she also a qualified in general practice and public health. She suggested to me to think about public health as a feasible career option. Little did I realise this advice would help shape my career path ten years later.

I became a part-time GP principal in a small practice. I filled the rest of my week doing regular sessions in GUM and family planning. A locum public health registrar post became available and I worked in East London and the City Health Authority for nearly 18 months. My interest in public health took hold and I studied for an MSc in Public Health at LSHTM part-time. At the same time, primary care trusts (PCTs) were created due to NHS reforms and my local PCT had a vacancy for a GP member to be on their Professional Executive Committee (PEC). I became involved with sexual health at the PCT which naturally led to my MSc dissertation on implementation of chlamydia screening.

As a GP, I was managing the health and wellbeing of a practice population – including secondary prevention, screening, and immunisations. As a PCT PEC member, I was helping to manage the health and wellbeing of a larger population, as well as being involved with health services and rationing of costeffective treatment. Working as a GP and having been involved with public health practice in separate roles, I was in no doubt that general practice had a role in improving the health of the public. With my clinical interest in sexual and reproductive health, I knew GPs could provide more sexual healthcare for their populations. I also realised there were problems with implementing health promotion and disease prevention programmes in practice. I noticed how public health programmes were promoted such as use of guidelines, educational meetings, and practice visits; GPs have also been encouraged to deliver some services often with use of financial incentives.

I was interested in understanding how GPs were motivated to deliver services to improve the health of their population. I realised that sometimes, despite evidence of effectiveness, some programmes were hard to implement in practice. HIV testing is one example; despite evidence to suggest early diagnosis improves lives and reduce onward transmission due to effective treatment, there is relatively low HIV testing in general practice, and there are patients who continue get diagnosed late. Being a practicing GP with experience in sexual and reproductive health and public health, I thought there must be something that could be done to encourage GPs to improve the sexual health of the public.

I was therefore naturally drawn to the Doctor of Public Health (DrPH) programme at the LSHTM. It is intended for "*leaders and future leaders in public health* … to equip graduates with experience of the challenges of understanding and adapting scientific knowledge in order to achieve public health gains, as well as the analytical and practical skills required by managers and leaders in public health."

The DrPH is different to a standard PhD research degree because of the taught elements in the programme. On reflection, I feel I have benefitted personally and professionally from this programme.

The *Evidence Based Public Health Practice* module helped me to be critical about evidence, how it can be presented and implemented in practice. I learnt that even robust evidence did not necessarily lead to successful implementation in practice. One assignment was to produce a Cochrane-style systematic review on the use of lay health workers to improve immunisations in a low-income country. The experience of which clearly came into use for the literature review chapter of my thesis.

Part of the assignment was to write a briefing for a health minister to interpret the findings of the systematic review for implementation. I learnt that even though evidence can be objective, how it is interpreted, in what context and how it could be implemented in practice required knowledge of the "dark arts", in the political sense.

This was the purpose of the next assignment where I considered the process of translating evidence into policy. I had another opportunity to use this for my thesis as one of my chapters considered the use of behaviour change strategies to influence behaviour of primary care doctors.

The *Leadership, Management and Organisations* module enabled me to consider how to be an effective leader, manage other people and create an effective organisation. The assignment helped me to reflect on how to be a more effective GP principal to run my practice, and how I could be more effective in influencing other people and being a "change agent".

I completed three other modules from the MSc programme as part of the DrPH. I chose modules that challenged me intellectually as someone with a scientific background used to biomedical models of thinking and practice. The *Health Promotion* module introduced me to different methods to improve health at the individual and population levels. I learnt about behaviour change theories which led to changes in my practice as a GP and these also became the central focus of my thesis. *Sociological Approaches to Health* module enabled me to understand that determinants to individual's and community's health and wellbeing are not confined to the biomedical elements. *Qualitative methodologies* module was the most intellectually challenging and gave me the theoretical understanding to qualitative methods, which was invaluable when thinking about the design and presentation of both the organisational project and this thesis.

I found the *Organisational and Policy Analysis (OPA)* project the most challenging. This was partly because of the difficulties in finding a suitable organisation to host me for about 3 to 6 months, to do this as a part-time student and the time it took me to fully grasp the style of writing required for the project.

At that time, Practice-Based Commissioning (PBC) started to develop in general practice which led to creation of local commissioning organisations and I used this opportunity to observe and sometimes participate in the formation and

running of this organisation. I learnt how long it took for a new organisation to develop a structure and to gain credibility from its members, which was considerable before it could even function effectively. Sadly, due to NHS reforms, organisations like these became defunct and Clinical Commissioning Groups replaced them. Interestingly provider organisations involving groups or federation of GPs are now being formed and going through the same processes as what I had observed in the organisation I was studying.

What I learnt on the DrPH course helped me shape my thesis which is about how GPs could be influenced to deliver public health programmes. I considered behaviour theories that might explain the behaviour intentions of clinicians and how to change their practice. I conducted an overview of systematic reviews to consider the evidence base for using behaviour interventions directed at GPs. I used qualitative methods to explore the reasons for their intentions to deliver public health programmes and if behaviour interventions made a difference to their attitudes and practice.

I am often asked if I had chosen the "right doctorate" as DrPH is still not widely known in the UK. From the perspective of entering a research career, which is what I am embarking on now late in my professional life, I think I would have chosen to do a PhD as a recognised point of entry. I mentioned in my thesis my motivation, which is determination to demonstrate how GPs could, and should be able to make a difference to the health and well-being of a population. I made a right choice from the personal and professional perspective. I would not have learnt all the things I have mentioned from doing a PhD.

Academics produce research to make a difference, however this process does not end when research is published and in the public domain. Clinicians do not adopt changes to behaviour just based on evidence creation; knowledge translation is also an important part of the process. This includes different ways of influencing healthcare professionals, and how to make the message and the messenger credible and relevant in order for front line clinicians to adopt better ways of working and eventually make a difference to the health of the public.

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Abstract

General practitioners (GPs) have a role in improving population health through health promotion and disease prevention (HPDP) activities such as immunisations, screening, and lifestyle advice. However, GPs must also respond to the patient's agenda in a consultation. With limited time in a consultation, it might be difficult for GPs to prioritise HPDP with their patients. My thesis aimed to offer insights into the behavioural determinants of GPs to deliver HPDP.

I considered behaviour theories such as Ajzen's Theory of Planned Behaviour (TPB) to help understand clinician behaviour and how they could be applied to influence their behaviour to deliver HPDP programmes. I conducted an overview of systematic reviews to examine impact of behavioural interventions, directed at GPs, to improve health of their patients. The overview suggested there is insufficient evidence for any type of intervention to be consistently effective in influencing GPs behaviour.

The National Chlamydia Screening Programme aims to detect and treat chlamydia infection in young people. Primary Care Trusts used different behaviour interventions to encourage GPs to deliver screening. I interviewed GPs and practice nurses (PNs) in London about their experiences of delivering chlamydia screening and the behavioural interventions, such as those discussed in systematic reviews, to influence their behaviour to deliver other public health programmes.

The interview data suggested the constructs of TPB - behavioural beliefs, normative beliefs, and control beliefs – could be used as a conceptual framework to explain why these primary care clinicians might deliver public health care.

Strategies used to implement public health programmes need to consider how primary care clinicians might respond to the different constructs of TPB. In addition, organisational factors such as contracts and financial incentives, and perception of intrusion into the patient's agenda need to be managed carefully as they could either facilitate or impede delivery of public health programmes.

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I started the DrPH programme in 2006 so I have many people to thank for their support and encouragement which helped me to persevere through this process and some difficult times.

Firstly, I thank the Medical Research Council (MRC) and the Economic and Social Research Council (ESRC) for their generosity in funding this work through an MRC/ESRC Interdisciplinary Studentship. I want to thank Dr Nick Goodwin, my initial supervisor, who encouraged me to start refining my research question.

I am grateful to the people and organisations who helped me to get the OPA and fieldwork done: members of the Practice Based Commissioning group, research network staff (North Central London Research Consortium and South East London Research and Development Centre) who helped me with governance process and recruitment, particularly North Central London Research Consortium for their generous research support costs, and the GPs and practice nurses who generously gave up their time to have very frank discussions with me about their public health practice.

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I am indebted to my supervisor, Professor Pauline Allen, for giving me invaluable advice, inspiration, and the strength to complete the thesis. Her advice about how to write a narrative, with "linking sentences", will stay with me forever. I am also grateful for her support and understanding through this long academic journey, particularly the turmoil of my day job as a GP and periods of illnesses. I also thank my examiners, Professor Carolyn Chew-Graham and Dr Paula Baraitser, for their valuable advice to improve the content and style of the thesis. Lastly, I wish to both thank and apologise to Rob who has been incredibly supportive and understanding, particularly as I spent our leisure time writing up the thesis!

Declaration

I, Richard Maung Min Naing Ma, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

I declare the use of a third party, London Proofreaders (www.londonproofreaders.co.uk), for proofreading this thesis.

Richard Ma 19th April 2017

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Abbreviations

AHP	Allied Health Professional
AIDS	Acquired Immune Deficiency Syndrome
AMSTAR	Assessment of Multiple Systematic Reviews
CBA	Controlled Before After study
CCT	Controlled Clinical Trial
CI	Confidence Interval
CME	Continuing Medical Education
CPD	Continuing Professional Development
cRCT	Cluster Randomised Controlled Trial
DARE	Database of Abstracts of Reviews of Effects
EOV	Educational Outreach Visit
	Cochrane Effective Practice and Organisation of Care
EPOC	Group
FFS	Fee for Service
GP	General Practitioner
HBM	Health Belief Model
HCA	Health Care Assistant
HIV	Human Immunodeficiency Virus
HPA	Health Protection Agency
HPDP	Health Promotion and Disease Prevention
HPE	Health Protection England
HPV	Human Papilloma Virus
HSCIC	Health and Social Care Information Centre
IQR	Inter-Quartile Range
ITS	Interrupted Time Series
LDP	Local Delivery Plan
LES	Local Enhanced Service
NCD	Non-Communicable Disease
NCSP	National Chlamydia Screening Programme
NES	National Enhanced Service
NHS	National Health Service
NIS	Network Improved Services

OL	Opinion Leader
ONS	Office for National Statistics
OR	Odds Ratio
PCP	Primary Care Professional
PCT	Primary Care Trust
PEM	Printed Educational Material
PN	Practice Nurse
QOF	Quality and Outcomes Framework
RCGP	Royal College of General Practitioners
RCT	Randomised Controlled Trial
RD	Risk Difference
RR	Risk Ratio
ТРВ	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
WHO	World Health Organisation

Chapter 1 – The role of general practitioners in health promotion and disease prevention

Background

In this chapter, I argue why public health programmes are important and provide an overview of diseases that threaten public health. I will describe the range of programmes available in the UK to respond to threats to public health, how general practice might be used as a setting to improve the health of the nation and consider possible barriers to implementing health promotion and disease prevention (HPDP) programmes. Then, I will introduce the National Chlamydia Screening Programme (NCSP) as one example of a screening programme and its implementation in different settings, including general practice. Lastly, I will discuss the barriers to delivering HPDP programmes in general practice, how some of these could be overcome using interventions to change healthcare professionals' behaviour, and the gaps in knowledge from the current literature.

The focus of my thesis is to explore what motivates general practitioners (GPs) rather than doctors in general. Hospital doctors and specialists usually have a focused demographic and/or a smaller range of health behaviours to target. For example, respiratory physicians might focus on smoking, whereas gastroenterologists might focus on diet, because they are risk factors for the diseases they usually treat, such as lung and gastrointestinal tract cancers respectively. In contrast, GPs and their teams in primary care settings deliver a wider range of healthcare services which also includes HPDP to the general population; from offering immunisations for children, influenza vaccinations for the elderly, chlamydia screening for sexually active young adults to smoking cessation for all adults who smoke.(1) GPs often have challenges such as short allocated time for consultations and the wide range of knowledge and skills needed to deliver the range of HPDP programmes. They are also expected to meet a wide range of demands and expectations from patients with the added time pressure, so these might pose more challenges for delivering public health programmes for GPs. Some of these contextual factors are very different to those of clinicians working in hospitals or other settings such as community

clinics, so it would be interesting to study how some GPs manage to these challenges.

Apart from GPs, other members of the primary healthcare team might deliver HPDP activities in UK general practice; these include: practice nurses (PNs), health care assistants (HCAs) and other allied health professionals (AHPs), such as pharmacists and health visitors. PNs might be more likely to deliver HPDP programmes compared with GPs, because their job descriptions usually specify activities such as immunisations, long-term conditions management, smoking cessation, and cervical cancer screening; they also usually have dedicated appointments for these activities, which are usually of longer lengths than GPs. For example, practice nurses' appointments typically range from 15 to 20 minutes; their session is usually made up of routine health monitoring, screening, vaccinations and health checks, and their consultation agenda is usually set and follow a clinical protocol.(2) Despite working to specific HPDP tasks in the same settings, practice nurses might face similar challenges to GPs, such as patient demands and time pressure, but they might have different motivations and barriers to delivering HPDP programmes. Because of these reasons, this thesis focussed on GPs as the main subjects of behaviour modifying interventions; however, the interview study included PNs to compare their motivations to deliver public health programmes with GPs.

Threats to Public Health

There are two main types of threats to population health: non-communicable diseases (NCDs) and communicable diseases.

The World Health Organization (WHO) highlighted non-communicable diseases (NCDs) such as: cancers, chronic respiratory diseases, diabetes and coronary heart diseases, as the leading causes of mortality in the world.(3) Of the 57 million deaths globally in 2008, 63% of these were due to NCDs. According to WHO, a sizeable proportion of deaths from NCDs could be attributable to four main behavioural risk factors: tobacco use, physical inactivity, harmful use of alcohol and unhealthy diet. Prevention strategies to reduce deaths from NCDs might include lifestyle changes such as: stopping smoking, increased physical activity, moderate alcohol consumption and healthier diet.

Communicable diseases are also re-emerging as threats to human health and even international health security. These include: influenza, hepatitis, rotavirus, malaria, polio, measles, rubella, sexually transmitted infections (STIs), tuberculosis and HIV. According to WHO, the spread of communicable diseases is facilitated by socioeconomic, environmental and behavioural factors, as well as international travel and migration.(4) Again, many of these diseases are preventable; some strains of influenza and measles by vaccinations; hepatitis A and cholera by better sanitation; and HIV and other STIs through practising safer sex.

Public health policies in the UK have attempted to reduce the threat of both communicable and non-communicable diseases through population approaches to prevention. The legislation on banning smoking in public places, mandatory food labelling and promotion of physical activity in England are examples of measures to improve lifestyle behaviours that cause ill health. New vaccination programmes against pandemic influenza and human papilloma virus (HPV) to prevent cervical cancer reduce morbidity and mortality. Furthermore, new screening programmes for chlamydia, bowel cancer and abdominal aortic aneurysms identify cases early so that prompt treatment can limit the extent and complications of disease.

Health Promotion and Disease Prevention (HPDP) Programmes

Public health programmes in general practice

General practice in the UK, which is delivered by the primary health care team, is the main point of contact for patients in the publicly-funded National Health Service (NHS). A GP will assess a patient's problems, diagnose illnesses, and treat them or refer them for necessary investigations and further treatment. GPs as well as PNs and HCAs also carry out screening for common cancers and promote general health and wellbeing in the allocated appointment time.(1)

There is a range of public health programmes available in the UK and these differ slightly depending on the devolved country. In England, the programmes that general practices deliver include childhood, influenza and pneumococcal vaccination and cervical cancer screening; other programmes such as: breast cancer screening, bowel cancer screening, diabetic retinopathy screening and abdominal aortic aneurysm screening, use GPs' registered patient lists to invite patients for screening in other healthcare settings or send self-test screening kits.(5)

Health promotion in the consultation room

GPs are expected to promote health and prevent disease as part of their work. The modern curriculum of GP training published by the Royal College of General Practitioners (RCGP) includes HPDP in the syllabus. It acknowledges there are opportunities to discuss healthy living with patients and for early detection of illness.(6) The curriculum on the general practice consultation states GPs have to demonstrate "commitment to health promotion, while recognising potential tension between this role and the patient's own agenda".(7) This suggests there might be difficulties in delivering HPDP interventions in general practice.

It might seem reasonable that GPs should offer health promotion and lifestyle advice to their patients to prevent ill health. This is recognised in Stott and Davis' consultation model, well-known to GPs, which includes health promotion as an important part of the consultation process.(8) With the exception of practices in areas such as army barracks and universities, a GP practice list may include a range of age bands, socioeconomic groups, employment status, and people with or without long-term conditions. Any of these populations, including military and student practices, might benefit from health promotion and lifestyle advice. Some might argue that HPDP might not be relevant or appropriate for every patient at every encounter; it might be integral to one model of consultation (Stott and Davis), but it is not in others such as Pendleton, Neighbour or Balint where focus is patient-centred and on managing the doctor-patient relationship.(9-11)

Barriers to health promotion in general practice

Despite featuring in the training curriculum and consultation model, GPs might not be able to deliver HPDP to their patients at every contact or consultation. There might be factors that make this difficult to deliver at the individual level; for instance, a healthcare professional's knowledge and attitude to health promotion can determine whether they offer lifestyle advice and interventions to their patients. Introducing a public health intervention such as lifestyle advice might be appropriate during a consultation but might not be expected or wanted by the patient. GPs typically have eight to 10 minutes per consultation and much of that might be spent responding to the patient's immediate demands or needs.(1)

A survey of nearly 280 GPs' attitudes and involvement in health promotion in the late 1990s in England reported much activity educating patients about lifestyle including smoking, alcohol, and physical activity "most" or "all of the time". However, there was a discrepancy between those who felt "prepared" and those who thought they were "effective" in their health promotion advice.(12) A more recent survey in 2006 of over 700 primary care professionals in Scotland reported lack of time and resources were more likely to be seen as barriers to routine advising by GPs than other professional groups such as health visitors and PNs; the latter two were also more likely than GPs to believe that patients would follow their advice.(13) It is unclear however from the studies how representative they are of the attitudes of GPs to health promotion, and if the attitudes have changed with reducing resources and increasing pressure in general practice.

These barriers are not confined to UK primary care as similar issues have been found in other high-income countries. A study in the United States of primary care physicians in obesity management highlighted their perception that lifestyle changes were most effective over pharmacotherapy or surgery but they lacked confidence in their ability to initiate discussions.(14) A discussion paper in *Australian Family Physician* noted issues such as lack of understanding of the principles of health promotion among Australian GPs and advocated adding this to the undergraduate medical curriculum.(15) The conflict between patients' and doctors' agendas has been frequently cited as a barrier to HPDP activities.(16-18) A study of GPs in Gloucester that examined secondary prevention of coronary heart disease found some GPs would rather forego evidence-based guidelines for prevention to preserve the relationship with their patients. Some of the GPs thought the interventions were "gratuitous" and patients might be "too distressed" from a coronary event to consider life-extending interventions such as the use of statins to prevent further events.(16) A focus group of GPs in Bradford on the views of their role in population approach to lifestyle advice were also concerned about the "detrimental effects" on the doctor-patient relationship. Instead they preferred to focus on secondary prevention and a multi-agency, centrally co-ordinated approach to improving population health.(19)

GPs felt more comfortable discussing stopping smoking cessation for health promotion, only if the patient had existing smoking-related problems.(20) A study of smoking cessation advice given by GPs in West of England by use of advice slips given to patients reported "concern over doctor-patient relationship" was the single independent predictor of GPs giving the advice.(18) A study of Welsh patients' views on smoking advice given by their GPs suggested that doctor-patient relationships could be damaged if doctors routinely advised all smokers to quit; a patient-centred approach that took account of their own views and styles of intervention was thought to be more acceptable.(21) These studies were conducted before the new GP contract was introduced. It is possible some clinicians might feel more motivated to offer these health promotion activities since these activities are now linked to income.

Despite this apparent conflict of agendas, some patients expected advice from GPs. A survey in the 1980s of nearly 3500 patients from two West London practices found discrepancies between what lifestyle issues (weight, smoking, alcohol consumption and fitness) patients thought their GPs should be offering and what they had experienced in the consultation. The study suggested greater participation by GPs in health promotion would be "well received by most patients".(22) This was a large study but only included patients from two practices in one part of London, so their attitudes might not represent those of other areas in or outside London which limits the generalizability. Again, as the study predated quality and outcomes framework (QOF – a pay-for-performance

system to reward quality of care in general practice), opportunistic health promotion might be more commonplace and expected by patients than it was 20 years ago. The effect of QOF on the behaviour of primary care clinicians to give health promotion advice is discussed in the qualitative study of this thesis.

Despite the apparent inertia from GPs, a King's Fund report noted the "enormous potential" that general practice could offer in HPDP; however, many GPs stated their lack of skills to deliver effective health promotion.(23, 24) When these skills were offered to doctors training to become GPs in London, evaluation of this programme suggested the trainees did not appreciate the benefits of public health in primary care practice.(25) The report highlighted gaps in evidence, including: types of prevention that can be carried out in primary care, benefits for communities, and the best evidence for design and implementation of public health interventions in general practice.

A systematic review of barriers to health promotion in general practice identified further issues including: lack of time, lack of skills, lack of patient motivation and unrealistic expectations from patients as possible reasons.(26) However, it only addressed barriers and did not explore what facilitated health promotion. It might not offer a comprehensive assessment of barriers either because it used a limited number of search terms ("Health Promotion" and "General Practice"); and one database source for publications (PubMed). For example, it did not consider any organisational or structural barriers to health promotion such as financial incentives or contractual levers, and these are examples of barriers and facilitators I examined in this thesis.

The National Chlamydia Screening Programme (NCSP)

New programmes have been introduced in England in the last 10 years which used general practice as a setting to deliver them; these included: NHS Health Check which aims to screen adults between the ages of 40 to 74 for cardiovascular disease; and National Chlamydia Screening Programme (NCSP) which is an opportunistic screening programme to detect and treat chlamydia in sexually active men and women under-25 to prevent onward transmission of infection and complications such as pelvic pain and infertility.(27) Both these programmes have been rolled out in phases throughout England but the implementation strategies have not been consistent in all the areas. In the case of NCSP, general practice was not included in the beginning as a screening venue until a few years after the launch of the programme; the majority of screening in the early phases were delivered in community contraception and sexual health (CASH) clinics.(28)

I was one of two GPs recruited to the National Chlamydia Screening Advisory Group which was a committee to advise the implementation of the NCSP. At that time, the programme had just been rolled out to general practice and we discussed ways in which GPs could participate in screening. We discussed how to shape Department of Health policies by suggesting chlamydia screening as performance indicators for primary care trusts (PCTs), encouraged GPs to screen by submitting a proposal for chlamydia screening as a QOF indicator in the national GP contract as well as promotion in the media to support screening in general practice.

The Department of Health published a document '*National Standards, Local Action – Health and Social Care Standards & Planning Framework 2005/06– 2007/08'* in September 2004. This set out the national requirement for PCTs to prepare a Local Delivery Plan (LDP) for the period 2005/06 to 2007/08. The document set out the framework that NHS organisations and social services authorities should use in planning for the following three fiscal years and the standards which all organisations should achieve in delivering NHS care. In 2006, chlamydia screening became a performance indicator for PCTs in England and was included in the LDP.(29) The inclusion of chlamydia screening in the LDP meant PCTs had an incentive to improve the chlamydia screening rates in their areas, especially from general practices.

In this thesis, I used the NCSP as one example of a public health programme to study GPs' behaviour because there were different implementation strategies used by PCTs to encourage screening from general practice. Chlamydia screening was promoted to general practice staff in the medical press, via public health departments, and local programme coordinators also distributed flyers to practices in their areas. Some PCTs used additional strategies to encourage screening and these varied across England. Approaches included: "GP chlamydia screening champions", educational outreach programmes for practices and financial incentives to increase screening volumes (such as

"enhanced services"¹ commissioned by PCTs for GPs to provide screening). Thus, many GPs were subject to behaviour change interventions to encourage them to deliver these initiatives at the individual and population levels.

The implementation of chlamydia screening in England has not been without criticism. Stephenson argued that despite evidence from two randomised trials which found that register-based screening (where eligible individuals are identified from a population register, such as a general practice list, and invited to undergo screening) could reduce the incidence of pelvic inflammatory disease (PID), there were no trials of the effectiveness of opportunistic screening (where screening is offered to eligible individuals attending healthcare settings for any reason) which is the approach chosen by NCSP in England.(30)

Low also noted the absence of evidence for opportunistic screening, and added that "unsubstantiated belief in success of opportunistic screening persists and have allowed the requirements of the National Screening Committee and the experience of other UK screening programmes to be overridden". She also advocated that policy makers and researchers should move forward by generating the evidence required to determine if opportunistic screening does more good than harm at a reasonable cost.(31)

Additional issues could affect public health programmes such as chlamydia screening. In order to inform the implementation of NCSP, McNulty and colleagues explored the barriers to testing for chlamydia in general practice; they reported the greatest barriers were poor awareness of the condition and the screening programme, how to take the specimen, lack of time, concerns about discussing sexual health and lack of guidance.(32) In another study, similar issues prevailed in "low-testing" practices, whereas "high-testing" practices had a GP or practice nurse with a special interest in sexual health who were more cognizant of the signs and symptoms so considered it as part of check-up for patients with genitourinary symptoms.(33) Particular difficulties for

¹ The new General Medical Services (nGMS) contract for general practitioners categorised primary care services into three groups: essential, additional and enhanced services. All GPs must provide essential services such as consultations with patients who seek care because they believe they are unwell. "Enhanced services" cover additional services that practices can choose to provide. These can be commissioned nationally or locally to meet the populations healthcare needs. Chlamydia screening was commissioned as a "local enhanced service" in many PCTs for GPs to deliver screening.

some GPs and nurses were identified in discussing sexual health with patients of opposite genders, minority ethnic groups, middle-aged and older adults and non-heterosexual patients.(34) A study of GPs' and PNs' sexual health promotion activities based in Northern Ireland found this was often done *ad hoc* and not targeted at the population "at-risk"; the healthcare professionals thought they were inadequately trained to discuss sexual health with non-heterosexual clients or those with learning disabilities. Embarrassment and lack of time were also identified as barriers to effective sexual health care.(35)

The National Audit Office (NAO) produced a report in 2009 which scrutinised the impact of the £100 million spent to date on the NCSP, and concluded the programme had not demonstrated value for money. The NAO reported that the costs of delivering the Programme were highly variable from place to place, indicating that there was "scope for efficiency savings". The NCSP was cited as an example of the difficulties which could arise when a "national initiative is introduced into a locally-managed NHS, when influences and incentives for PCTs are not addressed from the beginning and all aspects are locally commissioned, regardless of economies of scale".(36)

Much has been written in the literature in terms of systematic reviews examining the impact of various behaviour interventions on physicians' behaviour to deliver healthcare, which makes NCSP interesting to examine the outcomes of using different approaches to delivering the programme. From gaining an understanding of the barriers through prior research, McNulty and colleagues evaluated different ways to improve chlamydia screening in general practice. These strategies have included: training clinicians and reception staff and nominating "champions" for screening; (37) use of interactive workshops to increase screening; (38) and, in one study, they suggested making request forms easier to fill in, and provide financial incentives to facilitate screening.(39) They also demonstrated, through a randomised controlled trial, that the use of a structured complex intervention based on the *Theory of Planned Behaviour* (TPB) doubled chlamydia screening from GPs.(40)

My motivation for this thesis

When I completed general practice training, I became interested in population health and worked in a public health department of a health authority in East

London. I also studied for a master's degree in public health at the London School of Hygiene and Tropical Medicine (LSHTM).

The new general medical services contract (nGMS) for UK general practice was introduced in 2004, at the time during my master's study.(41) This contract used a set of quality criteria (the Quality and Outcomes Framework or "QOF") to remunerate GPs for the quality of clinical and non-clinical care they provide for their registered patients. The targets that related to public health included: childhood immunisations, influenza vaccinations, cervical cytology, health checks, smoking cessation advice and secondary prevention of people who had heart disease and stroke. The knowledge and experience in public health helped me to understand the rationale for the quality indicators that reward practices to improve the health of their registered population.

My other clinical interest is in sexual and reproductive health. I was involved with the NCSP as one of the GP advisors whose role was to consider how to promote chlamydia screening in general practice. We used information cascades, training events, flyers and online education modules to promote testing. I also used media outlets relevant to GPs as a means of conveying the message about the programme and wrote an article in the *British Journal of General Practice* (BJGP) to consider the use of financial incentives. (42-44) However, as shown later, these strategies did not necessarily change the behaviour of GPs.

I have been a member of a Royal College of General Practitioners' (RCGP) sexual health committee whose aim is to improve sexual health care provided by GPs. We have encouraged HIV testing in general practice for almost a decade. The clinical case for early diagnosis of HIV is clear as this reduces morbidity, mortality and also prevents onward transmission.(45) Despite various educational materials, online learning, educational events, media messages and NICE guidance, HIV testing in high prevalence areas remained low and there have been cases of late diagnoses due to missed opportunities.(46, 47) We reflected on our approaches and wondered why HIV testing in high prevalence areas did not become more widespread. We considered, for example, if there were barriers for GPs which made it difficult to discuss testing, such as lack of knowledge or confidence to deal with sexual health for example.

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I was unwilling to accept that GPs could do nothing to improve the nation's public health (including sexual health). This has become the motivation for my thesis. I wanted to find out what factors determine the behaviour of GPs to deliver HPDP programmes. I wanted to know if there were ways to influence the behaviour of GPs other than financial incentives and educational events.

Summary of evidence gap and the case for this thesis

There is a clear focus on prevention in the health policies, nationally and globally, to reduce ill health and the burden of diseases in the population. Through a list-based system and good coverage of the population, general practice appears to be a suitable setting to implement many HPDP programmes. However, competing priorities in a consultation, the concern regarding doctor-patient relationships and some GPs' lack of confidence and knowledge in health promotion might be some of the reasons why public health interventions are not delivered.

The King's Fund report highlighted general practice has "enormous potential" to deliver public health programmes, and yet, there appears to be a paucity of best evidence to design and implement public health interventions in general practice. (24) There is already a wealth of empirical evidence for using different interventions to modify behaviour of clinicians, many of these have been considered in systematic reviews of empirical studies. The Cochrane Collaboration published systematic reviews that examined the effectiveness of different behaviour modifying interventions ranging from computer reminders, educational outreach visits to financial incentives. At the time of submitting the thesis in May 2015, there were no published overviews of systematic reviews that examined literature on the use of behaviour modifying interventions. An overview of these systematic reviews would be helpful to summarise which interventions are effective when applied to primary care settings to improve delivery of HPDP programmes.

Interventions that modify healthcare professionals' behaviour might work in different ways, have different magnitudes of effect, and have underlying assumptions about the mechanism of behaviour using theories that are well established in literature. An exploration of the theories that underpin the studies

on behaviour modifying interventions would help to understand how and why they might work, and how they could be used as a framework to design others. For example, the study of chlamydia screening by McNulty and colleagues used a cognitive theory (*Theory of Planned Behaviour*, TPB) to design a structured complex intervention to increase opportunistic chlamydia testing in general practice.(48) In this thesis, I used the same theoretical framework to understand the behaviour intentions of primary care clinicians such as GPs and PNs to deliver HPDP programmes. This might help to understand why some interventions to promote HPDP programmes might work in general practice and why others might fail.

As mentioned earlier, there have been studies that considered barriers to health promotion but they did not consider *both* barriers and facilitators to delivering health promotion programmes; for example, if clinicians felt financial incentives compensated them enough to overcome barriers such as perceived lack of time in a consultation. This thesis will consider if barriers such as perceived lack of time influenced chlamydia screening and other HPDP activities, and if behaviour change interventions such as educational outreach and financial incentives were enough to overcome them, or if there were other factors outside the constructs of TPB that needed to be addressed such as organisational and political contexts.

Drawing on the gaps in the literature, the aim of this thesis is to examine factors that influence the behaviour intentions of general practitioners to deliver public health programmes. To address this, the following are the objectives of this thesis:

- Assess the effectiveness of interventions that modify the behaviour of GPs and their impact on patient outcomes that relate to health promotion and disease prevention.
- Explore the reasons why primary care clinicians such as GPs and practice nurses responded to behaviour change interventions to deliver public health programmes such as chlamydia screening.

As mentioned, I have included practice nurses in the interviews because they work alongside GPs, they deliver a majority of health promotion programmes as

part of their job description, and they might face similar challenges as GPs in terms of patient demands, expectations, and time pressures. The inclusion in the study might offer insights into the similarities and differences between these two professional groups in primary care.

The first step of my enquiry was to gain a theoretical understanding of behaviour and examine behaviour change theories that could be useful to explain and predict behaviour and therefore inform behaviour interventions (Chapter 2). I considered some behaviour change theories commonly used to explain behaviour of healthcare professionals and patients. In addition to a critique of each theory, I gave examples of how they could be applied in practice, and in the design of interventions to modify behaviour of clinicians.

In Chapter 3, I described the methods used for the main research of the thesis. I considered the effectiveness of different interventions that aimed to modify behaviour of doctors in Chapter 4 by conducting an overview of systematic reviews. This overview examined different types of behaviour interventions, what theories they were based on, and how effective they were to change the behaviour of general practitioners and improve patient outcomes in the context of HPDP. In Chapter 5, I used the example of the NCSP to look at the impact of different implementation strategies on chlamydia screening volumes in general practices in London. In Chapter 6, I presented the data from interviewing general practitioners and practice nurses on what influenced their behaviour to deliver public health programmes. The interviews were a way to understand why some behaviour change strategies had impact and others did not, in addition to understanding other influences of behaviours. In Chapter 7, I discussed the findings from this thesis and what they mean in practice, and suggested some recommendations for policy makers on what might help to influence the behaviour of general practitioners to improve the health of their populations.

Chapter 2 – Use of theories to understand and predict behaviour

Background

In the last chapter, I described how health promotion and disease prevention (HPDP) programmes have been introduced to deal with emerging threats to the health of the public due to communicable and non-communicable diseases. I also gave examples of the problems GPs might face when they deliver health promotion and disease prevention programmes in practice. Issues such as: lack of time, lack of training, lack of confidence as well as conflicts between the clinicians and patients' agendas have been suggested as barriers from various studies on health promotion in general practice.

To consider how to change an individual clinician's behaviour, we first need to understand the determinants of behaviour. This chapter will consider and critique some common behaviour theories, what factors determine behaviour intention and where the levers could be to change them.

Behaviour change theories

Behaviour change theories can provide a framework to understand behaviour and help to identify levers to use to effect a change. According to West, theory can be defined as a "description of a process, derived from a process of inference, which provides explanation for observed phenomena and helps to predict events".(49) There are many behaviour change theories available but I have used a few examples of cognitive theories commonly used in the context of HPDP programmes that are based on the individual, and I have chosen to apply the *Theory of Planned Behaviour* (TPB) in this thesis because it is useful in explaining and predicting behaviour of healthcare professionals.(50)

Early behavioural theorists such as Skinner believed a behavioural response can be fully explained by the reinforcement contingencies alone.(51) Skinner hypothesised that behaviour is determined by its consequences; even a temporal association between behaviour and rewarding consequence that follows is enough to increase the probability of that "operant" behaviour being repeated. These behaviours are termed "operant" as they operate on the environment to bring about changes that result in the reinforcement. Classical behaviour modification strategies do not require "thinking" or "reasoning" so responses are more of an innate reflex to the stimulus. Classical behaviour theories could be seen as too simplistic and one-dimensional to apply to complex processes in humans; for example, they do not consider how attitudes and consequences of behaviour might affect an individual's decision to perform some behaviours, nor do they consider any external factors like environmental and peer influences. These theories might explain some behaviour associated with past experiences; for example, if a GP felt they missed a case of rectal cancer in a 60-year-old man with rectal bleeding, they might be more likely to refer 60-year-old men who have the same symptoms in the future. However, classical theories are unlikely to be helpful to explain other factors that could determine a healthcare professional's behaviour in practice. Using the same example, a GP might have missed a case of rectal cancer because they did not think he was at risk, or they were unable to allocate enough time for a full assessment, or there could be organisational barriers that make assessment and referral for suspected cancer difficult; these issues might need to be addressed for the clinician's behaviour to really change.

Modern behaviour change theories focus on cognitive factors that lead individuals to change behaviour. Cognitive theorists believe behaviour involves a degree of "reasoning" and "thinking". The behaviour intention is a function of the perceived value of the outcome, and the perceived probability (or expectation) that a behaviour will result in that outcome. *Health Belief Model* (HMB) and TPB use this cognitive process that a person normally considers the benefits, trade-offs, and their values of outcomes before a behaviour is actioned.(52-54)

Becker's *Health Belief Model* (HBM, Figure 1) was developed to help understand why people use preventative services; it postulates that healthrelated action depends on three factors: there is sufficient motivation or health concern to make issues relevant; there is the belief one is susceptible to a serious health problem; and the belief that following a particular health recommendation would be beneficial in reducing this threat and the action is at an acceptable cost.(52) This model has been used to explain preventative behaviours such as: healthcare workers' decision get vaccinated for influenza, bowel cancer screening in older adults, and attendance for health checks in

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general practice.(55-57) We could apply this theory to understand why healthcare professionals deliver public health interventions: a doctor who is aware of the benefits of the influenza vaccine, who has knowledge of the sequelae of influenza in people at risk, would be more likely to offer the vaccination to their patients.



Figure 1 Becker's Health Belief Model

Despite widespread use of HBM, a recent meta-analysis found only the constructs of benefits and barriers had consistently strong predictive power for behaviour change and the authors cautioned against the continued use of HBM in predicting health behaviours.(58) Furthermore, this theory considers only the predictors of behaviour at the individual level, so influences from peers and social norms are not taken into account. It assumes individuals behave in a rational way, with behaviour resulting from assessment of perceived severity, threats, benefits and barriers. It also assumes behaviour is under volitional control and does not consider the effects of an individual's emotional and unconscious reaction to situations. For example, HBM is unable to explain how a young person might want to take drugs or have unsafe sex; they might have chosen these actions to feel accepted by their peers or sexual partner, despite being aware of the risks.

The effect of peers can be a determinant of behaviour and Bandura's *Social Cognitive Theory* (Figure 2) suggests that people learn by observing others; the environment, behaviour and cognition interact with one another to influence the observed behaviour. (59, 60) The theory goes further to say that behaviour is also determined by expectancies and incentives. Expectancies can be of three types: consequences of one's own actions or "outcome expectations"; one's own competence to perform the behaviour needed to influence outcomes or "self-efficacy"; and incentives or reinforcement of the outcome as interpreted and understood by the individual. So, if an individual believed the effect of a certain behaviour (e.g. change in lifestyle) was desirable, they would attempt to change if they believed that: their current lifestyle posed a threat to their valued outcomes such as their health or appearance (environmental cue); that changes would reduce the threats (outcome expectation); and they were personally able to effect the change in behaviour (self-efficacy). An example in general practice might be that if a clinician felt a patient might benefit from their health promotion advice, if action were seen to be desirably by their peers, if doing nothing it would harm the patient, and if they felt they had the skills to deliver this, then they are more likely to give this advice to their patient.



Figure 2 Bandura's Social Cognitive Theory

However, the utility of *Social Cognitive Theory* has shown to be inconsistent in delivering different prevention programmes. While it has been cited in designing cardiovascular prevention and treatment programmes, according to a

systematic review, its effectiveness in others such as physical activity has been mixed. (61, 62) Like the HBM, it does not consider other influences on behaviour such as personal habits, environmental and emotional factors but it does recognise social influence as a determinant of behaviour. It also suggests observation is an element of behaviour but not all behaviours can be observed and learned, which might make evaluating its efficacy difficult.

In Ajzen and Fishbein's *Theory of Reasoned Action* (TRA, Figure 3), two main factors determine behaviour intentions: the person's attitude towards a certain behaviour (which is a function of the beliefs and perceived consequences of that behaviour and the outcome evaluation of these consequences); and the subjective norms consisting of the perception of what the individual feels he or she should do to comply with expectations (which is a function of the person's normative beliefs regarding what they think they should do and the motivation to comply).(63) Using an example of influenza vaccination, a doctor's intention to give vaccination to a patient at risk might depend on their attitudes about influenza and beliefs about effectiveness of the vaccine; and how strongly he felt he was expected to do so by his peers, as well as how he thought he would be judged by them if he chose not to give the vaccine.



Figure 3 Ajzen and Fishbein's Theory of Reasoned Action

Ajzen later proposed an additional construct of "perceived behaviour control", which originates from self-efficacy theory, to the TRA to improve the predictive power (Figure 4). In addition to a person's attitude to the suggested behaviour and how they think they would be perceived by their peers, TPB includes a person's confidence in their ability to perform that action.(53) Using the same example of vaccination to explain this additional construct, a doctor might not feel able to offer this to a patient because they might lack confidence in explaining vaccine benefit and risks to their patient. Another example of perceived behaviour control might be that the doctor is unable to give the vaccine because it is kept in a fridge in another room, and it is their *perception* that walking out to get it might incur additional time in a limited consultation; on the other hand, a more motivated clinician might not view that as a barrier. The same theory to explain a clinician's intention to offer chlamydia screening to a young person at risk of chlamydia infection is illustrated in Figure 5.



Figure 4 Ajzen's Theory of Planned Behaviour

One limitation of TPB is that it does not include other factors that often have a role in behaviour such as self-control and emotional reactions.(64) Strong emotions such as threat, fear, mood, might have an influence on behaviour intentions. For example, someone who is depressed might feel apathetic and feel less inclined to stop smoking even though they were aware of the risks and Page **34** of **295**

consequences. Nevertheless, TPB covers many aspects of behaviour, including non-volitional behaviour that cannot be explained by the TRA. In addition, unlike HBM, it can explain an individual's social behaviour by considering the "social norm" as an important influence.





Limitations across all theories of behaviour change

Some common limitations that relate to all cognitive models of behaviour change include: the lack of a construct that recognises social, organisational and physical environments which could be important determinants of behaviour; the assumption that behaviour change is an event, whereas actual change is usually a long and complex process; and related to this, the theories do not consider how the change in behaviour can be maintained and how to prevent relapse.(65) Behaviour change theories are based on the assumption that an individual might wish to modify behaviour to improve health; when their use is applied to clinicians, who value the relationships with their patients, behaviour change theories do not refer to this important dimension for healthcare professionals, i.e. to maintain the clinician-patient relationship when discussing behaviour change.

How useful is the Theory of Planned Behaviour (TPB) in practice?

In a meta-analysis of 185 independent studies, TPB helped to explain 27% and 39% of variance in behaviour and intention respectively. According to the review authors, for a behaviour theory to have this effect, it suggests the efficacy is relatively high.(66) This might be the reason why TPB is commonly applied in the context of predicting the behaviour and intentions of individuals in healthcare settings. It uses important influences of behaviour including: intentions, attitudes, perceived control, and perceived norms. Furthermore, according to a systematic review of studies that used cognitive theories, TPB is the most useful theory in predicting behaviour of healthcare professionals.(50) TPB has been able to explain behaviours such as prescribing, managing respiratory infections, depression, offering vaccination and adherence to guidelines.(67-71) However, due to their designs, these studies were not able to show the effectiveness of approaches using TPB as a method to change doctors' behaviour to improve patient outcomes.

Behaviour theories might also be useful when considering strategies for dissemination and implementation of clinical practice and guidelines. A review of implementation research estimated that only 20% of these studies used any theory to inform their design.(72) Four theories in particular accounted for 63% of articles found; the most commonly used theories were: *Trans-theoretical Model of Change, TPB, Social Cognitive Theory and the Information-Motivation-Behavioural-Skills Model.* The prevalence of these theories might suggest their usefulness in designing implementation strategies.

Some academics have examined the interconnectedness of behaviour theories. In their book, *ABC of Behaviour Change Theories*, Michie et al suggested interventions for behaviour change should explicitly use theory in their design and demonstrated the importance of TPB as a key theory. They analysed the range of theories used in literature of behaviour change and identified a total of 83 behaviour change theories in a systematic literature search of implementation strategies. (73) They also studied the interconnectedness of these theories and identified 122 connections or ties amongst the 83 behaviour change theories. These 83 theories have overlapping constructs and this is not surprising since many were developed from seven discrete behaviour theories. TPB was one of the seven theories and it alone contributed to development of Page **36** of **295**
17 further theories of behaviour change. This analysis of interconnection suggests how important TPB is as a basic framework as well as the individual constructs in the development of other behaviour theories.

There have been some practical applications of the TPB in understanding the behaviour of primary care professionals to deliver public health programmes, particularly in chlamydia screening. The conceptual framework of TPB has already been used to design a multifaceted educational strategy to improve uptake of chlamydia screening in general practice which showed increase in screening volume.(40) If TPB could encourage GPs to improve chlamydia screening, it could potentially be extended to improve other aspects of sexual health care in general practice setting such as HIV testing as well as other health promotion and disease prevention activities.

Conclusion

Human behaviour is complex and is influenced by many factors beyond the biological and medical explanatory models. This chapter has explained some of the theories that could be used to understand behaviour and how they could be used to develop behaviour change interventions. Some of these theories have already been used to design empirical studies published in the literature in the context of HPDP. TPB appears to be a behaviour theory that is well established in literature and covers many influences of behaviour intention. It appeared to be efficacious in predicting behaviour and already has applications in predicting health behaviour in both healthcare professionals and patients.

There are limitations to TPB because it is based on the individual; it does not consider the effect of social, physical, and organisational environments as determinants of behaviour, nor does it consider the dimension of clinicianpatient relationships which are important for healthcare professionals.

Some theories including TPB have been used to inform research designs to change behaviour of healthcare professionals, we need to understand how useful are they in explaining the behaviour of GPs to deliver HPDP programmes to improve their patients' health. The overview of systematic reviews in Chapter 4 will summarise the evidence for the use of behaviour change interventions, their effectiveness when applied in practice, and the underpinning behaviour theories used to design the interventions.

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Chapter 3 – Design and Method

Introduction

The focus of the thesis is to understand what influences behaviour of GPs to deliver health promotion and disease prevention programmes. In Chapter 1, I stated the rationale and objectives of my study, and Chapter 2 provided a summary of behaviour theories which might be useful to explain and predict behaviour of healthcare professionals, such as GPs, to deliver public health programmes. This chapter will describe the design and methods to address the following study objectives:

- Assess the effectiveness of interventions that modify behaviour of GPs and their impact on patient outcomes that relate to health promotion and disease prevention
- Explore the reasons why general practitioners respond to behaviour change interventions to deliver public health programmes such as chlamydia screening

The search for effective interventions that modify clinicians' behaviour to improve practice is not new. One of the earliest reviews to explore interventions to improve clinical practice of GPs was provided by Horder et al; they grouped approaches into "themes" based on types of interventions, rather than on behaviour theories.(74) Their classification of themes included: financial incentives, personal contact, review of performance, unsolicited feedback, and literature on prescribing and continuing postgraduate education. They concluded that although these interventions changed behaviour, they were "slow and laborious"; they cast doubts on the effectiveness of financial incentives and unsolicited feedback, but suggested in some cases, multifaceted interventions might be "more promising".

Goodpastor et al also reviewed strategies to change the behaviour of doctors based on outcomes and effectiveness research and provided one of the earliest reviews of behaviour change interventions based on theories. They classified approaches used to influence physicians into two types of strategies: social influence strategies and direct behavioural strategies using financial contingencies. (75) Although not meant to be comprehensive, this was one of the earliest reviews that used theories used to explain behaviours.

In the mid-90s, Oxman et al provided one of the first systematic reviews of interventions (such as educational events, outreach visits, audit and feedback, conferences, opinion leaders) to improve clinical practice in health care professionals in various settings covering different outcomes such as preventative measures, specific management of conditions, prescribing and use of hospital services and diagnostic tests. They concluded after reviewing 102 trials there were "no magic bullets" and suggested different proposals for changes in clinical practice might require not only different implementation strategies, but different groups of clinicians, such as GPs, might have specific barriers that need to be overcome.(76)

There have been more reviews published within the last 10 years that examined interventions to change healthcare professionals' behaviour to improve practice. Yen's review in 2006 concluded that "active interventions" such as academic detailing and reminders should be used as part of a multifaceted strategy to engage physicians to change behaviour as they were more effective than "passive" approaches such as printed educational materials and continuing medical education".(77) The review covered many types of health care professionals and outcomes; however, it was not systematic and no robust conclusions could be drawn regarding specific types of healthcare professionals, settings, behaviour or outcomes of interests.

More recently, a review team explored the literature available on databases such as Cochrane Database of Systematic Reviews with the specific question of implementing guidelines into surgical and general practice. They also concluded "active forms" of continuing medical education and multifaceted interventions were found to be the most effective methods for implementing guidelines into general practice. Additionally, "active" approaches to changing physician performance were shown to improve practice to a greater extent than traditional "passive" methods.(78)

Currently, there is no robust overview of systematic reviews that considers the effect of behaviour interventions on GPs to deliver HPDP programmes, which is what this review aims to address. Rather than classifying approaches into

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"active" and "passive", I used a system that referred to education, social, mass communication, and economic theories. This was consistent with the earlier review by Goodpastor which attempted to consider more theoretical ways to classify behaviour interventions; the use of theory is more helpful to understand how and why some interventions might work and where the levers might be.(75)

Objective 1:

Assess the effectiveness of interventions that modify behaviour of GPs and their impact on patient outcomes that relate to health promotion and disease prevention

Methodology

To find out which of the many available interventions are effective to modify behaviour of GPs, it was necessary to conduct a systematic review to examine available literature on interventions that modify GPs' behaviour. To get a sense of the literature available, I piloted a literature search strategy that focussed on primary studies and reviews (including systematic and non-systematic reviews) that used doctors as subjects and behaviour modifying strategies such as education, social or financial incentives. I included patient outcomes from health promotion or disease prevention activities such as screening and smoking cessation.

I used a more generic term for doctor or physician so as not to exclude studies that used synonyms but took place in primary healthcare settings such as general practice. I included the terms "primary care" as this is often used to describe general practice in other countries such as North America. The search was conducted in March 2011.

I used the following search terms for:

- Subject: physic*, doctor, general practitioner, family physician;
- Setting: primary care, general practice, family medicine;
- Intervention: behav*, chang*, persua*, encourage*, incenti*, influen*, interven* education; and
- Outcomes: public health, health promotion, screening, motivation.

I used the following databases: Medline, EMBASE, HMIC (Health Management Information Consortium), HBE (Health Business Elite), PsycEXTRA, PsycINFO, Social Policy and Practice, Econlit and CINHAL. I chose these databases to include publications that ranged from clinical and behavioural research to articles on a broader level of health service policy and management; this enabled the search to include interventions at the organisational level such as financial incentives and contractual mechanisms.

The search period was from inception of database to March 2011: PsycEXTRA from 1908, PsycINFO from 1906, Ovid MEDLINE from 1948, EMBASE from 1980, HMIC from 1979, and Econlit from 1969. The results were limited to human subjects; articles in English; clinical trials, comparative studies, controlled trials, evaluation studies, multicentre studies, randomised controlled trials, reviews; the setting was also limited to high income countries. The search strategies and results are in Appendix C.

This pilot search strategy returned many empirical studies and altogether they covered a large range of behavioural interventions for different outcomes and contexts. For example, an EMBASE search returned over 2800 original studies in English and a MEDLINE search yielded just over 2000 studies (Figure 6). The results of this pilot search offered me an overview to the types of primary studies available, the types of interventions that were explored, on whom, in which settings and what processes and outcomes were reported.

The pilot literature search also demonstrated the plethora of trials and studies available which might result in difficulties in making sense of the evidence in a systematic way into something that might be helpful to interpret and use; this is often a problem in the real world of clinical evidence synthesis and policy making. With up to 75 trials and 11 systematic reviews of trials published per day, it is useful for policy and practice to have efficient and robust synthesis and summaries of studies to help make decisions for implementation.(79)

Figure 6 Ovid Medline searches 1948 to March 2011 in exploratory search strategy



The MEDLINE searches in the pilot returned 60 systematic reviews which reported different types of behavioural interventions on doctors such as educational strategies, computer reminders and financial incentives. As there are already systematic reviews on these interventions to change the behaviour of clinicians covering many primary studies, I have therefore chosen to conduct an overview of systematic reviews to synthesise the available evidence.

The Cochrane Collaboration provides a library of systematic reviews for similar interventions that are assessed systematically; the conclusions can be easily

digested and used by both clinicians and policy makers. As the search revealed many systematic reviews on similar topics, settings, processes and outcomes, that it would also be more efficient to conduct a systematic overview of systematic reviews so that they could be analysed to answer a particular policy or clinical question, to offer policy makers and clinicians robust evidence they need to make decisions for practice. (80)

Systematic reviews often report many outcomes measures but an *overview* of systematic reviews usually report findings based specifically on the outcome of interest or the review question.(80) Individual systematic reviews might report interventions on different healthcare workers and different healthcare outcomes; for this thesis, I am specifically interested in primary care physicians, in primary care settings and outcomes that are related to health promotion and disease prevention. The purpose of this overview of systematic reviews was to examine the evidence for interventions that aimed to modify behaviour of general practitioners to deliver programmes that promote health and prevent diseases for their patients. I therefore extracted and synthesised the relevant data from systematic reviews to meet the study objectives. Smith et al have described the methodology for conducting a systematic review of systematic reviews of healthcare interventions and this is the approach I have adopted for this overview. (80)

Impact on patients in any healthcare delivery or programme is important for the clinicians, the public and policy makers which is why I explored the types of patient-related outcome measures that were reported in the studies such as uptake of screening and immunisations, in addition to process measures that relate to health promotion and disease prevention activities such as giving advice on screening and immunisations. I focussed on short-term outcome measures such as uptake of screening, primary prevention, or vaccination rather than long-term outcomes such as disease prevented or survival rates because the follow-up time in most studies was short.

Each of the published systematic reviews I explored in the pilot search also gave descriptions of the behaviour intervention being examined, including some theoretical bases. I have already explored different behavioural theories in Chapter 2, so I used this opportunity to examine the relationship between the effectiveness of behaviour interventions and the behaviour theories that underpinned them in the reviews.

The review therefore had the following specific aims:

- 1. To examine the theoretical bases of the behaviour interventions in each systematic review.
- 2. To summarise the effectiveness of interventions to modify behaviour of general practitioners to deliver health promotion and disease prevention
- 3. To summarise the effectiveness of interventions, specifically directed at general practitioners, in improving patient outcomes such as increased uptake of lifestyle advice, screening, and immunisations

To answer the research questions, the physician related measures include:

- Changes in knowledge, attitudes, and behaviour
- Prescribing for primary or secondary prevention, e.g. statins for patients who have increased cardiovascular risk and for patients after a cardiovascular event to prevent further episodes respectively
- Offer of or advice on screening tests
- Giving lifestyle advice such as smoking cessation advice, advice on harmful drinking
- Referrals for lifestyle interventions such as dietician or exercise schemes

Patient related outcome measures include:

- Uptake of health promotion or disease prevention activities such as immunisations and screening
- Changes in lifestyle or health behaviours

Method

Following the pilot search, the search strategy was revised to conduct an overview of systematic reviews but the aims and objectives of the literature review remained the same. The sources for of review included databases that specifically register systematic reviews. The Cochrane Library has a repository of systematic reviews; specifically, the Cochrane Effective Practice and

Organisation of Care Group (EPOC <u>www.epoc.cochrane.org</u>) has a library of over 100 reviews on various approaches to date (February 2017). Further searches for systematic reviews were done on Database of Abstracts of Reviews of Effects (DARE) produced by the Centre for Reviews and Dissemination (CRD) at the University of York (<u>www.crd.york.ac.uk</u>). The date of the original searches was between February and April 2011 but there were no systematic reviews of new interventions published by February 2017 (at the time of thesis revision) other than an update to two systematic reviews which are included in the overview.

Search terms used to find systematic reviews included: professional practice, healthcare outcomes and patient outcomes in the title, abstract or as keywords. The following criteria were applied for my search of systematic reviews:

- Primary care doctors included as subjects of intervention
- Primary care included as a setting
- Process measures that suggest HPDP activity, e.g. vaccinations are given, smoking cessation advice, diet advice
- Interventions directed at doctors with patient related outcome measures including use of health care services such as uptake of screening and vaccinations, and health improvement
- Studies from high-income countries

The following were used as exclusion criteria:

- Reviews that did not include primary care physicians or primary care settings
- Reviews that *only* included interventions at the primary care organisation or higher levels of the health systems as changing only the culture of an organisation might not necessarily change the behaviour of individuals within it.
- Outcome measures with no clear relationships to HPDP e.g. general clinical management, medicines prescribing and test ordering
- Reviews that included only middle and low-income countries as settings

Method for synthesis

I used a process of "narrative synthesis" for the review. This is a way to assess complex interventions where there are wide range of interventions, where the study data or designs might be heterogeneous, or where the outcome data are not suitable for meta-analysis. (81) The "narrative" element refers to the use of words and text primarily to summarise and explain the review and synthesis of findings; whilst it can involve the use of statistical data, the characteristic of this approach is the use of text in the process of synthesis to "tell the story".

A methodological review of systematic reviews reported some narrative synthesis of quantitative data in public health reviews were "inadequate". The problems included poor description of methods, lack of reference to guidance, and inadequate links between data and narrative summary; these issues threaten the credibility of systematic reviews.(82) As a result, some guidance have been produced by Cochrane Collaboration which is based on original guidance by the ESRC (Economic and Social Research Council) Methods Programme to make the process of synthesis and reporting more transparent and robust.(81, 83)

Narrative synthesis has various stages aimed to be transparent, rigorous, and robust. This process includes:

- Considering theoretical bases of how interventions might work.
- Summarising studies, noting any heterogeneity in designs, similarities, or differences in the findings, and grouping them by interventions
- Exploring relationships within and between studies to explain reasons for differences in outcomes.
- Assessing robustness

The guidance suggest that the process is not necessarily linear so the above steps can be in any order.

I first grouped the systematic reviews according to the mode of behaviour intervention, with the underlying assumption that there might be a common theoretical basis for each group. For example, I grouped systematic reviews based on educational methods together and another group based on financial incentives, assuming there might be educational and economic theories respectively to explain the outcome effects. This preliminary step enabled me to consider the similarities and differences in the interventions and outcomes.

I then considered the relationships between systematic reviews in groups, and how they might explain the outcomes and their magnitudes, noting particularly the variability in underlying theoretical bases, settings, populations. and outcome measures. At this stage of the process, I extracted the data that were relevant for the review question that is interventions that modify behaviour of general practitioners to deliver public health programmes.

To assess the robustness of the synthesis, I used a validated instrument to assess the quality of each systematic review: Assessment of Multiple Systematic Reviews (AMSTAR); this is explained in more detail in the next section under *Quality Appraisal*. The use of AMSTAR as a quality assessment tool enabled me to minimise bias in interpreting the review findings, and ensured studies that were of similar quality were given equal weight.

Finally, I explored the use of theory in the behaviour interventions. This step enabled me to consider how an intervention might work and why. Theory building is often neglected in systematic reviews; Shadish observed that systematic reviews focussed too much on descriptive causation (describing the size of an effect) and little on development of explanatory theories; and yet, systematic reviews are powerful than single studies to build and test theories.(84) For example, interventions based on different behaviour theories might have different effects; some interventions might use more than one theoretical approach and some studies compared multi-faceted approaches with single interventions; they help to offer explanations to understand what works and why, and inform future studies.

The findings from the synthesis addressed overall completeness and applicability of evidence to address the study question, referring to the quality of evidence and potential biases in the review process. I presented the findings from the review in a narrative format but this was not intended to be a "narrative review". Cook et al described the differences between a narrative literature review and systematic literature review; the latter tends to have a specific question, comprehensive sources with set criteria applied to the selection,

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followed by a rigorous critical evaluation, and quantitative synthesis is often presented. In contrast, they described narrative reviews are often: broader in scope, the sources of literature and selection might not be as systematic, there is often no set method for appraising the literature, and so findings might be less objective and prone to bias.(85)

Quality appraisal

Systematic reviews are usually assessed against a set of criteria for methodological quality to make overviews more systematic and robust. I used a validated instrument to assess the quality of each systematic review: Assessment of Multiple Systematic Reviews (AMSTAR); the instrument is an 11-item questionnaire which reviewers answer: yes, no, can't answer or not applicable (Table 1); it has good face value and content validity for measuring the quality of systematic reviews.(86) An overall score relating to review quality can be calculated but AMSTAR was originally developed without guidance on how to interpret the scores to rate the quality of systematic reviews.(87, 88) It was also designed to assume each item is of equal weighting; there is also no guidance on how to interpret a total score if an item is considered to be "not stated" or "not applicable". Scoring systems can also be problematic in assessing the quality of systematic reviews because in some instances, lower quality scores do not always correlate with treatment effects in clinical trials.(89) In this thesis, I applied the AMSTAR scoring system to measure the *relative* strength of the reported effects and conclusions from each systematic review, noting the items that were not scored and their reasons, rather than using the score to judge individual reviews.

Data extraction and synthesis

I extracted information from each systematic review that was relevant to the research question using a table with the following headings (Appendix D):

- Type of behaviour intervention
- Theoretical basis for intervention
- Types of studies included e.g. randomised controlled trials (RCTs), interrupted time series (ITS)
- Types of participants, e.g. hospital/secondary care physicians, GPs/primary care physicians

- Settings including countries and health services settings, e.g. primary care facilities, general practices
- Process measures (e.g. changes in doctors' behaviours)
- Patient outcomes (e.g. uptake of screening, immunisations)

I assessed each review to see if it identified a theoretical basis to explain the behaviour intervention. I summarised the magnitude of effect for each intervention on physicians' behaviour and patient outcomes. It was not possible to combine measures into a meta-analysis due to the heterogeneity of behaviours and outcomes that were studied.

The findings from this systematic overview of systematic reviews are described in Chapter 4 and a summary table is presented in Appendix D. Table 1 The 11-item AMSTAR tool to assess methodological quality of systematic reviews - adapted from Shea et al, BMC Med Res Methodol 2007; 7: 10

1. Was an 'a priori' design	The research question and inclusion criteria are clearly established before conducting review.
provided?	
2. Was there duplicate study	At least two independent extractors and a procedure in place to get consensus.
selection and data extraction?	
3. Was the literature search	There should be at least two electronic sources including years and databases used which may include
comprehensive?	supplementary sources such as reviews, textbooks, specialised registers, consulting experts and the field
	and reviewing references in the studies found. Searches should state keywords and/or MESH terms.
4. Was the status of publication	Authors should state they searched for reports regardless of publication type and if they have been
(i.e. grey literature) included?	excluded.
5. Was the list of studies	There should be a list of both included and excluded studies.
provided?	
6. Were characteristics of	This should be presented in aggregate form such as a table which should include data from the original
included studies provided?	studies such as: participants, interventions, outcomes.
7. Was the scientific quality of	An 'a priori' method of assessment should be provided. This might be inclusion of only randomised, double-
included studies assessed and	blind placebo-controlled trials with allocation concealment.
documented?	

8. Was scientific quality of included	Methodological rigour and scientific quality should be considered in the analysis and conclusions.
studies used appropriately in formulating	
conclusions?	
9. Were the methods used to combine	Pooled results, some assessment should be done to assess their homogeneity (Chi-squared test for
findings of studies appropriate?	homogeneity). Otherwise, a random effects model should be used if heterogeneity exists. Does it
	also make clinical sense to combine the data?
10. Was there assessment of publication	Should include a combination of graphical aids, e.g. funnel plot and/or statistical tests such as Egger
bias?	regression test.
11. Was conflict of interest stated?	Potential sources of support should be clearly acknowledged in the review and the included studies.

Objective 2:

Explore the reasons why general practitioners responded to behaviour change interventions to deliver public health programmes such as chlamydia screening.

Methodology

Systematic reviews might provide answers to possible associations between input (behaviour intervention) and output (evidence of healthcare professional behaviour change and patient outcomes), but they do not establish the process through which the input has led to the output, why one leads to the other. In other words, we need to have insight into the "black box" and a qualitative design is one way of doing so.(90, 91) This section describes the design and methods used to explore the reasons why healthcare professionals delivered public health programmes, whether behavioural interventions influenced them to do so, and if some of the underlying reasons could be explained by a behaviour theory such as TPB.

"Inputs" to change behaviour, such as the different methods of behaviour intervention, might not necessarily lead to expected "outputs" which are the desired outcomes for each intervention. Discrepancies between expected and actual outcomes due to the intervention being studied are not unusual in experimental studies. Quantitative methods such as regression analysis can be used to understand which groups of subjects are more likely to have certain outcomes. However, not all explanatory variables can be measured and other methods need to be considered to make sense of the phenomena. Human beings make sense of the world in their own way which might be complex and unpredictable. Therefore, methods used in natural sciences such as experimental studies using quantitative methods are unlikely to be useful to understand this. Questions such as: "What is going on here?", "Why do some people not respond to behaviour interventions?", and "What levers influence behaviour?", are not easily answered through quantitative methods because there are no effects being investigated or measured, and because they are processes that can only be explored using qualitative methods.(91) I therefore used an interpretative approach and qualitative methodology to explain the phenomenon of the "black box".

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Method

I approached this study question through conducting face-to-face interviews to explore the underlying reasons for primary care clinicians to deliver health promotion and disease prevention programmes. Through thematic analysis of interview data, I used TPB as a conceptual framework to explain behaviour intentions of primary care professionals in public health practice. As mentioned in Chapter 1, I have included practice nurses in the interviews because they work alongside GPs, they deliver the majority of health promotion programmes as part of their job description, and they might face similar challenges as GPs in terms of patient demands, expectations, and time pressures. The inclusion in the study might offer insights into the similarities and differences between these two professional groups in primary care.

To give some context to the study and aid recruiting participants for interviews, I used the National Chlamydia Screening Programme (NCSP) which was introduced in general practice 10 years ago. Primary care trusts (PCTs) used a range of approaches to encourage screening from general practice such as educational outreach visits and financial incentives. It therefore gave me the opportunity to examine different types of approaches used by PCTs in London, how they affected the clinicians, and how they related to the evidence from the systematic reviews.

I used these PCTs to select practices with different screening performances to sample of GPs and nurses to interview. I showed participants the chlamydia screening data for their PCT and practice to frame some of the discussion at the interview, if they thought the trends in screening rates reflected the impact of any behavioural interventions. For example – what could have explained a surge in their practices' chlamydia screening; or why they thought there were no significant changes despite an incentive given for screening. The use of chlamydia screening to start the interview also gave me the opportunity to discuss other public health programmes using a semi-structured interview. The design and methods for these are described below, starting with identifying PCTs and their local implementation strategies for chlamydia screening.

Choosing PCTs

The populations of London PCTs were grouped according to Office for National Statistics (ONS) 2001 Area Classification for Health Areas into "Super Groups", "Groups" and "Sub Groups". Area classifications have been used since the 2001 Census across the UK to identify areas of the country with similar characteristics using data based variables that include socioeconomic and demographic data from each census.(92) Using the ONS grouping, I selected PCTs in London with similar characteristics to minimise the effects of confounders such as socioeconomic and demographic variables which might affect chlamydia screening activity. I was not able to closely match practices in one PCT with others in terms of profiles such as the demographics, patient, and staff composition as these characteristics differed even for practices of similar list sizes within same PCT areas. For example, it was difficult to match a medium sized training practice in Lambeth with a practice with similar characteristics in Tower Hamlets.

I chose ONS groups that contained PCTs that were within Central London and geographically adjacent to one another such as: Lambeth, Southwark, and Lewisham in South London; City and Hackney, Camden, Islington, Haringey and Tower Hamlets in North East London. This was a pragmatic decision for me to travel easily to GP practices in these areas for interviews. Within Central London, PCTs in ONS group 4.6 include City & Hackney, Haringey, Lambeth, Southwark, and Lewisham; PCTs in group 3.5 include Hammersmith & Fulham, Camden, Islington, Kensington & Chelsea, Westminster, Wandsworth and Tower Hamlets.

The distribution of chlamydia diagnosis rates and coverage data of the chosen PCTs are shown in

Figure 7 and Figure 8 respectively. I selected PCTs with a different range of chlamydia diagnosis rates and screening coverage. Most central London PCTs appeared to have a relatively high diagnosis rate per 100,000 population aged 15-24 compared with those in outer parts of London. However, the *coverage* of screening varied among central London PCTs.

To explore the different behaviour modification strategies used to implement chlamydia screening in general practice in the PCTs, I requested information on local commissioning arrangements used in these PCTs such as "local enhanced service" (LES) contracts. I submitted requests regarding implementation strategies to the Health Protection Agency (HPA) which managed the NCSP at that time. Local sources were also sought such as sexual health commissioners from each of the PCTs as well as local chlamydia screening co-ordinators. I contacted local directors of public health who had overall strategic responsibilities on public health programmes.

Some PCTs used implementation strategies that were similar to behaviour interventions studied in the systematic reviews such as financial incentives and educational outreach. The description of such strategies helped to understand the contractual levers and context in which GPs were delivering chlamydia screening. A description of the screening strategies and how they related to evidence on behavioural modification interventions were summarised. The contracts and implementation strategies are detailed in Chapter 5.

The HPA, later replaced by Health Protection England (HPE), had been collecting detailed data on chlamydia screening from each of their programme areas on a quarterly basis since the beginning of the NCSP. The data included demographics and sexual behaviour of the target population, the types of venues in which screening took place, and the number of chlamydia screens submitted from each venue, as well as results of chlamydia screens. I obtained quarterly screening data for every GP practice in all the London PCTs from 2004 to the end of 2010 directly from the NCSP to describe the trends in the absolute numbers of chlamydia screens from general practices, and to extract the screening data for the selected PCTs. As PCTs had already implemented the chlamydia screening programme in various settings since its launch, it was

not possible to design a prospective trial to investigate their effect on chlamydia screening from general practices.

Figure 7 Chlamydia diagnosis rates in selected PCTs



(Source: National Chlamydia Screening Programme slide set Jan-Dec 2013)

Figure 8 Chlamydia coverage % of population aged 15-24 tested for chlamydia in London PCTs



(Source: National Chlamydia Screening Programme slide set Jan-Dec 2013)

The NCSP was only able to provide absolute numbers of screens from each GP practice. It did not have information on the proportion of target population of young people screened. This information would have been available from local chlamydia screening co-ordinator and offices, some of whom regularly produced "league tables" of chlamydia screening rates from practices in their area. Due to structural changes in* the NHS around the time of data collection, some of the personnel were no longer available. I therefore manually calculated the proportion of young people screened per year by using the absolute numbers of chlamydia screens from NCSP as numerator and population of the target group based on 2010 GP registration data as the denominator. Population estimates for practices in the years 2010 and earlier were not publicly available from Health and Social Care Information Centre (HSCIC). The chlamydia screening uptake as a percentage of 15-24 year olds in each practice was calculated for each year using the number of chlamydia screens under the NCSP per practice that year as the numerator and the number of patients between 15-24 year olds per practice in 2010 as the denominator.

I used chlamydia screening data to describe the trends in screening volumes and rates. The data were not intended to be used for robust statistical analysis because I was not studying the effect of different behaviour interventions on chlamydia screening volumes and rates. The intention was to use the data to classify levels of chlamydia screening in different practices from which to select interview participants, e.g. from practices that had high levels of screening to low levels of screening.

A descriptive analysis of the trends in chlamydia screening was presented as aggregate data for all London PCTs as well as the PCTs selected for analysis. These are presented in Chapter 5 and provided the context for the interview studies that followed.

Method - semi-structured interview

I used face-to-face, semi-structured interviews with individual GPs and PNs as the qualitative method of choice. I used a topic guide which enabled me to systematically consider the different behaviour interventions and participants' experience of some public health programmes such as chlamydia screening. I asked if the use of various behaviour change interventions influenced them in any way, and if there were other factors that influenced their behaviour. These prompts, though structured, were not meant to be rigid, and helped to generate further discussions on issues that participants considered more important. The nature of semi-structured interview meant I was free to explore some issues in more depth, thereby enriching the data. As PNs deliver much of public health programmes in general practice, their inclusion enabled me to compare different professional perspectives on motivations to deliver interventions and attitudes to public health programmes.

I chose to conduct individual interviews rather than group interviews or focus groups. The latter can be an efficient way of getting many participants' views in a relatively short period; the interaction among members can also be helpful to generate discussions and enrich the data. However, there were logistical difficulties in getting enough GPs out of their schedules for an hour or two for group discussions. There would be limited time during focus group discussions for more detailed accounts from individuals. The group dynamics might also prevent some participants from divulging more personal accounts, especially if they felt their opinion could be considered controversial.

Direct observation is an ethnographic approach where a researcher engages in the day-to-day life of research participants or settings. It would be possible to observe consultations between a GP or PN with patients, with a focus on how HPDP programmes are delivered in these interactions such as smoking cessation advice, screening, and vaccinations. Although this approach offers detailed and comprehensive observations, it is time intensive as the period of observation could be up to six months, not every consultation might be about HPDP, and it might also be at the expense of the limited number of subjects and settings that could be studied.(93)

For the clinician being observed, an ethnographic approach might feel intimidating to have another person watching and possibly judging their behaviour in a consultation; they might do things differently for fear of being judged. There is a risk of "Hawthorne" effect and bias if they behaved in a way they thought might be desirable by others, therefore portraying behaviour that is less natural to them and making the observations less valid. Furthermore, because the observations might include consultations with patients, it would add another dimension of logistical difficulties such as ethics approval and requirement of patient consent for an observer during the consultation. However, assuming there were no barriers to this method, ethnography would be most enlightening because it would offer insight into the "real world" of what the clinicians actually do, and the behaviours that are directly observable and objectively recorded.

A questionnaire could be used as an alternative to semi-structured interviews to study other possible determinants of behaviour. A large sample size distributed across different demographics of healthcare professionals in different areas might make the results representative and statistical analysis could add robustness and accuracy to findings. However, questionnaires are often limited by closed questions, the number of questions that could be asked and the amount of time the participants have to answer them. It is also difficult in questionnaire surveys to get an adequate response rate that is representative of the population being studied. The defined set of questions also means there is little opportunity for interaction and for a deeper understanding of phenomena and opinions. The "black box" thus remains a mystery.

I invited GPs/PNs for a face-to-face interview lasting about an hour. The interviews took place at their practice or another mutually convenient and quiet venue for voice recordings. I explained the purpose of the interview using an information sheet and asked them to sign a consent form once they agreed. I anonymised the participants and labelled them according to a key, e.g. "Haringey GP1". Only I hold the key in a spreadsheet. This was clearly stated on the study information and consent form given to all the participants (Appendix B).

The topic guide (Appendix B) was drawn from the constructs of TPB and the overview of systematic reviews on behaviour change interventions to cover theoretical basis for behaviour change and the evidence for some behavioural change interventions. The questions I asked covered GPs/PNs' attitudes and motivation to deliver public health programmes and what components of the chlamydia screening implementation strategy they thought they responded to. The topic guide was meant to be iterative; in other words, the topics changed slightly depending on the themes that emerged from interviews. For example, it emerged that use of league tables was a motivator and generated much discussion so this was included in the topic guide for subsequent interviews.

Some questions could have been interpreted as challenging practitioners' attitudes, behaviour, and practice. I used interview techniques that focussed on helping the practitioner reflect on their public health practice and began the interviews with non-threatening ways to introduce the topic. These included open discussions about public health and prevention, examples using established everyday practice such as influenza immunisation, and then newer initiatives such as NHS cardiovascular checks and sexual health screening were also discussed. I was also able to use information from observations in the practice to prompt some discussions, e.g. "I noticed you have posters for chlamydia screening/flu/health checks in the waiting room, can you tell me more about that?".

I showed participants their practices' trends in chlamydia screening data compared with other GPs in the same and other PCTs. This was done partly to

present them with the best objective evidence available regarding their practice's screening behaviour and as a prompt for them to reflect and explain the observations. This was one way of overcoming bias of reporting behaviour intentions rather than explaining actual behaviour. This process could also be a way of validating quantitative findings by checking if GPs "exposed" to interventions changed their behaviour.

I was interested in exploring issues facing "jobbing" GPs and nurses; this included: pressure to deliver many services, not enough time, tension between expectations from the patient and the practice's perspectives, frustration about not meeting targets, and other bureaucratic problems facing general practices. Occasionally I shared some of the same frustrations and this helped me to build rapport and show empathy with some of the participants, to demonstrate I was a peer and that they could confide in me and feel comfortable with answering some challenging questions. The role of the interviewer as an "expert peer" and "judge" has been recognised as an important factor in qualitative studies.(94)

I used similar consultation skills as a GP and peer educator to establish rapport; I asked open questions and with an enquiring tone; I used a non-judgemental and non-threatening approach to help the participant reflect on their practice rather than make a judgement on how or what they were doing; at times, I was willing to share my own experiences and ignorance on some matters. I had hoped by sharing and expressing similar concerns and frustrations I would demonstrate some empathy with some of the participants and make them feel more comfortable with divulging some opinions as a peer. However, I was also aware that I needed to probe further to understand what was going on and not make any assumptions.

The interviews were recorded digitally with handwritten notes for back up. I used a commercial transcription service for the sake of expediency. I validated transcripts with original audio recording to check for accuracy. The verbatim transcripts were used for content coding. I was reading and coding transcripts throughout the period of the "field work", and I was able to modify the interview schedule for subsequent interviews. The transcripts were also sent back to the participants for comments as part of the process of validation or "member checking". I received replies from nine out of 21 participants; all were happy

with the transcripts but one felt uncomfortable about a discussion regarding their friend's ill health in print so wanted that to be removed and I did so at their request.

Analysis using Framework approach

I used the Framework approach to analyse the interview data. This approach was developed by Richie and Spencer in the 1980s specifically for applied policy research and uses both a case and theme-based approach to analyse data.(95) As noted by Pope and Mays, although the Framework approach is based on the original accounts and observation of the interviewed subjects, it starts deductively from the aims and objectives already set for the study. (96) The topic guide under the Framework approach is usually more structured than other qualitative approaches. In my case, the interview questions were designed to understand the practitioners' opinions and experiences of different behavioural interventions, their views of various public health programmes, and the barriers and facilitators for delivering them, which might correspond to some of the constructs of TPB.

There are usually five stages in the transcription process: familiarisation, identifying a thematic framework, indexing (or coding), charting, mapping, and interpretation. Unlike other qualitative approaches to analysing interview data, the Framework approach tends to be more explicit and informed by *a priori* reasoning.(95) The advantages of the Framework approach are that it is systematic, comprehensive, and transparent. However it can be labour intensive and there is a risk that too much is focussed on the process at the expense of outcome.(97)

I used three opportunities to familiarise myself with the data, identify a thematic framework and index the codes. Firstly, I annotated interview notes with themes that emerged after every interview; these were modified in an iterative process as I interviewed more participants. I checked the transcripts returned from commercial transcription services and used this opportunity to refine the themes and categories from the first attempt. Finally, I re-read all the transcripts and compared them with the themes that emerged already until no new concepts or themes emerged. This process is similar to that described by Fielding but

without the use of filing cards but instead, involved the use of electronic "tagging".(98)

I used a process of thematic content analysis to categorise participants' accounts into recurrent or common "themes". In their work on Grounded Theory, Glaser and Strauss used "coding" as an essential process for the analysis of qualitative data.(99) The process of "coding" (or "indexing") refers to: summarising or annotating the transcripts, relating sections of data to categories or themes that are developed during the analysis, identify common themes and collect examples of themes together. These categories are compared with the data again ("constant comparison") until no new categories or themes are produced or until "saturation" point. The codes can be chosen to represent the theory and the data coded to fit the categories, a process termed "coding down"; and the converse "coding up". (98) The Framework method, unlike Grounded Theory, is not primarily used to generate theory but it can facilitate "constant comparison" by allowing comparison of data by reviewing them across the matrix – by case and by theme or category. In the Framework approach, once the specific research question has been addressed, the analysis is usually ended so the theoretical saturation point is not necessarily reached with the data obtained like it is with Grounded Theory.

Another difference with the Framework approach is that, depending on the research question, the analysis can take either the inductive or deductive approach.(97) A deductive approach can be used if the analysis is based on an *a priori* theory; an example from literature is the use of TPB as a theoretical concept and framework to analyse the interview data, to explain GPs' implementation of prescribing guidelines.(100) It is not unusual to combine both deductive and inductive approaches and this was the approach taken for this study which aimed to understand if behaviour interventions changed clinicians' behaviour and whether there were any other explanations for their motivations.(97) Thus, the use of an *a priori* conceptual framework was not set entirely at the beginning. TPB and behavioural interventions mentioned in the overview of systematic reviews (Chapter 4) provided some conceptual framework to organise the themes that emerged from the data. However, following the mixed inductive/deductive approach, my analytical framework needed to be flexible enough to accommodate themes emerging from the data

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that did not fit neatly into these schemes. I have included a coding list and an example of coding (using a theme of competitiveness) in Appendix G and Framework matrix in Appendix H (as a CD ROM).

I used *NVivo 10 for Windows* (© QSR International Pty Ltd 2014) to organise data, create summaries and matrix displays of interview data. The analysis took place throughout the data collection period (between April 2014 and June 2014); this enabled me to check and interpret the data as I went along, to develop tentative conclusions based on the data already collected, and to hypothesise for subsequent interviews. This process also helped me to look particularly for "deviant" or negative cases, and views that were contrary to emerging conclusions and hypotheses. For example, there were negative views that emerged about influenza vaccination programmes during the interviews, and there were views that some screening programmes might be harmful. It is common practice to analyse throughout the data collection period; continuous analysis "in the field" is "almost inevitable" according to Pope and Mays, as the researcher cannot help but start thinking about what is being heard and seen.(96)

Ethics and Research Governance

Ethics approval for the interviews was sought and received through LSHTM and local NHS research ethics committees as it involves interviews with human subjects in different PCT clusters. The study gained approval from local Research and Development consortia. The research governance paperwork is included in Appendix A.

In the ethics application that I submitted, (Appendix A) the research was referred to as a "case study". This needs to be clarified as my intention was not to conduct a "case study" which is a distinctive research design and methodological approach as described by Yin.(101) Case studies are used to study a phenomenon within a context and is commonly used in organisational studies.(102) While it is true I was studying the behaviour of primary care professionals in delivering public health programmes, using the NCSP as an interesting *case to study*, it is not intended to be a "case study" *per se*. For the avoidance of doubt, I have therefore clarified this in the finalised title of the thesis to say that NCSP is used as an "*example*".

Method for recruitment

The chlamydia screening data were used to identify "high" and "low" screening practices from where I invited GPs and PNs for an interview. "High" screeners screened more than 10% of their target 15-24-year-old population; "medium" between 3.0% and 10.0%; and "low" screeners were below 3.0%. This classification was consistent with two studies on chlamydia screening in general practice by Freeman et al and McNulty et al. (39, 103) Another study used different cut-off points using a centile chart; to apply the same method to this study would have meant calculating screening uptake for all the practices in London to divide them into centiles but I did not have the resources or time to do so.(32)

To obtain diverse views, I conducted purposive sampling, and selected practices from either end of the screening uptake – the "highest" and "lowest" screeners – I assumed that staff from high testing practices viewed chlamydia screening positively and vice versa. For "high screening" practices the person who screened the most or had the most influence over their peers (screening "enthusiast" or "champion") was identified and invited for an interview, this was not necessarily the GP and included PNs. As this study is primarily about understanding GPs' behaviour, most of the sample was GPs; I included nurses to explore different perspectives on professionalism and attitudes to public health interventions. For "medium" or "low" screening practices, any willing GP or PN was invited for an interview.

Using a purposive sampling approach, my original plan was to select at least two or three GPs/PNs from each of the "high" and "medium"/ "low" screening practices from each PCT so that there would be a range of practitioners of different ages, gender, large and small practices to interview. With eight different permutations and two or three GPs or PNs from each, the total sample would therefore range from 16 to 24 GPs/PNs (Table 2).

PCT A which used a	GP/PN from a "high" screening practice	GP/PN1
financial approach	GP/PN from a "low" screening practice	GP/PN2
	GP/PN from a "high" screening practice	GP/PN3

Table 2 Sampling of GPs and practices for interview

PCT B in same ONS	GP/PN from a "low" screening practice	GP/PN4
group as PCT A		
PCT C which used a	GP/PN from a "high" screening practice	GP/PN5
social approach e.g.	GP/PN from a "low" screening practice	GP/PN6
opinion leader		
PCT D in same ONS	GP/PN from a "high" screening practice	GP/PN7
group as PCT C	GP/PN from a "low" screening practice	GP/PN8

GPs and PNs were recruited in the following ways: email via generic practice address or their practice manager (I obtained details from the practices' websites)'; emails via local research networks; targeting practices where I had contacts; and using *Twitter* with hashtags for different PCT areas. I also framed the invitation to take part in the study as an opportunity to learn and reflect on one's own public health practice; for some this might have been an opportunity to add to their appraisal portfolio, to attract those who were motivated by educational activities.

I used "research support costs" available in some areas to help me recruit participants. In North Central London, this was used to reimburse GPs and nurses for their time (£70 and £25 respectively) with participating in the interview. The reimbursements were pre-determined by the research consortium and the differences between professional groups might reflect the hourly locum rate at that time. South London research network had a different interpretation of support costs so there were no reimbursements but those from Lambeth were supported for their participation in their local clinical research network. The financial reimbursement for those in North London was made clear in the body of the email to incentivise participation.

Summary of Chapter

In this chapter, I set out the objectives for the thesis and outlined the individual studies that were conducted to meet them. I justified why a systematic overview of systematic reviews was an efficient way to summarise the available evidence on the different approaches to change the behaviour of general practitioners to deliver HPDP in general practice for policy and practice. The review also extracted the theoretical bases of the behaviour change interventions to

examine the range of behaviour theories that underpinned them. A systematic overview is more robust than a narrative review to search and appraise the evidence available.

A qualitative study was the most appropriate design to understand why the behaviour interventions directed at healthcare professionals might or might not work, in the context of delivering public health programmes. Given that some of the processes (behavioural interventions) might not adequately explain the outcomes (behaviour change and other patient-level measures), it was necessary to understand the "black box" and this can only be done using a qualitative design.

NCSP was one of the newest public health programmes that were implemented in England and included general practice as a venue for delivery, so it provided a convenient context to study the behaviour of primary healthcare professionals in response to implementation of a screening programme, particularly as PCTs used different methods to encourage screening from general practices. A selection of PCTs that used a range of approaches was used to examine chlamydia screening from GPs.

The next three chapters will report the findings from the overview of systematic reviews, descriptive and qualitative studies.

Chapter 4 – What interventions influence the behaviour of general practitioners to deliver public health programmes? An Overview of Systematic Reviews

Introduction

In Chapter 1, I mentioned my motivation for this thesis was to find out what interventions are effective to modify GPs' behaviour to deliver health promotion and disease prevention (HPDP) programmes. I suggested in Chapter 2, that some behaviour change theories could be used to explain and predict the behaviour of health care professionals. In this chapter, I examined the literature on interventions aimed to modify the behaviour of GPs to deliver HPDP programmes to meet the first objective of the thesis which is to: assess the effectiveness of interventions that modify behaviour of GPs and their impact on patient outcomes that relate to HPDP.

The method used for the literature search, process of "narrative synthesis", quality appraisal and extraction of data were described in Chapter 3. I summarised systematic reviews outlining the types of behaviour change interventions, the settings, subjects, and outcome measures that are relevant to the objectives of the thesis. I also included details of data extracted from the synthesis of the systematic reviews that relate to underlying theoretical bases, behaviour modification of GPs to deliver public health interventions, and the methodological quality of the systematic reviews assessed using AMSTAR criteria.(87) The method used for the literature search, quality appraisal and extraction of data were described in Chapter 3.

Identification of systematic reviews included in this overview

I repeated the searches for the revised thesis (February 2017). Searches using Cochrane Effective Practice and Organisation of Care (EPOC) and DARE databases returned 85 and 136 systematic reviews respectively, on specific types of interventions that targeted health care professionals to change professional practice and healthcare outcomes. I did not identify other reviews through reference lists or contacting authors. Out of the 210 that were screened, I removed a total of 191 from both databases that did not meet the inclusion criteria. I also removed a further seven after a full-text review as they were: earlier versions of included reviews, an overview of included reviews, and Page **68** of **295** a (DARE) review that examined the same papers as two separate Cochrane reviews on the same topic. I identified 12 unique reviews that fit the inclusion criteria of behaviour of primary care professionals with patient outcomes in highincome countries; Figure 9 presents a flowchart of how the reviews were selected.



Figure 9 PRISMA flow chart of included and excluded reviews

Summary effectiveness of interventions to modify behaviour of general practitioners to deliver health promotion and disease prevention

Twelve systematic reviews were included in this overview, each reported on a type of behaviour change intervention to modify the behaviour of physicians. I grouped them into five broad categories based on the method of the intervention: computer-based decision support, education-only approaches, social influences with education, mass communication methods and financial approaches. The details of all included reviews are summarised in Table 3.

Computer-based decision support

Two Cochrane systematic reviews reported interventions using computer-based decision support systems to remind clinicians to deliver care; one examined onscreen, point-of-care reminders; (104) the other computer-generated reminders delivered on paper.(105) Neither of these reviews were explicit in use of behaviour theory but instead mentioned that "reminder systems", which according to US National Library of Medicine (www.ncbi.nlm.nih.gov/pubmed), are "approaches, techniques or procedures 'used to prompt or aid the memory' of healthcare professionals". The absence of a theoretical basis in the systematic reviews, however, does not mean it was not explicit in the primary studies.

Computer-based decision support- On-screen, point-of-care computer reminders

On-screen point-of-care computer reminders can potentially prompt clinicians to deliver many clinical tasks at the point of care. These reminders are embedded into the computer software of electronic medical records, and alert the clinician to action targeted clinical task at the time. The systematic review of on-screen point-of-care computer reminders included 28 randomised controlled or quasi-randomised trials that reported on 32 comparisons.(104) The target professionals included GPs as well as hospital practitioners; settings included primary, community care and hospital settings. Disease prevention activities that were measured included prescription of recommended vaccines; I examined outcomes such as test ordering and adherence to guidelines if they related to HPDP activities, for example, ordering screening tests.

There were six studies that specifically looked at adherence to vaccinations, the median improvement was 3.8% (interquartile range [IQR] 0.5% to 6.6%). There were also eight comparisons that reported blood pressure and cholesterol targets with a median absolute improvement of 2.5% (IQR 1.3% to 4.2%); these outcomes are relevant for secondary prevention of cardiovascular diseases.

The methodological quality using the AMSTAR checklist was high (scoring 9 out of 11). The main limitations of the review were heterogeneity of the interventions and the degree to which they were reported this made comparisons among studies difficult; there was also no assessment of conflicts of interests. Although findings are highly relevant for public health practice in the UK general practice setting, the overall effect of on-screen reminders on professional practice and patient outcomes was small.

Computer-based decision support- Computer-generated reminders delivered on paper

Another type of computer reminder is one that is automatically generated through a computerised system, printed on paper, and given to the healthcare professional to prompt them to deliver certain tasks. These computer-generated paper-based reminders can be attached to paper-based medical records.(105)

There were 37 comparisons from 32 studies, and most took place in outpatient settings, which included primary care clinics. Out of the 32 studies, 29 studies were based in US, three were in Canada; no studies took place in the UK or Europe. HPDP related outcome measures included blood pressure measurements, faecal occult blood test (screening test for bowel cancer), influenza vaccination, mammography screening, and cervical cytology screening.

Using pooled data measuring process of care, computer-generated reminders had median improvement of 7.0% (IQR 3.9% to 16.4%); reminders alone improved care by 11.2% (IQR 6.5% to 19.6%) compared with usual care; for reminders with another intervention, the improvement was 4.0% (IQR 3.0% to 6.0%). The results were pooled, it was not possible to draw conclusions that were specifically related to health promotion and disease prevention. For patient-related outcome measures, the largest improvement and only study to
have sufficient power to detect meaningful change was seen in vaccination (median improvement 13.1%, IQR 12.2% to 20.7%).

There was good methodological rigour to this review (AMSTAR score 10 out of 11), failing only to report conflicts of interests for the included studies. Improvement in professional behaviour using computer reminders generated on paper was modest and although outcomes reported are relevant to public health, they have little relevance to UK general practice setting.

Education-only approach -Continuing Medical Education (CME)

Regulatory bodies such as General Medical Council expect doctors to have CME to improve knowledge and maintain clinical practice. Educational events can vary by participants, content, degree and type of interaction, length, and targeted practices. A Cochrane systematic review examined the effects of CME and workshops on professional practice and patient outcomes.(106) It examined the effects of educational meetings and workshops alone, the effect when compared with other interventions, and if there were any ways these meetings could be made more effective.

There were 24 trials that compared educational meetings alone to no interventions, and 80 trials which tested multi-faceted interventions that included educational interventions versus no interventions. The most commonly used cointerventions were any combination of reminders [5 trials], feedback [10] and educational outreach [12]. The settings included general practice, hospital settings and "community-based care" settings. The trials took place in countries across different continents including UK, a range of healthcare professionals were included, and general practice was the setting in 43 studies. Eleven trials considered preventative care which included smoking cessation, breastfeeding, exercise and a further six on screening behaviour (cancer and hypertension). The systematic review reported only 14 out of 81 studies (17%) were explicit in stating their intervention was based on a behaviour change theory, learning theory or diffusion of innovation theory.

There were six comparisons made between interventions that contained educational meetings or educational meetings on their own; only two studies of good enough quality reported patient-related outcomes that compared any intervention that contained CME with CME alone. They found an increase in Page **73** of **295** screening activities such as faecal occult blood testing for bowel cancer and cholesterol; there was a 12% increase in the first study and no difference in the latter.

The AMSTAR score was 10, failing on reporting a possible conflict of interest in the included studies. Although the review findings are relevant to this thesis, there appears to be insufficient evidence to suggest CME improves behaviour of primary care physicians to deliver HPDP.

Social influences with educational elements

There were four other systematic reviews that used social influence with educational elements in their delivery: audit and feedback, opinion leader, educational outreach, and tailored interventions. These are described separately below.

Social influences with educational elements - Audit and feedback

Healthcare providers might inherently want to improve practice but lack an accurate and reliable way to assess performance. Feedback and audit provide such mechanisms to help change awareness and clinical practice, as well as perceived social norms.

A systematic review of audit and feedback considered 140 eligible studies for the review.(107) There were 49 studies in which audit and feedback were the only intervention, while audit and feedback were considered the core, essential component of a multifaceted intervention in 91 studies. 80 trials were based in North America, 21 in UK or Ireland and others in Australasia. 121 trials targeted physicians and the most common clinical speciality was general or family practice which was a setting in 84 trials. The targeted behaviour included prescribing (39 trials), laboratory or radiology test utilisation (31) and others on the management of patients with cardiovascular disease or diabetes (34).

The review authors explained there could be theoretical reasons why some forms of audit and feedback were more effective than others. They also considered the use of theories specific to giving feedback such as *Feedback Intervention Theory* and *Control Theory of Carver and Scheier*, but only in the context of designing feedback.(108, 109) For dichotomous outcomes, there were 82 comparisons from 49 studies that were suitable for analysis; weighted mean adjusted risk difference (aRD) was 4.3% (IQR 0.5% to 16%) absolute increase in healthcare professionals' compliance with practice. For continuous outcomes, there were 26 comparisons from 21 studies; the weighted mean aRD relative to control was 1.3% (IQR 1.3% to 28.9%). For patient outcomes, median RD was -0.4% (IQR -1.3% to 1.6%) for dichotomous outcomes and median percentage change of 17% (IQR 1.5% to 17%) for continuous outcomes. For studies that considered HPDP activities in primary care such as breast cancer screening, preventative care and pneumococcal vaccination, there were no statistically significant differences in specific public health-related outcomes and professional practice. The effectiveness of audit and feedback seems to depend on baseline performance and how the feedback is provided.

The AMSTAR score was of 10 out of 11 as there was no assessment of publication bias. Audit and feedback appeared to have modest effects on improving professional practice but there were very few studies that reported improvements in public health practice relevant to UK primary care.

Social influences with educational elements - Local opinion leader

"Opinion Leaders" (OLs) are identified as influential and are at the centre of communication networks and use their interpersonal skills to achieve the desired behaviour change. This might be through individual or small group teaching, educational outreach visits and academic detailing. A Cochrane review of local opinion leaders suggested some theoretical explanations as to how this intervention might work.(110) According to the Social Learning Theory, "opinion leaders" are individuals thought to be "credible, likeable and trustworthy... are likely to be persuasive agents of behaviour change".(111) The degree to which this person exerts influence is not a function of the individual's formal position or status but it is "earned" and maintained by their technical competence, social accessibility and conformity to the system's norms.(112) From this description, local opinion leader strategy could include elements of social cognitive and education theories, with the addition of academic detailing as a process. Despite the theoretical background to the use of local opinion leaders, the systematic review did not mention whether these theories informed the design of the empirical studies.

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The review analysed 18 cluster randomised controlled trials (RCTs) of which 16 were based in North America, others in China (Hong Kong), Argentina and Uruguay; none in Europe or the UK. Only one trial evaluated interventions delivered in primary care practices; one study took place in both primary and secondary care; and the settings were not clear in two studies. Primary care physicians were included in seven trials but prevention activity was the focus of outcome in only one study which was a secondary prevention of coronary heart disease.

There was a variety of ways in which local OLs were identified: using a sociometric method in 14 trials, two trials used an informant method; one using both informant and sociometric methods; and in another it was self-designated. In all the trials, OLs delivered educational initiatives to members of their own healthcare profession.

Only one trial used OLs to influence primary care physicians to prescribe statin treatment for secondary prevention of heart disease for patients who had a cardiac procedure; adjusted risk difference was 0.10 and the effect was not significant. There were no other process measures involving primary care physicians with public health-related outcomes.

The AMSTAR score was 8 out of 11, as the review did not assess and report combined findings, publication bias or conflicts of interests. According to this review, there is insufficient evidence to suggest OLs influences behaviour of primary care physicians to deliver health improvements.

Social influences with educational elements - Educational Outreach Visits (EOVs)

EOV involves "academic detailing" or "marketing", which is a process that usually involves: an educational needs assessment; interviews to assess motivation for current practice and barriers to change; and a tailored programme of knowledge transfer and feedback on existing practice.

A Cochrane systematic review examined the range of studies that used EOVs: trials that compared EOVs with no interventions, trials that compared interventions in which EOVs were a component, and any comparison of different types of EOVs.(113) Sixty-nine trials were included in the review, 22 of which were based in the UK. Most of the studies (53 out of 69) used primary care teams (including physicians) as the target group. Potentially, EOVs might be supported by education or social cognitive theories but the review did not make it explicit which theory helped to inform the design of empirical studies.

Six trials with six comparisons that examined EOV as part of an intervention compared to no interventions reported patient outcomes; all except one had a low or moderate risk of bias. Three trials looked at public health outcomes – health promotion in the elderly, blood pressure and cholesterol targets, and colorectal cancer screening – but did not demonstrate significant differences.

Prescribing was the most frequently targeted behaviour, featured in 29 trials; a further 29 trials examined the general management of clinical problems in general practice (e.g. patients with increased cardiovascular risk) and 11 trials examined preventive services such as smoking cessation. Many interventions included feedback during a visit or mailed afterwards. In 30 trials, EOV was one component of a multi-faceted intervention that included different strategies directed at health care professionals; 12 trials were based on a social marketing framework.

The AMSTAR score was 9; the review did not report publication bias and the conflict of interests in the primary studies. The review findings are relevant to public health practice in UK primary care but there is insufficient evidence to suggest EOVs have any significant effect on professional practice. EOVs with or without the addition of another intervention can improve their practice but the effect is small to moderate.

Social influences with educational elements - Tailored interventions

A Cochrane review examined "tailored strategies" defined as "strategies to improve professional practice that are planned, taking account of prospectively identified barriers to change". (114)

There were 32 cluster RCTs included in the review, out of which 15 were eligible for meta-regression analysis. 12 trials were based in the USA and four in the UK; the rest were based in Canada, the rest of Europe, South Africa and Indonesia. Seventeen trials were based in primary care settings and primary care practitioners (including family physicians and GPs) were the targeted healthcare professionals in 14 studies. The targeted behaviours included prescribing in 12 trials and six targeted preventative care including secondary prevention of coronary heart disease and two targeted influenza vaccinations.

Only five studies reported the use of behavioural theory to guide the choice of strategies in response to identified barriers. They used a range of behavioural and non-behavioural theories: communication theory and behaviour change research, organisational change and learner centred teaching, TPB, and social cognitive theory. This review was one of the few that assessed the use of theory to inform the design of behaviour intervention in empirical studies. Some constructs of cognitive behaviour theories, such as HBM and TPB, specify perceived barriers to change that could impede behaviour intentions. If barriers to improve performance were identified, strategies could then be chosen and implemented to overcome them. There appear to be overlaps between this approach and Educational Outreach Visits that use academic detailing to identify barriers to change. Despite these methods, the amount of information presented varied among the studies and was insufficient in four studies to identify the barriers.

More than one method was used to identify barriers to change which included: interviews [10 studies], focus groups [10], questionnaire survey [6], review of literature [4], review of performance data [2], observation, meeting or workshop [2] and other methods [4]. The range of barriers which were identified included: professional factors [such as knowledge, motivation, perceptions of benefits and risks – identified in 25 studies], patient factors [8], incentives and resources [8], guideline factors [4], organisational capacity [9], professional interactions [3], and social/political/legal factors [2].

Tailored interventions to identify barriers are more likely to improve professional practice; the pooled odds ratio (OR) for all 15 studies was 1.56 (95% CI 1.27 to 1.93). Seven out of 15 studies compared tailored interventions with no interventions that were suitable for inclusion in a meta-regression; pooled OR was 1.36 (95% CI 0.92 to 1.99). Eight out of 15 studies that compared tailored interventions to non-tailored interventions were included in a meta-regression; pooled OR was 1.79 (95% CI 1.06 to 3.01).

One study reported a small effect of support tailored interventions to increase preventative services delivery and another reported significantly higher vaccination rates in the intervention arm. However, because the results were pooled, it was not possible to determine if there were any specific effects on patient outcomes that were relevant to health promotion and disease prevention.

The review scored 9 on the AMSTAR criteria, failing to report publication bias and conflicts of interests. Although the included studies were highly applicable to primary care physicians, the pooled analysis meant it was not possible to isolate the effect on HPDP interventions, so there is insufficient evidence to use tailored interventions to improve professional practice or patient outcomes.

Mass communication approaches - Printed Educational Materials (PEMs)

The distribution of published or printed recommendations for clinical care includes clinical practice guidelines, monographs, and publications in peerreviewed journals, delivered personally or through mass mailing. The Cochrane systematic review on PEMs suggested the implementation of PEMs could be derived from various theories on quality improvement and implementation of change in healthcare.(115) From the perspective of cognitive theories, PEMs consider healthcare professionals' decision making processes and learning styles to enable them to support decisions in practice. Educational and adult learning theories suggest change is driven by a desire to learn and be professionally competent, so PEMs could be linked to professionals' needs and motivation. Attitudinal and motivational theories suggest PEMs could address professionals' attitudes, beliefs, and perceived social norms. Professional development theories explain why PEMs could include professional standards for desired behaviour because professional loyalty, pride and consensus might lead to change. Social influence theories suggest content or message could be endorsed or reinforced by recognised leaders in their field.

The newer review by Giguere et al (115) examined PEMs compared with no intervention, and PEMs versus another single intervention and redefined concept of PEMs since the earlier review by Farmer et al.(116) Persuasive communication theory was used as a framework to assess effectiveness using

the domains of: source, message, channel, receiver and destination; however, only the first three were relevant for the systematic review.(117)

There was a range of sources of PEMs: researchers or clinicians: national professional experts and local expert bodies disseminated 24 PEMs, and 23 were delivered by publication in a peer-reviewed journal, and 19 through direct mailing. The delivered message was a broad range of clinical areas and three PEMs targeted prevention, two of which covered screening. In the 45 studies included in this review, 18 were from Europe (11 from the UK); 10 studies took place in general or family practice. Forty-two studies involved physicians, three were a mixture of physicians, nurses and pharmacists, psychologists, and allied health professionals.

PEMs were compared to no intervention in nine RCTs with 73 categorical outcomes; there was a median of 2% absolute improvement in groups that received PEMs. When used alone and compared to no intervention, PEMs produced a small improvement in professional outcomes. The results were pooled so it was not possible to separate the process or patient outcome measures that were relevant to HPDP.

The review did not assess publication bias and possible conflicts of interest of primary studies so methodological assessment score was nine using AMSTAR criteria. Overall, the effect of PEMs on public health related outcomes in UK general practice was inconclusive.

Mass communication approaches - Mass media interventions

A Cochrane systematic review examined the use of mass media to influence health service utilisation by professionals, patients or the public; it did not refer specifically to theoretical basis but provided a background to how and why the intervention might be used.(118) Health promotion can be done through "media advocacy": by working with media outlets, to communicate health information to the public, particularly in prevention, risk reduction, and drug information.

The review examined the use of media to influence health service utilisation by professionals, patients or the public. All campaigns relied on the use of a range of media – radio, television, newspapers, posters, and leaflets; electronic media such as the internet were not included. Nineteen studies included the public as

a target audience, nine studies also included healthcare professionals as targets but none specified whether primary or secondary care.

Most studies evaluated the campaigns by measuring health care utilisation; conditions featured in media campaigns included skin cancer awareness, HIV testing, measles mumps rubella vaccination, colorectal cancer screening, and cervical cancer screening. There were no physician-related process measures reported. Two studies examined immunisations uptake and found statistically significant change; the effect was less clear with cancer screening. Reanalysis of studies using time-series regression found statistically significant changes in levels in four studies, and significant change in slope in only one study. A mixed pattern was observed in two studies on HIV testing; only one of them had a statistically significant change in level on the number of HIV tests performed.

This review did not report publication bias and possible conflicts of interest of primary studies so scored 9 using AMSTAR criteria. The findings are relevant for UK general practice especially for uptake of immunisations and screening, but there was insufficient detail in the designs to ascertain if the media campaigns influenced the behaviour of clinicians or if they increased the uptake of screening and vaccinations from stimulating public demand.

Financial approaches

There were three Cochrane systematic reviews that examined the use of financial mechanisms to change behaviour: general financial incentives (119), mixed financial incentives (120) and use of target payment (121). Among these, only the systematic review of effect of financial incentives on the quality of care mentioned economic theories that underpinned incentives schemes.(119)

Economic incentives that aim to change behaviour are derived from the *Agency Theory*; where both the principal (payer) and agent (the provider of services) attempt to maximise each of their own utilities.(122) Payment systems to physicians acting as "agents" can be manipulated to achieve desired improved quality of care, cost containment and recruitment to under-served areas.(123) Payment systems commonly used to compensate physicians and healthcare providers include: target payment, capitation, fee for service (FFS) and salaried contracts.

Target payment systems reward health care professionals or organisations only if they provided a minimum quantity or level of care; for example a target payment of a fixed sum if a practice immunises at least 70% of their registered patients who are aged over 65 years for influenza.(121) This system can be "gamed" by altering the number of people who are eligible to be in the denominator in order to meet the target; the organisation can also decide not to offer any further care even though there are people eligible once the target has been met.

Capitation systems pay health care professionals or organisations a fixed amount of money per registered patient. This system might make them increase their patient list but does not necessarily encourage them to provide good access or high-quality care for everyone.(120) This system can also be "gamed" by delaying deduction of patients who are no longer registered, thereby "inflating" the list size.

Salaried system pays healthcare professionals an annual salary to work a set number of hours or sessions per defined time. Under both capitation and salaried systems, healthcare professionals know in advance the amount they will receive; as remuneration is not correlated with the amount of effort, it may encourage them to shirk work.

In contrast, in a fee-for-serve (FFS) system, the healthcare professional is reimbursed per procedure when it has been provided so it only rewards them for the effort made. However, if there is an incentive to deliver more care, it might lead to "supplier induced demand" to inflate income rather than meeting the needs.(120)

Financial approaches - Mixed Financial Incentive

A Cochrane systematic review examined the use of mixed financial incentives.(120) Four studies were identified – two RCTs and two controlled before and after (CBA) studies, involving primary care professionals (PCPs) from the USA, Denmark and Canada. Two studies compared capitation and FFS payment with outcomes that related to public health which was adherence to the guidelines for a number of visits provided by PCPs to their registered population of children. The results were grouped under three comparisons: capitation payment versus FFS (two studies); salary payment versus FFS (one study); and mixed capitation system versus FFS (one study).

Two studies examined the effects of capitation payment versus FFS on process and outcome measures, the only outcome related to HPDP was the adherence to a health promotion programme for children. The results of a regression analysis suggested children of all ages were more likely to receive the recommended number of visits to PCPs if payment system was FFS rather than the comparison group payment.

One study looked at the effects of salary payment versus FFS and the only outcome related to health promotion was adherence of child health visits with guidelines; salaried PCPs had a lower percentage of visits more than the recommended number compared with PCPs paid on FFS contract.

The systematic review did not report publication bias or possible conflicts of interest in the primary studies so scored 9 on AMSTAR. There is evidence that payment systems influence PCP behaviour: PCPs working under FFS provide higher quantity of primary care compared with capitation and salaried PCPs. There were not enough well-designed studies to make the findings more generalizable.

Financial approaches - Target payments

A Cochrane systematic review examined the effect of target payments in primary care on professional practice and healthcare outcomes.(121) Only two studies met all inclusion criteria for review, one was an RCT from the US and the other was interrupted time series (ITS) analysis in the UK; both studies targeted primary care professionals with immunisations as outcome measures.

In the US study, the group receiving target payment had an influenza vaccination rate 5.9% higher than control but this was not statistically significant. The UK study reported an improvement in primary and pre-school immunisation rates after the introduction of target payment. The proportion of general practices offering at least 95% and 90% of their eligible population the primary immunisation increased by 50% and 20% respectively for pre-school immunisations. However, a logistic regression model applied did not show a change in overall linear trend because of target payments.

This review scored 9 using AMSTAR criteria because it did not report publication bias and conflict of interest of primary studies.(121) There is insufficient evidence to say whether target payments improve professional practice or patient outcomes; more research to evaluate the effect of target payments and evaluations should be planned before introducing changes.

Financial approaches - General financial incentives

One further review from Cochrane examined the effect of general financial incentives on the quality of care provided by primary care physicians. (119) Five took place in the US, one in the UK and one in Germany. Three cluster RCTs examined effects on delivering smoking cessation advice; one CBA study used clinical indicators such as cervical screening and childhood immunisations to assess the quality of care provided by the physicians; the other three studies assessed outcomes including: cervical cancer screening rates, blood testing for diabetic patients, childhood immunisation, chlamydia screening and mammography.

Only the study on smoking cessation had the largest effect on one outcome measure. Clinics that received financial incentives had a higher mean rate of referral than usual care. In another cRCT, GPs who had financial incentives increased the smoking status recording compared to those that did not but the effect was not significant. The three studies that examined cervical cancer screening, blood testing for diabetic patients, childhood immunisation, chlamydia screening and mammography did not find a significant impact. For the studies that examined preventative care in diabetic patients, the only statistically significant effects of financial incentives were for cervical screening and eye examinations. Other studies of other outcomes did not show statistically significant effects from financial incentives.

The methodological assessment scored 9 as the authors did not report publication bias and possible conflicts of interest in the included studies. This review suggests there is insufficient evidence to support the use of general financial incentives to improve the quality of primary health care.

ſ	Systematic review	Included study designs, settings and	Targeted behaviours	Possible	Effects – including changes in professional
	and AMSTAR score	subjects		theoretical bases	practice. patient, and healthcare outcomes
	On-screen, point-of- care computer reminders (104) [AMSTAR =9]	RCT and quasi-randomised trials. 28 studies reported 32 comparisons (4 studies contained 2 comparisons) 26 were cluster design. Hospital practitioners both inpatient and outpatient departments. General practitioners.	 21 on prescribing practices 6 on vaccinations 13 on test ordering 3 on documentation 7 to adherence to other processes, e.g. guidelines 	Not mentioned	 6 studies specifically looked at adherence to targeted vaccinations; median improvement was 3.8% (IQR 0.5% to 6.6%). 8 comparisons reported clinical endpoints including blood pressure and cholesterol targets; median absolute improvement of 2.5% (IQR 1.3% to 4.2%).

Table 3 Summary of included studies with AMSTAR assessment, settings, targeted behaviours and outcomes of systematic reviews

Computer-	37 comparisons from 32 studies.	Processes and outcomes measured	Not	Only 13/37 comparisons reported
generated	27 RCTs including 1 cross-over trial	included: blood pressure measurements,	mentioned	baseline process of care rates for study
reminders		faecal occult blood test, influenza		groups. Median marginal improvement in
delivered on	5 Non-Randomised controlled trials	vaccination, mammography, cervical		intervention group was 4.5% (IQR 0.5%
paper(105)	(NRCT) including 1 cross-over trial.	cytology.		to 7%).
[AMSTAR = 10]	Primarily physicians although some			Reminders had different effects on
	included nurse practitioners. One study			different targeted behaviours and the
	included only nurses.			
	29 studies based in the US, 3 in			vaccination (median improvement
	Canada. Most studies took place in			13.1%, IQR 12.2% to 20.7%).
	outpatient settings (which include			
	primary care clinics); 2 in inpatient			
	settings and 3 were mixed.			

Continuing	81 studies – 32 studies in an	Preventative care was considered in 11 of the	Behaviour	The results were pooled from all the
Medical	earlier review and 49 new	trials including smoking cessation,	change	studies so it was not possible to ascertain
Education	studies added from new search.	breastfeeding, exercise and screening.	theories	the effect specifically on public health
(106)	32 trials based in North America	32 trials used multi-faceted interventions,	Learning	activities.
[AMSTAR =	- 28 in USA, 4 in Canada.	most commonly used were: reminders (5),	theory	
10]	34 based in Europe (14 in UK). Physicians were the main subjects in most trials. General practice was the setting in 43 studies, 16 community- based care, 17 hospitals based and 5 were "other types" of settings.	 patient education materials (5), supportive services (5), feedback reports (10), educational outreach (5). 12 studies had educational meetings rated as main component, moderate in 13 studies, and minor component in 7. 	Diffusion of innovation theory	One trial that compared small group discussions combined with an office system and facilitator with a one-day small group discussion only with the aim of improving detection of cancer. There was a 12% adjusted relative percentage increase in patients receiving screening.

Audit and	140 RCTs were included in total.	Outcome measures included compliance with	Feedback	For dichotomous outcomes, weighted
feedback	49 studies had audit and feedback	guidelines, changes in prescribing, use of	Intervention	mean adjusted risk difference (aRD) was
(107)	as the only intervention, while audit	diagnostic tests. Health promotion outcomes	Theory	4.3% (IQR 0.5% to 16%) absolute increase
[AMSTAR	and feedback were considered the	included smoking cessation and blood	Control Theory	in healthcare professionals' compliance
= 10]	core, essential component of a	pressure management; there was also a	of Carver and	with practice.
	multifaceted intervention in 91	range of preventative care as outcomes such	Scheier	For continuous outcomes, the weighted
	studies.	as screening and vaccination.	4 . 4 4 .	mean aRD relative to control was 1.3%
	80 based in North America (USA		(both in the	(IQR 1.3% to 28.9%).
	58. Canada 9), 21 in UK or Ireland		context of	
	and the rest from Australasia		designing	For patient outcomes, median RD was -
	and the rest nom Australasia.		feedback)	0.4% (IQR -1.3% to 1.6%) for dichotomous
	121 trials targeted physicians, 5			outcomes and median percentage change
	targeted pharmacists and 16			of 17% (IQR 1.5% to 17%) for continuous
	specifically targeted nurses.			outcomes.
	Most common setting or speciality			For studies that reported HPDP activities
	area was general or family			in primary care such as breast cancer
	practice, targeted in 84 trials;			screening, preventative care and
	others included outpatient settings			pneumococcal vaccination, there were no
	(94 trials), inpatient (36) and the			statistically significant differences in
	rest were unclear.			specific public health-related outcomes
				and professional practice.

Opinion	A total of 18 trials were included –	In all the trials, opinion leaders delivered	Social cognitive	Only one trial used OLs to influence primary
leader	6 new RCTs added to 12 RCTs	educational initiatives to members of their	and education	care physicians to prescribe statin treatment
(110)	from a previous review.	own healthcare profession.	theories, e.g.	for secondary prevention of heart disease for
(110) [AMSTAR = 8]	from a previous review. 10 trials based in USA, 6 in Canada, 1 in China (Hong Kong), 1 Argentina and Uruguay. 14 evaluated interventions delivered in hospitals, 1 in primary care practices. 1 study in both primary and secondary care. 2 studies the settings were not clear. Physicians were targeted in 14 trials, nurses in 2 and 2 trials targeted physicians, purses and	own healthcare profession. Opinion leaders were identified using the sociometric method in 14 trials. 2 trials used informant method to identify opinion leaders. 2 used other methods (1 informant and sociometric, another self- designated). All of the targeted behaviours involved general management of a clinical problem.	theories, e.g. Social Learning Theory	for secondary prevention of heart disease for patients who had a cardiac procedure; adjusted risk difference was +0.10 and the effect was not significant.
	midwives.			

g a total of 69 studies. dies included primary care ians or teams as the ts of interventions. 6 trials	In another 29 trials, the behaviour was general management of a variety of problems. 11 trials focussed on preventative	Marketing Theory Health Belief	activity (reducing of harmful drinking) which was telephone support with EOV versus EOV alone and found the former was more likely to implement the programme: there was a 4%
dies included primary care ians or teams as the ts of interventions. 6 trials	general management of a variety of problems. 11 trials focussed on preventative	Theory Health Belief	telephone support with EOV versus EOV alone and found the former was more likely to
dies included primary care ians or teams as the ts of interventions. 6 trials	problems. 11 trials focussed on preventative	Health Belief	and found the former was more likely to
ians or teams as the ts of interventions. 6 trials	11 trials focussed on preventative	Belief	I implement the programme: there was a 4%
ts of interventions. 6 trials			implement the programme, there was a 470
	services such as smoking cessation	Model	
ed on physicians or teams	advice.	Theory of	RD (59% versus 54% but the 95% CI could not
Ith care professionals in al settings. 23 based in America, 22 in UK. y used physicians working in community or hospital us. 4 trials used health care sionals including physicians, and healthcare assistants	41 trials had individual visits and 24 had group visits. It was not clear in 4 trials how many clinicians were visited. Many interventions included feedback. 12 trials were based on social marketing framework. In 30 trials, educational outreach visit was one component of a multi-faceted intervention that included different strategies directed at health	Planned Behaviour	be calculated). The pooled results of analysis meant that although some targeted behaviours included preventative care and disease prevention, it was not possible to ascertain the effect of EOV on these specific professional outcomes.
sic	ommunity or hospital 4 trials used health care onals including physicians, and healthcare assistants in nursing homes.	a trials used health care onals including physicians, in nursing homes.12 trials were based on social marketing framework. In 30 trials, educational outreach visit was one component of a multi-faceted intervention that included different strategies directed at health care professionals such as reminders.	ommunity or hospital12 trials were based on social marketing4 trials used health care onals including physicians, and healthcare assistants in nursing homes.12 trials were based on social marketing framework. In 30 trials, educational outreach visit was one component of a multi-faceted intervention that included different strategies directed at health care professionals such as reminders

Tailored	32 studies included in the	Targeted behaviours included prescribing in 12 trials	Communication	Pooled odds ratio (OR) for all 15
strategies(114)	review. 12 trials were based in	and 6 targeted preventative care including secondary	theory	studies was 1.56 (95% CI 1.27
[AMSTAR = 9]	USA and 4 in the UK; the rest	prevention of coronary heart disease and 2 targeted	Theory of	to 1.93).
	were based in Canada, rest of	influenza vaccinations.	planned	7 out of 15 studies compared
	Europe, South Africa and	More than one method was used to identify barriers	behaviour	tailored interventions with no
	Indonesia.	to change which included: interviews [10 studies],		interventions; pooled OR was
	17 trials were based in primary	focus groups [10], questionnaire survey [6], review of		1.36 (95% CI 0.92 to 1.99).
	care settings and primary care	literature [4], review of performance data [2],	theory	8 out of 15 studies that
	practitioners (including family	observation, meeting or workshop [2] and other	lileory	compared tailored interventions
	physicians and GPs) were the	methods [4].		to non-tailored interventions;
	targeted healthcare	Barriers identified included: professional factors [such		pooled OR was 1.79 (95% Cl
	professionals in 14 studies.	as knowledge, motivation, perceptions of benefits		1.06 to 3.01).
		and risks – identified in 25 studies], patient factors		Results were pooled so it was
		[8], incentives and resources [8], guideline factors [4],		not possible to determine if there
		organisational capacity [9], professional interactions		were any specific effects on
		[3], and social/political/legal factors [2].		patient outcomes that were
				relevant to health promotion and
				disease prevention.

Printed	The concept of PEM was	39 PEMs targeted	Adult learning	It was difficult to tell from the reporting of either
Educational	redefined so some changes	prescribing or treatment, 3	theories	comparison if the effects related to primary care
Materials(115)	since the last review.	PEMS targeted prevention –	Cognitive theories	professionals and public health outcomes as
[AMSTAR = 9]	There were 45 studies – 8 C-	2 obvered sereening.	Persuasive	
	RCTs, 6 RCTs, 31 ITS		Communication	
	Most studies took place in North		Theory	
	America (Canada 12, US 11			
	and 1 in both). 18 were from			
	Europe (UK 11).			
	10 studies took place in general or family practice.			
	42 out of 45 studies involved physicians.			

Mass	26 papers met the inclusion criteria	All campaigns relied on use of a range of media – radio,	None	A mixed pattern was observed in
media	that reported 20 time-series	television, newspapers, posters and leaflets. Electronic	mentioned	two studies on HIV testing; only
(118)	analyses and 1 controlled before	media such as internet were not included.		one of them had statistically
[AMSTAR	and after study.	Most studies evaluated the campaigns by measuring health		significant changes the number of
= 9]	19 studies included general public	care utilisation. Others used patient outcome measures		HIV tests performed.
	as target audience. 9 studies also	related to the campaign.		It was not clear if the media
	included healthcare professionals	Most common condition for media campaign was skin		campaigns influenced the
	as targets but none specified	cancer awareness (4 studies) followed by HIV testing (3).		behaviour of clinicians or if they
	whether primary or secondary care.	measles, mumps and rubella vaccination (2) and response		increased the uptake of screening
	Interventions which aimed to	for suspected heart attacks (2). Other topics related to		and vaccinations from stimulating
	promote specific health services:	prevention included prevention of childhood poisoning,		demand.
	cancer screening, immunisation	colorectal cancer screening, cervical cancer screening.		
	programmes, emergency services			
	for people with suspected heart			
	attacks.			

Target	Only 2 studies met all inclusion	1 study in USA consists of additional	Economic	There appeared to have been an increase in
payments(121)	criteria for review – one was	10% (\$0.80) or 20% (\$1.60) payment to	theory, e.g.	immunisation rates in one study after target
[AMSTAR = 9]	RCT and the other was ITS.	standard fee of \$8 for each influenza	Agency	payments but a logistic regression model
	Both studies targeted primary care professionals.	immunisation made over 70% or 85% targets respectively. Second study in UK looked at trend in pre-school immunisation rates before	theory	applied did not show a change in overall linear trend because of target payments.
		introduced.		
Mixed financial	4 studies were identified – 2	2 studies compared capitation and FFS	Economic	Children were more likely to receive the
incentive(120)	were RCTs and 2 CBAs.	payment.	theory, e.g.	recommended number of visits to PCPs if
[AMSTAR = 9]	Primary care professionals from US, Denmark and Canada were included.	One study compared PCP behaviour under salary and FFS systems. One study compared a mixed capitation system with FFS. 2 studies examined care provided by PCPS to children, 2 examined care to registered population.	Agency theory	payment system was FFS rather than the comparison group payment. Salaried PCPs had a lower percentage of visits in excess of recommended number compared with PCPs paid on FFS contract.

General financial	7 studies fit the inclusion	1 CBA study evaluated introduction of a salaried	Economic	Only one cluster-RCT looking at smoking
incentives and	criteria: 3 cluster-RCTs, 1	payment scheme in the UK using 20 general	theory, e.g.	cessation had largest effect on one
the quality of	controlled ITS, and one ITS	practices.	Agency	outcome measure.
care(119)	that used difference-in-	5 US studies used incentives schemes devised	theory	Clinics that received financial incentive
[AMSTAR = 9]	difference e (DID) design.	by large health plans to increase quality of care		had a higher mean rate of referral than
	5 took place in the US, 1 in	provided the group practices.		usual care. In another C-RCT, GPs who
	the UK and 1 in Germany.	A German study used 82 medical practices to		had financial incentives increased the
		evaluate smoking cessation in general practice.		smoking status recording compared to
		3 cRCTs examined financial incentives on		those that did not.
		physicians to deliver smoking cessation advice		
		using different outcome measures.		
		1 CBA study used patients' assessment of the		
		process of care and satisfaction, clinical		
		indicators such as cervical screening, childhood		
		immunisation and pre-school boosters to assess		
		the quality of care.		
		The other 3 studies used outcomes such as:		
		rates cervical cancer screening, blood testing for		
		diabetic patients, childhood immunisation,		
		adherence clinical management (asthma and		
		diabetes), chlamydia screening and		
		mammography.		
1				

Limitations of the review

Despite using two databases (Cochrane Library and DARE) to search for relevant systematic reviews and the search strategies used within individual Cochrane systematic reviews (most using at least two databases of published literature and other databases for grey literature) it was possible that due to publication bias, trials that reported negative findings might not have been published and were therefore not included in the search; this in turn might have led some systematic reviews to overestimate effect sizes in their analyses. To overcome this, some but not all the systematic reviews accounted for the effect of publication bias in their main conclusions and this was reflected in the methodological assessment using AMSTAR.

Another possible source of publication bias is I did not look at sources of grey literature such as other databases of systematic reviews, conference abstracts, reviews in other languages and trials registers. The inclusion of these sources might reveal more interventions relevant for HPDP activities in primary care settings.

The overview was also subject to reviewer bias because there was only one person screening the studies and extracting information. The process of abstract screening, extraction and analysis would be improved with at least one other reviewer. There might be differences in opinions between reviewers about inclusion, exclusion and extracting data. The process of discussion and mediation using a third reviewer would improve the robustness of the review.

The Cochrane Effective Practice and Organisation of Care (EPOC) review group have robust protocols for how reviews should be done, from registration to developing search strategy, criteria for inclusion, data extraction and assessment of manuscripts.(124) Having an agreed study protocol for the review that is registered and published also enables the scientific community to evaluate the review methods, and to ensure the analysis and results are consistent with the study authors' original intent.

The search was originally conducted in 2011; there have been two updated Cochrane systematic reviews: one on tailored interventions and another on audit and feedback. The overall conclusion remained the same and they did not affect the outcome of this review. Many of the outcome measures in the systematic reviews were so it was not possible to make conclusions on outcomes relating to HPDP without repeating the analysis using relevant empirical studies. In some cases, it would be difficult because of heterogeneity of studies; for example, different outcome measures were used across studies, some measuring dichotomous outcomes and others measuring continuous outcomes. It would still be possible to analyse the outcomes in a meta-analysis but this would be highly resource intensive and would not have been possible to complete within the doctoral study period. The length of follow-up period might also make a difference to the outcomes; some interventions might have an effect but might not be sustainable, whereas others might take time to take effect.

Finally, the search criteria were not exhaustive. For instance, I did not search for interventions based on sanctions or penalties, or more coercive methods on the behaviour of GPs. From the demand side, I did not consider the effect of patient demand for preventative care on the behaviour of GPs. It is also possible to consider interventions directed at the level of the organisation; PCTs and GP surgeries in different areas might have the same targets and hold the same national contracts, but how people work in one organisation might be different to another. Efforts to change the "organisational culture" could improve organisational performance and patient outcomes. One such systematic review was published by Cochrane review group; they searched over 4000 studies but none of these met the inclusion criteria for review and it was not possible to draw any conclusions.(125)

Discussion

This overview examined 12 systematic reviews that covered five methods of behavioural interventions directed at GPs; but no single intervention had significant effect with changing behaviour of GPs to deliver HPDP programmes.

Use of behaviour theories in design of behaviour change interventions

The extent to which theory was explicitly reported as underpinning the behaviour modification intervention varied within each systematic review. There was also a variety of theoretical concepts that underpinned behavioural interventions but no single theory consistently contributed to effective interventions. Some of the systematic reviews, though not all, offered theoretical

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bases for the interventions that were reviewed. Continuing Medical Education (CME) interventions were reportedly based on: behaviour change theories, learning theories and diffusion of innovation theory. *Social Cognitive Theory, Education Theory*, and *Diffusion of Innovation Theory* informed opinion leader strategy. Tailored Interventions, which considered barriers to change, were informed by *Social Cognitive Theory* and TPB.

No theoretical bases were given for computer-based reminders, audit and feedback, educational outreach visits or mass media interventions. I suggest computer reminders could have a basis in Pavlovian classical conditioning theory if the reminders were designed to change the behaviour of clinicians in response to a stimulus (e.g. a patient who needs the intervention which the clinician is reminded about) to the point where after repeated experiences, the clinician has learned to implement that behaviour in response to the stimulus (computer reminder about patient needs) without reminders. (126) Although it was not explicitly mentioned, financial approaches such as target payments and mixed payment systems could have bases in economic theory and I suggested *Agency Theory* could be one example.(122)

To understand audit and feedback interventions, Grol explained that many theories, with overlapping constructs, might explain how it might lead to quality improvement.(127). Feedback might work in many ways, including: changing recipients' awareness and beliefs about current practice and clinical consequences, changing perceived social norms, affecting self-efficacy, or by directing attention to a specific set of tasks. The ways in which feedback might work appear to overlap with some constructs of behaviour theories such as the TPB, particularly relating to behavioural beliefs and social norms.

There could be a variety of theoretical bases to explain how interventions that include social strategies might work. Mittman et al explained how social networks could be applied in approaches to implementing clinical practice guidelines, for example, by using peers, opinion leaders, and educational outreach visits.(128). The process of translating research into practice often uses *Diffusion of Innovation* theory and education delivered informally is regarded as a key ingredient in marketing and innovation diffusion.(111) Soumerai described a similar multi-component process, which included surveys

of practitioners to determine barriers to practice, development of interventions tailored to address barriers using simple messages and targeting of practitioners with low compliance and delivery of intervention by a "respected" person.(129, 130) Some EOVs were based on this and used Social Marketing Theory to design behaviour change based on similar processes. This might have overlapping constructs with the *Health Belief Model* to encourage behaviour change by assessing outcome expectations, beliefs about benefits and barriers to change; there are also overlaps with TPB when addressing how to overcome perceived barriers.

Impact of interventions on professional behaviour and patient outcomes

Some systematic reviews with suitable outcome measures were included in meta-regression and reported pooled results, thus diluting the specific effects relating to primary care physicians and public health. It is possible to extract public health related measures from each systematic review for analysis but it is beyond the scope of this review.

Point-of-care computer reminders achieved small improvements in a small number of target clinical areas. This is highly relevant to UK general practice because the electronic health records of GP systems have a "pop up" function that reminds clinicians of the outstanding tasks that need to be addressed to meet the QOF targets. Computer-generated reminders delivered on paper also demonstrated a small improvement in vaccination; the findings from this review would not generalise easily to UK general practice as this method of reminders is not commonly used, particularly if GP computer software already have "pop up" functions.

Continuing medical education (CME) or continuing professional development (CPD) has often been assumed to lead to desirable behaviours and improved healthcare outcomes. The pooled reporting of outcomes meant it was difficult to ascertain the effect on public health activities. The review authors suggested strategies to increase attendance at educational meetings, use of mixed interactive and didactic formats, and focusing on outcomes with serious clinical implications might increase the effectiveness of CME.(106, 131)

Audit and feedback sound intuitive and help to change behaviour in a similar way to classical Skinnerian behaviour modification strategies.(51) According to Page **99** of **295**

review authors, some trials were inadequately powered to detect small to moderate differences and others were not adequately designed to take account of clustering effects.(107) They suggest effectiveness of feedback could be increased with its frequency, with written better than verbal or graphical delivery, and if information about the correct solution was also included, but these need to be evaluated.

Academic detailing, which is the main feature in educational outreach visits (EOVs), is another approach to influence behaviour.(130) Marketing strategy of pharmaceutical representatives to persuade physicians to change prescribing behaviour is an easily recognised example that is commonly used in practice. Despite its use in pharma marketing, there is insufficient evidence for use of EOVs with or without addition of another intervention to change behaviour. The review authors suggested the number and nature of behaviours targeted for improvement need to be thought out carefully as some were too complex to evaluate or replicate in practice; they also need to be better powered to increase the effects.(113)

Tailored interventions have slight overlaps with EOVs as both involve process of a personal visit to health professionals.(129) Tailored interventions appeared to have a small effect on vaccination rates but the pooled data meant it was difficult to elucidate as the effects regarding other outcomes related to public health. The methods used to identify barriers and tailor interventions to address them were inconsistent and might be difficult to generalise. The process of personal visits has overlaps with opinion leader strategies where a small and insignificant difference was seen in those primary care physicians who had opinion leader intervention; there are issues regarding reliability and validity of identifying OLs and so it can be difficult to replicate empirical studies in practice.

Mass communication strategies such as dissemination of printed educational materials (PEM) might be supported by communication theories, simple to produce and implement but their effects on changing professional practice and patient-related outcomes are inconclusive. Mass media strategy, however, appeared to have modest effects in improving HIV testing and immunisation rates. The mass media might be better at influencing the public who might be more responsive to the messages than primary care professionals; this in turn

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might increase the demand for public health interventions such as screening or vaccination to which the clinicians respond. The authors of this Cochrane review suggested future studies of PEMs might benefit from using theories such as Persuasive Communication Theory to inform design.(117)

Financial incentives could improve the quality of care but according to Cochrane reviews, only in the context of immunisations and there were not enough studies to give a robust conclusion for other areas of professional practice and patient outcomes. A new GP contract was implemented in 2004 that used pay-for-performance indicators to reward practices for quality of care they provide.(41) A systematic review of the use of payment for performance in UK general practice was conducted which suggests modest improvements in quality of care in long-term conditions, but their effects on cost, patient experience and professional practice were uncertain.(132)

Implications for research

There is insufficient evidence on the impact of interventions directed at general practitioners to improve professional practice and outcomes relevant to HPDP. These knowledge gaps could be addressed by conducting better designed and well powered empirical studies with these specific objectives in mind, using explicit theories to inform design. If there were enough homogenous primary studies that reported on similar outcomes, systematic reviews with meta-analyses of outcome data could be conducted which would improve the robustness of findings.

Future studies need to focus on the explicit description of the intervention so that it could be replicated in practice, particularly for complex interventions such as educational outreach visits, tailored interventions, and co-interventions. For example, in the case of opinion leader strategy, there was lack of detail and consistency in the way OLs were identified and implemented behaviour change. In addition, the studies need to be designed to compare different types of interventions, be clear about "dosage" (e.g. how many educational visits, how long for, what sort of tiered target payments), and assess both process and outcome measures to examine where the impact might be. If controlled trials cannot be conducted, retrospective studies using quasi-experimental or controlled before and after designs could be used, with adequate size and power to detect real differences.

There was no single theory that provided the framework for behaviour change interventions that consistently had an impact on both professional practice and patient outcomes for health HPDP activities. The TPB and Agency Theory appeared to be the most promising as they provided theoretical bases for audit and feedback, educational outreach visits and the financial incentives respectively. However, the theoretical basis for behavioural interventions do not have to be confined to these theories, nor does the unit of intervention need to be confined to the individual as interventions directed at the organisational level could be an option.

Lastly there needs to be more research on the cost implications of these interventions. For example, mass media strategies might have low cost at the outset with a large audience reach, compared to financial incentives such as target payments and fee-for-service that act at the level of the GP practice. Both appear to have some effects on immunisations uptake but one might deliver higher coverage in a population at a lower overall cost.

Implications for practice

The lack of robust evidence for many of the behavioural interventions does not mean we should no longer use them. For example, it would not be practical nor desirable to cease educational courses as clinicians still want to learn new things; practices still need to be paid but perhaps more could be done to demonstrate better outcomes and value-for-money for commissioners and taxpayers. The pay-for-performance structure to incentivise clinical management as well as health improvement in UK general practice (or the quality and outcomes framework QOF), has been continually evaluated to understand if it works and in which domains it has the most impact. Studies are now emerging which suggest improvements in the recording of smoking status and cessation advice, as well as some modest improvements in the management of chronic diseases.(133, 134) In the case of chlamydia screening, implementation programmes of primary care trusts (PCTs) have used financial incentives and educational outreach to improve screening (see Chapter 5).

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Perhaps more importantly, irrespective of what behaviour interventions are being used, we need to understand why some methods work better than others to consistently influence the behaviour of clinicians. If individuals respond to certain interventions, then perhaps multi-faceted interventions might offer the best chance of behaviour change and patient outcomes.

Conclusion

This overview of systematic reviews examined 12 types of interventions across five behaviour domains to influence the behaviour of healthcare professionals to improve professional practice and patient outcomes. There is currently insufficient evidence to suggest any of these behavioural interventions aimed at primary care practitioners can consistently improve both clinical practice and patient outcomes for HPDP. The effects, if any, tend to be small and mainly limited to immunisations.

Some of these designs were informed by theoretical bases; among these, social cognitive theory, theory of planned behaviour and economic theory appeared to have been frequently used. Although the use of theory did not necessarily improve the effectiveness of the intervention, it might help to understand how the intervention might work, as well as inform the design, and improve their reproducibility.

This overview identified gaps in research, with plenty of scope for primary studies to include process evaluations, better description of interventions, better design and analysis, effect size, analytical methods, and to consider more cointerventions or complex interventions to compare different combinations and investigate synergistic effects.

Healthcare professionals might be motivated by different things to change practice to improve patient care, one intervention might not be adequate to change clinicians' behaviour consistently; having an insight as to what and why they respond would inform the design of future behaviour interventions using complex designs. The following two chapters will explore how and why primary care clinicians respond to different behaviour interventions in the context of HPDP. The findings might help to explain the conclusions from these systematic reviews and help inform the design of future intervention studies using single or multiple interventions.

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Chapter 5 – Chlamydia screening implementation strategies and the trends in screening in London PCTs

In Chapter 4, I described the effectiveness of behaviour change interventions, such as educational outreach visits and financial incentives, directed at healthcare professionals, to deliver public health programmes such as screening and immunisations. This chapter describes the behavioural interventions used to increase chlamydia screening from general practices in primary care trusts (PCTs) I chose to study. I described the process of how and why I chose the PCTs to study in Chapter 3 (Design and Methods). The screening data from PCTs and practices helped me to select GPs and PNs for interviews.

Chlamydia screening strategies

I obtained contracts from four London PCTs (Haringey, Hackney, Tower Hamlets, and Lambeth) that detailed commissioning arrangements for local general practices to deliver chlamydia screening. As described in Chapter 3 (Design and Methods), these PCTs were chosen because they had similar demographics and, for pragmatic reasons, their proximity to one another meant I could travel to practices to interview the GPs and PNs.

The original contracts obtained from each PCT are shown in Appendix E. I was not able to obtain contracts that related to the specific period of interest that was 2004 to 2010 as some PCTs were not able to locate any contracts earlier than 2010. Despite attempts at contacting and asking local sexual health commissioners, I was not able to obtain any service contracts from Camden PCT but I had personal communication from GPs in Camden that the PCT had a Local Enhanced Service contract for sexual health which paid for each test for sexually transmitted infections (including chlamydia) so their approach was similar to the other PCTs in this study.

All the PCTs that were chosen used some form of financial incentives to encourage GPs to deliver chlamydia screening through their commissioning contracts. The main difference between the four financial incentives was the tariff and structure of payment: fee-for-service, target payment, or a mixture of both. Not all contracts were specifically designed for chlamydia screening as some PCTs commissioned it within a broader strategy of sexual health services such as testing and treating sexually transmitted infections (STIs) and contraception provision.

All the PCTs used a range of personnel to promote the programme and facilitate local primary care teams to deliver screening. The people involved included: public health staff, chlamydia screening co-ordinators, chlamydia screening clinical leads or GP champions, all of whom visited the practices. This information was obtained through communication with local directors of public health and the interviews with local GPs and practice nurses. Lambeth was the only PCT that employed a "GP champion" and chlamydia co-ordinator to provide educational outreach, this strategy and the outcome on chlamydia screening were published in a peer-reviewed journal.(135)

We might assume that as these PCTs used broadly similar approaches, we would expect similar responses to chlamydia screening from practices across all PCTs. However, this was not the case and further justified why interviews with individual GPs and PNs might help to explain why interventions like financial incentives and educational outreach visits might or might not work, and explore other motivations they had to deliver programmes such as chlamydia screening.

It was not possible to explain why certain interventions were chosen in each of the PCTs. There were no explicit references to empirical or anecdotal evidence to support the choice of interventions in the contract specifications. The rationale behind their use might have been discussed during the process of developing the service specification within each PCT but this would have required further discussions with relevant commissioners and analysis of documentary evidence such as meeting minutes to verify. The evidence from systematic reviews was published between 2007 and 2015, so it was possible that some of these were not available at the time of devising the behaviour interventions in the PCTs as most of this happened prior to 2010.

Chlamydia screening in Tower Hamlets

The 35 practices in Tower Hamlets were organised into "networks" of about four practices each where each constituent practice contributed to their network performance on several services and outcomes. A Network Improved Service Page **105** of **295**

(NIS) for Sexual Health and Contraception was rolled out in June 2010 which offered a broad remit of sexual health provision from GPs. This single contract replaced the previous ones for specified type of service: Local Enhanced Service (LES) in Sexual Health, LES chlamydia screening, and National Enhanced Service (NES) for intrauterine contraception and sub-dermal contraceptive implant LES. The payment structure was a mixture of targetbased and fee-for-service; there was an increased payment per chlamydia screen with a higher proportion of 15-24 year olds screened; this is summarised in Table 4.

I was not able to obtain the Chlamydia Screening LES contracts for earlier than 2010 from Tower Hamlets PCT, but communication with the assistant director of public health in Tower Hamlets informed me that the financial incentive had been of a similar structure in the past. He also informed me that in previous years, chlamydia screening was contracted out to a company which promoted the majority of chlamydia activity from local contraception and sexual health clinics so few GPs were involved. The only other difference with the 2010 contract was the addition of a "GP Champion" and a local "network lead" – but as these were not included in previous contracts, they would not have influenced chlamydia screening numbers for the period I was investigating.

% of 15 – 24 year olds screened	Payment per screen
15%	£5
20%	£6
30%	£7
35%	£10
Over 35%	£10

Table 4 Payment structure for chlamydia screening in Tower Hamlets 2010

Chlamydia screening in Haringey

I obtained the chlamydia screening LES contracts for both 2008/09 and 2009/10 from Haringey PCT. The payment structure in 2008/09 was, like Tower Hamlets, a mixture of target and fee-for-service (Table 5). For the 2009/10 contract, it was a flat fee of £10 per test returned. The eligible population in this

contract referred to young people aged between 15 and 24 which was the same target population in the NCSP.

Achievement	Payment
3% of eligible patients	£3 per returned test
5% of eligible patients	£5 per returned test
10% of eligible patients	£10 per returned test
15% of eligible patients	£15 per returned test

Table 5 Payment structure for chlamydia screening in Haringey 2008/09

Chlamydia screening in Hackney

The 2009/10 local enhanced service (LES) contract for chlamydia screening was the only one I could obtain from City and Hackney PCT. This was a fee-forservice contract that paid £5 per screen carried out in the eligible population aged between 15 and 24. The service outline also included educational sessions for practices involved in the delivery of enhanced service to support clinical and non-clinical staff involved in programme delivery. There were no descriptions of the process, content, or frequency of these educational sessions.

There was a separate LES for Sexual Health that facilitated the diagnosis and treatment of sexually transmitted infections (STIs) within primary care. The service included support structures such as: educational events, a local STI treatment guideline handbook, fast-track referral to genitourinary medicine clinics and employment of a GP with a special interest in sexual health. (136, 137)

Chlamydia screening in Lambeth

The LES contracts for chlamydia screening delivery in Lambeth were obtained for the years 2009/10 and 2010/11. The payment to GPs was a target-based scheme with different tiers of achievement, the number of registered 15-24year-old patients in the practice also contributed to the payment. In 2009/10, the target payments were increased from 2008/09 to reflect the PCT's Local Delivery Plan (LDP) target of screening 25% of the target population, which was a centrally driven performance indicator for all PCTs in England (Table 6). Table 6 Payment structure for chlamydia screening in Lambeth PCT 2009/10and 2010/11

Band	Registered	No of	5%	Total	Total	Total
	15-24 yr old	practices	Retainer	Payment	Payment	Payment
	cohort		Payment	at 10% (£)	at 17% (£)	at 25 %(£)
			(£)			
А	>1400	5	500	1100	1900	2600
В	1101-1400	6	400	800	1500	2100
С	801-1100	14	300	700	1200	1600
D	500-800	14	200	400	900	1400
E	<500	13	100	250	750	850

The specification from Lambeth PCT also mentioned employment of a "GP Champion" for eight hours per month from August 2005, whose role was to provide support to GPs for chlamydia screening. This included practice specific peer support, workshops on chlamydia screening and regular feedback on performance. The role of the GP champion in Lambeth has been defined as one who delivered an "educational outreach" intervention.(135) The chlamydia screening GP champion in Lambeth did not visit all the practices but only visited those which had low screening rates; the frequency of contacts ranged from a one-off meeting to three contacts a year.

Summary of contracts

All four PCTs in London used financial incentives to encourage general practices to deliver the NCSP. There were differences in the payment structures but all used a combination of fee-for-service, target, and capitation payment. Only one PCT used an additional strategy which they called "GP Champion" model but the description corresponded with an educational outreach visit strategy; this support was limited to "low screening" practices. These strategies to influence professional practice (educational outreach visits and financial incentives) have been discussed in Chapter 4 (Overview of systematic reviews).(113, 119-121)

Although I had information on individual contracts from these PCTs which detailed behaviour interventions to encourage chlamydia screening from
general practice, I did not have information on other campaigns which could have also influenced their behaviour. For example, different PCTs might have had media campaigns and educational events, these might also have been implemented nationally so they might have contributed to some screening behaviour too. A Cochrane systematic review discussed in Chapter 4 suggests use of mass media might have an effect on utilisation of health services such as screening.(118)

Trends in chlamydia screening in general practices

This section describes the trends in chlamydia screening from general practices in London, with an emphasis on the chosen PCTs (Haringey, Hackney, Tower Hamlets, and Lambeth).

The chlamydia screening programme was implemented across London PCTs at different times and in the beginning, there were only four PCTs which had any screening activity from general practices in 2004: Camden, Lambeth, Lewisham, and Southwark. By 2005, this had increased to six PCTs with the addition of Harrow and Enfield with a further increase to eight in 2006 with Haringey, Islington included in the total. By 2008, all but two (Hammersmith and Fulham PCT and Havering PCT) had chlamydia screening activity from their general practices. The aggregate data of chlamydia screens from all London PCTs appeared to suggest there had been an overall increase in chlamydia screening in general practices through the years from 2004 to 2010 (Figure 10 and Table *7*).

There were differences in the rates of increase in chlamydia screening since they started in different PCTs. Nine PCTs had more than a 10-fold increase in chlamydia screens between 2008 and 2010 (Table 7). They were: Barking and Dagenham, Ealing, Hammersmith and Fulham, Haringey, Havering, Hillingdon, Kensington and Chelsea, Newham, and Westminster. The greatest increase was Newham PCT which increased from 61 screens in 2008 to 3345 in 2010 – a 55-fold increase, followed by Ealing (48-fold increase) and Haringey (27-fold increase). For PCTs which started with no screens in 2008, Hammersmith and Fulham PCT increased to 288 in 2010. Havering increased to 1222 in the same period. Not all PCTs had year–on-year increases in chlamydia screens from their GPs; Hammersmith and Fulham, Waltham Forest, and Harrow PCTs had reductions in the number of screens from their GPs between 2009 and 2010.

Although four PCTs started chlamydia screening in general practices in 2004, only Lambeth and Southwark appeared to have consistently high numbers through the years. By 2010, other PCTs including Haringey (3469), Hillingdon (3221) and Newham (3345) managed to return as many screens as Southwark (3498) but Lambeth was a significant outlier with 4890 screens returned from GPs (Figure 10).

Chlamydia screening in selected PCTs

Four PCTs were chosen for this study: Lambeth, Haringey, Hackney and Tower Hamlets. They were chosen because they had similar demographics and, for a pragmatic reason, their proximity to one another meant I could travel to practices to interview the GPs and nurses. Figure 11 shows the number of chlamydia screens returned from these PCTs: this includes a PCT which had consistently high numbers of screens (Lambeth), another that significantly increased their screens (Haringey), and two with screening rates that increased at a steady rate (Tower Hamlets and Hackney).

Chlamydia screens from GPs in Lambeth PCT appeared to have increased at a steady rate from 2004. Tower Hamlets, Hackney and Haringey PCTs started to return chlamydia screens from between 2006 and 2007, although the rates of increase were lower than that of Lambeth. Haringey PCT had a low number from 2006 but the rate of increase changed significantly from 2008 to 2010. Lambeth had consistently high screening numbers from their GPs. In 2004, Lambeth GPs returned 401 screens whereas it took Tower Hamlets four further years to return the same number of screens.

The large screening volume could be explained by the number of general practices in Lambeth (49 practices) as it was similar compared with Hackney (43 practices) and Haringey (51 practices); Tower Hamlets had the smallest number with 35 practices. According to feedback from the interviews and NCSP reports, Lambeth engaged GPs in screening very early in the programme. Hackney PCT devised a local enhanced service for STI screening from 2006 which encouraged GPs to screen for STIs including chlamydia, this might have accounted for the rise in chlamydia screening from 2006.(29) Page **110** of **295**

According to one of the assistant directors of public health for Tower Hamlets PCT, they initially concentrated programme implementation on non-GP services until 2010 when it was fully integrated into their Network Improvement Services (NIS). This could explain why the number of chlamydia screens from general practices remained low compared with other PCTs. Personal communication with one of the directors of public health for Haringey PCT reported their PCT responded strongly to the Local Delivery Plan (LDP) targets for chlamydia screening from 2008 and invested their resources in the LES and promotion of chlamydia screening to their GPs, this could explain the rise in screening from 2008 to 2010. However, we cannot tell from the data which of these made the GPs respond most strongly: chlamydia screening campaign, financial incentives, or a combination of both.

The chlamydia screening volume data from each PCT were pooled from all GP activities so they might not have reflected individual practice's response to implementation strategies as some might have responded more strongly than others. Practices at extreme ends of screening behaviour could have distorted the overall chlamydia screening for the PCT. Trends in screening volumes and uptake for the15-24 age group by individual practices from 2004 to 2010 might offer a better way of analysing the effect within each PCT. Chlamydia screening data from each PCT are presented in the following format: volume of screen from all practices in the PCT, then the number of screens per 15-24 age group (Appendix F) and lastly the chlamydia screening rates of the practices from which the participants were drawn.

The explanations offered here are presumptive, based on observing trends in chlamydia screening with the chronology of events such as the introduction of screening contracts, and anecdotal communication with those with commissioning responsibilities. Individual interviews with doctors and nurses in these PCTs might be able to offer confirmations or other explanations. The next section describes the chlamydia screening trends in each PCT from 2004 to 2010.

	Year								
РСТ	2004	2005	2006	2007	2008	2009	2010		
Barking & Dagenham	0	0	0	0	200	936	2263		
Bromley	0	0	0	0	157	346	1277		
Camden	231	328	199	248	780	1505	2106		
City & Hackney	0	0	0	400	1059	1314	1516		
Croydon	0	0	0	0	832	916	1532		
Ealing	0	0	0	0	39	435	1885		
Enfield	0	46	203	143	126	123	1018		
Greenwich	0	0	0	0	90	185	397		
Hammersmith & Fulham	0	0	0	0	0	480	288		
Haringey	0	0	10	100	127	2261	3469		
Harrow	0	239	222	190	562	1961	1515		
Havering	0	0	0	0	0	854	1222		
Hillingdon	0	0	0	0	156	2556	3221		
Hounslow	0	0	0	63	725	1298	1459		
Islington	0	0	109	251	315	529	649		
Kensington & Chelsea	0	0	0	0	103	936	1173		
Kingston	0	0	0	0	323	326	470		
Lambeth	401	897	2084	2478	2861	3793	4890		
Lewisham	114	308	559	512	599	844	1597		
Newham	0	0	0	0	61	368	3345		
Redbridge	0	0	0	0	305	1414	1649		
Richmond & Twickenham	0	0	0	0	98	356	642		
Southwark	175	427	802	1745	1915	2626	3498		
Sutton & Merton	0	0	0	0	303	812	1274		
Tower Hamlets	0	0	0	72	410	448	782		
Waltham Forest	0	0	0	0	361	393	88		
Wandsworth	0	0	0	47	635	630	1299		
Westminster	0	0	0	0	200	1529	2417		

Table 7 Chlamydia screens from London PCTs 2004 to 2010



Figure 10 Number of chlamydia screens from London PCTs 2004 to 2010

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Figure 11 Number of chlamydia screens from selected PCTs between 2004 and 2010

Chlamydia screening in Lambeth

Lambeth appeared to have high numbers of chlamydia screens from 2004 to 2010, compared to other PCTs in London (Figure 10). However, the graph of total chlamydia screens from individual practices suggested only a handful of practices had consistently high screening activity over the years whereas the rest had slower growth in the number of screens and a handful of practices had rapidly increasing screening rates in the latter years (Appendix F). Different practices emerged as the "high screeners" when the proportion of the 15-24 age group screened was considered rather than volume of chlamydia screens. The increase in the proportion of young people screened was not consistent among all practices as seven of them screened less than 5% of their 15-24 population and three had a decrease in screening from 2009.

One of the top three practices which achieved high screening rates in Lambeth was Streatham High Practice, which achieved 25% screened and from where one of the GPs was recruited for an interview. Interview participants were drawn from three other practices in Lambeth: Paxton Green Group Practice, Stockwell Group Practice, and Lambeth Walk Practice. The first two practices had stable chlamydia screens from 2004 to 2010; Lambeth Walk had a slow increase whereas Streatham High increased from 2008 to the highest out of the four in 2010. Streatham High practice was one of the "low screening" practices that the Chlamydia GP Champion had contact with (Figure 12). The screening rates in these practices helped me to formulate specific questions about what influenced these increases in each practice; for example, Streatham High Practice might not have responded to the same financial incentive as the other practices but it did so to educational outreach visits.

Figure 12 Chlamydia screening rates from 2004 to 2010 in 15-24 year cohorts of selected Lambeth practices



Chlamydia screening in Haringey

Haringey PCT appeared to have very little chlamydia screening activity from their GPs compared with Lambeth, Hackney and Tower Hamlets until after 2008 when their screening volume surpassed the latter two (Figure 11). Three surgeries appeared to have significant increases from 2008 to 2009: Chalton House Medical Centre, Christchurch Hall Surgery and Morum House Medical Centre. Only the last seemed to have continued this increase whereas in the first two, chlamydia screening activities reduced a year later (Appendix F). The graph of screening uptake in 15-24 year olds showed a significant increase in GP screening activity from 2008 to 2010 and different practices appeared to have occupied the top positions (Appendix F).

Participants were drawn from three practices in Haringey: Tottenham Health Centre, Lawrence House Surgery and The Bridge House Surgery. The first two had increased uptake from 2008 to 2010, reaching 11% and10% screening coverage respectively, while Bridge House had a minor increase in 2010 but did not improve beyond 1% (Figure 13). Using the screening trends, I sought to find out whether the introduction of a chlamydia screening enhanced service explained the significant rise in chlamydia screening rates from Lawrence House Surgery and Tottenham Health Centre, or if there were other reasons. I also used the trends to ask in the interview why The Bridge House Surgery did not appear to respond in the same way as other surgeries to the same chlamydia screening financial incentive offered by the PCT at that time. Figure 13 Chlamydia screening rates in 15-24 year cohort in selected practices in Haringey



Chlamydia screening in Tower Hamlets

Tower Hamlets had the lowest number of chlamydia screens from their GPs out of the four PCTs that were selected. This was consistent throughout the years from 2004 to 2010 (Figure 11). There were no screens returned from GPs from 2004 until 2006; it started to increase steadily from 72 in 2007 to 782 in 2010.

Chlamydia screening data from individual practices in Tower Hamlets suggested a large number of screens were returned by a relatively small number of practices. In 2008, the top three practices were Spitalfields Practice, Blithehale Medical Centre and Globe Town Surgery (Appendix F). The proportion of 15-24 year olds screened did not increase significantly for the majority of practices in Tower Hamlets from 2004 to 2010 (Appendix F). In 2008, the highest rate was from Blithehale Health Centre with 5% of their 15-24 year olds screened. By 2010, only Gough Walk Practice managed to screen more than 10%, followed by Tredegar Practice which screened 8% of the target population.

Participants were drawn from seven practices with a range of chlamydia screening uptakes in 2010: Tredegar Practice (8%), Bethnal Green Health Centre (4%), Blithehale Health Centre (4%), Chrisp Street Health Centre (3%), Island Health (2%), East One Health (1%) and Jubilee Street Practice (1%) (Figure 14). I asked the participants the possible reasons for very low screening activity until after 2007. I also sought to understand the motivation behind the large surge in screening rates at Tredegar Practice and the high initial rates from Blithehale Health Centre. Figure 14 Chlamydia screening rates from 2004 to 2010 in 15-24 year cohort of selected practices in Tower Hamlets



Chlamydia screening in Hackney

Hackney had a steady rise in the number of chlamydia screens returned from their GPs, from none in 2006 to 1059 in 2008 which made them the third highest chlamydia screens returned from PCTs that year after Lambeth and Southwark PCTs. After 2008, the chlamydia screens continued to increase but it was overtaken by other PCTs which had a larger rate of increase from 2008 (Figure 10).

Chlamydia screens returned from individual practices suggested two practices (Trowbridge Practice and Lawson Practice) consistently returned more than 50 screens a year since 2007 and were the top two in 2010, returning 190 and 156 respectively; only six other practices managed to submit more than 50 screens that year (Appendix F). The median uptake was at 2% for Hackney practices; only six other practices achieved uptake of more than 10% in 2010: De Beauvoir Surgery, Hoxton Surgery, Latimer Health Centre, Queensbridge Group Practice, The Heron Practice and The Lawson Practice (Figure 15).

Participants were drawn from three practices: The Lawson Practice (screening uptake in 2010 was 10%), Somerfield Grove Health Centre (5%) and Statham Grove Surgery (3%). The interviews offered me insight into the possible explanations for a range of chlamydia screening uptake in these practices, despite the same implementation strategy from the PCT.

Figure 15 Chlamydia screening rates from 2004 to 2010 in 15-24 year cohorts in selected practices in Hackney



Limitations

The descriptive study of chlamydia screens from GPs in each PCT should be interpreted carefully as it has several limitations. Firstly, the data cannot be used to attribute GP chlamydia screening activities directly to the behaviour interventions in the form of LES contracts used by PCTs. To make inferences between screening activities in PCTs and the introduction of implementation strategies, it would need to have a controlled before-and-after design, using at least three time points before and after the introduction of the behavioural intervention to measure the differences in the slopes and the step change after its introduction (an interrupted time series analysis). The design would also need to control for confounding factors that could have affected screening behaviour. GPs and nurses were also exposed to other influences such as: campaigns through the media, computer reminders, and patient requests for screening, so it would not be possible to attribute screening volumes to behaviour change strategies alone such as financial incentives that were in the contracts.

Secondly, the number of chlamydia screens reflected only what was submitted from general practices that particular year; it was not possible to tell when individual PCTs actually started implementing the screening programme. It might be possible for the programme to be implemented one year but might take longer before any screens were returned from GPs.

Thirdly, the numbers of screens from GPs do not reflect overall achievements of screening uptake in the wider PCTs. Practices which appeared to have low screening activities might have had different reasons such as: lack of promotion, incentives, or engagement of PCT with primary care staff. However, as only returns from general practices were considered in this thesis, it is possible that there could be a higher numbers of chlamydia screens from other venues if PCT resources were concentrated elsewhere such as young persons' clinics and sexual health services.

Summary

The PCTs that were chosen for this study all used financial incentives as the main behaviour intervention strategy to encourage general practitioners to

deliver chlamydia screening. The financial incentive schemes included a mixture of target and fee-for-service structures.

Lambeth appeared to be the only PCT that specifically used another strategy (educational outreach in the form of "GP chlamydia screening champion") to facilitate screening in general practice. Although it appeared a few practices increased their screening activities through to 2010, not all responded and some remained low screeners despite the visits. It was not possible to isolate the effect of the financial incentives on chlamydia screening for Lambeth GPs, especially in the low screening practices which also had visits from the GP chlamydia screening champion.

Documentary evidence was available for only two types of influencing strategies – financial incentives and educational outreach visits but it was not possible to get information for other strategies used to influence clinicians to improve chlamydia screening such as educational events, computer reminders and media campaigns. Some of these initiatives (such as local educational meetings) could have been locality based or, in the case of media campaign, nation-wide. Further information regarding these influences might have been useful but were outside the scope of this thesis.

Conclusions

Although the four PCTs used some element of financial incentives, they did not appear to have consistent effects across the PCTs or with the practices within the PCTs as there was a range of chlamydia screening uptake within each PCT despite these influences. It was not possible to say for certain if any increase in chlamydia screening behaviour was solely attributable to financial incentives or educational outreach because there might have been confounders that influenced the behaviour of GPs and nurses.

Although the increase in screening in Haringey PCT appeared to coincide with introduction of financial incentives, it did not have consistent effect to increase chlamydia screening from general practice as the evidence for its impact on health promotion and disease prevention is limited.(119) A study from Australia suggested a co-intervention with reminder and feedback systems might improve the efficacy of financial incentives to improve screening.(138) The use of co-interventions was also considered as a discussion point in the interviews with Page **124** of **295**

participants to see if these improved the likelihood of delivering public health programmes such as chlamydia screening.

To find out why some behaviour interventions affected individual clinicians (and by extrapolation, the practices) differently, I interviewed GPs and practice nurses to ask about their motivations to deliver health promotion and disease prevention activities such as chlamydia screening. I used their practice and PCTs' screening data to set a context for the interviews. For example, to help explain the overall trends in chlamydia screening in their PCTs through the years, to explain the differences between their practice's screening rates compared with others in the same PCT, despite having the same behaviour interventions such as financial incentives. The next chapter will present the findings from interviews with GPs and practice nurses. Chapter 6 – What influenced general practitioners and practice nurses to deliver health promotion and disease prevention programmes? The findings from interviews

Introduction

This chapter addresses the second objective of the thesis:

Explore the reasons why primary care clinicians such as GPs and practice nurses responded to behaviour change interventions to deliver public health programmes such as chlamydia screening.

The first objective was addressed through a systematic overview of systematic reviews in Chapter 4. Several behaviour-modifying interventions to influence GPs to deliver public health programmes have been tested empirically but evidence from robust systematic reviews concluded that few interventions have had significant and consistent impact on changing behaviour of GPs and patient outcomes in the context of HPDP. For example, financial incentives for GPs improved immunisation rates but did not have the same effect for other public health programmes. If no behavioural intervention was consistently effective in changing physician behaviour, it might suggest some underlying factors were not accounted for in the empirical studies. Perhaps the underlying assumption that, other things being equal, health care professionals respond only to educational interventions, feedback, or financial incentives, for example, might have been too reductionist. Systematic reviews of empirical studies might provide answers to possible links between input (the behaviour intervention) and output (evidence of behaviour change and patient outcomes) but they cannot establish the process through which the input has led to the output; or in other words, we need to unpack the "black box".(90)

In Chapter 2, I discussed the use of behaviour theories that underpinned some of the behaviour interventions in systematic reviews; *Theory of Planned Behaviour* (TPB), social learning theory and economic theory were most commonly used to inform design of interventions such as audit and feedback, tailored interventions and financial incentives which had, at most, modest impact on modifying healthcare professional behaviour and to improve patient care. I also suggested behaviour theories could potentially be used to provide explanations for the behaviours.

This chapter presents data from the interviews I conducted to explore the attitudes and motivation of GPs and PNs in selected PCTs to deliver public health programmes such as the National Chlamydia Screening Programme (NCSP). The GPs and PNs were specifically chosen for the practices' chlamydia screening rates as described in Chapter 5.

I conducted semi-structured interviews using a topic guide that included constructs of TPB (behaviour beliefs, normative beliefs, and control beliefs) and different types of behavioural interventions drawn from the overview of systematic reviews in Chapter 4. These behavioural interventions were broadly classified into five groups: computer based decision support such as: computer reminders; education-only approaches; social influences which include educational elements; audit and feedback; opinion leader; tailored interventions and educational outreach visits; mass communication methods such as printed educational materials and mass media; and financial incentives such as target based incentives, salaried payment, or fee-for-service.

The topic guide also included prompts for discussing NCSP, public health programmes in general, strategies to influence behaviour change in participants to deliver public health programmes such as chlamydia screening; there was flexibility to discuss further issues that influenced individuals' clinical practice.

A summary of participants and their practice characteristics is shown in Table 8. Interview participants were drawn from the following practices in Lambeth: Stockwell Group Practice, Lambeth Walk Practice, and Streatham High Practice; from Haringey: Tottenham Health Centre, Lawrence House Surgery, and The Bridge House Surgery; from Tower Hamlets: Tredegar Practice, Bethnal Green Health Centre, Blithehale Health Centre, Chrisp Street Health Centre, Island Health, East One Health, and Jubilee Street Practice; from Hackney: The Lawson Practice, Statham Grove Surgery, and Somerfield Grove Health Centre. I have not given any further details of the participants and their practices to maintain anonymity. The thematic analysis of interviews with GPs and PNs using the Framework approach suggests possible explanations why some public health programmes are delivered and others are not. I have included a coding list and an example of coding (using theme of competitiveness) in Appendix G and Framework matrix in Appendix H (as a CD ROM). Although TPB was used as a conceptual model to analyse the interview data, not all the themes corresponded exactly to the constructs of TPB which are: behaviour beliefs, normative beliefs, control beliefs and behaviour intention. Some of the themes had overlaps with more than one construct and there were also emerging issues that could not be explained by TPB alone. A schematic representation of the thematic analysis is presented in Figure 16. Conner and Sparks analysed each of the constructs of TPB in detail and suggested some determinants of each construct; these components are illustrated in Figure 17.(139) This has been helpful to facilitate mapping of themes that emerged from the data to the constructs of TPB.



Figure 16 Themes from interviews mapped out against constructs of Theory of Planned Behaviour

Figure 17 Conner and Sparks' "components" of Theory of Planned Behaviour Constructs.



From Conner & Sparks Theory of Planned Behaviour, in Conner M and Norman P (eds) Predicting Health Behaviour 2nd Edition. Open University Press

. Table 8 Summary of participants and their practice characteristics
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Participant	Gender	Target (Quartile 1 = highest)						
			Child imms	Flu	Smear			
		Chlamydia						
Hackney GP1	Male	Medium	1 st	1 st	4 th			
Hackney GP2	Female	Low	4 th	1 st	1 st			
Hackney PN1	Female	Medium	2 nd	2 nd	1 st			
Haringey GP1	Female	Medium	3 rd	2 nd	2 nd			
Haringey GP2	Female	High	2 nd	1 st	1 st			
Haringey GP3	Male	High	2 nd	1 st	1 st			
Haringey GP4	Female	Low	2 nd	2 nd	4 th			
Haringey GP5	Female	Low	3 rd	3 rd	4 th			
Haringey PN1	Female	Medium	3 rd	2 nd	2 nd			
Lambeth GP1	Female	High	4 th	4 th	2 nd			
Lambeth GP2	Male	Medium	3 rd	1 st	1 st			
Lambeth GP3	Female	High	3 rd	4 th	3 rd			
Lambeth GP4	Male	High	4 th	4 th	3 rd			
Tower Hamlets GP1	Female	Low	4 th	4 th	2 nd			
Tower Hamlets GP2	Male	Medium	2 nd	2 nd	1 st			
Tower Hamlets GP3	Female	Low	3 rd	3 rd	2 nd			
Tower Hamlets GP 4	Male	Low	4 th	1 st	2 nd			
Tower Hamlets GP5	Male	Low	2 nd	2 nd	1 st			
Tower Hamlets GP6	Female	Low	3 rd	2 nd	1 st			
Tower Hamlets PN1	Female	Low	2 nd	3 rd	3 rd			
Tower Hamlets PN2	Female	Low	2 nd	3 rd	3 rd			

Attitudes to behaviour

According to TPB, attitude towards a behaviour, which refers to the degree to which a person has a favourable or unfavourable evaluation or appraisal, as well as the individual's belief about its consequences ("outcome expectations"), can affect the intention, which immediately predicts the likelihood of that behaviour being implemented. In other words, attitudes are a function of salient behavioural beliefs which represent perceived consequences or other effects of the behaviour. Components of this construct also include "instrumental" and "affective" elements (Figure 17), such as whether the individual regards the behaviour as: desirable or undesirable, valuable or worthless, pleasant or unpleasant and interesting or boring.(139)

Outcomes expectations: benefits at individual level

Some participants strongly believed that health promotion and screening programmes had a direct, individual benefit to prevent ill health and that is why they delivered them. These programmes included smoking cessation, cervical screening and chlamydia screening.

"For smoking, you know the danger for the patient or the injury to the patient is bad, very bad with smoking, so I will give [smoking cessation advice] even if you don't give money." **Haringey GP3**

However, not everyone shared the belief that there are benefits to health promotion at the individual level; some participants thought health promotion efforts are futile without addressing the determinants of ill health. For example, having secure employment and income would make a difference to a person's life and probably their health, through better living conditions and diet. Insisting people changed their habits which might be a consequence of their circumstance might risk "shaming" them and jeopardising the relationship with their clinician. These beliefs made some more hesitant to discuss health promotion with patients.

"I think public health has ... become an issue of individual responsibility and individual autonomy rather than social responsibility and inter-relational autonomy. And I think it's damaging for patients, it risks shaming people, making problems worse. ... But positing public health interventions at the level of individuals in the situation of the doctor-patient relationship seems to me unhelpful and possibly harmful." **Hackney GP1**

"And I think that's ... what actually would make the most difference to people around here would be a job." Lambeth GP1

Outcome expectations: benefits at population level

Health care professionals might be more likely to deliver public health programmes if they believed they had desirable outcomes at the population level as well. The main reason given by all GPs and PNs was they wanted to prevent ill-health and improve health in their population. There were different views of HPDP programmes; some were favoured more than others. For example, some participants believed childhood vaccination has benefits due to herd immunity which confers protection at a population level and seemed to be something worth promoting.

"Particularly, we feel, for primary care, immunisation is a very good way of preventing illness so our primary imms for the children are very high as well." Lambeth GP2

The influenza programme, in contrast, did not receive this much support; some participants were not persuaded by the evidence that influenza vaccinations for children and over-65s were an effective public health intervention. The two participants who were sceptical about influenza vaccinations (Haringey PN1 and Lambeth GP1) were also drawn from practices whose influenza vaccination rates for over-65s were 2nd and 4th quartiles respectively in their PCTs.

"They're rolling out the flu vaccination to children and I do think it's crazy ...Children don't get the flu, very few children get the flu!" **Haringey PN1**

Ambivalence about perceived benefits was not the only reason some participants did not promote certain public health programmes. Beliefs that certain diseases and conditions had a low prevalence in some populations made some feel the efforts on prevention work would be futile and they would be better off concentrating on other areas. "... We have a very small incidence and prevalence of cardiovascular [disease] ... how much are you going to do because when that's not prevalent, something else will be more important." **Haringey GP4**

One Tower Hamlets GP gave an example of how alcohol screening might not be very relevant at the population level for his largely Muslim population and thought the resources could be put in another public health initiative.

"... so 99% of the patients I'm asking, the Bengali patients, they don't drink, so I personally think it's not really a valid thing to do in Tower Hamlets to do that. ... Muslim patients don't drink alcohol, they smoke, almost every man smokes so I think it's much more valuable to put more money, or to put more resources into the smoking." **Tower Hamlets GP4**

Whereas others were motivated to do more case finding of diseases, to look for "hidden health needs" of their population so would support population screening to prevent ill health.

"... some of our patients look fairly affluent ... but there is a lot of hidden and unmet need and I think you have to look for that." Haringey GP3

Apart from perceived prevalence of disease, there were other assumptions about the local population's needs; these included how, rightly, or wrongly, their patients might not be the demographic to benefit so assumed they would not respond to health promotion or screening; this assumption made some participants more reluctant to offer it to their patients.

"You know, our patients may not be the right people for that particular programme, if they are not showing much interest, what is the point in us pushing the programme?" **Haringey GP2**

In the case of chlamydia screening, some participants thought the target demographic of 15 to 24 year olds did not appreciate the future consequences and benefits of screening so did not respond to NCSP, unlike the over 25s who responded to cervical cancer screening; however, not everyone shared this view.

"I think with ... cervical screening where ... it's linked to cancer, so that's the reason you need to get it checked ... Whereas most of the age group that we are

trying to target [for chlamydia screening] necessarily don't think that far ahead about the consequences of it, so it's a bit more difficult." **Haringey GP4**

Unintended consequences: false positive, over-diagnosis and overtreatment. Some public health programmes might have unintended consequences, leading to "unfavourable" outcome expectations affecting the behaviour beliefs, and participants feeling ambivalent about promoting them; for example, some screening programmes give "false positive" results and others generate anxiety in those with low risk. Screening tests that are too sensitive and lack specificity which give many "false positive" cases, such as breast cancer screening, could lead to "over-diagnosis" of breast cancer. This might result in unnecessary surgery. Some interventions for primary prevention could paradoxically make a healthy person sick, from effects of drugs such as statins for primary prevention of cardiovascular disease. These examples made some participants anxious about offering screening programmes and prevention treatments.

"And yes, you are going to get some people who have false positive and they go and have it explored through surgery, very stressed it could be cancer and actually it isn't." **Hackney PN1**

"...what's so different about public health programmes, [is that] you are getting a population of well people to either have a test, screening in other words, or undergo some intervention like given statins, which may make them more ill?"

Haringey GP4

Unintended consequences: paradoxical [unhealthy] behaviour

Some participants thought having a normal and reassuring screening test, particularly for sexually transmitted infections (STIs), might lead to unhealthy behaviour. For example, a negative chlamydia screening test result might give a paradoxical message or "permission" to behave in a way which increases risk of contracting other sexually transmitted infections, such as HIV. This made them question the value of such screening programmes as they might paradoxically promote unhealthier behaviour.

"I have some concern that there's now a kind of urban mythy [sic] type view that you can get tested [and treated for chlamydia] so it doesn't really matter if you get chlamydia which of course is disastrous from the point of view of HIV prevention, particularly." Lambeth GP1

Unintended consequences: "worried well"

Doctors and nurses had mixed views of the effects of public health programmes that might attract healthy people to come for unnecessary checks or screening, creating a population of "the worried well". While some welcomed the opportunity to discuss their patients' general health, the others were concerned about the opportunity cost of managing anxieties and self-limiting conditions, where time spent during these appointments could be spent on treating other patients with illnesses.

"... you give huge emphasis to one person you 've found and ignore the overwhelming majority of whom it just wastes nurses' appointments, and the person who's really sick can't get an appointment because you're too busy doing health checks." **Hackney GP1**

"It doesn't matter how much you say that, once you tell someone they've got mildly abnormal cells [through a smear test], it's just - it creates huge amounts of anxiety and we pick all that up." **Tower Hamlets GP1**

Beliefs about evidence for public health programmes

Personal beliefs about the value of health promotion and disease prevention activities might affect the attitudes and thus intention to deliver public health programmes; these could be determined by the belief in supporting evidence for these programmes, including how it was reported, interpreted, and its provenance. Health care professionals are increasingly aware of evidencebased medicine and using evidence to inform their clinical practice; some sought and critically evaluated the evidence for some public health programmes, so those that have credible evidence base might be more likely to be supported and implemented. Participants reported that evidence to support public health programmes was a key factor which influenced their decision whether to deliver them.

"I mean if there was no evidence I'd say well, you know, why are we doing this? But, you know, if they say that, you know, lowering, people with diabetes, their

blood pressure, controlling their blood pressure yields real outcomes then okay." Tower Hamlets GP2

Availability of evidence was not enough as this had to be associated with a positive attitude to the evidence to influence the behaviour intention; this was more likely if participants knew there was evidence of good outcomes from public health interventions. Participants were aware of empirical studies on cardiovascular disease screening and chlamydia screening to support primary prevention and screening respectively and these were reasons given why they delivered these programmes.

"I think with most of the cardiovascular, they've done good studies to show the impact of treating things earlier on and patient education." **Haringey GP1**

"Maybe we were persuaded by the evidence... [Chlamydia screening] had been shown to be valuable and to avoid PID and infertility in the future. So, I think we were probably swayed by the value from the early trials." **Hackney GP1**

Beliefs about evidence: the provenance

The provenance of the public health message affected some participants' intention of delivering the programme. National Institute for Health and Care Excellence (NICE) was a common source of trusted evidence-based information for clinical practice. A local Clinical Effectiveness Group (CEG) in Tower Hamlets was also thought to disseminate trustworthy clinical guidelines for local GPs. For some participants, confidence in the process of producing evidence-based standards and clinical guidelines by academics and experts made them trustworthy for their clinical practice. Trust in the provenance of guidelines is relevant as participants reported they did not have time to appraise evidence themselves; having confidence in the process and people that produced them is therefore important.

"Well, there is a certain amount of trust there that you're hoping – well, definitely things based on NICE guidelines and things that there has been some – I mean I know that people obviously pick and choose their research and depending on the quality of research." **Tower Hamlets PN1**

"And also they [CEG] produce a lot of information about appropriate drug use ... so the information from them has been really helpful in trying to focus us Page **137** of **295** particularly on cardiovascular prevention, blood pressure, diabetes. We take quite a lot of notice of what they say." **Tower Hamlets GP2**

Beliefs about evidence: its interpretation

Despite the availability of objective evidence from credible sources such as NICE, they were not necessarily perceived or interpreted in a positive way by healthcare professionals. For example, they could be framed differently, casting doubts on the evidence; these views might be formed through reading opinion articles and discussion with their peers. This was demonstrated in participants' beliefs and attitudes to some public health programmes such as NHS Check to screen for cardiovascular disease, influenza vaccination and chlamydia screening. The media's influence in framing and interpreting information is mentioned later.

"I think there's some conflicting evidence about how beneficial it is to be implementing the program in the first place in terms of how much PID [pelvic inflammatory disease] we're preventing [through chlamydia screening]." **Tower Hamlets GP6**

Clinician's personal factors: personal and professional experiences

According to Conner and Sparks, affective or experiential factors have been known to determine a person's attitudes to a behaviour and in turn, determine behaviour intention.(139) Examples of these from interviews include personal experiences of growing up in countries without established public health infrastructures, the experience of training in specialities related to public health, personal experience of preventable diseases and subjects of public health programmes. Doctors who grew up in low-income countries and saw preventable diseases due to poor public health infrastructures made them more appreciative of disease screening and immunisation programmes in the UK. One reported that having experienced infectious diseases that are known to be preventable inspired her to be a "huge believer" in immunisations.

"I grew up in Nigeria...I was brought up with all those big stories of kind of epidemics and really grew up with stories of public health interventions ... and particularly I'm a huge believer in immunisation. I had measles when I was a kid, and I had malaria." **Tower Hamlets GP1**

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Other experiential determinants of attitudes were reported by doctors who had a family member or memorable patients who were diagnosed late and died prematurely from preventable illnesses; they were more appreciative of screening and early diagnosis. These first-hand experiences had profound effects on their practice and intentions to deliver public health programmes.

"I saw a couple of bad cases of cervical cancer, women in their early thirties dying with young children and that was quite a powerful effect on me ... My own mother died when she was quite young ... these stories that we see every day makes us think how we can prevent them happening to other people." Lambeth GP2

Other experiential influence includes professional experience such as GPs who had experience working in sexual health clinics, theywere advocates for sexual health and chlamydia screening and their experience of talking about sexual health to young people and dealing with complications made them feel chlamydia screening was something that could be delivered in general practice.

"I've done my SHO [senior house officer] job in STD [sexually transmitted diseases] at Charing Cross, 10 years aback as a GP registrar here, I thought oh that's actually a quite good thing to screen asymptomatic patients ...it's something GPs could do." **Tower Hamlets GP4**

Educational interventions - continuing medical education

Some components of attitudes are developed through experience (affective or experiential), but others could be derived through cognitive means such as processing of information presented to the individuals (instrumental). Such information could be delivered through behavioural interventions; examples of these have been discussed in the systematic reviews such as media and education.

Educational meetings are often used for professional development and medical education, with the aim of improving practice and patient outcomes. Not all participants viewed educational activities as desirable, or valuable and did not have the impact on their clinical practice as expected, not all were wanted or related to individual learning needs. This attitude was more likely if educational events were delivered in a way that was seen as long or uninspiring. "I went to a workshop yesterday and we had a lot of long presentations which actually are a waste of time. All I need is 10 minutes' presentation." **Tower Hamlets GP2**

For some GPs, the quality of educational events was dependent on who was delivering the teaching and how it was done; some had a preference for educational events delivered by their peers and others felt the delivery of presentation made the difference between a good or bad educational experience. Educational events therefore could be better received and promoted more widely if they had better feedback, if delivered in a way that was novel and by someone they valued.

"Yeah, definitely, and it's the quality of the speakers ... I would say ...having [non-medics] talking to doctors is not always the best way. Because there's like a different, I don't know, there's just like sharpness about medication education that I like, so it's good to have doctors [teaching] doctors." **Tower Hamlets GP3**

Mass communication interventions - mass media

Mass media might influence the use of health services by the public through campaigns by organisations, government, and other agencies. Media messages might also influence individual participants' attitudes and possibly their behaviours. GPs and practice nurses mentioned how the media influenced their thinking, such as increasing awareness of diseases. Some received information passively while browsing through newspapers and websites, and others actively sought information on the internet. For example, some found out about new vaccination programmes through the lay media such as the BBC, but otherwise could not recall being informed via formal communication cascades such as the Department of Health bulletins. It seemed public campaigns were sometimes better at capturing the attention of participants than formal communication channels.

"Like the rotavirus, didn't know about that and then it was on the BBC news. Shingles vaccination came out in March, it's coming out next month but we didn't know about it until it was on BBC news." **Hackney PN1** Some doctors and nurses thought the lay media was a way of understanding the lay view, and being aware of the medical information in the media might give insight into what some patients were thinking and possibly have an impact on professional practice.

"As an avid consumer of media whether it's through news or TV or radio or newspapers, inevitably one soaks it all up as a clinician, one thinks one's getting some insight into what one's patients may feel. But inevitably, that impacts on one's practice." **Hackney GP2**

Apart from raising awareness of medical issues, the media could cast doubts on established public health programmes such as influenza vaccination and breast screening by framing them negatively. This had a negative effect on some participants' attitudes towards these programmes and made others scrutinise available evidence to decide for themselves before promoting them to patients. This also relates to the earlier point about how the same piece of evidence could be framed and interpreted differently by participants, depending on where they read it.

"Oh, yeah, there was a lot of stuff in the media, wasn't there? There was a huge debate on Radio 4 and stuff and sort of saying breast screening ... it made me go back and look at some of the data and look at some of the research." **Tower Hamlets GP1**

Marketing strategies

The influence of marketing strategies is considered here because marketing is often carried out through the mass media. Some participants discussed how marketing campaigns consciously or subconsciously influenced them, whether this was via the media, pharmaceutical industry, local clinical network, or direct marketing such as emails. The effects ranged from merely raising awareness to changing clinical practice. Marketing campaigns could also be used in public health to "stimulate demand" when patients respond to media or marketing campaigns to get screening; this would put expectations on GPs to provide them.

"I think I would like to see it in the media so that the public are aware of it [chlamydia screening], they're expecting GPs to do it." **Haringey GP5** There was some media publicity when the chlamydia screening was first rolled out, but opinion differed among the participants whether it reached both the professionals and the public as intended. Some GPs remembered seeing test kits and posters in the surgery but others could not recall the publicity campaign, this might have influenced their intention to offer screening opportunistically. The following quote from Tower Hamlets GP5 was from a "low screening" practice.

"Yeah, but you know going back to the chlamydia campaign, I don't know what it was that didn't catch on my imagination or my interest in the same way." **Tower Hamlets GP5**

Mass communication interventions - printed educational materials

Printed educational materials (PEMs) are often used as a passive strategy to disseminate information widely to improve knowledge, awareness, professional practice and patient outcomes. This intervention is considered together with mass media because of their mass approach in disseminating information; like media messages PEMs might also influence individual clinicians' attitudes and therefore their behaviour intentions.

Few participants appreciated the value of printed materials such as leaflets and guidelines to change practice. The way some PEMs were presented needed to be attractive and useful so some suggested it was important that the information was concise such as in a compact A4 size leaflet, otherwise it would not be read; for others, the provenance of the information mattered. Although some GPs would read guidelines sent to them, they were wary about their provenance, whether a trusted organisation endorsed them; materials sent by the pharmaceutical industry to promote products were less likely to be read.

"I think the most useful educational flyers for me tend to be very visual ... one side A4 maximum that I can just pin up on the board to refer to. I'm not very good at reading stuff that I've been given. ... I often take them away and think, oh yes, I'll read that, I'll read that and I don't, and it sits in a pile on my bedroom floor making a mess." **Tower Hamlets PN2**

Medical journals were often mentioned as trusted sources of information and participants said they would like to read more often because they trusted the provenance. However, some were aware that professional magazines might influence their prescribing behaviour through inadvertently reading promotional materials about new products from pharmaceutical companies.

"I don't really read GP and Pulse [GP industry magazines] and stuff very often, only when I go to my mum's [who is a GP], but it would be the same reaction as with the BMJ. For some reason, I have in my mind that maybe they would be more careful about what ads they select for Pulse and GP magazine, so that's nonsense actually." **Tower Hamlets GP3**

Social media as a source of information

Social media such as Twitter and Facebook are a relatively new phenomenon where users share information and interact with others on internet platforms. The effectiveness of using social media to share information to change professional practice is unknown but some GPs have been using Twitter in different ways: as a source of medical information and education, to obtain insight into what the public are thinking, and interacting and debating with influential thinkers. Twitter has been found to be particularly useful as information is concise, it could be disseminated widely from a trusted source or individual and although the message is short (140 characters), it could include a link to more detailed information such as a journal article.

"I would say that having the evidence in a bite-sized form, in a tweet maybe, wow, I mean that would be great ... with a little link and said, just in one statement, doing this, prevents this, you know, published by GP academics whatever" **Tower Hamlets GP3**

Normative beliefs

According to TPB, normative beliefs and subjective norms can influence a person's likelihood to implement behaviour. Normative belief refers to an individual's perception of social pressures, beliefs that he or she is expected to perform this behaviour. Subjective norm is an individual's perception about how they would be judged by significant others about a behaviour. Some forms of social pressures contributed to behaviour including pressure to conform, professional expectations and pressure to perform well compared with peers.

Pressure to conform: Professional expectation

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There was a feeling amongst GPs and nurses that delivering good preventative care made a difference to patients' health, regardless of influence or financial incentive, was a strong motivating factor and professional virtue. This was an example of the professional value that was established through training and ingrained in professional culture so there was no doubt that prevention is delivered in practice.

"We did that purely out of a sense that this was the right thing to be doing, not because we were getting incentivised in any way, although it was like being in a club." **Tower Hamlets GP2**

"I think as a GP, one of our aims is prevention, that's the way I was always taught and brought up." Lambeth GP2

There were some differences in the way GPs and PNs worked to deliver HPDP. PNs were more likely to see it as their role and in their job description, expected to have and spend more time to discuss issues with the patients and have health promotion as expected agenda in their consultations. This view of PNs in the context of delivering health promotion was the same from both GPs and PNs; some PNs also thought they were more likely to consider health promotion from a patient's perspective,

"The most important skill of a practice nurse is advanced consultation skills ... because you're never going to get any engagement with any health promotion activity unless you do it from the patient's viewpoint." **Tower Hamlets PN1**

The responsibility for HPDP is not confined to practice nurses as some GPs reported that it is a component of a well-known consultation model (Stott and Davies – mentioned in Chapter 1) so it is expected from GPs too.(8)

"We try and incorporate it into every consultation, try and use the [Stott & Davies] model of health promotion so depending on what they've come in with, it gets a lot of time or not very much time." Lambeth GP2

Pressure to perform: Reputation and pride

Apart from professional expectations to deliver HPDP for both GPs and PNs, there were also expectations to perform well and failure to do so might incur a reputational loss, shame, or embarrassment. Having a good professional
reputation and a sense of pride in their work and their practice were important factors for delivering HPDP and good clinical care. Some GPs and PNs felt it was important to know that they or their practices were well-performing, including in public health outcome measures, as it gave them a sense of professional satisfaction and pride.

"I just want to belong to a nice place and I think it's also how patients perceive you, because all the data is out there for them to see. And it's also that hope that having those registers we are doing nearly everything that is possible, for whatever we have the medical evidence that we're doing and offering it to them. And if outcomes are better, why shouldn't we be doing it?" **Haringey GP5**

Not only was reputation and performance important for participants that their practices did well, for some GPs this extended to their PCTs too.

"I am interested in my PCT. I want Haringey to do well". Haringey GP3

Some GPs attributed their ambition to perform well and their work ethic to their cultural background. For two GPs of Asian backgrounds, they reported how it was important in their culture to work hard for a good reputation and their work ethic permeated through to the organisational culture to perform as well as possible.

"Well, we're Asian so for Asians, reputation is important." Lambeth GP2

Pressure to perform: League tables, competition and shaming

For some participants, a good performance might mean meeting targets or expectations, or doing better than others, using the performance of other practices as reference points, leading to competitive behaviours. League tables might influence practice by encouraging desirable performance as a pressure to conform by peer referencing. GPs and PNs interviewed were interested to find out their practices' positions on league tables for various performance measures such as prescribing, cervical cytology, chlamydia screening, childhood immunisations and influenza vaccinations. The reactions to seeing their practice in the lower half of league tables ranged from disappointment and surprise to defensiveness. The importance of league tables was clear early in the interviews and this was added to the interview schedule to discuss in subsequent interviews.

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"I think that works well ... we get these bar charts from the prescribing advisors, pitching your practice amongst all the other local practices to see how you do, and the ones obviously in red, you don't want to be in red." **Haringey GP4**

All GPs and PNs admitted they took notice of performance tables, but one reported she felt indifferent about her position in her own practice's league table of influenza vaccinations; however, she did concede this put some pressure on her to give more vaccinations, thereby confirming the effect of peer influence.

"I'm often in the lower quartile for that [flu vaccinations] personally but I think it's really good. It's good to audit and you're aware of what you're doing compared to others." **Lambeth GP3**

Competition could be interpreted as pressure to outperform peers, which might also involve the use of league tables for peer referencing. In Tower Hamlets, groups of neighbouring practices work within a network and their achievements are compared with other practice networks. This arrangement could drive up standards as lower performing practices within the networks work harder to be comparable with their peers and in return their peers support them to improve their collective performance. The constituent practices felt responsible for not "letting down the whole network"; this may produce pressure to both conform and perform.

"Our network has four practices in it, two of the practices are based in wealthier areas and two of us are based in poorer areas demographically. So the two of us in the poorer areas are always making direct comparisons ... so we're always trying to keep up with the Joneses'" **Tower Hamlets PN1**

"I think the NIS [Network Improved Services] in Tower Hamlets has definitely helped with the competition, not in a negative way but I think because you are constantly compared to other networks. There's constantly this thinking you know, we definitely don't want to be bottom." **Tower Hamlets GP5**

League tables appeared to generate strong behaviour intentions in general. There were strong responses to inferior performance on league tables and for one GP treating it as an "incident" for the practice to investigate. The league table position was reported to be taken quite seriously by a few GPs. The top quartile position was a desirable place to be for most and seeing their practice in the lower quartile was a cue for them to consider ways to improve their performance; being in the "healthy middle" was also considered to be acceptable.

"I'd be quite embarrassed to be honest, a little bit angry, disappointed [to be in the lower quartile]. And then immediately there will be an analysis of why has that happened or how has that happened." **Lambeth GP4**

"You always want to be, not necessarily at the top of the table, but you want to be somewhere healthily in the middle, don't you?" **Haringey GP5**

Sometimes it was not the position that mattered but to be aware that one was not the "outlier" and to help benchmark one's performance with similar practices.

"Gosh, I don't think it's a competition but certainly it's significant if we're an outlier and not achieving what our colleagues nearby are achieving for your population." **Hackney GP2**

League tables also provoked anxieties in some who were wary that practices could be open to judgement by the public based on their position on league tables as some performance indicators are publicly available from the internet, so it was important to perform reasonably well to maintain public confidence and not be considered as a practice "in trouble". The way league tables were used as peer referencing needs to be interpreted with caution, especially when there are very minor differences between the best and worst performers, small fluctuations could make significant differences on the scale, thereby unfairly affecting the reputation of a practice.

"A graph like that [league table], it only takes a minute amount of deterioration and you suddenly are on that end. So, although the red bar is within the top quarter, a tiny difference could drop you two-quarters on." **Tower Hamlets GP5**

The anxiety of not wanting to appear to be at the bottom of any league tables also led some participants to consider the effects of "shaming" and questioned if public humiliation was necessarily the best approach to change people's behaviour; a low position on league table might make a practice judged to be inferior by their peers and the public. "I think there's a certain degree of like shaming when, or fear of shame, because when you know your data is going to be discussed at a meeting, then you might think oh, you know, we've been a bit slack there." **Tower Hamlets GP3**

A good rating or league table position was not just a matter of reputation and pride for participants but some thought it might also reflect practice achievements and quality patient care. However, the validity of using league tables to measure quality could be questioned; for example, it is difficult to judge individual clinical performance using referral rates to hospital, and surgeons' performance using crude outcome measures such as death rates.

"We get data but I don't think it's – you would necessarily relate it to quality ... you can compare it to all other clinicians and you can see whether you're referring more or less for example, although I think – I know that that has very little to do with quality of care." **Hackney GP1**

Overlapping constructs – behaviour beliefs and social norms

Some behavioural modifying interventions might have effects on more than one construct of TPB. For example, strategies that inform clinicians of their practice performance against their peers might help them to conform to professional expectations (normative beliefs) as well as change their attitudes to clinical practice (behaviour beliefs). These interventions might include audit and feedback, opinion leader, educational outreach visits and tailored interventions.

Social strategies with educational elements: Audit and feedback

Healthcare professionals might be prompted to modify their practice if they were given feedback, if their performance were inconsistent with that of their peers or accepted guidelines; this could be a way to encourage clinicians to conform to certain expectations and change their beliefs and, therefore, behaviour intention.

The response from participants regarding this strategy was generally positive and there was a desire for feedback on screening performance from GPs and practice nurses, regardless of practice type, area, and public health/screening performance. The type of feedback ranged from monthly returns, practice visits and league tables comparing performance with different practices or other areas. "Well I do think it does make a difference to actually have a sense of how you're doing, so I do believe that's a very important ingredient in terms of partly motivating but also partly actually highlighting something. The trouble is, if you don't know, you haven't got any idea how you're doing in those or even that it's an issue, then, you know, that's not helpful. If you really want to make this work you need, you know." **Tower Hamlets GP2**

Some participants mentioned that they wanted feedback about the impact of their HPDP activities to evaluate if their effort had been worthwhile, for example, if chlamydia screening had any impact for their patients. Feedback not only helped to compare a practice against a benchmark, but might help individuals to go through a cognitive process of reflection to consider how to improve their practice. If positive outcomes of screening programmes were fed back to participants, this might encourage some to deliver even more screening.

For some GPs, their medical training meant they were "socialised" into looking for pathology so wanted to see if screening resulted in finding diseases that they could treat. Not seeing any results despite the effort of screening could be demotivating, resulting in negative feedback to the participants to test less often. Similarly, picking up a case of chlamydia through screening encouraged some to offer more testing because this demonstrated screening programme influenced case findings.

"I just have not picked up a few but very, very few positives ... this sounds really terrible but being a doctor and the way you're trained ... but like pathology is actually quite interesting and then it kind of ...it's just not very interesting. It's like an administrative exercise." **Tower Hamlets GP1**

Social strategies with educational elements: Local opinion leader, Educational Outreach Visits, and Tailored interventions

Although the Cochrane systematic reviews described opinion leader, educational outreach visits, and tailored interventions as discrete interventions, it was difficult for the participants to differentiate them as they had similar processes, e.g. delivery of an educational event, delivery by a peer or trusted individual (e.g. a local prescribing advisor) and discussion of barriers to change. Like audit and feedback, the other behaviour modifying interventions might influence two constructs of TPB: subjective norms and attitudes. Opinion leader, educational outreach visits and tailored interventions might use feedback to enable clinicians to compare their practice with standard practice or their peers, and some educational elements to help them improve their practice by changing attitudes and therefore behaviour intention.

Only GPs in Lambeth had the influence from a "GP Champion" in the context of chlamydia screening but this was confined to "low screening practices" where the GP champion would visit and support them to improve their screening. One practice improved their chlamydia screening performance after their input and achieved highest rate in that PCT. The GP from that practice felt that their involvement to support their peers felt like a "motivational boost" for them and encouraged them to maintain their behaviour.

"For us I mean I wouldn't say he [chlamydia screening GP Champion] influenced what we did on the ground, but his role for us as a high achieving practice was to give encouragement to get to other surgeries. So, he presented it as I just want to find out what you guys do because there are other practices that aren't doing so well and I'd like to be able to share that. So, that was quite a motivational thing. That's good, we like that, you know." **Lambeth GP4**

Some participants had experience of educational outreach visits in other forms. The purpose of these ranged from disseminating information about campaigns such as obesity to quality assurance (e.g. prescribing advisor), chlamydia screening, to promote a local "enhanced" service that the practice was expected to deliver, establishing relationships with local hospital and specialists to improve long-term condition care. There was a range of responses about the visits and the effects ranged from a clear memory of the message leading to behaviour change to a vague recollection of detail.

Some of the educational outreach visits were "top down", meaning the agenda was set externally and not by the practice or clinician's learning need. This meant the learning might not be as valued as one that was initiated by the clinician themselves. Sometimes the meetings were held when clinicians were distracted by other issues so the content was not necessarily useful at the time. "... people coming in and presenting their thing about some programme to get people active and it was such a boring waste of time and it was really sad because they'd wanted this meeting and all of us were just so overwhelmed with work that having half an hour out of our day, when you could be doing, you know, consultations and paperwork or home visits," **Tower Hamlets GP3**

However, some visits were received very differently, such as a visit by a prescribing advisor to a practice to change prescribing practice, the delivery of the main message was retained vividly by the GP which made her change her prescribing behaviour and made a difference for her patient's asthma management.

"Yeah ...the Fostair [a type of asthma inhaler] one was quite convincing. And he did attend the practice because it sounded great and these little particles that are going to go right down to your lungs and it was so much cheaper and I did change a patient to Fostair who was really happy with it. He wasn't using his inhalers before." **Haringey GP5**

Control Beliefs

In TPB, knowledge of the role of perceived behavioural control came from Bandura's concept of self-efficacy.(54, 140) Perceived behavioural control include beliefs concerning whether one has the necessary resources and opportunities to perform the behaviour; how difficult it is to perform the behaviour and how confident an individual is that they could do it. Their *perceptions* of factors that facilitate or inhibit the behaviour are referred to as "control beliefs". These can be internal (such as personal skills, abilities, and emotions) and external (such as opportunities and physical barriers) control factors. People who believe they have the necessary resources and think that there are opportunities (or lack of obstacles) to perform the behaviour are likely to perceive a high degree of behavioural control.(60)

The interview data also suggests other determinants that influence an individual clinician's *perception* of facilitating factors or barriers to performing certain behaviours, these include: computer reminders, organisational barriers, and health care professional-patient relationship.

Computer reminders

Clinicians might have the necessary skills to deliver public health interventions but forget to do so during a busy consultation. Computer reminders or "pop-up" help clinicians to offer public health interventions in a timely manner because they remind the clinicians to perform the necessary tasks during the consultation with the patient who might benefit, so can be interpreted as an enabler of behaviour intention.

All participants had experience of computer reminders that "popped up" to remind them to offer certain checks when patients attended consultations. Participants who viewed reminders as helpful also adapted their consultation styles to be efficient in addressing them, such as checking what needed to be addressed before calling a patient in. Some only executed the reminder if they felt it was appropriate for that consultation. A computer reminder was added for chlamydia screening for the target age group which facilitated opportunistic screening for some participants. Those GPs who initially found them "bothersome" realised how much they facilitated a consultation and attitudes to these computer reminders changed as a result.

"Before a patient comes in, I look at the record when they were last in, I can read the hospital letters, look at investigation results and may look at the QOF as well so I incorporate that into the time we have together." **Lambeth GP4**

"When I first started doing training posts in general practice, I found them absolutely bothersome, loathsome, and they distracted me from the problem, because I wasn't able to manage with all that stuff as a very junior trainee. I could not survive without them because how can you think to yourself to check whether they've had a smear and had their blood pressure checked and had their smoking business recorded and you know, prevention advice given." **Tower**

Hamlets GP3

In addition to computer "pop-up" reminders, structured consultation templates could also be interpreted as "on-screen computer reminders"; they are often used in some consultations to standardise consultation entries and could help to ensure essential information is gathered. Unlike the "pop-up" alerts which automatically appear when a patient's notes are pulled, clinicians must load the templates during a consultation. Templates might feel restrictive for some but for GPs doing postnatal checks on women, the use of computer templates

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made consultations more structured and helped to offer information such as vitamin D to patients. A sexual health template has been used in a PCT to deliver chlamydia screening and sexual health checks but the participants in one practice had been used to offering them so the template did not add much to their practice. These templates can therefore be tools that facilitate certain behaviour intentions such as delivery of public health programmes.

"Because it is at the eight-week check and it is a structured interview and it is on a template and I have the right leaflet so there's more structure to it. I think it is the opportunistic nature and doing consultation." **Haringey GP4**

There were participants who regarded pop-ups negatively and thought they were an annoyance and either ignored them, switched them off, and some even became desensitised. Even for those who found them helpful, there was a feeling that they could be intrusive, inappropriate or irrelevant to the consultation. Clinicians had control over whether to carry out the reminders depending on the context, one practice even had administrative staff that regularly monitored alerts that were not actioned and fed back to the doctors to address them.

"I try not to ignore them but it's difficult... if your patient's coming in with depression and they're crying and the pop-up comes up for checking their diabetic peripheral, their pulses and stuff, I'm sorry but that's just something I'm not going to address." **Lambeth GP1**

"To be quite honest, the pop-ups come up too often. I don't - they go into my subconscious now and I don't really, yeah, I don't see them anymore." **Tower Hamlets PN2**

Organisational barriers

For chlamydia screening programme, the participants thought there were organisational issues that affected their likelihood of whether to offer screening or not. These were ease of access to or availability of chlamydia screening packs and the ease of filling in the forms and dealing with the samples. Others mentioned organisational aspects such as reception or administrative staff engaging patients and having chlamydia screening packs in convenient locations for patients to pick up which facilitated the screening process. All participants agreed about the complexity of forms that had to be filled in and some of the sampling techniques were barriers to screening. Some complained it was not worth the financial remuneration; others complained they had patients with problems understanding English and had to assist them, potentially adding time to an overrunning consultation. The opinion was similar across practices with all levels of chlamydia screening achievements. It is important to note that it was the *perception* rather than *actual* difficulty of filling in the form that was the determinant of control belief.

"With the forms, yeah, to fill in the forms, so it's kind of time-consuming...so you ended up having to write it all down and the whole thing took five minutes, the mobile number and all this, so I don't think seven quid or eight quid was appropriate for that." **Tower Hamlets GP4**

Healthcare professional-patient relationship

Although health promotion might be a component in some models of GP consultations, some GPs (as well as PNs) were concerned about how it fitted within the consultation, especially when they thought the priority should be to deal with the patient's agenda in a patient-centred consultation.(8) This might be an example of a barrier, such as "perceived behaviour control", where participants felt unable to perform certain behaviours due to perceived intrusion or being unwelcome by the patient. GPs and PNs raised specifically concerns about appropriateness, the lack of time and undermining the doctor-patient relationship. Some of this tension might explain why participants felt they are not able to initiate discussions about health promotion or screening.

"That's the tension between the kind of patient-centred care and disease prevention of the population isn't it because I know that the patient sitting in front of me, their cervical smear is not the most important thing on their agenda. But equally, I know that they're potentially quite a high-risk group for cervical cancer and therefore it is important." **Lambeth GP1**

"The thing that bothers me about it is the intrusion on the patient's agenda. If you've got 10 or 12 minutes for an appointment and you were taking your job seriously and your patient seriously then it's really in danger of undermining the doctor-patient relationship." **Hackney GP1**

Behaviour intention

TPB suggests three main predictors of behaviour intentions – behaviour beliefs, subjective norms and perceived behaviour control.(53, 54) Behaviour is the individual's observable response to a given situation with respect to a given target. Whereas behaviour *intention* is an indication of an individual's readiness to perform a behaviour; it is the antecedent of that behaviour. Additional predictors for behaviour intention have been suggested by Conner and Sparks and these include: self-identity, anticipated regret, past behaviour and moral norms (Figure 17).(139) Personal characteristics or self-identity (in terms of gender and lifestyles) was a theme that was evident in the data that affected participants' likelihood of delivering health promotion and disease prevention.

Clinician's personal factors: gender

Female participants acknowledged their gender had a part to play in how they promoted screening to women and for those who experienced public health programmes such as cervical cytology and breast screening, reflected on the advice they gave their own patients. This ranged from feeling obliged to lead by example, feeling ambivalent about screening, and being more evangelical about promoting screening because of experiencing an abnormal test.

"I suppose in my head, I'm a woman and I think it's important... is more about the women's experience and I feel quite passionate about cervical screening... And yes, I do want to get every woman, I want to get the message about there, but I'm also using my time with individual women to spread the message" **Tower Hamlets PN1**

".... when I was very young, I had an abnormal smear myself and that was, you know, very troubling." **Tower Hamlets GP3**

Clinicians' personal factors: lifestyle

Some GPs with lifestyles judged to be healthy reported they felt keen to promote these to their own patients; these ranged from healthy eating and physical activity, smoking and alcohol. However, their enthusiasm could be interpreted as evangelical or patriarchal by some, particularly if patients were not able to leave the room without being "talked to" and "brainwashed". "One of our salaried doctors is particularly keen on nutrition and weight. He's a sports medicine doctor, so he is very keen on giving weight advice, the overweight children, he will not let them get out the room before they're weighed and the parents have been talked to. I'm a non-smoker. I don't particularly like smoking so I tend to give smoke related advice. Alcohol, again I'm not a big drinker, so yes I'm happy to give (advice)." **Haringey GP4**

Two further themes were identified by the interview data that were not adequately explained by Ajzen's TPB framework (or Conner and Sparks' determinants of the constructs) that could influence behaviour intentions; these include organisational influences such as policy and contracts, and financial incentives.

Organisational influence - policies and contracts

Government health policies such as those from the Department of Health (DH) in England, local "enhanced services" and GP national contract influenced some participants' behaviour as these were sometimes linked to financial reimbursements. Examples include NHS Health Checks, DH advice on vitamin D in pregnant women, and new vaccination programmes such as influenza, shingles, and rotavirus. Some participants described how they readily accepted some of the programmes, especially nurses who tend to deliver the vaccination programmes.

"In a way, as long as I'm not harming people, if it's part of a national programme I will go with that for as long as the government are putting money into it" **Tower Hamlets PN2**

"So some because it's a national programme, so national screening programmes, for example, some because it's part of the GP contract. Some because it's part of locally enhanced service." **Hackney GP1**

Although some participants delivered these initiatives without question there was healthy scepticism from some GPs and practice nurses who preferred to appraise the policies critically before deciding to implement them and to help patients make informed decisions.

"I think we would always question programmes that are given to us by external bodies and we would challenge them as well if we felt they were unworkable."

Haringey GP5

In some instances, contractual obligations to deliver some types of care felt authoritative or coercive. Some practices which held Personal Medical Services (PMS) contracts with the government to deliver primary care had strict key performance indicators (KPIs) attached to their contracts. Sometimes this meant there were financial penalties for not meeting some targets, such as having funding clawed back. For these practices, the threat of financial penalties meant they faced pressure to deliver some public health programmes to meet or exceed these KPIs so had little choice but to comply.

"It's part of our PMS contract review. All new patients should be offered an HIV test... So there's a heavy push from the CCG, one of its seven health goals is to diagnose more HIV cases early. So from CCG to internally and part of our contract, there's all these different reasons why we have to." **Lambeth GP4**

Organisational influence - Financial incentives

Financial incentives are attached to some public health programmes to encourage general practitioners to deliver them. These include target and feefor-service payments for immunisations, cervical cytology screening and influenza vaccinations. General practitioners now deliver some health care under the quality and outcomes framework (QOF) of the national GP contract which is one example of a pay-for-performance system that many GPs and practices nurses are familiar with. All the participants had a view about how financial incentives affected their practice. For some, financial incentives attached to certain activities were strong motivators especially if there were doubts regarding effectiveness without which they would not have otherwise participated.

Financial incentives were used by PCTs to encourage chlamydia screening from GPs, as described in Chapter 5. Most participants recalled some form of financial incentives offered by their PCTs to screen for chlamydia such as payment per screen, target payments or a mixture of both. Although some thought the reimbursement was enough to change practice, others felt that if it were not for the financial incentive, the programme would not have had the support in general practice.

"Even the Chlamydia screening programme, the payment for that is not that great. So, in the great scheme of things to either get paid or not get paid for an organisation like us is not a major issue." **Lambeth GP1**

General practice is a business so it is not surprising to hear GPs and PNs discussing the realities of having to maximise income streams to run their practices. They were pragmatic about delivering services which earned them money which they would otherwise felt ambivalent about, but it meant they could spend the money on something they valued more but that was not directly funded. Some GPs felt specific financial reward was just a reality of how general practices earn their income, and reimbursement would need to be fair to reflect the work.

"It's because we're fiscally corrupt and we'll do things of marginal clinical benefit for significant financial benefit, justifying it on the grounds that maybe we'll use that money that we get for doing something of marginal benefit for something that's a bit more useful. ..." **Hackney GP1**

Others felt morally troubled by the money attached and thought some activities should not be incentivised as it is what is expected of GPs and PNs. For some, financial incentive was not important if the intervention was believed to be of value to the patient, and some would deliver it even without the incentive.

"I do not give a toss about [financial incentives] to be honest. If giving flu jabs is good for the patient, which I believe it is, and saves lives, prevent unnecessary deaths, and it can help keep our lovely punters happy and well, then I'll push for it." **Tower Hamlets GP3**

PNs as well as recently qualified GPs were especially vigilant with targets and their relationship with practice income. The former group are used to working towards targets such as cervical cytology, childhood and influenza immunisations, all of which have payments associated with them.

"Any practice nurse knows that if you're going to stay in employment you need to earn your way and therefore you need to be producing something that's an

income earner for the practice otherwise you're not worth employing." **Tower** Hamlets PN2

Younger and more recently qualified GPs remembered being taught about practice income and financial management as part of their training.

"Certainly, as a trainee, all I would hear being into us: because of the income, if there's no income ... and I think that does come drummed into you slightly, just because that's what you see your peers doing or talking about or discussing." **Lambeth GP3**

Finally, there were minor differences between the professional groups. The responses from PNs reflected their roles in health promotion such as giving immunisations, performing cervical cytology, and discussing lifestyle issues with patients, whereas GPs said they would discuss these if relevant to the consultations or responding to computer reminders. The nurses felt it was not just their role to deliver the public health programmes but also because they were aware many of these are linked to practice targets and income, and as mentioned above, they felt these reflected their performance. They had otherwise similar behavioural influences and were just as likely to be sceptical about some programmes as the GPs, for example, influenza vaccination in children.

Summary

I used the constructs of TPB as a conceptual framework to present the findings from the interview: behaviour beliefs, normative beliefs, and control beliefs, as well as behaviour intention.

Behaviour beliefs

Beliefs and values about the outcome of public health programmes could affect the likelihood of the behaviour being implemented. Participants were more likely to have a positive attitude to a programme if they believed the evidence, had positive beliefs about the evidence and its provenance. However, different clinicians could interpret the same evidence differently; examples of different interpretations included influenza vaccination and chlamydia screening. The way the participants felt about the outcomes of HPDP activities was likely to affect their intentions to deliver health promotion and the same was also true about the perception of the patient's capacity to benefit from a programme. On the other hand, participant's attitudes to an HPDP programme might be less favourable if the expectant outcomes for patients were detrimental, including unintended consequences of screening programmes, such as "overdiagnosis" and "overtreatment".

Some behavioural interventions such as educational events, audit and feedback, educational outreach and media strategies could influence the attitudes to some public health programmes, thereby facilitate or deter the clinicians' intentions to deliver them. Mass media appears to be a strong influence on attitudes and behaviour; it could facilitate messages about public health programmes quickly to healthcare professionals such as new vaccinations, but conversely could cast doubts about others such as breast screening.

Normative beliefs

Peer influences and social expectations appeared to have contributed to some behavioural intentions. Some HPDP work was expected for both GPs and PNs. There was pressure to adhere to guidance from the Department of Health or NICE and a pressure to perform well in front of their peers. The use of league tables provided a way of comparing practice performance and "competing" with their peers, but there was caution on how these should be interpreted, particularly as a way of "shaming" practices to conform. Behaviour interventions such as audit and feedback, educational outreach visits, local opinion leaders also make use of comparisons with other practices in benchmarking exercises and might help to change attitudes and improve clinical practice.

Control beliefs

Organisational and structural barriers such as not having the correct equipment or the complexity of forms were enough to make some less likely to implement programmes such as chlamydia screening. While some participants found onscreen computer reminders helpful to facilitate their consultations, others found them distracting and "intrusive"; for most participants, they seemed to be an accepted part of everyday consultations.

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Reconciling the tension in the consultation room between a clinicians' and patients' priorities and agendas had a direct effect on the likelihood to deliver some public health programmes. There was a concern among some healthcare professionals that some public health interventions might be intrusive to the point of affecting the therapeutic relationship between the health care professional and the patient, and others who found it difficult to raise the topic of health promotion because it was "inappropriate" or perceived to be "blaming" an individual's unhealthy behaviour.

Behavioural intentions

Personal attributes are known to affect behaviour intention. The data suggests attributes such as a clinician's gender and lifestyles might affect likelihood to deliver public health programmes. Female participants had experiences of screening programmes such as cervical cytology and breast screening; sometimes this made them reflect on the advice they gave to patients. Non-smokers and non-drinkers were keen to promote these messages to patients.

One further theme emerged which was not mapped by TPB or Conner and Sparks' predictors of individual constructs. Organisational influences such as government policies and contractual obligations affected behaviour intentions but these could be viewed as authoritative and coercive. Similarly, financial incentives are another type of influence directed at the level of the organisation that affected some participant's behaviour intention to deliver HPDP programmes. Sometimes organisational factors such as working under a contract with penalties for not meeting key performance indicators meant there was pressure to comply but with a sense of threat and control.

Conclusions

These interviews helped gain an insight into why GPs and PNs implemented some HPDP programmes and provided explanations why they would not. TPB was useful to understand the behaviour intentions, particularly as most themes could be mapped to the constructs of TPB and their "components" as outlined by Conner and Sparks.(139) Not all of the themes could be mapped discretely onto each of the components or constructs as there were some overlaps between them, nevertheless, this conceptual framework was useful to help understand the determinants of primary care clinicians' behaviour to deliver public health programmes (Figure 16).

The fact that most of the themes generated through analysis of interview data could be mapped to the individual constructs of TPB suggests this theory is useful in explaining their behaviour intentions. For example, believing that a public health intervention has benefits encourages clinicians to deliver it to their patients (behaviour beliefs); having a system where public health targets from practices are compared, such as league tables, can generate a sense of competitiveness and pressure to conform to peer expectations (normative beliefs); some clinicians might feel some public health interventions might be inappropriate for their patients, or they might not have the skills to deliver them (behaviour beliefs); some personal attributes such as gender and lifestyles can also determine if certain health promotions and screening programmes are offered by clinicians (behaviour intention).

The interviews also help gain further insight into why some interventions, based on empirical studies to modify the behaviour of clinicians as outlined in the overview of systematic reviews in Chapter 4, might or might not work. Not everyone responded to these behaviour interventions in the same way; this could explain why multi-faceted interventions might be more effective than single-intervention based behaviour change methods to maximise response from individuals. The interviews also offered some insights into how some of the interventions could be made more effective – for example, according to some healthcare professionals, they are more likely to respond to printed educational materials if they were concise and produced by a trusted organisation.

In addition to behavioural interventions based on the constructs of TPB that are directed at the individual, interventions directed at the organisation – such as contractual levers and financial incentives – could also influence behaviour. Contractual mechanisms can have a strong, sometimes coercive, influence on performance with financial penalties for not meeting delivery targets. Financial incentives could be considered to act on the individual or the organisation, depending on who benefits directly or indirectly. Systematic reviews suggest financial incentives have modest effects on healthcare professionals to increase immunisation rates,(121) but there is currently insufficient evidence to support

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interventions at the level of organisations that improved professional practice.(141)

So far in this thesis, I have explained that we have some understanding of how people in general behave using behaviour theories, evidence of behavioural interventions from systematic reviews and insights from a qualitative study into how GPs and PNs are influenced to deliver public health programmes. In the next chapter, I will summarise the findings of this thesis, its contribution to current understanding of modifying behaviour primary care clinicians, and discuss how these findings could be used to influence GPs and PNs to deliver other HPDP programmes and suggest implications for research, policy, and practice.

Chapter 7 – Discussion

This chapter forms the final part of the thesis: it summarises preceding chapters including: findings from overview of systematic reviews and qualitative study; contributions to knowledge, implications of the findings for policy and practice; limitations of studies; and suggestions for future research.

Health promotion and disease prevention (HPDP) in general practice

In Chapter 1, I suggested general practice in the UK NHS is an important setting for delivering public health interventions at both the individual and population levels. At the individual level, GPs and PNs see patients, offer health promotion and other health advice to their patients.(1) At the population level, the list of registered patients is often used to invite those who are eligible for public health programmes such as immunisations and screening. However, HPDP programmes might not be delivered consistently or effectively in general practice. The barriers for GPs and PNs might include: limited consultation time, lack of skills to deliver health promotion, different priorities between clinician and patients and different expectations from patients, so it might be difficult to address public health issues during the consultation.(26)

I have been an advocate of public health and sexual and reproductive health throughout my career and wanted to find out what motivated GPs to deliver public health programmes. I wanted to use what I found in this thesis to involve GPs in health improvement; this has been the motivation for my thesis.

Behaviour change theories and their applications

Behaviour theories could be used to explain and predict healthcare professionals' behaviour and help to design interventions to modify them. Some popular theories were considered in Chapter 2 as applied to HPDP, these include *Health Belief Model*, *Theory of Reasoned Action* and *Theory of Planned Behaviour*.(53, 63, 142) These behaviour theories explain and predict behaviour at the individual level.

Ajzen's *Theory of Planned Behaviour* (TPB) suggests that the best predictor of a behaviour being implemented is the intention. The intention of a behaviour is dependent on three factors: personal attitude (derived from beliefs about behaviour), subjective norms (derived from normative beliefs) and perceived

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behaviour control (derived from control beliefs). TPB appears to be efficacious in predicting behaviour intentions according to a meta-analysis of 185 independent studies and has been applied in predicting health behaviour.(66) The theory was also used to design a trial to improve chlamydia screening in general practice.(48) I therefore thought it would be a useful a conceptual framework to consider the influences of behaviour in primary care professionals to deliver public health programmes.

The use of TPB to explain a clinician's intention to offer chlamydia screening to a sexually active young person at risk of chlamydia infection is illustrated in Figure 18.





Drawing on the complexities of delivering HPDP programmes in general practice, and the understanding based on behaviour theories such as TPB, this thesis aimed to explore what influences general practitioners to deliver health

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promotion and disease prevention programmes and how this knowledge could be used to design implementation strategies.

The following were specific objectives:

- Assess the effectiveness of interventions that modify the behaviour of GPs and their impact on patient outcomes that relate to health promotion and disease prevention.
- Explore the reasons why primary care clinicians such as GPs and practice nurses responded to behaviour change interventions to deliver public health programmes such as chlamydia screening.

Design and methods

In Chapter 3, I outlined the design and methods used to meet the aims of the thesis. I justified using an overview of systematic reviews as an efficient method to summarise the systematic reviews of empirical studies that examined the behavioural interventions on healthcare professionals to improve professional practice and patient outcomes. Using a process of narrative synthesis and a validated checklist (AMSTAR criteria), I assessed the methodological quality of each systematic review, extracted relevant data to study the effect of the intervention on the behaviour of general practitioners to deliver HPDP, the relevant patient outcomes, as well as the theoretical bases that underpinned them. The findings from this overview of systematic reviews enabled me to assess the effectiveness of the different interventions (Objective 1).

I used data on chlamydia screening in different PCTs in London, obtained through the National Chlamydia Screening Programme (NCSP), to observe the trends in chlamydia screening and information on behaviour interventions that were used to encourage screening from GPs. The chlamydia screening data provided some context for enquiring further about how individual practices in each PCT responded, and what GPs and PNs in each practice offered as explanations for their practice's performance. It also helped me to choose GPs and PNs to interview and to explore their experiences of the different chlamydia screening strategies as well as other behaviour interventions to deliver public health programmes. Lastly, I justified a qualitative methodology was the most appropriate to understand why the behaviour interventions directed at healthcare professionals might or might not work, in the context of delivering HPDP programmes. I interviewed a sample of GPs and PNs about their motivations to deliver these programmes, using a topic guide that was based on the empirical evidence from the systematic reviews and TPB as a theoretical framework. Although grounded theory might have been useful to generate new theories and ideas when analysing qualitative data, I explained the Framework approach had the advantage that data could be analysed systematically, comprehensively, and flexibly. It also offered an opportunity to analyse the data both inductively and deductively; the latter was used to explore clinicians' motivations using established behaviour theory such as TPB while offering the flexibility to explore new ideas that emerged from the data.

The following section is a summary of my findings.

Summary of findings

I conducted an overview of systematic reviews, reported in Chapter 4, to address the first research question for this thesis, which was to assess effectiveness of interventions aimed to modify behaviour of general practitioners to deliver health promotion and disease prevention (HPDP) programmes. This overview suggested there is currently insufficient evidence these interventions were effective in improving both clinical practice and patient outcomes for HPDP. The effects, if any, tended to be small and mainly limited to delivery of immunisations. The methodological quality of the systematic reviews was generally high so their individual findings were likely to be robust. However, not all reviews specifically reported interventions that targeted primary care professionals, primary care as a setting, or public health related outcomes; hence there was insufficient evidence to draw conclusions that related specifically to my research question.

In Chapter 5, I described implementation strategies and chlamydia screening data in London PCTs to set the context and select the interview participants. The four PCTs I chose used financial incentives as the main lever to encourage general practitioners to deliver chlamydia screening in addition to educational outreach visits. Although this chapter was not designed as an individual study, I

observed these implementation strategies did not have consistent effects across the PCTs or on individual practices as there was a range of chlamydia screening rates in each area.

I reported findings of interviews with GP and practices nurses in Chapter 6. I used the constructs of Theory of Planned Behaviour (TPB): behaviour beliefs, normative beliefs, control beliefs, as well as other influences of behaviour intention to structure the analysis of the interview data. Interview participants were more likely to deliver a programme if they had positive attitudes and beliefs about it, and if they believed the evidence and its provenance; but less likely if there could be harms such as "over-diagnosis" and "over-treatment" of an otherwise healthy person. Behavioural interventions such as educational events, audit and feedback, educational outreach visits and some media strategies might influence their attitudes and beliefs, which could either facilitate or deter intentions to deliver public health programmes.

Peer influences and social expectations contributed to some behavioural intentions and could be summarised as "pressure to conform" and "pressure to perform". Some participants were concerned about unintended consequences of ranking performance as a way of "shaming" practices to conform. Behaviour interventions such as audit and feedback, educational outreach visits, local opinion leaders often use benchmarking to compare practice performance and could help to change attitudes and improve clinical practice.

Barriers to implement HPDP programmes included organisational and logistical issues such as: lack of access to equipment, and complexity of form-filling. Computer reminders could facilitate clinicians to deliver HPDP-related tasks, but some participants thought these were unwelcomed intrusion into the consultation which might affect doctor-patient relationships.

Personal factors such as a clinicians' gender and lifestyles could influence behaviour intentions and some of this was to do with individuals' experiences. Although financial incentives affected some to deliver public health programmes, others had moral ambivalence about being paid for things that they thought should be doing anyway. Related to financial incentives are organisational regulations such as contracts which could affect a practice's income if they did not meet performance targets, sometimes resulting in financial penalties.

Drawing on the findings from the systematic overview of 12 systematic reviews, I conclude there is insufficient evidence to suggest any behaviour intervention is effective in modifying behaviour of healthcare professionals to deliver public health interventions. Not all systematic reviews I examined offered theoretical explanations of how the interventions might work. The most prevalent theories used to design behavioural interventions included: Social Cognitive Theory, Theory of Planned Behaviour, Agency Theory, and adult education theories.

The behaviour theories offered insights into why some of the behaviour modifying interventions might not work; for example, constructs of TPB suggest there are different determinants for behaviour intentions so unless an intervention addressed these determinants, it might not be surprising that the effectiveness of a single approach is limited. Different clinicians might have different motivations and intentions, they might respond to behaviour interventions differently, so perhaps a multifaceted approach might be more likely to address these factors and better at modifying behaviour. Although some systematic reviews considered multifaceted interventions, not all were effective and it was unclear which combinations would have the most optimal effect.

This review also highlighted gaps in empirical research to evaluate single and multifaceted interventions based on behaviour theory, with a robust methodology, that addressed implementation of public health programmes in primary care settings.

Systematic reviews can tell us if interventions work and by how much, but they do not explain why; it was clear that I needed to get better insights into how clinicians behave and respond to public health programmes and to offer explanations to findings from empirical studies and to inform future studies. The qualitative study demonstrated the complexities of the determinants of interview participants' behaviour and TPB was a useful theoretical framework to understand some of this. This study helped to understand why some behaviour interventions might not be effective in practice because they often only

addressed one determinant; the interview data suggest participants responded to public health programmes and behaviour interventions differently.

TPB as a conceptual framework to analyse interview data did not explain all the determinants of behaviour; for example, how financial incentives and contractual frameworks could influence an individual's intention to action. There were also contextual factors why some behavioural interventions did not have impact at the individual level; for example, some participants would ignore computer alerts and financial incentives because the public health intervention was a distraction to the consultation.

Given the complexities of how different determinants of behaviour interact and the context in which they could be influenced, interventions to modify clinicians' behaviour might need to be designed to address these factors. In the following sections, I discuss what my research findings have added to the knowledge base and the implications for research, policy, practice, and education. Further critique of the methodologies and use of TPB are discussed under sub-heading of "Limitations".

Comparison with literature and contribution of study to knowledge base

So far in this thesis, I explained how people generally behave using behaviour theories; and using evidence of behavioural interventions from systematic reviews and insights from a qualitative study, gained some understanding of what can influence GPs and PNs to deliver HPDP programmes. This thesis has three main contributions to understand how GPs and PNs could be influenced to deliver HPDP programmes compared with what is currently available in the literature. I will outline these in terms of the systematic reviews and findings from the interview data.

Contributions to knowledge from overview of systematic reviews

To my knowledge and through searching the available literature, there have not been any reviews that explored the effectiveness of interventions to modify the behaviour of primary care physicians to deliver health promotion and disease prevention programmes.

The findings from my overview of systematic reviews are broadly similar to other published reviews that examined the literature on a broader topic. A Page **170** of **295**

literature review published recently suggests there is a range of interventions which could be used to modify the behaviour of healthcare professionals.(77) Another review team also considered the impact of different interventions for implementing clinical guidelines into surgical and general practice and found continuing medical education and multifaceted interventions to be most effective.(78)

One review (published at the time of initial submission of this thesis) examined strategies to implement complex interventions in primary care also concluded most strategies were associated with small to modest improvement in professional practice and process outcomes. They also found most reviews considered interventions based on individuals and a lack of research on organisational-level strategies and context-level strategies, my review also reached similar conclusions . (143)

I concluded no single intervention was significantly effective in changing the behaviour of primary care clinicians to improve public health practice. The interventions that have been shown to have some effect were: on-screen computer reminders, audit and feedback, educational outreach visits, continuing medical education and possibly some financial incentives. However, the effects of these interventions were small and the context was mainly limited to immunisations as a public health outcome.

I have also offered a theoretical perspective on behaviour interventions. Although cognitive theories such as TPB and economic theories underpinned some behaviour interventions in systematic reviews, not all reported the use of theories to inform the design of interventions. My review also highlighted if single interventions were not effective to modify behaviour, multi-faceted interventions might work better because clinicians might respond better to more than one intervention to change behaviour. This means we need to better understand how and why some interventions work, and hypothesise which combinations might work, and design primary studies that can demonstrate the effectiveness of co-interventions. The use of theory could thus inform the design of future studies on behaviour interventions to make them more effective.

Contributions to knowledge from interview data

This thesis used TPB as a framework for understanding the influences of behaviour intentions of GPs and PNs using constructs of behaviour beliefs, normative beliefs, and control beliefs. The added value of my framework is that I considered not only the main constructs of TPB, but I also referred to Conner and Spark's components of individual constructs to map themes that emerged from the interview data to the theoretical framework.(139) For example, it was through using the components of constructs that I could establish a relationship between the theme of "self-identity" such as gender to the construct of behaviour intention.

The findings from this study seemed to correlate well with what is already in the literature about HPDP in primary care. A systematic review of the literature on the barriers and facilitators for implementation of primary prevention and health promotion activities in primary care used TPB as a theoretical framework.(144) There were some overlaps with what was found in this study including: beliefs and experiences about public health programmes; the (perceived) attitudes of patients towards health promotion programmes; beliefs about time, resources and financial incentives; the influence of messages via media and pharmaceutical industry and government policies. I was also able to add further themes related to the construct of normative beliefs, including: pressure to conform (to professional expectations) and pressure to perform (through peer comparison and competition). In addition, organisational interventions such as contractual levers that used financial penalties and sanctions for not meeting specified targets also made primary care clinicians comply to meet their contractual obligations; these could be considered within the same theme as financial incentives which reward desirable behaviour rather than penalise it.

The interview data offered further insights into how and why some of the behaviour interventions mentioned in the overview of systematic reviews might or might not work. For any public health programme to be delivered, the clinicians must believe they have benefits for patients based on evidence; some clinicians did not believe influenza vaccinations were useful, particularly in children, so there are limits to the use of financial incentives to improve uptake. Educational events, outreach visits and opinion leaders might help to promote certain programmes, but the information needs to be delivered by someone whom the clinicians could trust, in a concise manner because of the pressure on their time, and in a format that is engaging and memorable.

The study findings have added more to the literature regarding strategies on how to improve chlamydia screening such as: framing the evidence in a way that helps to clarify benefits of screening and how unintended consequences could be minimised; using of computer reminders; and reducing the bureaucracy of forms. These are in addition to what is already known about the impact of financial incentives, educational outreach visits (using a "GP champion") and tailored interventions that used TPB to identify barriers to chlamydia screening in general practice.(40, 135)

Study limitations

The study has several limitations. It is limited in scope because it only studied the contribution of general practitioners' (and to a lesser extent practice nurses') contribution to public health programmes; the contributions of other healthcare professionals such as hospital practitioners, public health practitioners and pharmacist were not included.

I did not explore the effect of patient empowerment and demand for HPDP. If there were ways to stimulate the demand for health promotion from the public (e.g. request for screening and health promotion advice), this might circumvent many of the barriers that GPs and PNs had such as concerns about intrusion into consultation agenda and offending the patient. This might be one idea that could have been suggested if I had a Patient and Public Involvement (PPI) in the research design.

Design

The data on chlamydia screening volumes suggested increases in chlamydia screens in the selected PCTs but the study was not designed to analyse the effects of various influences on screening outcomes. However, the trends in chlamydia screens from practices in different PCTs in response to different strategies helped to generate some hypotheses and gave context for the interviews.

The use of 2010 registration data rather than individual GP practice registration data to estimate target population for each year might have produced Page **173** of **295** inaccuracies in calculating the chlamydia screening rates from each practice over the years due to turnover of GP registered patient list, particularly the 16-24-year-old demographic who might move around more often because of education or employment opportunities. However, for this study, it was not essential to have accurate figures as I only needed to know the trends within each practice to assess the changes in their screening behaviour over the years and the relative positions of practices within each PCT to select the "high", "medium" and "low" screeners.

There were problems interpreting the screening behaviour from GPs as there might have been confounders that influenced their attitudes to screening; the literature suggests healthcare professionals' attitudes, beliefs, and competence about public health interventions all have a role in influencing their likelihood to screen, so it might not be valid to attribute behaviours directly to influencing strategies. However, the interviews that followed helped to explain some influences of their screening behaviour in terms of the constructs of the TPB.

Literature review

One main weakness of the literature review was a risk of bias due to one researcher extracting and appraising the reviews. Having another researcher to screen and select the studies based on the abstracts, assess the quality of each review, extract the data and interpret the findings, and using one other researcher to mediate any disagreements would improve the reliability and validity of the findings. More quantitative methods like meta-regression could be used to analyse the effects and outcomes but the heterogeneity of the studies made this challenging.

Recruitment

Although sampling of GPs and nurses from both extremes of chlamydia screening behaviour and in PCTs with and without certain behavioural interventions might have represented a broad view, there were problems with recruiting from these specific categories. The responses to interview request were slow and as it was also not possible to recruit specifically the "high" and "low" screening practices, I made a pragmatic decision to accept any willing participant so long as they reflected a range of practices under a broad range of strategies in different PCTs. I also ensured that I had a balance of large, teaching practices and small practices in each PCT sampled.

The use of chlamydia screening performance to recruit participants might not necessarily reflect the practice's overall attitude and performance in different areas of public health, especially if there were discrepancies between chlamydia screening rates and other public health programmes. Recruiting clinicians from practices from the high or low rates in other programmes might have offered insight into the differences in attitudes to other public health programmes. The participants were drawn from practices with a diverse range of achievements for other public health programmes (i.e., high screeners for chlamydia did not necessarily have high achievements for cervical cytology, influenza or childhood immunisations), which suggested their practices might have had different values on different programmes, so it made the interviews more interesting and the data richer.

Data analysis and interpretation

There might have been issues of reliability if one researcher undertook interpretation and categorisation of data. This was minimised by repeating the coding exercise for every transcript and discussing the themes from transcripts with my supervisor. I used a modified Framework approach to analyse interview data as it is systematic, comprehensive, and transparent so it would be possible to have another researcher validate the data using the same process. The use of *NVivo*® to organise the data also made the analysis transparent and possible for another researcher to follow through the process. The code list, an example of coding and the Framework matrix are enclosed in Appendix G and Appendix H.

As the interviews relied on participants' recall of events, there was a possibility of recall bias with what they could remember. They might have felt judged when discussing their practice's public health outcome data which could introduce courtesy bias where they discussed what I as the interviewer might have wanted to hear. There was also a risk of participants discussing what they intended to do rather than describing actual behaviour, which is a common issue with qualitative studies and is to be expected. However, this was minimised by using objective evidence as a context for interviews, such as their

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practice's data on public health outcomes, e.g. childhood immunisations rates, influenza vaccination rates and cervical cytology coverage.

Due to the methods of recruitment for a qualitative study, there is the likelihood that subjects are self-selected and could therefore introduce bias in the study findings. Recruiting from the same source or method might introduce bias because participants might have similar characteristics and opinions. I tried to minimise the risk of selection bias by using different methods to recruit participants. This enabled me to get as diverse a range of participants and views as possible.

Theory of Planned Behaviour as conceptual framework

The use of TPB helped me to structure the analysis but it was not possible to quantify the contribution of an individual construct on overall behavioural intention. For example, in the construct of control beliefs, the clinicians might feel intrusion of patient's agenda was a greater barrier to HPDP than the possible financial gains from incentives, so it might be challenging to find financial compensation that would be adequate to overcome this barrier. The TPB was limited as it is used to explain and predict behaviour in *individuals*; conceptual frameworks that considered an organisation as a unit could also have been used to explain the organisational behaviour with respect to delivering public health programmes.

Most of the themes that were generated from the interview data aligned with the constructs of TPB which has been used widely to understand and implement behaviour change strategies in health care professionals, and concurred with findings from a systematic review that looked at the influences of primary care practitioners to deliver public health interventions.(144) The findings however, are context-specific, so it might not necessarily translate to healthcare professionals working in hospital settings.

Psychological theories such as TPB are intended to explain relationship between intention and action in particular contexts, and in relation to specific practices. However, some psychologists have criticised them for relying on analyses of correlation rather than causes;(145, 146) as well as assuming too much about instrumental relation between attitude and intention.(147) May and Finch proposed a theory of normalization processes (Normalisation Process Page **176** of **295** Theory NPT) that focusses on how complex interventions become routinely embedded and sustained in practice.(148) There has been some considerable interest in using NPT to address factors needed for successful implementation and integration of complex interventions into routine practice to improve health, and there are calls for this to be considered when designing trials.(149)

Generalizability of findings

Qualitative studies cannot be judged in the same way as quantitative research because they aim to explore different dimensions of phenomena. Qualitative methods use "concepts which help us to understand social phenomena in natural (rather than experimental) settings, giving due emphasis to the meanings, experiences and views of all the participants".(91) For example, qualitative studies offer insights into why chlamydia screening rates varied considerably amongst practices within PCTs despite financial incentives and educational outreach. Explanations why some behaviour interventions (inputs) do not produce expected behaviour change (outputs) could be offered through interviews with clinicians. Understanding the reasons for these phenomena might therefore help to design different implementation strategies to better control for these influences; in other words, explain the phenomenon of the "black box", why "inputs" did not result in expected "outputs".

Although this study only used 21 participants, the data that it generated became "saturated" by the last few interviews. In other words, I did not feel that any new data emerged after the last few interviews and having more participants might not have added more to the findings. Therefore, a larger sample size would not have necessarily changed the conclusions.

Study strengths

Despite the weaknesses stated above, this thesis has several important strengths. This thesis related what was found in systematic reviews with experience of individual clinicians to explain why some behavioural interventions worked and others did not. Hence, any further research on interventions aimed to change the behaviour of primary care professionals could use these findings to design strategies that they are more likely to respond to. The study's main strength includes the use of several methods to understand the motivations of general practitioners to deliver public health programmes, using an overview of systematic reviews, a qualitative study and use of theory to provide a conceptual framework.

For the qualitative work, I used a modified Framework approach to analyse the interview data, which is systematic and comprehensive. However, following the mixed inductive/deductive approach, the analytical framework needed to be flexible enough to accommodate themes emerging from the data that did not fit neatly into a scheme using TPB.(97) For example, organisational influences on behaviour including contractual levers and financial incentives could not be mapped to the constructs of TPB.

The use of several methods of enquiry also enabled me to unpack the "black box" to explain the why some implementation programmes appeared to have had no impact and some had relatively modest success.

Reflexivity - effect of the "GP Researcher"

There might be issues with interview dynamics when the interviewer is in the same profession or field as the participants. The responses to my questions and therefore the data collected could have been influenced by these and the perception of my role in the interview: as a GP peer, as a GP with interest in sexual health/public health and as a researcher.

The effect of the professional identity of the researcher on the interview process plays an important part in collecting interview data. In a study that used GP researchers to interview GPs about their consultations on back pain and drug misuse found that access to the GPs was easier when the GP researcher was known to the participant. The interviews tended to be broader in scope and provide richer and more personal accounts of attitudes and behaviour in clinical practice. However the GP researcher was also identified as an "expert and judge", not just in clinical decision making but also about moral judgements on the work of the GPs who were being interviewed.(94)

These were very similar issues I encountered during my interviews. I felt I could have open and broad discussions about public health practice which helped to enrich the data. However, when discussions moved on to the practice's

performance on outcomes such as influenza vaccinations, I sensed that some participants were trying to defend or explain their practice's poor performance as if I were judging them or their practice. Although I did not feel there were many occasions when the participants appeared or seemed uncomfortable about their practice's performance, many were quick to defend and explain why they were in that position, sometimes deflecting from individual performance to attributing to patient demographics or organisational issues.

My other role as a sexual health and public health practitioner might have affected some of their responses to questions about chlamydia screening and other public health programmes. For example, they might have felt compelled to say something positive about the programmes, or that they agreed with the principles and objectives, leading to "courtesy bias". One GP assumed because I was involved with the chlamydia screening programme at a national level that I was supportive and agreed on the evidence base for it. On the other hand, some of the participants did not hesitate to criticise the evidence base of some public health programmes, including chlamydia screening. There were others who tested boundaries to check if they could voice their opinion without reprieve, as implied by responses such as "am I going to get into trouble for saying this but …", "I might be saying things out of turn but…", "as this is anonymised …" made me believe that some participants felt comfortable enough to share their opinions openly and honestly.

In Chapter 1, I mentioned the motivation for my thesis; I was unwilling to accept that primary care clinicians such as GPs and practice nurses could do nothing to improve the nation's public health. The findings from this thesis suggest although there might not be the "magic bullet" intervention to change clinicians' behaviour, I was heartened to hear the GPs and nurses I interviewed were supportive of most public health programmes- provided they believed they worked, they were in their patients' best interest, with minimal risk of unintended consequences, and it didn't matter about the remuneration – they just wanted the best for their patients. With the help of behaviour theories such as TPB directed at the level of the individual and the organisation, we are closer to understanding, and finding the "magic bullet".

Implications for policy, research, practice, and education

The findings from my thesis have added to the evidence base for delivering HPDP programmes in general practice. There are further implications of the thesis findings for policy, research, practice, and education.

Implications for policy

The conclusions from this overview of systematic reviews are not substantially different to those of other reviews. A recent review that examined behaviour interventions on primary care professionals also concluded most strategies were associated with small to modest improvement in professional practice and process outcomes.(143) They also found most reviews considered interventions based on individuals and a lack of research on organisational-level strategies and context-level strategies. Interventions that involved an element of education were likely to improve practice but the effect was modest and a multi-faceted approach was probably more effective.(150) However, when it applied to primary care professionals and public health, there was no single intervention that was deemed to be effective for both.

It is probably prudent to accept that a one-dimensional or linear approach to implementing any evidence-based programme, e.g. only relying on guideline dissemination or educational events, would not be effective and the qualitative data from this thesis has confirmed the addition of implementation strategies based on the three constructs of TPB need to be considered too.(76) Multifaceted approach and tailored interventions, which are more likely to address these constructs, might be better at addressing the determinants of behaviour intention.

Based on TPB and the findings from this thesis, I propose an implementation strategy for an HPDP programme might need to consider the following:

- To address behaviour beliefs (one construct of TPB)
 - Robust evidence to demonstrate effectiveness of public health intervention
 - Explanation of unintended consequences and how they could be overcome
- To address normative beliefs
- Evidence to suggest it is desirable or expected for healthcare professionals to deliver this programme
- Feedback in terms of performance compared with peers
- To address control beliefs
 - Consider specific barriers and facilitators for clinicians to implement the programme
 - Evidence that the programme is wanted by and seen as desirable by patients
- Any combination of behaviour modification that addresses any of the above, e.g. mass media to raise awareness, computer reminders to facilitate implementation during consultations, tailored interventions to explore specific barriers in practice and suggestions on how to overcome these, financial incentives to encourage behaviour change.

Implications for future research

Future empirical studies should consider multi-faceted approaches to create better evidence bases for future policy on delivery of preventative health in primary care. New ideas have been identified in this thesis that might be worthy of exploration, such as the use of communication theory to "package" information to influence attitudes,(117) use of performance data to improve public health outcomes, and perhaps the use of mass media or social marketing to "stimulate demand" for public health to aid patient empowerment. The last might overcome the issues of eroding the doctor-patient relationship and the issue of starting a "difficult conversation" as the main barriers to implementing public health programmes.

The review highlighted the need for primary studies to be better designed to demonstrate treatment effects, to improve the use of theory to inform their designs, the need for systematic reviews that specifically considered the impact of interventions on the behaviour of general practitioners and related patient outcomes in the context of HPDP. Through more qualitative studies, we need to better understand how and why some interventions work, and hypothesise which combinations might work synergistically, and design primary studies that can demonstrate their effectiveness, as well as cost-effectiveness.

While I am not suggesting that my proposed model for an implementation strategy offers a significant contribution to implementation literature, it does however warrant further research to evaluate its validity, effectiveness, and utility.

Implications for practice and education

The Health and Social Care Act 2012 set out changes to the public health system; local authorities were given new responsibilities and funding, taking a greater role in improving health and reducing health inequalities.(151) With support from Public Health England, they will deliver a public health outcomes framework, which aims to increase healthy life expectancy, and reduce differences in life expectancy and healthy life expectancy between communities.(152) The NHS also has a legal duty to improve health inequalities, this includes working with clinical commissioning groups (CCGs) to improve the health of the local population.(153)

However, with reduced resources and demand for more cost-effective prevention, there might be more demands for HPDP from GPs, with reduced remuneration. This might mean relying less on financial incentives and considering other ways to achieve the same public health outcomes. The findings from the overview of systematic reviews and interviews suggest financial incentives are not the panacea to encourage GPs to deliver HPDP. There are other ways to implement public health programmes according to the findings from the overview of systematic reviews, including: setting up computer reminders to prompt clinicians to deliver programmes, visits by CCG or local authority staff to discuss health improvement programmes (using opinion leader, EOV or tailored interventions), educational programmes and materials to deliver these messages, as mass media approach for public and professional awareness. There may also be a "dashboard" to feedback individual practice's performance compared with others and their standing in each CCG area.

The qualitative study has also highlighted different perceptions and attitudes to various public health programmes which includes interpretation of current evidence, own values about some programmes, and the experiences of delivering them. It might be useful for some CCGs and local authorities to consider running an educational event on poorly performing measures or an

educational visit to practices with low achievements to address barriers to implementing programmes. These might reveal insights such as misconceptions about evidence or interpretations, logistical barriers and their perceptions about population needs.

Conclusions

In the mid-90s, Oxman et al concluded there were "no magic bullets" to change clinical practice as they might require not only different implementation strategies, but different groups of clinicians might have specific barriers that need to be overcome.(76) Twenty-five years later, we are no closer to finding the elusive "magic bullet" but we understand much more about what works and we have better insights into how healthcare professionals think about delivering HPDP programmes.

In his book, *A New Kind of Doctor*, which was a rallying call for more GP involvement in improving the health of their communities, Dr Julian Tudor Hart, who is now a retired GP, lamented about the reluctance of GPs to consider the health of the wider population:(154)

"Just as it was necessary for doctors to pursue medical knowledge in blinkered isolation from its social context, the good doctor was supposed to fix his gaze only on the patient in hand, in the 'patient-tight compartments', forgetting the other 30 in the waiting room or the thousands outside, to reach clinical perfection for a few rather than what was possible and useful for the many." [page 47]

Thirty years since the publication of Tudor-Hart's book, we have seen more HPDP delivered by GPs. However, the expansion of the prevention agenda has unintended consequences. Its intrusion into the consultation has become more of a problem as patients' agendas have become "unheard" as they are subjected to biomedical "surveillance" as part of the quality and outcomes framework (QOF) of the new GP contract.(155) Not all conversations about HPDP need to be intrusive or inappropriate, particularly if the patient could benefit. The challenge might be how the clinician could find the opportunity to raise it as an issue in a sensitive manner, and make it relevant for the patient in that consultation.

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APPENDIX A– Research Governance and Ethics

Ethics approval LSHTM

London School of Hygiene & Tropical Medicine Keppel Street, London WC1E 7HT United Kingdom Switchboard: +44 (0)20 7636 8636

www.lshtm.ac.uk



Observational / Interventions Research Ethics Committee

Richard Ma DrPH student HSRP/PHP LSHTM

20 September 2012

Dear Dr Ma,

Study Title:What strategies influence general practitioners' behaviour to deliver
public health programmes? A case study using the National Chlamydia
Screening Programme in LondonLSHTM ethics ref:6246

Thank you for your application of 27 July 2012 for the above research, which has now been considered by the Observational Committee.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised, subject to the conditions specified below.

Conditions of the favourable opinion

Approval is dependent on local ethical approval having been received, where relevant.

Approved documents

The final list of documents reviewed and approved by the Committee is as follows:

Document	Version	Date
LSHTM ethics application	n/a	27/07/2012
Protocol		
Information Sheet	V1	06/07/2012
Consent form	V1	06/07/2012

After ethical review

Any subsequent changes to the application must be submitted to the Committee via an E2 amendment form. All studies are also required to notify the ethics committee of any serious adverse events which occur during the project via form E4. At the end of the study, please notify the committee via form E5.

Yours sincerely,

Professor Andrew J Hall Chair ethics@lshtm.ac.uk http://intra.lshtm.ac.uk/management/committees/ethics/

Improving health worldwide

Page 1 of 1

Research Sponsor Form LSHTM

London School of Hygiene & Tropical Medicine Keppel Street, London WC1E 7HT United Kingdom Switchboard: +44 (0)20 7636 8636

www.lshtm.ac.uk

Our ref: QA404

Richard Ma DrPH Student HSRP/PHP LSHTM

13 July 2012

Dear Dr Ma,



Re: What strategies influence general practitioners' behaviour to deliver public health programmes? A case study using the National Chlamydia Screening Programme in London

As the authorised representative for the London School of Hygiene & Tropical Medicine (LSHTM), I can confirm that LSHTM will act as the identified Research Sponsor, the organisation which takes responsibility for the initiation, management, and/or financing of a research study, for the above titled project.

It is the Chief Investigator's responsibility to ensure that members of the research team comply with all local regulations applicable to the performance of the project, including, but not limited to: the Declaration of Helsinki (2008), ICH Good Clinical Practice Guidelines (1996), and for projects conducted in the UK: the Research Governance Framework for Health and Social Care (2005), the Data Protection Act (1998) and the Human Tissue Act (2004).

LSHTM carries Clinical Trial/Non Negligent Harm Insurance and Professional Negligence Insurance applicable to this study:

	Clinical Trials/Non Negligent Compensation	Medical Malpractice
Insurer	Lloyds (MarketForm)	Lloyds (MarketForm)
Certification No.	12/00068496	12/00068495
Finance Cover	£5 million pounds sterling	£10 million pounds sterling

The Non-Negligent harm policy is worldwide, with the exception of the United States and Canada. The policy is subject to terms, conditions and exceptions.

LSHTM Sponsorship is conditional on the project receiving applicable ethical and regulatory approval, complying with LSHTM policies and procedures, as well as successful contract and agreement negotiations from the Research Grants and Contracts Office, where relevant, before the study commences.

A copy of the ethics and regulatory approval letters **must** be sent to the QA Manager prior to the study commencing. Sponsorship is dependent on obtaining local approval for all sites where the research is being conducted.

Yours sincerely,

Patricia Henley Quality Assurance Manager T: 020 7927 2626 E: <u>patricia.henlev@lshtm.ac.uk</u> Web: <u>www.intra.lshtm.ac.uk/trials</u>

Improving health worldwide

Page 1 of 2



Bedford House, 3rd Floor 125-133 Camden High Street London, NW1 7JR

> Tel: 020 3317 3045 Fax: 020 7685 5830/5788 www.noclor.nhs.uk

> > 18 March 2013

Dr Richard Ma London School of Hygiene and Tropical Medicine Department of Health Services Research and Policy 15-17Tavistock Place London WC1H 9SH

Dear Dr Ma

I am pleased to confirm that the following study has now received R&D approval, and you may now start your research in **the trust(s) identified below**:

Study Title: What stra National C R&D reference: CSP1073 REC reference: N/A	gies influence general practitioners' behaviour to delive lamydia Screening Programme in London 1	r public health programmes? A case study using the
Name of the trust	Name of current PI/LC	Date of permission issue(d)
NHS Tower Hamlets	Dr Kambiz Boomla	18 March 2013
If any information on this	ocument is altered after the date of issue, this docu	ment will be deemed INVALID

Specific Conditions of Permission (if applicable) Study will take place at following practices only

Chrisp Street Health Centre Cable Street Surgery

If any information on this document is altered after the date of issue, this document will be deemed INVALID

Yours sincerely,

.....

Mabel Saili Senior Research Governance Officer

Cc: Principle Investigator(s)/Local Collaborator(s), Sponsor Contact

R&D approval letter, REC reference: N/A, R&D reference: CSP107391 Page 1 of 2

Noclor Funding Research Support Costs

North Central London Research Consortium North Central London Research Consortium 3rd Floor, Bedford House 125 - 133 Camden High Street London, NW1 7JR

Dr. Richard Ma Department of Health Services Research and Policy, Faculty of Public Health & Policy London School of Hygiene and Tropical Medicine 15-17 Tavistock Place London WC1H 9SH

22nd January 2013

Ref: NoCLoR 12/13-0031

Dear Dr. Ma,

RE: What strategies influence GP's to deliver public health intervention?

NoCLoR has considered your application and I am pleased to inform you that we will provide a total of £1500.00 from April 2012 to March 2013 to cover eligible service support cost for your study. Please note that the total spending must not exceed the award mentioned in Appendix 1 unless agreed with NoCLoR in advance.

NoCLoR has to be informed by you or another representative of the research team whenever a site completes recruitment. Please provide name, relevant contact details and the amount owed to the site via email to <u>contact.noclor@nhs.net</u>. Failure to do so could cause delays in payment. On the receipt of above information our finance contact would get in touch with the participating site and arrange payment.

We hope this funding will be helpful to your research however if you have any questions please free to contact us.

Kind regards,

M

Nawid Azizi / Senior Management Accountant R&D Finance CNWL | Camden Provider Services t: 020 3317 3037 | f: 020 7685 5788 3rd Floor | Bedford House | 125-133 Camden High Street | London | NW1 7JR w: <u>www.camdenproviderservices.nhs.uk</u> w: <u>www.cnwl.nhs.uk</u>

Research R&D Approval Hackney and Camden



125-133 Camden High Street London, NW1 7JR

Tel: 020 3317 3045 Fax: 020 7685 5830/5788 www.noclor.nhs.uk 18 March 2013

Dr Richard Ma London School of Hygiene and Tropical Medicine Department of Health Services Research and Policy 15-17Tavistock Place London WC1H 9SH

Dear Dr Ma

What strategies influe National Chlamydia S CSP107391 N/A	nce general practitioners' behaviour to deliver creening Programme in London	public health programmes? A case study using the
ust	Name of current PI/LC	Date of permission issue(d)
	Dr Richard Ma	18 March 2013
ney	Dr Richard Ma	18 March 2013
	What strategies influe National Chlamydia S CSP107391 N/A ust	What strategies influence general practitioners' behaviour to deliver National Chlamydia Screening Programme in London CSP107391 N/A ust Name of current PI/LC Dr Richard Ma ney Dr Richard Ma

I am pleased to confirm that R&D approval has been given for any site within the trust(s) identified above, which can act as a Research site for the above study subject to the following conditions:

- Any site within the trust(s) identified above that is acting as a Research site MUST indicate their willingness to participate by completing the Third page of this letter and returning it to our office. Please ensure you have kept copy of all signature page for your record.
- Please note that it is the responsibility of the Chief Investigator/Principal Investigator for the
 research study to ensure that the research site confirmation slip, on page 3) is completed for
 each participating Research site and returned to the R&D office. Audits will be conducted on
 randomly selected research sites to ensure this requirement of R&D approval is adhered to.

Please ensure that all members of the research team are aware of their responsibilities as researchers which are stated in page 2. For more details on these responsibilities, please check the R&D handbook or NoCLoR website: <u>http://www.noclor.nhs.uk</u>

We would like to wish you every success with your project.

Yours sincerely,

e ABC

Mabel Saili Senior Research Governance Officer

Cc: Principle Investigator(s)/Local Collaborator(s), Sponsor Contact

R&D approval letter, REC reference: N/A, R&D reference: CSP107391

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14

Research R&D Approval Haringey

North Central London Research Consortium

NHS

North Central London Research Consortium 3rd Floor, Bedford House 125 - 133 Camden High Street London, NW1 7JR

19/09/2012

Dr Richard Ma Department of Health Services Research and Policy 15-17, Tavistock Place London WC1H 9SH

Dear Dr Ma,

I am pleased to confirm that the following study has now received R&D approval, and you may now start your research in **the trust(s) identified below**:

Study Title: What strategies influence general practitioners' behaviour to deliver public health programmes? A case study using the National Chlamydia Screening Programme in London

R&D Reference: REC Reference:	CSP107391	
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Please ensure that all members of the research team are aware of their responsibilities as researchers which are stated in page 2. For more details on these responsibilities, please check the R&D handbook or NoCLoR website: http://www.noclor.nhs.uk

We would like to wish you every success with your project

Yours sincerely,

me.

Mabel Saili Senior Research Governance Officer

R&D Approval: 1/09/2012 REC Reference: -----Page 1 of 2 R&D Reference: CSP107391

Research R&D Approval Tower Hamlets



Bedford House, 3rd Floor 125-133 Camden High Street London, NW1 7JR

> Tel: 020 3317 3045 Fax: 020 7685 5830/5788 www.noclor.nhs.uk

> > 18 March 2013

Dr Richard Ma London School of Hygiene and Tropical Medicine Department of Health Services Research and Policy 15-17Tavistock Place London WC1H 9SH

Dear Dr Ma

I am pleased to confirm that the following study has now received R&D approval, and you may now start your research in **the trust(s) identified below**:

Study Title: R&D reference: REC reference:	What strategies influen National Chlamydia Sc CSP107391 N/A	ce general practitioners' behaviour to deliver reening Programme in London	public health programmes? A case study using the
Name of the tr	ust	Name of current PI/LC	Date of permission issue(d)
NHS Tower Ham	lets	Dr Kambiz Boomla	18 March 2013

If any information on this document is altered after the date of issue, this document will be deemed INVALID

Specific Conditions of Permission (if applicable)

Study will take place at following practices only

Chrisp Street Health Centre Cable Street Surgery

If any information on this document is altered after the date of issue, this document will be deemed INVALID

Yours sincerely,

RS. Q.

Mabel Saili Senior Research Governance Officer

Cc: Principle Investigator(s)/Local Collaborator(s), Sponsor Contact

R&D approval letter, REC reference: N/A, R&D reference: CSP107391

Page 1 of 2

Research R&D Approval Lambeth

research & development centre



Primary, Community & Social Care



South East London

Southwark Public Health Department PO Box 64529 London SE1P 5LX Tel: 020 7525 0264 Fax: 020 7525 0318 email: ali.alshukry@southwarkpct.nhs.uk www.researchdevelopmentcentre.nhs.uk

Dr Richard Ma Department of Health Services and Research Policy 15-17 Tavistock Place London WC1 9SH

29/08/2012

Dear Dr Ma

Project Title: What strategies influence general practitioners' behaviour to deliver public health programmes? A case study using the National Chlamydia Screening Programme in London R & D Reference: RDSLam 657/ CSP 107391

Thank you for your assistance providing the documentation for the scrutiny of this project.

I am satisfied that this study meets with the requirements of the Research Governance Framework. It has been approved by the research lead for the respective NHS organisations.

Approval is given on behalf of NHS Southwark and Lambeth on the understanding that you adhere to the conditions on the attached document. The end date of the project is listed as 29/03/2013.

Please do not hesitate to contact me should you require any further information.

Yours sincerely

Ali Alshukry Research Governance Coordinator South East London NHS Bexley, Bromley, Greenwich, Lambeth, Lewisham & Southwark

Developing research in: Greenwich, Lambeth, Lewisham & Southwark PCTs

APPENDIX B – interview schedules, participant information and consent

Invitation letters



London School of Hygiene and Tropical Medicine

Date: 5/3/2013

Dear Colleague,

<u>Re: What strategies influence general practitioners' behaviour to deliver public health</u> programmes? A case study using the National Chlamydia Screening Programme

I would like to ask you for your help with my research study.

I am a part-time GP principal with an interest in public health. I am studying for a Doctor of Public Health (DrPH) degree at the London School of Hygiene and Tropical Medicine.

I am trying to find out what sort of things influence our behaviour, as primary care professionals, to deliver public health programmes.

I am using the National Chlamydia Screening Programme as an example because different PCTs have used different ways to influence the behaviour of GPs to deliver chlamydia screening.

Your practice has been chosen because the screening rates appeared to be either higher or lower than expected and I would like to come and discuss with you about why this might be.

This is not a performance management exercise but an open discussion, without prejudice, about what makes GPs/practice nurses deliver public health interventions.

If this is agreeable, I can come to your practice at a mutually convenient time. It will take no more than 1-1½ hours of your time. I am afraid this project is self-funding so there will be no financial remuneration and I am relying on your goodwill.

It is possible however to give you a copy of the transcript as a record of our discussion on reflective public health practice which you can retain for your CPD log.

Please let me know if it would be possible to interview you.

Yours sincerely



London School of Hygiene and Tropical Medicine

Date: 05/February/2013

Dear Colleague,

<u>Re: What strategies influence general practitioners' behaviour to deliver public health</u> programmes? A case study using the National Chlamydia Screening Programme

I would like to ask you for your help with my research study.

I am a part-time GP principal with an interest in public health. I am studying for a Doctor of Public Health (DrPH) degree at the London School of Hygiene and Tropical Medicine.

I am trying to find out what sort of things influence our behaviour, as primary care professionals, to deliver public health programmes.

I am using the National Chlamydia Screening Programme as an example because different PCTs have used different ways to influence the behaviour of GPs to deliver chlamydia screening.

If this is agreeable, I can come to your practice at a mutually convenient time. It will take no more than 1 hour of your time. The research network that covers Haringey has agreed to fund financial reimbursements for taking part in this study: £70 per GP and £25 per practice nurse.

Please let me know if it would be possible to interview you.

Yours sincerely



London School of Hygiene and Tropical Medicine

Date: 05/February/2013

Dear Colleague,

<u>Re: What strategies influence general practitioners' behaviour to deliver public health</u> programmes? A case study using the National Chlamydia Screening Programme

I would like to ask you for your help with my research study.

I am a part-time GP principal with an interest in public health. I am studying for a Doctor of Public Health (DrPH) degree at the London School of Hygiene and Tropical Medicine.

I am trying to find out what sort of things influence our behaviour, as primary care professionals, to deliver public health programmes.

I am using the National Chlamydia Screening Programme as an example because different PCTs have used different ways to influence the behaviour of GPs to deliver chlamydia screening.

If this is agreeable, I can come to your practice at a mutually convenient time. It will take no more than 1 hour of your time. The research network that covers Haringey, Hackney, Tower Hamlets, Camden and Islington has agreed to fund financial reimbursements for taking part in this study: £70 per GP and £25 per practice nurse.

Please let me know if it would be possible to interview you.

Yours sincerely

Participant information sheet

London School of Hygiene & Tropical Medicine

Keppel Street, London, WC1E 7HT, United Kingdom



Study title: What strategies influence general practitioners' behaviour to deliver public health programmes? A case study using the National Chlamydia Screening Programme

Investigator Name and Contact No: Dr Richard Ma 07979 752 420

Background

This project forms the thesis component of the Doctorate in Public Health degree (DrPH) that is being undertaken by the investigator at the London School of Hygiene and Tropical Medicine, University of London. The Doctor of Public Health degree provides doctoral level training for future leaders in public health. The purpose of the research project is to help candidates learn about the role of research in public health practice through undertaking their own high quality public health relevant research. Because of the time allocated to research in the DrPH programme, the DrPH thesis is shorter in length and more limited in scope than a PhD thesis; however, the academic rigour is the same.

Study aim

The aim of the research is to explore the effects of different types of behaviour-modifying strategies on general practitioners and practice nurses to deliver chlamydia screening in young people as part of the National Chlamydia Screening Programme. The study will use semi-structured interviews to ask about factors which influence GPs' and practices nurses' behaviour in the context of public health interventions.

Your participation

Participation in this research is confidential (participants will only be identified by a study code, not by name) and entirely voluntary. Withdrawal with no adverse consequences is possible at any time without having to give a reason. If you agree to take part, you will be invited to participate in an interview to explore your views. The interview will be recorded using digital audio recording device and transcript typed up.

How confidentiality will be ensured

The transcripts of interviews are available to the investigator (ie R Ma) and his supervisor only. Information obtained through interviews will be used in aggregate form. Where transcripts are quoted no reference will be made to your name, age or gender. All transcripts will be kept by the investigator in a secured file and for the duration of the doctorate study, after which they will be destroyed.

Ethical approval

This study has been approved by the London School of Hygiene and Tropical Medicine's Research Ethics Committee and National Research Ethics Committee. If you have any further questions or queries about the study please do not hesitate to contact me at <u>richard.ma@lshtm.ac.uk</u>.

If you have any concerns about the conduct of this study, please contact my supervisor Dr Pauline Allen at Pauline.Allen@lshtm.ac.uk.

Participant Information Sheet

6/11/15



Dear Participant,

Re: What strategies influence general practitioners to deliver public health programmes?

Thank you very much for participating in this study. I am pleased to tell you that I am in the final stages of submitting the final version of the doctoral thesis and producing a couple of original research articles.

As part of good research practice and data validation, I enclose a copy of the interview transcript for you to read and keep. The transcription was done professionally and I am confident that it was an accurate reflection of our interview. However, please let me know as soon as possible if you feel there might be any inaccuracies – preferably before the end of November 2015.

How has my interview been used?

All the data from the transcripts have been analysed according to a qualitative method called "Framework Analysis" which groups emerging issues into a chart and matrix which ensures all the material are analysed systematically.

Data from qualitative studies are usually presented into "themes" or discrete conceptual categories, sometimes a theoretical framework is applied to the data. Due to the restriction on word counts not every participant has been quoted. In addition, quotes are only used if they add to the narrative.

Will I be identified?

Every effort has been made to anonymise participants and have not been identified by name. Every participant is coded in the form: PCT name/gender/size of practice/training or nontraining. For articles submitted for publication, the participant codes will be limited to PCT name & gender.

Will the study be in the public domain?

The doctoral thesis will be submitted for examination in October 2015. Once the thesis has been approved and passed, it will be available publicly from the London School of Hygiene and Tropical Medicine as a hard copy to view and electronically. I anticipate two original articles that will be submitted to peer reviewed journals – one on chlamydia screening and another one other public health programmes. I can send a link to these papers once they are accepted for publication. Thank you once again for your generosity and your help with my doctoral thesis. Please let me know by the end of August if there are any issues with the interview transcript.

Yours sincerely

Interview Schedule

What strategies influence general practitioners' behaviour to deliver public health programmes? A case study using the National Chlamydia Screening Programme in London

- 1. Welcome and housekeeping (this section will not be recorded on tape)
 - a. Introduction and explanation of study
 - b. Consent and ethics
 - c. Interview, transcription and validation process
 - d. Sign consent form
- 2. General conversation about public health practice to ease interviewee into further discussions
 - a. Open question: "Can you tell me about the public health activities that you do?"
 - If interviewee struggles give examples such as cervical cytology screening, immunisations, health checks, smoking cessation
 - "How do you feel/what are your opinions about these programmes?"
 - Looking for responses such as evidence, support, confidence in delivering them and other motivations
 - b. Open questions to understand reasons for delivering these interventions
 - o "Why do you think some health care professionals deliver them?"
 - "Why do you think some don't?"
 - c. "I want to understand what makes doctors/nurses deliver X can you tell me what drives *you* to deliver X?"
- 3. Questions specifically relating to behaviour change strategies (if not already covered above): "Reflecting on your public health practice, what factors influence your decision to promote certain programmes?" Using following prompts to elicit different behaviour modifying techniques
 - a. Behavioural approaches:
 - i. "Knee jerk" reaction or "auto-pilot"
 - ii. Feedback encourage more of same behaviour
 - iii. Have you started doing something because of peer pressure?
 - iv. Do you respond to league tables/"scobiegrams"?
 - v. Do you have your own views on some programmes? (Health belief model effectiveness/susceptibility/risks/benefits)
 - b. Educational approaches
 - i. Do reading about/attending courses on certain conditions make you change practice/offer X?
 - ii. Did you start offering this after a learning event?
 - c. Marketing approaches
 - i. Did media: leaflets/TV/radio/newspapers affect how you promoted X?
 - d. Educational outreach visits
 - i. Have you had visits from prescribing advisors/drug reps/other to persuade you to change practice? And did they work?
 - e. Financial
 - i. Has QOF/£ incentive made you more likely to offer X?

- f. Others
 - i. Are there certain programmes that you feel less likely to offer and why?
 - ii. Knowledge about conditions
 - iii. Ability to manage questions/results of screening tests/health promotion
 - iv. Consultation process/logistics/time pressure?
 - v. Personal beliefs
 - vi. Patient factors

Questions about chlamydia screening:

- 4. "I would like to talk about chlamydia screening as an example of a public health intervention that has used many different ways to encourage GPs to deliver. May I ask your opinions on the programme?
- 5. "How does chlamydia screening compare with your practice/thoughts/attitudes on [flu vaccinations/smoking cessation/heart disease screening]?"
- 6. "According to the NCSP data, your practice screens X% of young people in your practice/is ranked Y in 2010. Is this a fair reflection of your chlamydia screening practice?"
 - a. If not why not?
- 7. "Do you know if your PCT/how your PCT encouraged you to screen?"
- 8. If yes "Did it change your behaviour?"
- 9. If not "Should they have used any behaviour-modifying strategy?"
- 10. "Can you think of any barriers that have impeded chlamydia screening in your experience/practice?"
- 11. "What sort of things would increase your/your peers' screening rates?"
 - a. League tables
 - b. Educational events
 - c. Flyers
 - d. Financial incentives
 - e. Outreach visits
- 12. Summary of responses
- 13. Transcription and validation process
- 14. Expressing thanks



A research project for the degree of Doctor in Public Health DrPH London School of Hygiene and Tropical Medicine

What strategies influence general practitioners' behaviour to deliver public health programmes? A case study using the National Chlamydia Screening Programme

I,______ give permission to Dr Richard Ma to use notes based on his interviews with me on the study above, or to use transcripts of recordings of such interviews, for scholarly and educational purposes.

	Please
	initial
1. I have read and understand the information sheet dated 05/03/2013 for the	
above study. I have had the opportunity to consider the information, ask	
questions and have had these answered satisfactorily.	
2. I understand that taking part in the study is entirely voluntary.	
 I understand that it is my right to decline to answer any questions that I am asked. 	
4. I understand that I am free to end the interview at any time.	
5. I may request that the interview is not tape recorded.	
I allow the researcher to use suitably anonymised verbatim quotations from the interview in which I am taking part.	
 I understand the interview that I participate in will be audio-taped and transcribed. 	

Signature of participant	Signature of researcher
Print name	Print name
Date	Date

APPENDIX C – literature searches

Database: EMBASE <1980 to 2011 Week 14> Search Strategy:

- 1 general practitioner/ (43349)
- 2 primary medical care/ (43007)
- 3 general practice/ (60075)
- 4 1 or 2 or 3 (129639)
- 5 nurse/ (50980)
- 6 nursing/ (175772)
- 7 5 or 6 (219280)
- 8 4 not 7 (126193)
- 9 behavior change/ (6364)
- 10 medical education/ (148799)
- 11 motivation/ (53284)
- 12 reimbursement/ (27568)
- 13 9 or 10 or 11 or 12 (232921)
- 14 health care quality/ (144929)
- 15 screening/ (57473)
- 16 health promotion/ (55017)
- 17 clinical practice/ (118321)
- 18 14 or 15 or 16 or 17 (360197)
- 19 8 and 13 and 18 (3041)
- 20 limit 19 to English language (2804)
- 21 limit 20 to (article or journal) (2802)
- 22 limit 20 to (evidence based medicine or consensus development or meta-analysis or outcomes research or "systematic review") (293)
- outcomes research or systematic review) (2
- 23 limit 22 to (article or journal) (293)

Database: HMIC Health Management Information Consortium <1979 to March 2011>, Econlit <1969 to March 2011> Search Strategy:

- 1 *general practitioner/ (0)
- 2 *general practice/ (0)
- 3 *family medicine/ (0)
- 4 primary medical care/ (10221)
- 5 1 or 2 or 3 or 4 (10221)
- 6 nurse/ (0)
- 7 5 not 6 (10221)
- 8 *behavior change/ (0)
- 9 *behavior/ (0)
- 10 [*behavior/di, ep, et, pc, th [Diagnosis, Epidemiology, Etiology, Prevention, Therapy]] (0)
- 11 *MOTIVATION/ (0)
- 12 *economics/ (0)

13 health program/ or economic aspect/ or medicare/ or REIMBURSEMENT/ or "health care cost"/ or health service/ or "cost"/ or public health service/ (764)

14 "organization and management"/ or economic aspect/ or health care quality/ (0)

15 Education, Medical/ (0)

16 Family Practice/ or Quality Assurance, Health Care/ or Primary Health Care/ or "Quality of Health Care"/ or "Outcome Assessment (Health Care)"/ or quality of care.mp. or Adult/ (20643)

17 [Health Promotion/cl, ec, ed, mt, og, st, sn, ut [Classification, Economics, Education, Methods, Organization & Administration, Standards, Statistics & Numerical Data, Utilization]] (0)

18 [Mass Screening/di, ec, mt, og, st, sn, sd, td [Diagnosis, Economics, Methods, Organization & Administration, Standards, Statistics & Numerical Data, Supply & Distribution, Trends]] (0)

19 Evidence-Based Medicine/ or Practice Guidelines as Topic/ or clinical practice.mp. or Randomized Controlled Trials as Topic/ (4699)

20 "Attitude of Health Personnel"/ or Attitude/ (3056)

- 21 8 or 9 or 10 or 11 (0)
- 22 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 (764)
- 23 16 or 17 or 18 or 19 or 20 (27556)
- 24 7 and 22 and 23 (21)

Database: Ovid MEDLINE(R) <1948 to March Week 5 2011> Search Strategy:

- 1 General Practitioners/ (174)
- 2 Physicians, Family/ (13942)
- 3 Family Practice/ or General Practice/ or Primary Health Care/ (97135)
- 4 Nursing/ (46846)
- 5 Nurses/ (25702)
- 6 4 or 5 (70559)
- 7 1 or 2 or 3 (107001)
- 8 7 not 6 (106001)
- 9 Motivation/ (41675)
- 10 Reimbursement Mechanisms/ or Reimbursement, Incentive/ (11341)

11 Education, Continuing/ or Education, Medical/ or Health Education/ or Education, Professional/ or Education/ or Education, Public Health Professional/ or Education, Medical, Graduate/ or Education, Medical, Continuing/ (146740)

12 9 or 10 or 11 (197867)

13 Attitude to Health/ or Health Promotion/ or Health Behavior/ or behaviour change.mp. or Adult/ (3509192)

14 Mass Screening/ (69675)

15 Quality Indicators, Health Care/ or Management Quality Circles/ or "Quality of Health Care"/ or Total Quality Management/ or Quality Improvement/ (64982)

- 16 13 or 14 or 15 (3609625)
- 17 8 and 12 and 16 (2325)
- 18 limit 17 to English language (2069)

19 limit 18 to (clinical trial, all or clinical trial or comparative study or controlled clinical trial or evaluation studies or journal article or meta-analysis or multicentre study or randomized controlled trial or "review") (1989)

- 20 limit 19 to systematic reviews (60)
- 21 limit 19 to "review articles" (113)
- 22 from 21 keep 8-9,33,46,67-68,105 (7)

Database: PsycEXTRA <1908 to March 28, 2011>, PsycINFO <1806 to April Week 1 2011>, Social Policy and Practice <201101> Search Strategy:

1 *general practitioner/ (2494)

- 2 *general practice/ (0)
- 3 *family medicine/ (717)

- 4 primary medical care/ (0)
- 5 1 or 2 or 3 or 4 (3191)
- 6 nurse/ (0)
- 7 5 not 6 (3191)
- 8 *behavior change/ (6018)
- 9 *behavior/ (12596)
- 10 [*behavior/di, ep, et, pc, th [Diagnosis, Epidemiology, Etiology, Prevention, Therapy]] (0)
- 11 *MOTIVATION/ (22312)
- 12 *economics/ (7312)

13 health program/ or economic aspect/ or medicare/ or REIMBURSEMENT/ or "health care cost"/ or health service/ or "cost"/ or public health service/ (7319)

- 14 "organization and management"/ or economic aspect/ or health care quality/ (0)
- 15 Education, Medical/ (0)

16 Family Practice/ or Quality Assurance, Health Care/ or Primary Health Care/ or "Quality of Health Care"/ or "Outcome Assessment (Health Care)"/ or quality of care.mp. or Adult/ (22424)

17 [Health Promotion/cl, ec, ed, mt, og, st, sn, ut [Classification, Economics, Education, Methods, Organization & Administration, Standards, Statistics & Numerical Data, Utilization]]
(0)

18 [Mass Screening/di, ec, mt, og, st, sn, sd, td [Diagnosis, Economics, Methods, Organization & Administration, Standards, Statistics & Numerical Data, Supply & Distribution, Trends]] (0)

19 Evidence-Based Medicine/ or Practice Guidelines as Topic/ or clinical practice.mp. or Randomized Controlled Trials as Topic/ (32035)

- 20 "Attitude of Health Personnel"/ or Attitude/ (0)
- 21 8 or 9 or 10 or 11 (40289)
- 22 8 or 9 or 10 or 11 or 12 or 13 or 14 or 15 (54575)
- 23 16 or 17 or 18 or 19 or 20 (53344)
- 24 7 and 22 and 23 (12)
- 25 [from 24 keep 1-21] (0)

APPENDIX D – Overview of Systematic Reviews

AMSTAR criteria score sheet

 1. Was an 'a priori' design provided? The research question and inclusion criteria should be established before the conduct of the review. <i>Note: Need to refer to a protocol, ethics approval, or predetermined/a priori published research objectives to score a</i> "yes." 	 Yes No Can't answer Not applicable
 2. Was there duplicate study selection and data extraction? There should be at least two independent data extractors and a consensus procedure for disagreements should be in place. Note: 2 people do study selection, 2 people do data extraction, consensus process or one person checks the other's work. 	 Yes No Can't answer Not applicable
3. Was a comprehensive literature search performed? At least two electronic sources should be searched. The report must include years and databases used (e.g., Central, EMBASE, and MEDLINE). Key words and/or MESH terms must be stated and where feasible the search strategy should be provided. All searches should be supplemented by consulting current contents, reviews, textbooks, specialized registers, or experts in the particular field of study, and by reviewing the references in the studies found. <i>Note: If at least 2 sources + one supplementary strategy used, select "yes" (Cochrane register/Central counts as 2 sources; a grey literature search counts as supplementary).</i>	 Yes No Can't answer Not applicable
 4. Was the status of publication (i.e. grey literature) used as an inclusion criterion? The authors should state that they searched for reports regardless of their publication type. The authors should state whether or not they excluded any reports (from the systematic review), based on their publication status, language etc. <i>Note: If review indicates that there was a search for "grey literature" or "unpublished literature," indicate "yes." SINGLE database, dissertations, conference proceedings, and trial registries are all considered grey for this purpose. If searching a source that contains both grey and non-grey, must specify that they were searching for grey/unpublished lit.</i> 	 Yes No Can't answer Not applicable

Yes
Nia

5. Was a list of studies (included and excluded) provided?

A list of included and excluded studies should be provided.

Can't

No

Yes

No

Can't

Can't

Not

applicable

answer

Note: Acceptable if the excluded studies are referenced. If	answer
there is an electronic link to the list but the link is dead, selec	D Not
no."	applicable

6. Were the characteristics of the included studies provided?

In an aggregated form such as a table, data from the original studies should be provided on the participants, interventions \square and outcomes. The ranges of characteristics in all the studies analyzed e.g., age, race, sex, relevant socioeconomic data, disease status, duration, severity, or other diseases should be answer reported.

Not applicable

Note: Acceptable if not in table format as long as they are described as above.

7. Was the scientific quality of the included studies assessed and documented?

'A priori' methods of assessment should be provided (e.g., for effectiveness studies if the author(s) chose to include only randomized, double-blind, placebo controlled studies, or Yes allocation concealment as inclusion criteria); for other types \Box of studies alternative items will be relevant. No

Note: Can include use of a quality scoring tool or checklist, e.g., Jadad scale, risk of bias, sensitivity analysis, etc., or a description of quality items, with some kind of result for EACH \square study ("low" or "high" is fine, as long as it is clear which studies scored "low" and which scored "high"; a summary score/range for all studies is not acceptable).

8. Was the scientific quality of the included studies used appropriately in formulating conclusions? The results of the methodological rigor and scientific quality should be considered in the analysis and the conclusions of the review, and explicitly stated in formulating recommendations.		Yes No Can't wer
<i>Note: Might say something such as "the results should be interpreted with caution due to poor quality of included studies." Cannot score "yes" for this question if scored "no" for question 7.</i>	Not applicable	
9. Were the methods used to combine the findings of studies appropriate? For the pooled results, a test should be done to ensure the studies were combinable, to assess their homogeneity (i.e., Chi-squared test for homogeneity, I2). If heterogeneity exists a random effects model should be used and/or the clinical	□ □ ans	Yes No Can't wer

consideration (i.e., is it sensible to combine?).	Not applicabl
<i>Note: Indicate "yes" if they mention or describe heterogeneity, i.e., if they explain that they cannot pool because of heterogeneity/variability between interventions.</i>	
10. Was the likelihood of publication bias assessed? An assessment of publication bias should include a combination of graphical aids (e.g., funnel plot, other available tests) and/or statistical tests (e.g., Egger regression test, Hedges-Olken).	Yes No Can
<i>Note: If no test values or funnel plot included, score "no".</i> <i>Score "yes" if mentions that publication bias could not be</i> <i>assessed because there were fewer than 10 included studies.</i>	answer Not applicabl
11. Was the conflict of interest included? Potential sources of support should be clearly acknowledged in both the systematic review and the included studies. <i>Note: To get a "yes," must indicate source of funding or</i> <i>support for the systematic review AND for each of the</i>	 Yes No Can'answer Not

AMSTAR Criteria Paper	A priori design provided	Independent data extraction	Literature search comprehensive?	Was grey literature considered?	List of included and excluded studies?	Characteristics of included studies	Assessmen t of scientific quality of included studies	Use of quality assessment in formulating conclusions	Methods used to combine findings from studies appropriate?	Assessment of publication bias?	Conflict of interest stated?	Total Scor e
The effects of on-screen, point of care computer reminders on processes and outcomes of care (1)	Yes Original protocol was first published in 1998. Research questions and selection criteria clearly defined. Criteria considered types of studies (RCTs, quasi RCTs), types of participants such as physicians. Types of intervention s and	Yes. Two investigators independently screened citations. There was a process for resolving discrepancies	Yes. MEDLINE, EMBASE, CINAHL and CENTRAL databases until July 2008. MESH headings included.	Yes – included Cochrane Central database. No restriction on language Inclusion criteria RCT and quasi- randomised trials.	Yes. Reference s to included studies, excluded studies and others for reference.	Yes. Summary of characteristics of included studies.	Yes – considered only RCT and quasi- randomise d trials.	Yes. Use of EPOC group data collection checklist.	Yes. Accepted meta- regression might use many assumptions so resorted to reporting median improvement	Not mentioned	Only acknowledge d as authors of the review but assessment not made of the included studies	9

Methodological assessment of included studies using AMSTAR tool

	outcomes specified.											
Computer- generated reminders delivered on paper to healthcare professionals; effects on professional practice and healthcare outcomes (2)	Yes Protocol was published first on EPOC in 1998. Objectives are set out clearly. Inclusion and exclusion criteria are explicit. Included controlled trials	Yes 2 authors independently carried out data extraction. Any discrepancies between authors were resolved by discussion and involvement of a third author.	Yes Cochrane Central Register of Controlled Trials (CENTRAL), MEDLINE 1946 to current, EMBASE 1947 to current, CINAHL 1980 to current.	Yes Included trials register and EPOC group specialist register	Yes Reference s to included studies and excluded studies.	Yes Table of included studies	Yes Included controlled trials	Yes Using Cochrane Collaboration "Risk of bias" tool	Yes Evidence so far suggests moderate quality for recommendat ion.	Yes. Assessment of heterogeneity and reporting bias	Not stated.	10
Audit and feedback: effects on professional practice and healthcare outcomes (3)	Yes. Protocol was submitted and first published in 1996, and amended 2010. Research objectives clearly stated. Inclusion criteria stated.	Yes. Two reviewers independently assessed studies. There was a process for resolving discrepancies	Yes. CENTRAL 2010 and EPOC register Dec 2010. MEDLINE from 1950 to Nov week 3 2010. EMBASE 1980 to 2010 week 48. CINAHL 1981 to 2010. Science Citation Index and Social Sciences Citation	Yes Searches included registers of trials. No restriction on language	Yes. Included and excluded studies listed in reference s	Yes. Summary of characteristics of included studies.	Yes. Only RCTs or Clinical Controlled Trials considered	Yes. Use of EPOC checklist.	Yes. Tested for heterogeneity using bubble plots and box plots. Main analysis used multiple linear regressions.	Not mentioned	Yes	10

	RCTs considered		Index and reference lists.									
Local opinion leaders: effects on professional practice and health care outcomes (4)	Yes Protocol first published in 1996. Objectives clearly stated and included studies that described randomised controlled trials.	Yes Two review authors extracted data. There was a process for resolving discrepancies	Yes. EPOC register to April 2009, MEDLIN 1966, to May 2009, EMBASE 1980 to May 2009	Yes Grey literature specifically searched for e.g. Conference proceedings, Index to Theses, WorldCat Dissertations, HMIC No language restrictions	Yes Table of included and excluded studies	Yes Summary included	Yes Only RCT included	Yes Cochrane tool for assessing risk of bias.	NA No single estimate of effect could be found between trials.	Not mentioned.	No assessment made	8
Tailored interventions to address determinants of practice (5)	Yes Study protocol was first published in 1999. Objectives stated and only considered RCTs	Yes Two reviewers independently extracted data. There was a process for resolving discrepancies	Yes Cochrane Library and EPOC specialised register MEDLINE from 1946, EMBASE 1947, CINHAL from1980, British Nursing Index 1994 onwards HMIC 1983 to 2009 Study in all languages included.	Yes Attempt at looking for unpublished studies including Department of Health and King's Fund Information and Library Services	Yes. List of included and excluded studies provided	Yes Table of characteristics of included studies provided.	Yes Only RCTs included	Yes Use of EPOC criteria for RCTs	Yes Meta- regression analysis.	Not mentioned	Not mentioned	9
Continuing	Yes	Yes	Yes	Yes	Yes.	Yes	Yes	Yes	Yes	Yes	Not	10
--	--	---	---	------------------------	--	---	-------------------------------	--	--	--	--------------	----
education meetings and workshops: effects on professional practice and health care outcomes (6)	Review first published 2001 with original protocol. Objectives stated and inclusion criteria were RCTs.	Two review authors independently screened and identified studies. There was a process for resolving discrepancies	EPOC trials register, Scopus,) and EMBASE. Search strategy for an earlier review included MEDLINE and Research Development Resource Base in Continuing Medical Education.	Trials register.	Table of included and excluded studies.	table of study characteristics.	Only RCTs included	Use of EPOC criteria for RCTs	Visual analyses combined with meta- regression. However latter had to be abandoned due to large number of variables that were eligible relative to number of included comparisons and would have risked spurious findings.	Used funnel plot to consider risk of publication bias	mentioned.	
Educational outreach visits: effects on professional practice and health care outcomes (7)	Yes. Protocol first published 1996. Objectives clearly stated as were selection criteria.	Yes. 2 reviewers independently selected the trials to be included. There was a process for resolving discrepancies	Yes EPOC register, MEDLINE, EMBASE and CINAHL. This was an updated review so original review (published in 2000) included MEDLINE search up to 1997, Research and	Yes Trials register	Yes. Table of included and excluded studies	Yes. Table of study characteristics	Yes Only RCTs included.	Yes Use of EPOC assessment criteria for RCTs	Yes. Apart from visual analyses with multivariate statistical analyses, also included meta- regression.	Not mentioned.	Not reported	9

			Development Resource Base in Continuing Medical Education									
Mass media interventions: effects on health services utilisation (8)	Yes Protocol first published 1997. RCTs, CCTs, CBAS and ITSs were explicitly mentioned in inclusion criteria.	Yes 2 assessors screened titles and 2 assessed the papers. There was mention of how to resolve discrepancie s.	Yes MEDLINE and EMBASE up to 1996 EPOC specialised register. Also other journals: Communication Research, European Journal of Communication, Communication Theory, Journalism Quarterly	Yes Specialis t registers and journals were used.	Yes Reference list of included and excluded studies	Yes Table of characteristic s of included studies.	Yes RCTs, CCTs, CBAs, ITSs were assessed using explicitly quality criteria used by EPOC	Yes Quality of studies as well as publication bias inferred in conclusions.	Yes Results from individual studies addressing the same aspect of care were not pooled, due to the substantial heterogeneity in both the setting and subjects between studies	No Acknowledged but not assessed.	No Not mentioned	9
Printed educational materials: effects on professional practice and healthcare outcomes (9)	Yes Protocol was first published in 2003 Objectives and inclusion criteria were clearly stated.	Yes. 2 review authors independently screened titles and abstracts of papers that met criteria. There was a process for resolving discrepancies	Yes Databases included: MEDLINE OVID (1948 to June 2011), EMBASE OVID (1947 to June 2011), Cochrane Central Register of Controlled Trials (CENTRAL), CAB Abstracts via	Yes Included in search strategy e.g. CAB Abstracts	Yes Table provided	Yes Table provided	Yes RCTs, quasi- randomised studies, controlled before and after studies (CBAs) and interrupted time series (ITS) analyses were included.	Yes At least two reviewers assessed the studies for risk of bias using an EPOC check list. Any discrepancies were resolved through discussions	Yes Studies grouped by their design, end point and type of comparison. Statistical analysis was described for each group as well as how	Mentioned but not assessed.	Not stated.	9

			EbscoHost (1973					amongst	to deal with			
			to June 201)					authors	missing data.			
Target	Yes.	Yes	Yes	Yes	Yes.	Yes	Yes	Yes	Yes	Not	Not	9
payments in primary care: effects on professional practice and health care outcomes (10)	Protocol first issued 1997. Objectives stated with inclusion criteria	2 reviewers independently assessed the list of studies. There was a process for resolving discrepancies.	At least two databases including: MEDLINE (1966 to Oct 1997), EconLit (1969 to Oct 1997), Health Start (1975 to Oct 1997), BIDS EMBASE (1980 to Oct 1997).	Health economics discussion paper series of Universities of York, Aberdeen, Sheffield, Bristol, Brunel, McMaster; Swedish Institute of Health Economics and the RAND corporation.	Table provided	Table provided	Quality assessmen t using EPOC criteria.		There were only 2 studies and also heterogeneity in content, design and outcomes	mentioned	mentioned	
Capitation,	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	No	Not	9
salary, fee- for-service and mixed systems of payment: effects on the behaviour of primary care physicians (11)	Protocol published in 1998. Study objectives stated from the start and clear inclusion criteria.	2 reviewers independently selected and assessed the papers. There was a process for resolving discrepancies.	At least 2 databases searched including: BIDS EMBASE) 1980 to Oct 1997), MEDLINE (1966 to Oct 1997), ECONLIT (1969 to Oct 1997), Health	Trial register included.	Table provided of included and excluded studies.	Table of characteristics of included studies.	Quality assessmen t using EPOC group check list.	Methodologic al weaknesses of included studies informed conclusions.	Study results were not pooled due to heterogeneity.	Publication bias not mentioned	mentioned	

			Start (1975 to Oct 1997). Also EPOC register and Cochrane Controlled Trials register.									
The effect of financial incentives on the quality of health care provided by primary care physicians (12)	Yes Protocol first published in 2010 Study objectives and inclusion criteria stated.	Yes Two authors independently screened titles and abstracts of all studies for inclusion. There was a process for resolving discrepancies.	Yes MEDLINE, EMBASE, CINAHL, PsycINFO, EconLit, PAIS, Cochrane Library, DARE, Cochrane Central Register of Controlled Trials– all until August 2009. All languages included.	Yes Grey literature specifically searched including RePEc (Research Papers in Economics, Social Science Research Network (ERN)	Yes List of included and excluded studies provided.	Yes Table of characteristics of included studies.	Yes Quality assessmen t using EOPC criteria	Yes Assessment criteria referred in conclusions.	Yes It was noted that pooled analysis not possible due to important heterogeneity between studies.	Not mentioned	Not mentioned	9

1. Shojania KG, Jennings A, Mayhew A, Ramsay CR, Eccles MP, Grimshaw J. The effects of on-screen, point of care computer reminders on processes and outcomes of care. Cochrane Database Syst Rev. 2009(3):CD001096.

2. Arditi C, Rege-Walther M, Wyatt JC, Durieux P, Burnard B. Computer-generated reminders delivered on paper to healthcare professionals; effects on professional practice and health care outcomes. Cochrane Db Syst Rev. 2012(12).

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Review Types of studie	s Possible theoretical bases	Target professionals and settings	Targeted behaviours	Outcomes	Conclusions
Interventions that used computer decision	support				1
The effects of on- screen, point of care computer reminders on processes and outcomes of care (1)RCT and quasi- randomised trials.28 studies reportin 32 comparisons (4 studies contained 2 	B Not mentioned	Hospital practitioners both inpatient and outpatient departments General practitioners	 21 re prescribing practices 6 re vaccinations 13 re test ordering 3 to documentation 7 to adherence to other processes e.g. guidelines 	 9 comparisons reported pre-intervention process adherence for intervention and control groups. Marginal improvement in the intervention was 3.8%, IQR 0.4% to 7.9% Using post-intervention difference between study groups, median improvements in process adherence associated with computer reminders were: 4.2% IQR 0.8% to 18.8% across all process outcomes, 3.3% IQR 0.5% to 10.6% for improvement in prescribing behaviour 3.8% IQR 0.5% to 6.6% for improvements in vaccination 3.8% IQR 0.4% to 16.3% for test ordering. 8 comparisons reported dichotomous clinical endpoints e.g. blood pressure and cholesterol targets. Intervention patients had median absolute improvement of 2.5% IQR 1.3% to 4.2% 	"Small to modest improvements in care." Wide range of effects of intervention and difficult to provide suggests about how to maximise effects. Future trials need to consider the key factors e.g. target quality problem or design of reminder system to reliably predict improvements in care

Summary of systematic reviews findings

Computer-	Inere were 37	Not mentioned	Healthcare professionals	25 comparisons used physician reminders alone with usual care	1. Effectiveness of computer-generated reminders delivered on paper to	Computer-generated reminders
romindors dolivorod	studios		although come included	reminders alone with usual care.	healthcare professionals in proving	professionals can have moderate
	studies.				process of care.	professionals can have moderate
on paper to			nurse practitioners. One	12 comparisons looked at		improvements in process of care.
healthcare	27		study included only nurses.	13 comparisons looked at	Only 12/27 comparisons reported baseling	
professionals;	27 were RCTs			physician reminders combined	only 13/37 comparisons reported baseline	
effects on	including 1 cross-			with other interventions to other	process of care rates for study groups.	Significant predictors for
professional	over trial.		29 studies were based in US,	interventions without reminders.	Median marginal improvement in	improvement include: providing
practice and	5 were Non-		3 in Canada.		intervention group was 4.5% (IQR 0.5% to	space on the reminder for a
healthcare	Randomised				7%).	response from the clinician and
outcomes (2)	controlled trials			1 co-intervention in 7		providing an explanation of the
	(NPCT) including 1		Most studies took place in	comparisons, 2 co-interventions		reminder's content or advice.
	(NICCI) Including I		outpatient settings (which	in 4 comparisons, and 3 co-	Pooled data from 37 comparisons show a	
	CIUSS-OVEI LIIdi.		include primary care clinics);	interventions in 2 comparisons.	median improvement in process of care	
			2 in inpatient settings and 3		associated with reminder intervention was	Future trials could consider the
			were mixed.		7.0% (IQR 3.6% to 12.9%).	following: detailed description of
				The most common co-	Comparisons that had no co interventions	the reminder system, cluster
				interventions were patient		design may reduce sample size
				reminder, educational meeting	(e.g. reminuers alone vs usual care)	and rigorous statistical methods
				for healthcare professionals and	showed median improvement in process	are needed to report all relevant
				audit and feedback.	of care of 11.2% (IQR 6.5% to 19.6%).	data, outcome measures should
						he assessed blindly to reduce
						reporting bias
				Processes and outcomes	Studies of multifaceted interventions e.g.	
				measured included: blood	reminders + additional interventions vs	
				prossure measurements faecal	same additional interventions showed a	
				pressure measurements, raccar	lower median improvement of 4.0% (IQR	
				occurt blood test, innuenza	3.0% to 6.0%). This may be because co-	
				vaccination, mammography,	interventions delivered to both group'	
				cervical cytology.	leaves little room for additional	
					improvement from computer reminders.	
					2. Impact of reminder features on process	
					of care effect size.	
					Effect size was significantly associated with	
					2 foaturos: availability of space for	
		1			2 reacures: availability of space for	1

		healthcare professionals to enter a	
		response (median 13.7% vs 4.3% for no	
		space, p=0.01); and reminders that include	
		an explanation for their content or advice	
		(median 12.0% vs 4.2% for no explanation,	
		p=0.02). Reminder features that did not	
		have significant effect include: explicitly	
		from or justified by reference to an	
		influential source (median 15.5% vs 6.0%,	
		p=0.09); specific advice included in	
		reminder (median 6.3% vs 13.9%, p=0.45);	
		reminders available at point-of-care	
		(median 7.0% vs 6.6%, p=0.45).	
		Reminders also had different effects on	
		different targeted behaviours; the largest	
		improvement was seen in vaccination	
		(median improvement 13.1%, IQR 12.2%	
		to 20.7%) and smallest was in professional-	
		patient communication (median reduction	
		of -0.2%, IQR -2% to 9.2%).	
		The more behaviours that are targeted,	
		the less the improvement. Improvement	
		was 7.1% (IQR 3.6% to 11.5%) when 1	
		behaviour was targeted by the reminder;	
		6.1% (IQR 4.4% to 19.2%) with 2; and 4%	
		(IQR 1.5% to 20.0%) when 3 behaviours	
		are targeted.	
		3. Impact of study features on process of	
		Care effect SIZe	
		hotwoon offect size and study fortures	
		between effect size and study realures.	

					 Effectiveness of computer-generated reminders delivered on paper in improving outcomes of care Only one study with sufficient power measured outcome of care to evaluate the effectiveness of reminders and found no association. 	
					A sensitivity analysis was conducted using the 32 studies (22% high quality, 28% moderate quality and 50% low quality), median improvement in process of care was 4.0% (IQR 3.0% to 23%) when only high quality studies were considered, 7.4% (IQR 4.2% to 18.9%) with moderate quality studies and 7.0% (IQR 6.0% to 11.5%) for low quality studies.	
					Other analyses did not make substantial changes to the main findings.	
Interventions that use	d education-only approa	ches				
education meetings and workshops: effects on professional practice and health care outcomes (3)	 - 32 studies in earlier review and 49 new studies added from new search. 	theories Learning theory Diffusion of innovation theory	America - 28 in USA, 4 in Canada 34 based in Europe – 14 in UK, 10 in Netherlands, 3 in Norway, 2 in France, 1 in Sweden, 1 Denmark, 1 Belgium, 1 Spain and 1 Scotland	in 11 of the trials including smoking cessation, breast feeding, exercise and screening. 3 studies focussed on test ordering, 6 on screening behaviour, 13 on prescribing, 41 on general management of a rage of clinical problems, remaining	 measures – 62% had dichotomous measures, 32% used continuous and 4 used both. 1. Any intervention involving educational meetings vs no interventions 	combination with other interventions can improve professional practice and patient outcomes. Effect "likely to be small" and similar to other types of medical
			3 based in Australia, 2 in Indonesia, 2 South Africa, 1	studies focussed on handling "frequent attenders" at out-of- hours service, improvement of		education such as audit and feedback and educational outreach visits.

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	each in Mali, Thailand, Peru, Mexico, Zambia, Sri Lanka, New Zealand and Brazil Physicians were the main subjects in most trials. In 2 studies, nurses were the healthcare providers, 3 used pharmacists or non-physician prescribers, 18 had mixed providers. In 43 studies, general practice was the setting, 16 community based care, 17 hospitals based and 5 were "other types" of settings.	skills in spirometry, back surgery, positioning of stroke patients, patients' trust building and promotion of advanced directives of end of life care. 32 trials used multi-faceted interventions, most commonly used were: reminders (5), patient education materials (5), supportive services (5), feedback reports (10), educational outreach (5). 12 studies had educational meetings rated as main component, moderate in 13 studies, and minor component in 7. 1 study had "intensive" educational meetings; 25 moderately intensive, 54 as non- intensive meetings.	 80 trials examined but 20 had high risk of bias, 13 had no baseline data, and 3 did not have sufficient data to be extracted. Professional practice – 30 trials with 36 comparisons of dichotomous outcomes. Adjusted RD in compliance with desired practice varied from -2.0% to 36.2%, median improvement of 6% (IQR 1.8 to 15.9%). A sensitivity analysis that included studies judged to have a high risk of bias did not change overall results. Higher attendance at educational meetings was associated with larger adjusted RD; mixed interactive and didactic meetings; but interactive meetings seemed to be less effective. Patient outcomes – 21 trials out of which 13 were of low or moderate risk of bias and included baseline values. 5 trials reported dichotomous outcomes. Adjusted RDs in achievement of treatment goals varied between -0.9% to 4.6% median improvements of 3.0% IQR 0.1% to 4.0%. 8 trials reported continuous outcomes. Adjusted RDs ranged from -1% to 26%, median 4%, IQR 0% to 11%. 	Strategies to increase attendance at educational meetings, use of mixed interactive and didactic formats, and focusing on outcomes with serious clinical implications may increase effectiveness. Future studies should include clear, detailed descriptions of interventions that include: target audience, size of group at meetings, length and number of sessions, teaching techniques, any skills practice, and also report using CONSORT recommendations.

		Educational meetings alone compared with no interventions.	
		24 trials of 26 comparisons were judged to have low or moderate risk of bias and reported baseline data.	
		Professional practice – 19 trials (21 comparisons) had dichotomous data. Median adjusted RDs ranged from -2.0% to 29.3% with median of 6% IQR 2.9% to 15.3%.	
		5 trials of 5 comparisons reported continuous data. Median adjusted change ranged from 0% to 50% with median of 10%, IQR 8% to 32%.	
		Patient outcomes – only 9 out of 17 trials were considered to be of low or moderate risk of bias and had baseline data.	
		3 trials reported dichotomous data, adjusted RDs varied from -0.9 to 4.0 with median improvement of 3, IQR -0.9 to 4.0). 6 trials used continuous outcomes, adjusted relative percentage ranged from - 1% to 26%, median 8%, IQR 0% to 12.0%	
		3. Educational meetings compared with other interventions	
		2 trials were considered which had moderate risk of bias and used dichotomous outcomes. Comparisons	

		were: facilitated implementation of an	
		office system to improve cancer detection	
		and an educational outreach visit to	
		improve prescribing for patients with	
		arthritis. Adjusted RD for educational	
		meetings vs office meetings was -8.0% i.e.	
		a decrease in compliance for educational	
		intervention; adjusted RD for educational	
		meetings vs educational outreach was -	
		1.4% decrease in compliance in	
		educational intervention group.	
		4. Any intervention that included	
		educational meetings compared with	
		educational meetings alone	
		Only 1 out of 7 trials that used multi-	
		faceted intervention that included	
		educational meetings compared with	
		educational meetings alone was judged to	
		have low to moderate risk of bias and	
		reported baseline data. This study aimed	
		to improve detection of cancer; adjusted	
		relative percentage increase was 12% in	
		patients receiving testing.	
		5. Interactive educational meetings	
		compared to didactic meetings	
		1 out of 2 trials had low or moderate risk	
		of bias that reported baseline data. Aim of	
		the study was to improve appropriate drug	
		use in treating diarrhoea: a larger	
		improvement was reported with	
		interactive education group but there was	
		no significant difference between them.	
		J	
		C Any other comparison of different torac	
		of educational meetings	

Interventions based of Audit and feedback: effects on professional practice and healthcare outcomes (4)	n social influences and ea 140 RCTs (only RCTs were included)	fucational approaches Feedback Intervention Theory Control Theory of Carver and	80 based in North America (USA 58, Canada 9), 21 in UK or Ireland and the rest from Australasia. 121 trials targeted	Outcome measures included compliance with guidelines, changes in prescribing, use of diagnostic tests. Health promotion outcomes included smoking cessation and blood pressure management: there	One study was in this category but was judged to have a high risk of bias and had no baseline data. A total of 5 comparisons were analysed: Comparison A. Audit and feedback (A&F) alone or as the core/essential feature of a multifaceted	"Small to moderate" effects. The effectiveness of audit and feedback depends on baseline performance and how the feedback is provided.
		Carver and Scheier (both in the context of designing feedback)	121 trials targeted physicians, 5 targeted pharmacists and 16 specifically targeted nurses. Most common setting or speciality area was general or family practice, targeted in 84 trials; others included outpatient settings (94 trials), inpatient (36) and the rest were unclear.	pressure management; there were also a range of preventative care as outcomes such as screening and vaccination. The weighted median adjusted RD was 3.0% (IQR 1.8% to 7.7%).	 intervention compared with usual care (includes comparisons B and C). For dichotomous measures of compliance with desired practice, the weighted median adjusted RD was a 4.3% increase in compliance with desired practice (interquartile range (IQR) 0.5% to 16%). No trials reported public health-specific outcomes in primary care settings. For continuous measures, the weighted median adjusted change relative to baseline control was a 1.3% increase in compliance with desired practice (IQR 1.3% to 23.2%). One trial reported 139% relative increase in smoking cessation referrals. 	feedback is provided.
					dichotomous outcomes, the weighted median adjusted RD was a 0.4% decrease in desired outcomes (IQR -1.3% to 1.6%) and for continuous outcomes, the	

		weighted median adjusted change relative	
		to baseline control was a 17%	
		improvement (IQR 1.5% to 17%).	
		, , , , , , , , , , , , , , , , , , ,	
		Comparison B.	
		Audit and feedback (alone) compared with	
		usual care.	
		For studies with audit and feedback alone	
		torgating professional practice with	
		targeting professional practice with	
		dichotomous outcomes, weighted median	
		adjusted RD was 3.0% (IQR 1.8% to 7.7%).	
		For studios with sudit and foodbook along	
		For studies with addit and recuback alone	
		targeting professional practice with	
		continuous outcomes, the weighted	
		median adjusted change relative to	
		baseline control was 1.3% (IOR 1.3% to	
		11.0%)	
		11.0%).	
		Comparison C.	
		Audit and feedback as the core/essential	
		fosture of a multifaceted intervention	
		compared with usual care.	
		For professional practice with	
		dichotomous outcomes, weighted median	
		adjusted RD was 5.5% (IOR 0.4% to 16%)	
		aujusteu ND was 5.5% (IQN 0.4% 10 10%),	
		and weighted median adjusted change	
		relative to baseline control was 26.1% (IQR	
		12.7% to 26.1%) for continuous outcomes.	
		Comparison D	

		Head-to-head comparisons of different types of audit and feedback interventions (effect of changing the way that audit and feedback is designed or delivered).	
		Peer comparison- small differences when adding peer comparison data for asthma management (adjusted RD 2%), diabetics (adjusted RD 3%) and influenza vaccination for diabetics (OR 1.33, 95% CI 1.05 to 1.69).	
		Presentation of feedback and inclusion of additional information – there were small differences such as small but insignificant improvement in quality of cervical cytology but the effects were inconsistent.	
		Source and delivery – there were no significant differences when comparing written or verbal feedback.	
		Recipient participation - two studies tested role of recipient participation: one reported worse management of anaemia in hospitalised patients and another found small but insignificant improvement in breast screening and influenza vaccination rates.	
		Comparison E.	

		Audit and feedback as the core/essential	
		feature of a multifaceted intervention	
		compared with audit and feedback alone	
		(effect of adding different co-interventions	
		to audit and feedback).	
		A&F with reminders vs A&F alone – only	
		one study considered preventative	
		services by internal medicine trainees and	
		reported unadjusted RD of 8.0%.	
		A&F with educational outreach vs A&F	
		alone – there were inconsistent findings	
		including small improvements in primary	
		care providers in cardiovascular risk	
		assessment (adjusted RD=22%), diabetic	
		care (adjusted change =35%) and	
		mammography advice (adjusted RD 4.75%)	
		but no increase in actual mammography	
		rates.	
		A&F with other educational interventions	
		vs A&F alone – there were no studies that	
		reported outcomes related to health	
		promotion and disease prevention.	
		A&F with case management or	
		organisational interventions vs A&F alone.	
		One study using telephone follow up and	
		feedback did not result in improved	
		pneumococcal vaccine coverage.	
		A&F with financial incentives vs A&F alone	
		- Improved Immunisation rates were seen	
		in the "financial bonus" group from 29% to	
		54% (adj RD 12.7%), but the enhanced fee-	
		tor-service group decreased performance	
		relative to feedback alone (adj RD -8.3%).	

					A&F with patient-mediated interventions	
					vs A&F alone – no difference reported in	
					influenza vaccination rates.	
					Comparison F.	
					Audit and feedback alone or as the	
					core/essential feature of a multifaceted	
					intervention compared with other	
					interventions	
					Reminders vs $\Delta \& E - reminders were$	
					hetter than monthly feedback to medical	
					residents delivering proventative services	
					(upadjusted PD 4 E%)	
					Educational outreach vs A&F – no studies	
					reported outcomes relevant to public	
					health.	
					Other educational intervention vs A&F - no	
					studies reported outcomes relevant to	
					public health.	
					Case management of organisational	
					interventions vs A&F - no studies reported	
					outcomes relevant to public health	
					Financial incentives vs A&F - no studies	
					reported outcomes relevant to public	
					health.	
					Patient-mediated interventions vs A&F -	
					no studies reported outcomes relevant to	
					public health.	
Local opinion	A total of 18 trials	Social cognitive	10 trials based in USA, 6 in	All of the targeted behaviours	Median adj RD from 63 usable objective	OL interventions may improve
leaders: effects on	were included – 6	and education	Canada, 1 in China (Hong	involved general management of	outcomes from 15 studies varied from 15%	performance and can be
professional	new RCTs added to	theories e.g.	Kong), 1 Argentina &	a clinical problem.	decrease to 72% increase in compliance in	comparable to other strategies
			Uruguay.		the intervention group. Overall adjusted	used to disseminate and

practice and health	12 RCTs from a	Social Learning			RD for 15 studies was +0.12, ie 12%	implement evidence based
care outcomes (5)	previous review.	Theory	14 evaluated interventions		absolute increase in compliance.	practice in healthcare.
			delivered in bespitals			
			delivered in hospitals.			
			1 in primary care practices		1. Opinion leaders (OL) compared to no	However, identifying OL can be
					intervention	labour intensive and there are
			1 study in both primary and secondary care.		issues regarding reliability and	
				5 trials of 37 usable dichotomous	validity of identifying OIs.	
			2 studies the settings were		outcomes BDs varied from -0.15 to $+0.38$	
			not clear.		modian adi PD ±0.09	
			Physicians were targeted in		2. OL alone compared to a single	
			14 trials, nurses in 2 and 2		intervention	
			trials targeted physicians,			
			nurses and midwives.		2 trials of 3 outcomes for this comparison	
					but one study was judged to be "high risk"	
					of hias RD varied from -0.12 to $+0.17$	
			In all the trials, opinion		median RD for two studies 0.14	
			leaders delivered educational			
			initiatives to members of			
			their own healthcare		2. Of with one or more additional	
			nrofession		5. Of with one of more additional	
			profession.		or more additional intervention(s) only	
					of more dualitional intervention(b) only	
			Opinion leaders were		4 trials of 10 outcomes. Overall increase in	
			identified using sociometric		compliance ranged from RD of -0.08 to	
			method in 14 trials. 2 trials		+0.25 median adjusted RD was +0.10	
			used informant method to		10.23. median adjusted ND was 10.10.	
			identify opinion leaders. 2			
			used other methods (1		4 OL as part of multiple interventions	
			informant and sociometric,		(OLs + at least one more intervention)	
			another self-designated)		compared to no intervention	
					7 trials of 13 dichotomous outcomes. RDs	
					ranged from -0.04 to +0.72. median	
					adjusted RD across 7 trials +0.10.	

		1	1	1		
Tailored interventions to identify determinants of practice (6)	32 studies included in the review which were cluster RCTs.	Communication theory Theory of planned behaviour Social cognitive theory	 12 trials were based in USA and 4 in the UK; the rest were based in Canada, rest of Europe, South Africa and Indonesia. 17 trials were based in primary care settings and primary care practitioners (including family physicians and general practitioners) were the targeted healthcare professionals in 14 studies. 	Targeted behaviours included prescribing in 12 trials and 6 targeted preventative care including secondary prevention of coronary heart disease and 2 targeted influenza vaccination. More than one method was used to identify barriers to change which included: interviews [10 studies], focus groups [10], questionnaire survey [6], review of literature [4], review of performance data [2], observation, meeting or workshop [2] and other methods [4].	Barriers identified included: professional factors [such as knowledge, motivation, perceptions of benefits and risks – identified in 25 studies], patient factors [8], incentives and resources [8], guideline factors [4], organisational capacity [9], professional interactions [3], and social/political/legal factors [2] Tailored interventions to identify barriers are more likely to improve professional practice; the pooled odds ratio (OR) for all 15 studies was 1.56 (95% CI 1.27 to 1.93). 7 out of 15 studies compared tailored interventions with no interventions that were suitable for inclusion in a meta- regression; pooled OR was 1.36 (95% CI 0.92 to 1.99). 8 out of 15 studies that compared tailored interventions to non- tailored interventions were included in a meta-regression; pooled OR was 1.79 (95% CI 1.06 to 3.01).	Tailored implementation can be effective, but the effect is variable and tends to be small to moderate. Included trials used different methods to identify determinants of practice and different approaches to selecting interventions to address the determinants so it is difficult to tell how best to tailor interventions and therefore not clear what the effect of an optimally tailored intervention would be. Results were pooled so it was not possible to determine if there were any specific effects on patient outcomes that were relevant to health promotion and disease prevention.
Educational outreach visits (EOVs): effects on professional practice and health care outcomes (7)	51 trials added to original review making a total of 69 studies.	Social Marketing Theory Health Belief Model Theory of Planned Behaviour	 53 studies included primary care physicians or teams as the subjects of interventions. 23 based in North America, 22 in UK, 14 in other European countries, 8 in Australia, 2 Indonesia and 1 in Thailand. 	29 trials looked at prescribing practices – 17 of these aimed to reduce inappropriate prescribing. In another 29 trials, the behaviour was general management of a variety of problems encountered in general practice such as	 Four comparisons were considered. 1. Any intervention that included EOV compared to no intervention. 56 trials of 63 comparisons had healthcare professional outcomes; out of these, 37 had dichotomous and 19 had continuous outcomes. 	EOVs with or without addition of another intervention can improve practice but the effect is "small to moderate". There seems to be a small but consistent effect on prescribing. The effect on other professional behaviours is more variable.

Image: state is the instruction of adjusted RD optimises outcomes, but we tails should compare adjusted RD optimises outcomes, but was of deleter in a physicians or teams of health care professionals in hospital strings. In 37 trials with dichotomous outcomes, but was of deleter in the intervention of adjusted RD optimises outcomes, but was of deleter in the intervention of adjusted RD. Adjusted RD optimises are intervention of adjusted RD. Adjusted RD optimises are intervention in the intervention in the intervention in the intervention in the intervention intervention in the intervention intervention intervention intervention interventions in the intervention intervention intervention intervention intervention interventions in the intervention intervention interventions in the intervention intervention interventions intervention intervention intervention intervention interventions intervention intervention intervention intervention intervention intervention interventions intervention interventions intervention intervention intervention intervention intervention intervention interventions intervention inthe intervention intervention intervention intervention in					
6 trials focussed on physicians or teams of heading apprecisionals in heapital care professionals in heapital settings. disease. 28 trials of 34 comparison contributed to calculation of adjusted 10. adjus			patients at risk of cardiovascular	In 37 trials with dichotomous outcomes,	Future trials should compare
physicians or teams of health care professionals in hospital settings.11 trials focussed on preventive settings.calculation of adjusted RD a		6 trials focussed on	disease.	28 trials of 34 comparisons contributed to	different ways of delivering EOVs
care professionals in hospital settings. 11 trials focussed on preventative services such as smoking compliance to desired behaviour ranged from-0.38 to 64%, media improvement of 5.6%, IQR 3% to 9.0%. The number and nature of behaviour staregied for improvement needs to be thought out carefully as some were too complexe to evaluate or small effect on prescribing. The number and nature of behaviour staregied for improvement needs to be thought out carefully as some were too complexe to evaluate or small effect on prescribing. The number and nature of behaviour staregied for improvement needs to be thought out carefully as some were too complexe to evaluate or small effect on prescribing. 1 trials full or nursing homes. 1 trials how the in nursing homes. The number and nature of thought out carefully as some were too complexe to evaluate or small effect on prescribing. The number and nature of the nursing homes. 1 trials number and nature of thought out carefully as some professionals included in nursing homes. A meta regression based on 31 comparisons only showed EOV to have a small effect on prescribing. The number and nature of the nursing homes. 2 trials included pharmacits. In another 2, providers were generic healthcare workers. Only 1 trial included dentists and 24 had group visits. It was not clear in 4 trials how many dinkinas were visited. The number and nature of the nursing homes. The number and nature of the nursing homes. 41 trials had individual visits and 24 had group visits. It was on component of a multi-faceted interventions included feedback. 12 trials were based on social marketing framework. In 3 trials, educational outreach visit, was one component of a multi-faceted intervention that included different strateg		physicians or teams of health		calculation of adjusted RD. adjusted RD of	in head-to-head comparisons.
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that included different interventions strategies directed at health		multi-faceted intervention		2. EOVs alone compared with no	
strategies directed at health		that included different		interventions	
		strategies directed at health			

	care professionals such as	34 trials of 37 comparisons were	
	reminders.	considered. 16 studies with 18	
		comparisons that reported dichotomous	
		outcomes had baseline data that could be	
		used in the analysis. Median adjusted RD	
		ranged from 1% to 20%, median 5.0%, IQR	
		3.0% to 6.2%.	
		14 trials with 15 comparisons reported	
		continuous data and had baseline data	
		that could be used in the analysis. The	
		adjusted relative percentage changes	
		ranged from 0% to 617%, median of 23%	
		IOR 12% to 39%.	
		2 trails that had patient outcomes were	
		already included in comparison 1	
		3. Any intervention using EOV as a	
		component compared to another	
		including audit and feedback and	
		reminder	
		8 trials with 12 comparisons reported	
		health professional outcomes in this	
		comparison. 3 trials compared EOV + audit	
		& feedback vs audit & feedback alone but	
		only 1 showed small difference – adjusted	
		RD 5% in favour of EOV + audit &	
		feedback.	
		1 study of EOV + audit & feedback +	
		 reminders vs audit & feedback – the	

		former group had better outcome – adiusted RD 6%. p >0.2.	
		1 study comparing EOV + audit & feedback	
		+ educational meetings vs audit &	
		feedback alone also showed 20% relative	
		improvement in the multi-faceted group.	
		Another study used 2x2 factorial design	
		with EOVs and coordinator; the group that	
		had EOVs + co-ordinator showed	
		improvement in care, adjusted RD 39%.	
		In another trial EOVs were compared to	
		audit & feedback + reminder. Adjusted	
		relative improvement was 8% favouring	
		the EOV group.	
		Generally, interventions that included EOV	
		appeared to be slightly more effective	
		than audit & feedback alone.	
		In one trial that had patient outcomes,	
		there was an adjusted RD of 5.9% (95% CI -	
		0.3 to 12.2), favouring the group which	
		had EOV + audit & feedback + reminder.	
		4. Any comparison of different types of	
		EUVS	
		6 studies examined different types of visits	
		in head-to-head comparisons.	

					3 studies compared EOVs given	
					individually vs EOVs in a group.1 study	
					showed improvement in prescribing in	
					group visit arm; another trial also showed	
					improvement in practice in individual visit	
					arm; while one study did not find any	
					differences in prescribing between two	
					groups.	
					One trial looked at different ways of	
					presenting the content during a visit, one	
					group had case study and another was	
					presented with statistical information. The	
					Iatter group had a larger reduction in	
					inappropriate prescribing (adjusted RD	
					8.7%).	
					,	
					One study looked at EOV + telephone	
					support vs EOV alone and found the	
					former more likely to improve care.	
					Another trial compared different types of	
					visitors – physician peers vs non-physician	
					peers with both groups given feedback	
					during visits. The group that had visit by	
					their peers resulted in greater degree of	
					improvements.	
Mass communication						
Printed educational	Randomised	Adult learning	The concept of PEM was	Persuasive communication theory	There were two comparisons considered	PEMS can have a "small
materials: effects	controlled trials	theories	redefined so some changes	was used as framework to assess	in the review:	beneficial effect" on professional
on professional	RCTs, cluster-RCTs	Cognitive theories	since the last review.	effectiveness: source, message,		practice outcomes if used alone.
practice and	(C-RCTs), controlled			channel, receiver and destination		There is insufficient evidence to
					 PEM only compared to no intervention 	

healthcare	clinical trials (CCTs),	Persuasive		– but only first 3 considered		reliably estimate the effect on
outcomes (8) [updated]	controlled before and after studies (CBAs) and interrupted time series analyse (ITS). Not explained why other non-RCTs were considered.	Communication Theory	29 new studies added to this review but 4 studies removed making a new total of 45 studies – 8 C-RCTs, 6 RCTs, 31 ITS Most included studies took place in North America (Canada 12, US 11 and 1 in both). 18 were from Europe (UK 11), 2 Japan and 1 Brazil.	relevant for this review. Source – 24 PEMs by researchers or clinicians, 14 by national professional experts, 4 from local expert bodies. 39/52 were endorsed by a professional body or corporate source; out of the 39, 22 were peer reviewed journal publications.	 73 outcomes within 9 RCTs were evaluated that looked at professional practice outcomes but data from 7 studies and 69 outcomes were suitable for re-analysis. Median adjusted RD across all outcomes was 0.02 (range 0 to 0.11), i.e. a 2% absolute improvement. 3 RCTs with 8 continuous outcomes with complete data that could be included in analysis. A 0.13 improvement in standard median effect size (ranged -0.16 to 0.36) 	patient outcomes.
			 10 studies took place in general or family practice, 9 in outpatient or ambulatory care settings, 6 in hospitals, 3 in mixed settings, 1 in a municipal health centre and 1 in managed behaviour healthcare organisation. 42 out of 45 studies involved physicians, 3 were a mixture of physicians, nurses and pharmacists, psychologists and allied health professionals. 	Message – broad range of clinical areas including: cardiovascular diseases (10), oestrogen replacement therapy (8), hypertension (5) and diabetes (4). Channel – 33 disseminated passively; 23 by publication in a peer-reviewed journal, 9 actively through direct mailing (8 of which was delivered only once and 1 four times), 6 through mass mailings (4 once, 1 twice and others over a 3 year period), 4 were delivered once through a mode that was not made clear in the paper. 39 PEMs targeted prescribing or treatment, 8 general	 54 professional practice related outcomes were analysed from 25 ITS studies using time series regression. There were statistically significant improvements in 16 studies of 27 outcomes from the slopes or levels between the periods before and after the PEM were disseminated. However, in 11 outcomes, there was improvement in one measure and deterioration in the other; in one study there was a significant deterioration in both slop and level in the period before and after PEM dissemination. Overall, standardized median change in level was 1.69 (range -6.96 to +14.26). Only 1 study had categorical patient outcome and reported adjusted RD of 0.13. 	

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		management and 6 addressed	An RCT reported 5 continuous outcomes,	
		procedures. 5 were for test	overall median standardised effect size	
		ordering, 5 for referrals, 5 at	was -0.14 across these 5 outcomes.	
		surgery. 4 patient education or		
		advice. 4 on diagnoses.	2 ITS reported 4 patient health outcomes	
			and overall standardised median	
		3 PEMS targeted prevention – 2	improvement was 3.79 across all four.	
		covered screening.		
			2. PEM only versus single intervention	
			1 RCT compared group exposed to a PEM	
			to another using computerised guidelines.	
			9 categorical professional outcomes were	
			measured and none of these showed	
			significant changes, standardised median	
			adjusted RD was -0.02	
			Box plots were done to explore what	
			sharacteristics of DEMs might influence	
			their effectiveness to change professional	
			their effectiveness to change professional	
			practice. Visual inspection of the graphs	
			suggested the following have more	
			potential to influence effectiveness:	
			source of information, tailoring, clinical	
			areas, type of targeted behaviour,	
			purpose, level of evidence and format.	
			The bar graphs seemed to suggest	
			effectiveness does not vary much	
			depending on mode, frequency or	
			duration of delivery.	

Mass media	26 papers met the	None mentioned	Most described in included	Most studies evaluated the	2 studies looked at immunisations uptake	Media campaigns may have
interventions:	inclusion criteria that		studies were planned	campaigns by measuring	and statistically significant change was	positive effect on health services
effects on health	reported 20 time		interventions which aimed to	healthcare utilisation. Others	found using time-series regression.	utilisation but important to
services utilisation	series analyses and 1		promote specific health	used patient outcome measures		ensure reporting of health-
(9)	controlled before		services: cancer screening,	related to the campaign.		related issues in lay media
	and after study		immunisation programmes,		The effect was less clear regarding cancer	represents best available
			emergency services for		screening. Reanalysis of studies using	knowledge and effectiveness of
			people with suspected heart	Most common condition for	time-series regression found statistically	healthcare interventions.
			attacks.	media campaign was skin cancer	significant changes in level in 4 studies,	
				awareness (4 studies) followed by	and significant change in slop in only 1	
				HIV testing (3), measles, mumps	study.	There were limitations in
			All campaigns relied on use	or rubella vaccination (2) and		methodological quality and
			of a range of media – radio,	response for suspected heart		completeness of reporting in
			television, newspapers,	attacks (2).	A mixed pattern was observed in 2 studies	many studies. Time series
			posters and leaflets.		on HIV testing; only 1 of them had	regression or other appropriate
			Electronic media such as		statistically significant change in level on	statistical tests should be used.
			internet were not included.	Other topics related to	the number of HIV tests performed when	
				prevention included prevention	results were reanalysed using time series	
				of childhood poisoning, colorectal	regression.	
			19 studies included general	cancer screening, cervical cancer		
			public as target audience. 9	screening.		
			studies also included		Use of media campaign to reduce delay in	
			healthcare professionals as		admission to hospital for suspected heart	
			targets but none specified if		attacks also appear mixed.	
			primary or secondary care.			
					Overall, direction of effect of media	
					interventions was towards change from	
					0.1 to -13.1.	
Financial approaches						
Target payments in	Only 2 studies met	Economic theory	1 study in USA consists of	Target payments vs fee for	Both studies showed increased	There is insufficient evidence to
primary care:	all inclusion criteria	e.g. Agency	additional 10% (\$0.80) or	service	immunisation and vaccination rates after	say if target payments provide a
effects on	for review – one was	theory	20% (\$1.60) payment to		introduction of target payments.	method of improving primary
professional			standard fee of \$8 for each			health care.
			influenza immunisation			

practice and health	RCT and the other		made over 70% or 85%		In the US study, the group receiving target	
care outcomes (10)	was ITS		targets respectively.		payment had influenza vaccination rate	
					5.9% higher than control but this was not	More research to evaluate effect
					statistically significant. The change in	of target payments and
			Second study in UK looked at		influenza vaccination rate from baseline	evaluations should be planned
			trend in pre-school		was also larger in the intervention group -	before introducing changes.
			immunisation rates before		6.8% and was statistically significant	
			and after target payment		0.8% and was statistically significant.	
			was introduced			
			was introduced.		The LIK study reported an improvement in	
					nrimary and nre-school immunisation	
			Both studies targeted		rates after target navment was	
			primary care professionals.		introduced The proportion of general	
			······ , ··········		practices offering at least 95% and 90% of	
					their eligible population the primary	
					immunication increased by 50% and 20%	
					respectively for pro-school	
					immunications, the propertion offering at	
					losst 0.5% and 0.0% improved by 4.2% and	
					Ally respectively. However, a logistic	
					41% respectively. However, a logistic	
					regression model applied did not show a	
					change in overall linear trend as a result of	
					target payments.	
Capitation calany	A studios woro	Economic theory	Brimany caro professionals	2 studios compared capitation	EES was the control group payment system	There is ovidence that novment
foo for convice (EES)	4 studies were		from US, Donmark and	and EES navmont	in 2 of the 4 studies: the remaining study	systems influence DCD behaviour
and mixed systems	DCTs and 2 CDAs	theory	Conodo woro included in the	and FFS payment.	had a mixed system of EEC L constation	Systems initiative PCP behaviour.
and mixed systems	RUIS and 2 CBAS.	theory	canada were included in the		The results uses thus preved under 2	high or avantity of animory core
or payment: effects			studies.	One study compared PCP	The results were thus grouped under 3	nigher quantity of primary care
on the behaviour of				behaviour under colony and EES	comparisons:	compared with capitation and
primary care				suctors		salaried PCPS.
physicians (11)				systems.	1 Constation normant is FES (2 studies)	
					1. Capitation payment vs FFS (2 studies)	
				One study compared a mixed		However, there were not enough
				conitation system with EES	Primary care physician and contacts - In	well designed studies to give a
				capitation system with FF3.	the 2 studies that examined this, effect on	robust generalisation to apply in
						every policy context.

		2 studies examined care provided by PCPS to children,	remained the same before and after the intervention (capitation) was introduced.	
		2 examined care to registered population.	Prescriptions – the number of repeat prescriptions made by PCPs in the intervention (FFS+ capitation) group fell but was significant only after 12 months.	
			Diagnostic and curative services – PCPs working under capitation + FFS increased significantly after the change in payment structure even after 12 months compared with FFS group.	
			Referrals – one study showed fewer referrals under capitation. Another study showed significantly lower referrals in the capitation group.	
			Emergency department visits – no differences over time between capitation and FFS groups.	
			Hospitalisation – no difference over time between capitation and FFS groups.	
			Compliance with guidelines on number of patient visits – one study showed children of all ages were more likely to receive the guideline number of visits to see PCPs in FFS rather than capitation system. However, there was a small difference in different age groups of children between capitation and FFS groups.	
				1

		Expenditure and cost – one study	
		suggested net expenditure per year was	
		higher for capitation group.	
		2. Salary payment vs FFS (1 study)	
		Patient visits – no significant differences	
		between salaried and FFS systems.	
		Number of nationts enrolled – there was	
		27% relative difference and significantly	
		nigher in salaried compared with FFS.	
		Continuity of care - PCPs on salaried	
		system were significantly less likely to	
		attend to their own patients compared	
		with PCPs on FES	
		with craonina.	
		Compliance with guidelines on the number	
		Compliance with guidelines on the number	
		or patient visits – salaried PCPS had lower	
		percentage of visits in excess of	
		recommended number compared with	
		FFS.	
		Patient satisfaction – four dimensions of	
		patient satisfaction were measured but	
		only access to PCP was significantly	
		significant and was higher for salaried	
		1013.	
		2 Mixed constation system vs FFS (1	
		3. Mixed capitation system vs FFS (1	
		studyj	
		Hospital utilisation – no difference in	
		absolute admission rates between 2	
		groups.	
		0	

The effect of	7 studies fit the	Economic theory	5 US studies used incentives	3 cluster RCTs looked at	Overall different financial interventions	There is "insufficient" evidence
financial incentives	inclusion criteria: 3	e.g. Agency	schemes devised by large	influences of financial incentives	had modest and variable effects.	to support or not support the use
on the quality of	cluster-RCTs, 1	theory	health plans to increase	on physicians to deliver smoking		of financial incentives to improve
health care	controlled ITS, and		quality of care provided the	cessation advice using different		the quality of primary health
provided by primary	one ITS that used		medical group practices.	outcome measures.	Only one cluster-RCT looking at smoking	care.
care physicians	difference-in-				cessation had the largest effect on one	
(12)_	difference e (DID)				outcome measure. Clinics that received	
	design.		1 CBA study evaluated	1 CBA study used patients'	financial incentive had a higher mean rate	The authors suggest incentive
			introduction of a salaried	assessment of the process of care	of referral than usual care. In another C-	design as well as study design
			payment scheme in UK using	and satisfaction using the General	RCT, GPs who had financial incentives	should be more aligned to
	5 took place in Us, 1		20 general practices.	Practice Assessment Survey	increased the smoking status recording	theory.
	UK and 1 in Germany			(GPAS). In addition to this, clinical	compared to those that didn't.	
				indicators such as cervical		
			The German study used 82	screening, childhood		There should be more rigorous
			medical practices to evaluate	immunisation and pre-school	For the studies that examined screening	study designs to account for
			new strategies to enhance	boosters were used to assess the	services in diabetics, the only statistically	selection of physicians into
			promotion of smoking	quality of care provided by the	significant effects of financial incentives	incentive schemes.
			cessation in general practice.	physicians.	were for cervical screening and eye	
					examinations.	
						There should be more detail on
				The other 3 studies used		1- type of payment scheme at
				outcomes such as: rates cervical	Other studies of other outcomes did not	baseline or in control group, how
				cancer screening, blood testing	show statistically significant effects due to	payments are made to medical
				for diabetic patients, childhood	financial incentives.	groups, and the size of new
				immunisation, adherence clinical		payments as a proportion of total
				management (asthma and		revenue.
				diabetes), chlamydia screening		
				and mammography.		

TS – interrupted time series RCT – randomised controlled trial PCP – primary care professional IQR – interquartile range RD – risk difference

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APPENDIX E – PCT Contracts

City and Hackney

Local Enhanced Service Specification – Chlamydia Screening (2006-07)

Introduction

All practices are expected to provide all essential and those additional services they are contracted to provide to all their patients. This enhanced service specification outlines the more specialised services to be provided. The specification of this service is designed to cover the enhanced aspects of clinical care of the patient, all of which are beyond the scope of essential services. No part of the specification by commission, omission or implication defines or redefines essential or additional services

Background

Chlamydia is the commonest sexually transmitted infection in the population affecting over 8% of the screened General Practice population in the Chlamydia screening pilots of the Wirral and Portsmouth. The infection is commonly asymptomatic (70% women and 50% men) and it is estimated that less than 10% of Chlamydia infections are diagnosed. Untreated, the infection accounts for significant long-term complications including infertility and pelvic inflammatory disease.

City and Hackney is part of the phase 3 rollout of the National Chlamydia screening programme and has already established screening of under 25 year olds in other community settings. Screening in General Practice will provide the opportunity for young people who are not necessarily in contact with sexual health services to receive testing.

The newer screening test for Chlamydia infection using nucleic acid amplification technology (NAAT) is highly sensitive, specific and non-invasive; in addition, CHPCT will introduced the use of dual NAAT test that provide simultaneous testing for Chlamydia and gonorrhoea on a single specimen, overcoming the need for other more invasive testing.

The specification is designed to promote:

• Practices offering enhanced care to their own patients This specification has been developed through discussions with practitioners, Consultant at Department of Sexual Health.

Clinical lead: Dr Alison Gibb

PCT Director lead: Lesley Mountford/Jose Figueroa

***Development Vehicle: Chlamydia Steering Committee

Aims

- To screen sexually active men and women under the age of 25 for Chlamydia and Gonorrhoea infection
- To widen the reach of the Chlamydia screening programme in City & Hackney
- To reach sexually active young men and women who do not use sexual health services
- To increase screening of asymptomatic patients consulting for unrelated conditions
- To increase acceptability of testing for both chlamydia and gonorrhoea by non invasive testing
- To increase understanding and raise awareness of importance of Chlamydia and gonorrhoea infections in young sexually active clients
- To de-stigmatise Chlamydia and gonorrhoea infections and raise awareness of safer sexual practices
- To reduce the burden on secondary care services by diagnosing and treating infections in the community
- To increase early detection and treatment of both chlamydia and gonorrhoea and therefore reduce transmission and complications associated with these infections.

Service outline

The service will fund:

- PCT programme of educational sessions for practices involved in delivery of enhanced service to support clinical and non-clinical staff involved in programme delivery.
 - □ The programme will effectively dovetail with the existing programme for the Sexual Health enhanced service.
 - A separate programme will also be provided for practices participating in the Chlamydia screening enhanced service alone.
- Treatment of Chlamydia and gonorrhoea infection through voucher system for cases and contacts not entitled to free treatment.

Provision of free condoms and sexual health advice

Requirements

- Appropriate provision of patient information e.g. posters and leaflet in the waiting areas
- Attendance at agreed training by practice and cascade training to relevant practice personnel
- · To order and maintain appropriate supplies including standard screening programme laboratory forms
- To be familiar with how to store and transport specimens
- To develop mechanisms to receive and manage results
- To be competent in issuing tests (urine in men, self taken swabs in women), in the context of providing information on how to prevent infection and the need for re screening on an annual basis or with each new
- partner
 To agree the method for informing patients of positive and negative results SH LES only
- Develop mechanisms to flag individuals under 25 eligible for screening
- To collect appropriate data on tests taken as per requirements of National Chlamydia Screening Programme and report to chlamydia screening office

Practices participating in the enhanced service for sexual health should treat patients with a diagnosed infection in the usual way including carrying out partner notification.

Practices that are not part of the enhanced sexual health service will only be able to offer screening to under 25 year olds and to develop a system to appropriately manage results.

Audit requirements

All practices:

- Number of patients screened for Chlamydia and gonorrhoea infection (through CSO)
- Number and proportion of positive diagnoses made (CSO)

Audit of quality of service provided re; treatment, management and partner notification, please refer to Sexual Health LES specification.

Payments

The Service Level Agreement is effective from the date received by the PCT until

31st March 2007 and 1st April 2007 to 31st March 2008.

Practices participating in the Enhanced Service for Sexual Health

- £5 per dual NAAT test carried out in under 25 year olds as part of screening programme. This includes ensuring the effective receipt of positive and negative results. The service will not distinguish between tests carried out under existing arrangements and additional tests offered opportunistically.
- Treatment of a positive case including the offer of a full sexual health screen and partner notification carried out in the usual manner will be paid as per positive diagnoses rather than as a screen.
- Positive cases referred to alternative provider will be paid at the screen rate.

Practices participating in the Screening Enhanced Service only

• £5 per dual NAAT test carried out in under 25 year olds as part of screening programme. Practices will be expected to carry out the testing and develop a system to appropriately manage results.

Service Level Agreement: Local Enhanced Service for Chlamydia screening

Section 1

Practice Name

Practice Lead

Position

I have read and understood the specifications for the Local Enhanced Service for Chlamydia screening, and agree to participate as per attached specifications.

Yes/No

Section 2

Work to be undertaken:

- 1. To screen under 25s for Chlamydia and Gonorrhoea.
- 2. To issue tests (urine in men, self taken swabs in women).
- 3. To provide information on how to prevent infection and the need for re screening on an annual basis or with each new partner.
- 4. To inform patients of positive and negative results SH LES practices only
- 5. To treat patients with a positive result in the usual way including carrying out partner notification. (This relates to practices already participating in the Sexual Health Enhanced Service).
- 6. To collect appropriate data on tests taken as per the requirements of the national screening programme and submit it to the Chlamydia screening office on a fortnightly basis.
- 7. To order and maintain appropriate supplies including standard laboratory forms.
- 8. To record appropriate READ code (to be confirmed by CEG)

Section 3

Payments for Enhanced Service

£5 per dual NAATS test carried out in under 25 years old as part of screening programme. Please refer to section 6 of the specification for additional details.

Section 4

The Practice named in section 1 of this document has agreed to provide the Local Enhanced Service for Chlamydia screening. This enhanced service will run from the date received by the PCT until 31 st March 2007 and 1 st April 2007 to 31 st March 2008.
Name of person completing this form

Once signed this agreement is binding for all partners in the practice named in section 1. By signing this SLA practices agree to provide the enhanced service as directed above during the financial year 2006/07 and 2007/08.

Sign name_

Job Title_

Date

Local Enhanced Services - City & Hackney Sexual Health, HIV and Chlamydia Screening Part 1 Service Specification 2012/13

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8	Data Collection	
	Appendix 1 – Additional Information	

Introduction

This specification has been developed in line with the National Strategy for sexual health and HIV, to provide practices with the necessary resources to work towards decreasing the number of people in City and Hackney who are infected by a Sexually Transmitted Infection (STI) and HIV, by actively offering HIV testing to all new adult (15 to 59) registrations and STI screening to those who are identified as at risk or who present with symptoms.

The specification also rewards practices for screening 15-24 year olds patients for Chlamydia as identified in the National Chlamydia Screening Programme.

1. Aims

The aims of the service are to:

- Reduce the prevalence and incidence of STIs in the residents of City & Hackney;
- Promote early diagnosis and treatment of STIs including HIV, reducing transmission and morbidity and improving outcomes for patients;
- Actively offer HIV testing to all new adult (15 to 59) registrations and adequately support and refer those individuals who test positive;
- To screen for Chlamydia and Gonorrhoea all sexually active men and women under the age of 25 providing adequate partner notification and treatment;
- Enhance confidence and skill levels of GPs and Practice staff with regard to sexual health and HIV;
- Improve patient experience, access and choice and empower patients to practice safer sex.
- 2. Pre-requisites for joining the service
- Practices will identify a clinical lead for the service;
- Clinicians will be accredited to provide services prior to starting the service. Clinicians will also be required to undergo update training as appropriate;
- Practices wishing to provide services for the first time will need to be visited by the Sexual Health Leads in the Public Health Directorate.
- 3. Service Outline

Practices participating in the LES will be subject to annual or ad hoc review as deemed necessary by NHS East London and The City (NHS ELC). Please note the information listed sections 5-9, and 12-13 are liable to be included in the auditing process. Failure to comply with the audit requirements will result in a payment delay or decommissioning of the enhanced service.

Practices who sign up to this service will need to undertake the following:

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- 1. Identify a named practice lead clinician for the service and provide NHSELC with their contact details. Any change to the lead within the practice should be communicated immediately to NHSELC in order to keep records up to date. The email address provided must be from a secure provider e.g. nhs.net.
- Provide appropriate screening, management, treatment, partner notification and follow-up or referral as per specification below for Chlamydia; Syphilis; Gonorrhoea; Genital warts (HPV) Herpes Simplex (HSV); Trichomoniasis and HIV.
- 3. Be trained to provide the following at sexual health consultations:
 - a. Raise and discuss issues related to sexual health and safe sex practice;
 - b. Recognise risk behaviours in both men and women and record patients' sexual history;
 - c. Provide STI testing including Syphilis; Hepatitis B and HIV serology and near patient testing;
 - d. Manage uncomplicated Chlamydia, Gonorrhoea, Tricohomoniasis, HSV, HPV, including partner notification;
 - e. Syndromic management as well as management of laboratory confirmed STIs;
 - f. Offer HIV testing to all new adult registrations;
 - g. Provide HIV pre and post-test discussion and advice to those testing negative and counselling and referral to those testing positive;
 - h. Provide preventative management e.g. Hepatitis B immunisation in high-risk groups;
 - i. Refer complicated STIs including HIV to GUM secondary care services using fast-track pathway (For further information see appendix A) For patients who wish to use services at Homerton, the referral form for GUM should be fully completed;
 - j. Adequately code HIV tests offer to all new adult registrations;
 - k. Adequately code all tests performed as well as positive diagnoses using READ codes.
- Release the relevant staff for training and submit evidence of training. Please see section 5 below for list of approved courses. Where training has been cascaded the documentation submitted must include a register of attendees and material covered.
- 5. Maintain a list of all patients managed under the LES who have been screened and treated. This will include age, sex gender, sexuality and ethnicity.
- 6. Demonstrable activity on partner notification. Practices are required to discuss partner notification with the patient and READ code that the discussion has taken place.
- 7. Maintain a list of positive diagnosis of sexual infections made within the practice accompanied by anonymised lab results. Patients not wishing to have sexual health notes in their General practice notes can be directed to community sexual health services (see appendix 1 for further details).
- 8. Be able to demonstrate satisfactory clinical management and use of CEG templates via a notes review if requested and deemed necessary by NHSELC.
- 9. Provide the CSO with information on treatment, management, partner notification and follow-up of positive patients screened through the Chlamydia Screening Programme when requested.
- 10. Organise the ordering of condoms, Chlamydia screening packs and pregnancy tests and laboratory associated stock i.e. swabs and media bottles; and be familiar with recommendations regarding maintenance and transport e.g. temperatures for storage etc. ensuring they are adhered to.
- 11. Pro-actively promote in-practice advertising of the services available and ensure an appropriate environment for sexual health consultations by:
 - a. Ensuring information posters and leaflets are freely available;
 - b. Using mail outs to contact target groups and raise awareness of sexual health screening and advisory services;
 - c. Promoting sexual services during travel clinics and health checks;
 - d. Including questions on HIV testing and HIV test offer in new patient registration forms;
 - e. Using any other appropriate means of marketing, including using established methods of communication.
- 12. Have an effective mechanism for informing patients of screening results. If the result is:
 - Positive Patient should be contacted within two working days of the lab result arriving at the practice;
 HIV positive results should be given face to face and ensure adequate referral for treatment and support. All patients testing reactive for near patient HIV testing should be referred for confirmatory serology.
 - b. Negative Practices should have arrangements in place to ensure patients are made aware of the results of their test within five working days of the lab result arriving at the practice. Patients should be fully briefed on how they can obtain a negative result.

4. Training and Education

Practices must ensure that all staff have attended the appropriate training. Clinicians new to providing the service must attend at least one of the NHSELC approved training sessions or other approved sexual health training course at inception. Clinicians must also ensure that once trained they remain competent in the management of STIs by updating their training.

All practices offering HIV testing at registration and those interested in using point of care testing (POCT) should organise a practice training session – provided by the Public Health Team at NHS ELC.

All clinicians involved in delivering this LES will undertake a minimum of 4 hours accredited education annually, to increase knowledge, skills and confidence in dealing with sexual health issues. The minimum 4 hours training per year could consist of any or a combination of the options below:
- Attendance at a Sexually Transmitted Infections Foundation (STIF) course or other accredited course;
- Support the organisation of an HIV training session provided at the practice;
- Cascading sexual health training to other practice staff;
- 4 hours documented self-directed learning;
- active participation in training GP registrars on sexual health;
- Attendance at conferences;
- Training sessions with the community GUM consultant. And/or HIV liaison Nurse

In addition at least one member of reception staff **must** attend the 'let's talk about sex training' on an annual basis provided by NHSELC.

Training Evidence All training including cascade training should be formally documented and demonstrable; a register of attendees including new staff (GP registrars, salaried GPs) and material covered must be kept to be submitted to NHSELC upon request.

5. Payments

Payments for diagnosis of STI will be paid only where:

- The practice has discussed partner notification with the patient and read coded accordingly;
- Practices demonstrate that they have completed the required training before being eligible to sign up to the LES;
- Practices can demonstrate that they have maintained competencies by attending the necessary training. Any
 practice that does not submit evidence that the appropriate clinicians have attended training will not be paid under
 this LES.

P	ayments	under this	enł	nanced	d ser	vice	are	as follo	ows
	-								

Payment	Additional information	£	Frequency & time of payment
HIV screening	In order to receive payment practices must demonstrate evidence of offer of HIV test to at least 90% of new adult (15 to 59) registration using appropriate READ codes and test at least 10% of new adult registrations. Practices screening 10% to 30% of their new adult registrations and adequately recording READ codes	£5.00 per test once a practice has screened 10% of the target group	Quarterly audit. Information validated by year end CEG audit.
Bonus Payment 1	Practices screening 31 to 50% of their new adult registrations and adequately recording READ codes will receive and additional payment on those tests above the 30% threshold	£7.00 per test once a practice has screened 30% of the target group	Quarter 4 Data validated at year end and payment adjustment will be made using CEG audit
HIV diagnosis	Where patient is not known to have infection prior to testing and appropriate treatment is provided including appropriate bi-annual review where possible.	£265 per diagnosis	Quarterly audit. Information validated by year end CEG audit
Acute STI diagnosis and management as per section 4	Only one claim per patient episode can be made. However, a patient presenting with two different episodes of STIs during the same year may be claimed twice assuming a full STI screening is carried out in each episode and where clinical episodes are more than 6 weeks apart. HSV and HPV can only be claimed upon initial diagnosis, not subsequent episodes .	£160 per diagnosis	Quarterly audit. Information validated by year end CEG audit.
Chlamydia Screening	Dual NAAT test performed in under 25 year old individuals.	£5.00 per test	Quarterly audit. Information validated by year end CEG audit.
Bonus Payment 1	Practices screening more than 30% of their population aged 15-24 will receive an additional payment on screens above the 30% threshold.	£5.00 per screen paid quarterly Extra £2 per screen above 30% of target population will be paid once data has been validated	Quarter 4 Data validated at year end and payment adjustment will be made based National Chlamydia Screening

6. Links with other services

Practices must be providing services under the Sexual Health LES Part One in order to provide services under the IUCD specification Sexual Health Part Two.

7. Data Collection

Practices are advised to use the LES template provided and refer to the READ coding guide issued by the Clinical Effectiveness Group (CEG) for this LES. Practice must use the template to ensure the correct READ codes are used in order to trigger payment. Data will be collected nd reported by the CEG on a quarterly and annual basis. Practices are able to view the

Appendix 1 - Additional Information

Additional Resources

Practices who need additional information or support can contact the Public Health Department on 0207 683 4335.

For advice on Chlamydia please contact Mike Spraggon on 020 7683 4113.

Training sessions will be run via the PCT. This includes STIF courses, local clinical training and 'let's talk about sex' training for non-clinical staff.

Additional information for Sexual Health Enhanced Service

Complicated STIs include untreated syphilis; solitary genital ulcers; herpes or other STIs in pregnancy; conditions not responding to first line therapy and new HIV Diagnosis. These and other rare conditions (e.g. Reiters disease, Bartholin's cyst) should be referred to the appropriate specialty.

Patients who do not want sexual health consultations recorded in their GP record can go to community services via the fast track pathway. The services available include:

- City and Hackney Community Sexual Health Clinics
- (Central Booking: 020 7683 4103)
- The lvy
- Homerton Department for sexual health (DOSH)

Practices are responsible for ordering their own supplies of condoms; however the PCT will continue to fund this in the same way as 2011/12.

Practices will be required to report positive STI diagnoses to the HPA as part of the implementation of GUMCAD2.

Local Enhanced Service Specification - Chlamydia Screening (2006-07)

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Clinical lead:	Dr Alison Gibb
PCT Director lead:	Lesley Mountford/Jose Figueroa
Development Vehicle:	Chlamydia Steering Committee

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• To increase early detection and treatment of both chlamydia and gonorrhoea and therefore reduce transmission and complications associated with these infections.

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The programme will effectively dovetail with the existing programme for the Sexual Health enhanced service.

A separate programme will also be provided for practices participating in the Chlamydia screening enhanced service alone.

• Treatment of Chlamydia and gonorrhoea infection through voucher system for cases and contacts not entitled to free treatment.

Provision of free condoms and sexual health advice

Requirements

- Appropriate provision of patient information e.g. posters and leaflet in the waiting areas
- Attendance at agreed training by practice and cascade training to relevant practice personnel
- To order and maintain appropriate supplies including standard screening programme laboratory forms
- To be familiar with how to store and transport specimens
- To develop mechanisms to receive and manage results

To be competent in issuing tests (urine in men, self taken swabs in women), in the context of providing information on

- how to prevent infection and the need for re screening on an annual basis or with each new partner
- To agree the method for informing patients of positive and negative results SH LES only Develop mechanisms to flag individuals under 25 eligible for screening

To collect appropriate data on tests taken as per requirements of National Chlamydia Screening Programme and report to chlamydia screening office

Practices participating in the enhanced service for sexual health should treat patients with a diagnosed infection in the usual way including carrying out partner notification.

Practices that are not part of the enhanced sexual health service will only be able to offer screening to under 25 year olds and to develop a system to appropriately manage results.

Audit requirements

All practices:

Number of patients screened for Chlamydia and gonorrhoea infection (through CSO)

Number and proportion of positive diagnoses made (CSO)

Audit of quality of service provided re; treatment, management and partner notification, please refer to Sexual Health LES specification.

Payments

The Service Level Agreement is effective from the date received by the PCT until

31st March 2007 and 1st April 2007 to 31st March 2008.

Practices participating in the Enhanced Service for Sexual Health

£5 per dual NAAT test carried out in under 25 year olds as part of screening programme. This includes ensuring the effective receipt of positive and negative results. The service will not distinguish between tests carried out under existing arrangements and additional tests offered opportunistically.

Treatment of a positive case including the offer of a full sexual health screen and partner notification carried out in the usual manner will be paid as per positive diagnoses rather than as a screen.

Positive cases referred to alternative provider will be paid at the screen rate.

Practices participating in the Screening Enhanced Service only

£5 per dual NAAT test carried out in under 25 year olds as part of screening programme. Practices will be expected to carry out the testing and develop a system to appropriately manage results.

Service Level Agreement: Local Enhanced Service for Chlamydia screening

Section 1

Practice Name

Practice Lead

Position

I have read and understood the specifications for the Local Enhanced Service for Chlamydia screening, and agree to participate as per attached specifications.

Yes/No

Section 2

Work to be undertaken:

1. To screen under 25s for Chlamydia and Gonorrhoea.

2. To issue tests (urine in men, self taken swabs in women).

3. To provide information on how to prevent infection and the need for re screening on an annual basis or with each new partner.

4. To inform patients of positive and negative results - SH LES practices only

5. To treat patients with a positive result in the usual way including carrying out partner notification. (This relates to practices already participating in the Sexual Health Enhanced Service).

6. To collect appropriate data on tests taken as per the requirements of the national screening programme and submit it to the Chlamydia screening office on a fortnightly basis.

7. To order and maintain appropriate supplies including standard laboratory forms.

8. To record appropriate READ code (to be confirmed by CEG)

Payments for Enhanced Service

£5 per dual NAATS test carried out in under 25 years old as part of screening programme. Please refer to section 6 of the specification for additional details.

Section 4

The Practice named in section 1 of this document has agreed to provide the Local Enhanced Service for Chlamydia screening. This enhanced service will run from the date received by the PCT until 31st March 2007 and 1st April 2007 to 31st March 2008.

Name of person completing this form_

Once signed this agreement is binding for all partners in the practice named in section 1. By signing this SLA practices agree to provide the enhanced service as directed above during the financial year 2006/07 and 2007/08.

Sign name_

Job Title

Date_

NHS Haringey

Specification for the provision of a Local Enhanced Service

vice:	amydia Screening by General Practices
iod:	il 2008 to March 2009
lated:	

1. Aim

The aim of this enhanced service is to increase the uptake of Chlamydia screening in people aged 15 to 24 years by offering practices an incentive payment to help establish this service for patients.

2. Strategic fit: national and local

Chlamydia is a sexually transmitted infection which the Department of Health estimates approximately 10% of young people have contracted. Initial results in Haringey indicate that 25% of people tested are positive for Chlamydia.

If left untreated Chlamydia can result in complications such as pelvic inflammatory disease, ectopic pregnancy in women and infertility in both women and men; however, it is easily treated. It is important that we offer young people the opportunity to find out if they have contracted Chlamydia so that they can receive the treatment that they need.

Chlamydia screening of sexually active people aged under 25 is a national target and is part of the PCT's Operating Plan for 2008/09 to 2010/11, with the target ranging from 15% to 35% over the three years. Achievement of this target will have a significant impact on the reputation of the PCT and its practices.

At a local level, the PCT is working closely with local schools and higher education establishments to encourage uptake of screening, as well as offering screening kits over the internet. In addition, the PCT is investing in social marketing, however this will take some time to come on stream, which is why offering opportunistic screening and screening through practices continues to be a key way of increasing uptake

3. Summary of service

Practices will offer patients aged 15 to 24 Chlamydia screening tests. The practice should look to screen opportunistically wherever possible, as well as at appointments made solely for this purpose. The practice may wish to invite patients for screening to increase uptake rates. The methodology is left to the practice to decide what is most suitable for their patients.

The test is very straightforward and takes only minutes; the actual taking of the sample can be done by the person themselves in private on the practice premises or as part of a consultation where appropriate.

The samples are sent to a central lab for testing and the results are available in a couple of weeks. The young person will be contacted directly by the Chlamydia Screening Office with their results.

4. Impact on current services and pathways

Practices in other boroughs have found that they can provide this screening opportunity at a range of contacts with young people.

- Routine appointments for family planning such as contraceptive pill checks
- Appointments for emergency contraception
- Pregnancy testing
- New patient health checks
- Ante-natal clinics
- Childhood immunisation clinics

All of these approaches have proved effective in some practices although obviously each practice will know what will be most effective with their population.

5. Quality mechanism

The practice must ensure that the form accompanying the test is completed correctly to include the following information:

- date of birth
- postcode
- contact number for the young person

The practice should send the test sample and paperwork to the address in the kit.

Practices will not be paid for tests which are accompanied by an incorrectly completed form.

6. Performance management

The actual number of screens is reported through the Chlamydia Screening Office. This data feeds into the quarterly data returns the PCT makes to the Department of Health. The practice does not need to submit any other data.

Each practice will be sent a report of their performance at the end of each quarter between now and year end, showing which payment milestone they have reached and therefore what minimum payment they can expect if that level of screening is maintained.

Practices will also have their screening rates included in the sixth-monthly performance report which the PCT issues.

7. Eligibility

All practices will be eligible to provide this service if they fulfil the following criteria:

• Practices must be able to return a fully completed form, accompanying the screening kit supplied by **Enfield** and Haringey Chlamydia Screening Programme, along with the sample

• Practices must indicate if they are intending to take part in this enhanced service by returning the form at the end of this specification.

8. Training required

There are no training requirements associated with this LES. Support to implement this scheme is available from Innovision; you can contact them at:

Innovision Healthcare Limited

Suite 2

2 Elm Park Road

Winchmore Hill

London N21 2HN

Tel: 020 8360 5405

Fax: 020 8360 9527

debbieharris@nhs.net

9. Payment mechanism

Those practices which have already been offering Chlamydia screening will still be paid under the terms of this scheme retrospectively for the work that they have done since the beginning of this financial year. Payments will be made after the end of March 2009 once all results have been returned from the labs.

Payments will only be made where:

•	The screening kit supplied by Enfield and Haringey Chlamydia Screening Programme is used.
•	The patient is within the age range
•	The form is completed correctly with all the fields completed:
Date of birth	
Postcode	

Postcode Contact number

•

Name and date of birth is filled out on the bottle The screening programme receives notification from the lab of a returned test.

Payments for 2008/09:

evement	nent
of eligible patients	er returned test
of eligible patients	er returned test
of eligible patients	per returned test
of eligible patients	per returned test

The percentage of eligible patients is calculated according to practice lists on Exeter as at October 2008.

CONFIRMATION FORM FOR CHLAMYDIA LOCAL ENHANCED SERVICE

For the Practice to complete and return to Sadeana Smith, Performance Manager, Primary Care Directorate, Block A2 St Ann's Hospital, St Ann's Road, London N15 3TH.

I intend to take part in the **Chlamydia local enhanced service**. By signing and returning this form I confirm that I am eligible to take part in the LES according the eligibility criteria in the specification.

Lead GP name:

Lead GP signature:

Practice name:

Practice address:

Haringey PCT



Specification for the Provision of a Local Enhanced Service

vice:	amydia Screening by General Practices
la da	1 2000 to Maurice 2010
oa:	1 2009 to March 2010

Introduction

All practices are expected to provide essential and those services they are contracted to provide to their patients. No part of the specification by commission, omission or implication defines or redefines essential or additional services.

Aim

The aim of this enhanced service is to build on the 2008/9 LES and continue to increase the uptake of Chlamydia screening in people aged 15 to 24 years by offering practices an incentive payment to help establish this service for patients. The target for Haringey is 25% of sexually active 15 - 24 year olds.

Strategic fit: national and local

Chlamydia is a sexually transmitted infection which the Department of Health estimates approximately 10% of young people have contracted. Initial results in Haringey indicate that 7% of people tested are positive for Chlamydia.

If left untreated Chlamydia can result in complications such as pelvic inflammatory disease, ectopic pregnancy in women and infertility in both women and men; however, it is easily treated. It is important that we offer young people the opportunity to find out if they have contracted Chlamydia so that they can receive the treatment that they need.

Chlamydia screening of sexually active people aged under 25 is a national target and is part of the PCT's Operating Plan for 2008/09 to 2010/11, with the target ranging from 15% to 35% over the three years. Achievement of this target will have a significant impact on the reputation of the PCT and its practices.

At a local level, the PCT is working closely with local schools and higher education establishments to encourage uptake of screening, as well as offering screening kits over the internet. In addition, the PCT is investing in social marketing, however this will take some time to come on stream, which is why offering opportunistic screening and screening through practices continues to be a key way of increasing uptake.

Summary of service

Practices will offer patients aged 15 to 24 Chlamydia screening tests. The practice should look to screen opportunistically wherever possible, as well as at appointments made solely for this purpose. The practice may wish to invite patients for screening to increase uptake rates. The methodology is left to the practice to decide what is most suitable for their patients.

The test is very straightforward and takes only minutes; the actual taking of the sample can be done by the person themselves in private on the practice premises or as part of a consultation where appropriate.

The samples are sent to a central lab for testing and the results are available in a couple of weeks. The young person will be contacted directly by the Chlamydia Screening Office with their results.

- 1. Impact on current services and pathways
- Practices in other boroughs have found that they can provide this screening opportunity at a range of contacts with young people.
- Routine appointments for family planning such as contraceptive pill checks
- Appointments for emergency contraception
- Pregnancy testing
- New patient health checks
- Ante-natal clinics
- Childhood immunisation clinics
- Mail outs to all 15 24 year olds on your list, inviting them to come in for a screen or to request a postal kit, can result in a return rate of 15%
- Pop up reminders on you computer system can ensure you make the most of all opportunities to offer screens to this population group

All of these approaches have proved effective in some practices although obviously each practice will know what will be most effective with their population.

2. Quality mechanism

The practice must ensure that the form accompanying the test is completed correctly to include the following information:

- date of birth
- uate of bit
 postcode
- contact number for the young person

The practice should send the test sample and paperwork to the address in the kit.

Practices will not be paid for tests which are accompanied by an incorrectly completed form.

3. Performance management

The actual number of screens is reported through the Chlamydia Screening Office. This data feeds into the quarterly data returns the PCT makes to the Department of Health. The practice does not need to submit any other data.

4. Eligibility

All practices will be eligible to provide this service if they fulfil the following criteria:

- Practices must be able to return a fully completed form, accompanying the screening kit supplied by Enfield and Haringey Chlamydia Screening Programme, along with the sample
- Practices must indicate if they are intending to take part in this enhanced service by returning the form at the end of this specification.
- 5. Training required
 - There are no specific training requirements associated with this LES. Support to implement this scheme is available from Innovision; you can contact them at:

Innovision Healthcare Limited

Suite 2

2 Elm Park Road

Winchmore Hill

London N21 2HN

Tel: 020 8360 5405

Fax: 020 8360 9527

debbieharris@nhs.net

6. Payment mechanism

Those practices which have already been offering Chlamydia screening will still be paid under the terms of this scheme retrospectively for the work that they have done since the beginning of this financial year. Payments will be made after the end of each of quarter once all the all results have been returned from the labs for that period.

Payments will only be made where:

- The screening kit supplied by Enfield and Haringey Chlamydia Screening Office is used.
- The patient is within the age range
- The Chlamydia Screening Office form is completed correctly with all the fields completed: Date of birth
 - Postcode
 - Contact number
- Name and date of birth is filled out on the bottle
- The screening programme receives notification from the lab of a returned test.
 - Payments for 2009/10:

The practice will be paid a fee of **£10 per test** returned that meet the payment criteria above.

CONFIRMATION FORM FOR CHLAMYDIA LOCAL ENHANCED SERVICE

For the Practice to complete and return to <u>Sue.Eaves@haringey.nhs.uk</u> or fax to 020 8442 6939.

I intend to take part in the **Chlamydia local enhanced service 2009/10**. By signing and returning this form I confirm that I am eligible to take part in the LES according the eligibility criteria in the specification.

Lead GP name:

Lead GP signature:

Practice name:

Practice address:

Date:

Chlamydia screening in Lambeth general practices

Q&A update January 2012

Improving sexual health remains one of NHS Lambeth's priorities. Local GPs and other health services have provided a very successful screening programme for Chlamydia as part of the national programme, and this work will continue as a part of mainstream services. Following recent changes to the local programme, this Question & Answer sheet adds to and repeats some of the information sent out in November 2011.

Q: Should we continue to screen asymptomatic patients under 25s?

Yes - we had the highest screening coverage in England during 2010-11, but our Chlamydia positivity rate in the 15-24 cohort in Lambeth is 8.6%, compared to 5.2% nationally and 4.7% across London. Analysis of local CSP Quarter 2 data suggests we expect to exceed our annual screening coverage target, with a positivity rate of 9.8%.

Q: How can we find out about our Chlamydia screening activity to end October 2011, and any incentive payments for which we qualify?

Practices were informed by Rumbi Mugezi late in 2011 of their activity against 10%, 17%, 25% and 35% coverage thresholds. A further attachment showing a chart of GP screening activity shows your activity in relation to other practices. Payments for those practices which met targets will be made in February through contract variation.

Q: What read codes should we be using to assist clinical management and data analysis now that Chlamydia Screening forms are no longer in use?

The Chlamydia Screening Read Code List is provided as an additional attachment. NHS Lambeth expects to be able to analyse and feedback Practice Focus data quarterly, and we are speaking to the labs about alternative data collection methods.

Q: What forms should we use for Chlamydia Screening?

You should use your standard pathology request forms:

• Services using Guys & St Thomas' Laboratory - sample should be sent using the Pathology form 'Routine Request Form 2'.

Kings Pathology Laboratory – sample should be sent using the routine Microbiology 'Blue' form.

• The laboratories have been looking into the inclusion of microbiology requests on tQuest and similar electronic systems, but this is not yet available.

• <u>Practices should ensure that all clinicians have stopped using the yellow CSP forms</u>. Any copies should be discarded. If a CSP form is submitted to the laboratory with a sample, it will still be processed in the first instance, but the laboratories have agreed a cut off date.

Q: Will the test continue to be a dual NAAT test for Chlamydia and gonorrhoea?

Yes, the Aptima Combo will still be used and can be accessed via the laboratories using the current ordering system:

- Vaginal (orange kit) for women only
- Urine (yellow kit) for both men and women
- Endocervical (white kit) for women, usually used if patient is having an internal examination only.
- Q: Can we obtain more photo instructions to help patients take their own samples?

Photo instructions were supplied to all practices e.g. for display in toilets, and patients should still be reminded to make sure registration details, mobile phone numbers, and date of birth are filled in clearly on the sample bottle. Pathology forms need to be completed by clinicians and / or receptionist responsible. Incorrect or incomplete forms and samples will be rejected by the laboratories.

Q: Who is responsible for notifying patients of results? How?

Notification and management of the all chlamydia and gonorrhoea results is the responsibility of the testing service, and individual clinician submitting the sample.

Each practice should:

- Notify patients of negative results by asking patients to contact the practice for their results (Department of Health does not recommend the 'NO NEWS IS GOOD NEWS' approach)
- Notify patients of positive results and recall them for treatment, partner notification, and any further STI tests.
 Notify patients with an equivocal result, treat the patient as positive but repeat the test.

Recall all patients whose samples have not been processed (either because the sample is insufficient or unlabelled) and re-test.

Q: Are there other ways of informing patients of a negative result?

Texts are no longer sent from the Chlamydia Screening Office. You should already have adapted your own patient result notification system e.g. by using automated appointment reminder texts (such as MJOG on EMIS).

Q: How many times should we attempt to contact patients for treatment?

• Negative results will be the responsibility of the patient to contact the GP for their results. This should be explained during their consultation.

• Positive / equivocal results will continue to be the responsibility of the practice to actively manage. Each practice needs to ensure failsafe measures are reviewed to include complete positive result / treatment management

• Positive results should be communicated as soon as possible to ensure patients receive treatment and partners are notified/ treated. Guidance from the Department of Health is to attempt to contact positive patients 3 times before recording patients as untreated.

Q: Will the treatment of positive patients change?

Treatment protocols are to be followed as agreed locally (2007/8 version). Updated local guidance on gonorrhoea treatment is due soon, but positive gonorrhoea results should always be confirmed by culture & sensitivities test.

Q: Partner notification slips: how will we access then post March 2012?

Partner notification slips can be useful in initiating contact tracing for any patient with positive results. These slips will continue to be available until March 2012 via the Chlamydia screening office at Mawbey Brough. We are currently reviewing their continuation post March 2012.

Q: Given that sexual health remains a key local priority, will Chlamydia screening become part of the core contract for GPs?

NHS Lambeth is continuing to advocate for the inclusion of sexual health supplementary indicators (e.g. Chlamydia screening targets) in the revised core GP practice contracts. We'll update you when we know more.

Q: Where can I get further advice or support on Chlamydia screening in my practice?

Rumbi Mugezi has now left and WUSH team Specialist Nurse for Young People

(GSTT Community Health Services) Hannah White has taken on co-ordination of the CSP until 31st March 2012

Hannah.White@lambethpct.nhs.uk (tel. 020 3049 6832; 07824471934)

Mawbey Health Centre, 39 Wilcox Close, London, SW8 2UD

sebastiankalwij@mac.com - Dr Sebastian Kalwij is GP Champion for the CSP, and can also offer peer support and training.

Sarah.french@lambethpct.nhs.uk (tel 020 3049 5244) is also available to offer development support around your whole range of sexual health services, and can arrange for specialist clinical update if requested.

Lambeth PCT

Guy's and St Thomas' NHS

NHS Foundation Trust

Chlamydia Screening Programme

Artesian Health Centre

138 Grange Road

London

SE1 3GF

2 August 2011

Dear Sir/Madam/Dr

RE: Performance report for Chlamydia Screening 2011/12

I am writing to inform you of your practice performance for Quarter 1(Apr-Jun). Below is a table that shows a breakdown of the thresholds that need to be achieved by your practice.

Practice Name :					
et Threshold	of screens to achieve target				
10% threshold					
17% threshold					
25% threshold					
35% threshold					

In light of the termination of the LES in November 2011practices who achieve the minimum threshold by 31st October will receive the minimum incentives and those that achieve higher thresholds will receive as per threshold achieved based on screening done on the <u>vellow forms only</u>.

Screening for Chlamydia will remain an important national Public Health issue, and the reduction of asymptomatic chlamydial infection, and STI prevalence more widely, remains an NHS Lambeth priority. We expect you to continue offering screening to your patients now the service has been so well established within General Practice

For further information regarding incentives and future screening from 1st November 2011 please contact me on the telephone numbers provided below.

Kind Regards

Rumbi Mugezi

Guys and St Thomas Trust Community Health Services

Chlamydia Screening Coordinator

02030497946

0777 573 5392

Locally Enhanced Services Agreement for Lambeth General Practices 2009-2010 Outline

General Practices continue to be play a pivotal role in increasing accessibility to Chlamydia and Gonorrhoea screening, speeding up the diagnostic and treatment process and reducing the possibility of onward transmission.

GP LES 2009-2010

Between 2009-2010 the GP screening incentive scheme will continue to operate on a revenue basis under NHS Lambeth's (formerly Lambeth PCT) Sexual Health Strategy. The LES will remain accountable to the Sexual Health Operational Group for performance reporting and progress.

This financial year, Lambeth's Chlamydia Screening LES has been revised to incorporate most recent LDP targets to screen 25% of the young people population by 31st March 2010. LES contracts will be issued this year in the form of an agreement letter and incentive schedule.

Finances

The revised incentive structure consists of five payment thresholds. A 5% retainer has been introduced to reflect GP performance in 2008-2009 and the programme's forthcoming media and communication strategy scheduled for implementation this year.

As mentioned in the preceding section, practice payments are dependent upon screening performance and registered target cohort size. Similar to previous years, only performance above the desired thresholds will be rewarded.

Table 1 indicates incentive payments according to target cohort size for each threshold

8	istered 14 yr old cohort	f practices	5% Retainer Payment (£)	ll Payment at (£)	l Payment at (£)	l Payment at (£)
A	0)))
В	1400))
С	1100))
D	800)
E						

* To qualify for the Band E retainer, practices within this stratum will have to screen either in excess of 5% of their target population or 16 young people, which ever amounts to the greater sum.

Under this year's LES, repeat and first-time screens carried out between the 1st April 2009 and 31st March 2010 will contribute towards meeting practice performance thresholds.

Practice Responsibilities

•

Participating practices must agree to the following duties and responsibilities as a part of the LES agreement:

Practices must use the local Chlamydia Screening Programme (CSP) forms

Practices must agree a named Chlamydia lead to communicate with the Chlamydia Screening Programme

• All front line receptionist staff providing condoms or giving sexual health information must have local receptionist training focused on working with young people and sexual health

• Each Practice must work towards the criteria contained in 'You're Welcome: making health services young people friendly' available at: <u>http://195.33.102.76/assetRoot/04/12/15/64/04121564.pdf</u>

Practices must provide appropriate literature to patients on Chlamydia and Gonorrhoea and alternative locations
where comprehensive screening is available

Patients may be screened using both invasive & non-invasive techniques when appropriate

• Screening should be offered to all target patients opportunistically as well as to those presenting for sexual health and contraception consultations

• All index patients positive for Chlamydia and/or Gonorrhoea should receive treatment within 10 working days of the practice receiving results

• Treatment & testing must comply with the Lambeth & Southwark 2005 STI Guidelines available here:

http://nww.southwarkpct.nhs.uk/document_view.php?PID=0000000123&DID=0000000000000002170

• Practices must provide the Chlamydia Screening Programme with monthly intelligence relating to basic partner notification and treatment of index patients.

GP Support and Training

Lambeth's GP Chlamydia Champion and Chlamydia Screening Co-ordinator will carry out the performance monitoring, training, and support work to ensure that GP screening continues to represent in excess of 40% of the overall screening performance.

Costs

If practice performance is similar to last year, projected spend in March 2010 amounts to £28,850.

hampion- Chlamydia Screening	00
mydia screening in practices	850
	850



Community Services

Service Level Agreement for Local Enhanced Service- Chlamydia Screening in General Practices

This is a Service Level Agreement between:

NHS Lambeth

&

Your practice is Band

Commencement date: 1st April 2010

Date of termination: 31st March 2011

Overview

This agreement details the scope and type of work to be undertaken by the Contractor for the agreed tariff.

The service provider will offer a professional and auditable service under the terms as detailed below.

This agreement may be terminated by any of the parties on giving three months' written notice of intention to terminate the arrangement to the other parties.

Outcomes

The outcomes this LES seeks to deliver are:

To increase young people's access to opportunistic Chlamydia and Gonorrhoea screening, in compliance with The National Chlamydia Screening Programme's core requirements
 To increase the rate at which *Chlamydia Trachomatis* and *Gonorrhoea Neisseria* are diagnosed, with the intent to reduce the onward transmission of infection
 To integrate, develop and sustain the delivery of sexual health services in General Practices

To integrate, develop and sustain the delivery of sexual health services in General Practices

Service Tariff

Under this SLA, service providers will be paid to screen their 15-24 year old cohort for Chlamydia and Gonorrhoea. This year, the incentive scheme has been revised to reflect the 2009-2010 LDP targets to screen 35% of Lambeth's young population.

Monies received by a practice will be dependant upon the total number of 15-24 year old patients registered and the number of screens performed in conjunction with this year's target thresholds.

The table below indicates the payment structure implemented according to cohort size

1	size as of Dec 2009	f practices	ntive sum at	ntive sum of	ntive sum of	ntive sum of
A	0	5				D
В	-1400	6)
С	1099	11)
D	800	16)
E)	12				

Only performance above the desired thresholds will be rewarded and service providers should expect to receive payments via contract variation by end of June 2011.

Repeat and first-time screens carried out between the 1st April 2010 and 31st March 2011 on programme patient information forms

will contribute to meeting practice targets.

Screening of over 25 year olds will be excluded and you will be informed every quarter of your individual performance.

The table below shows your practice's target screens for 2010/11

Threshold	Threshold	Threshold	Threshold

GP Support and Training

Lambeth's GP Chlamydia Champion and Chlamydia Screening Co-ordinator will carry out the performance monitoring, training, and support work to ensure that GP screening continues to represent in excess of 50% of the programme's overall screening performance.

Criteria for inclusion requirements

Participating Contractors must agree to the following duties and responsibilities as a part of the LES agreement:

\triangleright	To try to screen over and above the retainer threshold
Screens on all 15-24 ye	To use the local Chlamydia Screening Programme (CSP) patient information forms when performing ear olds
\triangleright	To have a named practice lead to communicate with the Chlamydia Screening Programme
received appropriate transmission	For all front line reception staff providing condoms, screening or sexual health information, to have aining including working with young people.
friendly' available at: <u>ht</u>	To work towards the criteria contained in 'You're Welcome: making health services young people tp://195.33.102.76/assetRoot/04/12/15/64/04121564.pdf
> where comprehensive	To provide appropriate literature to patients on Chlamydia and Gonorrhoea and alternative locations screening is available
\triangleright	For Patients to be screened using both invasive & non-invasive techniques when appropriate
 contraception consulta 	For screening to be offered to all target patients as well as to those presenting for sexual health and tions
days of the practice red	For all index patients positive for Chlamydia and/or Gonorrhoea to receive treatment within 10 working ceiving results
http://nww.southwarkpd	For treatment & testing to comply with the Lambeth & Southwark 2005 STI Guidelines available here: ct.nhs.uk/document_view.php?PID=0000000123&DID=00000000000000002170

To provide the Chlamydia Screening Programme with verbal or written monthly intelligence relating to basic partner notification and treatment of index patients. Monitoring Arrangements:

Whist it is advised that Contractors monitor their own screening activity. Contractor performance will only be assessed upon the number of patient information forms received by the Chlamydia Screening Office via contracted laboratories

 \geq The Chlamydia Screening Office will provide Contractors with a written overview of site and peer performance at the end of every quarter

As part of the overall annual review process, the Contractor may be asked to provide a report for evaluation on the service being provided under this agreement

As part of the annual review process the Contractor will be expected to:

5

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- Feedback on service quality Report on relevant activity

NHS Lambeth may evaluate the contractual arrangements and share the findings with other participating practices, paying particular attention to patient/practice satisfaction and value for money. These findings will be used to inform commissioning arrangements in future years.

May be subject to "Mystery Shopper" Surveys

Variation

The services may be varied if:

The Contractor and NHS Lambeth agree in writing, or a change in NHS Lambeth's service priorities is required by:

-changes in legislation, guidance or directions from the Dept of Health, or

-reductions in the budget of the relevant service area funding, or

- other exceptional circumstances

 \geq Proposals to vary the services may be initiated by either party. A variation to the services will require three months written notice unless both parties agree otherwise.

Under the terms of this agreement, NHS Lambeth will suspend the contract if for any reason service provision or patient safety is compromised in any way. The contract will be suspended pending the outcome of a full and transparent investigation, following which the agreement will either terminate or be reinstated.

Conciliation and Arbitration

It is the wish of both parties that this agreement shall not interfere with or impede the goodwill that has existed between the parties prior to the Agreement.

2 In the event or any disagreement or dispute between the parties they will use their best endeavour to reach a resolution without resort to conciliation or arbitration.

In the event or the parties being unable to reach a resolution jointly they will jointly agree the name of a conciliator. Only in the event of conciliation proving unsuccessful will they resort to arbitration. In such event either party may give notice that they wish to refer the disagreement or dispute to an Arbitrator. Should the parties fail to agree the nomination of a named individual or individuals as Arbitrator either party may apply to FHSAA to determine the dispute or settle the difference. Any reference to arbitration under this clause shall be deemed to be a reference to arbitration within the meaning of the Arbitration Acts 1950 and 1979.

Force Majeure

Neither the Contractor nor NHS Lambeth will be liable for delay or failure to perform the obligations of this Agreement if this delay or failure results from circumstances beyond their reasonable control including but not limited to: Acts of God, Government Act or Direction, Explosion or Civil Commotion or Industrial Dispute.

 Appendix 2 - Application Form

 Date:

 Name of practice:

 Name of person completing form:

 Will strive to provide screening to over 35% of our sexually active 15-24 year old patients
 Will continue to meet the practice requirements outlined
 Understands that the practice will receive payment via contract variation following evidence of screening levels towards the proposed targets.

 Will ensure that information relating to this LES is included in locum packs/ orientation for all locum doctors
 Intervention for all locum doctors

Signed.....

Please return this form via, post, fax or electronically (with an electronic signature, if possible) to

Rumbidzai Mugezi Lambeth & Southwark Chlamydia Screening Coordinator

Chlamydia Screening Programme 6th Floor Mabel Goldwin House 49 Grange Walk London SE1 3DY

Fax Number: 0207 525 0315

Email: Rumbidzai.Mugezi@southwarkpct.nhs.uk

Tower Hamlets PCT



Vikki Pearce

Sexual Health Programme Manager

Introduction and background

'Improving Sexual Health' is the local strategy aimed at improving health and well being in Tower Hamlets. Building upon key priorities of the 'National Sexual Health and HIV Strategy (2001)', the core principles are to deliver flexible, accessible, equitable and high quality sexual health services and in doing so achieve sustained good sexual health for the people of Tower Hamlets.

The vision for Tower Hamlets is a comprehensive system of sexual health providers consisting of:

Networks of primary care providers where all practices offer basic (level one) services and some practices in each network offer more advanced services

- •
- Four locality based integrated contraception and sexual health services
 - Two services offering basic and intermediate services for the whole population

Two services offering advanced (specialist) services including termination of pregnancy, HIV care, management of complex GUM cases

- User friendly with modern, pleasant, local and accessible facilities
- Capacity for 10 12k attendances per year
 - Self care options for condoms, pregnancy tests and Chlamydia screening
 - links to 'spokes' (community centres, schools, charitable healthcare projects, etc)

General practice has a unique opportunity and responsibility to identify and respond appropriately to sexual health need which may otherwise be invisible. Individuals may not define their problem as 'sexual health,' and general practice can play an important role in uncovering unmet sexual health need (e.g. opportunistic Chlamydia screening, asking young people about contraceptive needs, or spotting symptoms of undiagnosed HIV). General practice is the majority provider of contraception, but data on its activities are limited and there is no routine surveillance of STI diagnoses or management in primary care. Studies suggest there is significant room for improvement, with up to two in five people attending GUM having attended their GP first. (MedFASH, 2008)

This sexual health and contraceptive NIS integrates and replaces the previous enhanced services:

- LES 11 (sexual health)
- LES 22 (Chlamydia screening)
- NES 1 (IUCD/implant)

The cervical screening enhanced services remains in place and practices are encouraged to capitalise on screening opportunities to promote sexual health and contraception and vice versa.

Aims and scope

This NIS aims to deliver high quality services to complement and add value to the work of the dedicated sexual health and contraceptive services such as GUM and reproductive health.

By taking a network approach, we anticipate that health outcomes will be improved, patient choice increased and access to services expanded. It will allow for networks to respond to specific local needs and utilise skills across the network that have previously been isolated in specific providers. Moreover it will encourage and develop effective partnership working within the networks.

The National Strategy for Sexual Health and HIV recommendations include expanded roles for practitioners and services to maximise access and provision.

A range of provision at different levels across a network allows people to make choices about their sexual healthcare based on convenience and accessibility, availability of expertise or comprehensiveness of service.

əl	e provided by	cription
Basic	ractices	Chlamydia screening for under 25s Asymptomatic STI screening & treatment HIV testing with pre- & post-test discussion Hepatitis B screening & vaccination for patients at risk
Intermediate	inimum two practitioners per network able ovide each type of service	STI testing & treatment of symptomatic but uncomplicated tions IUD / IUS / implant fitting
Advanced	pital-based and community clinics	Specialist SRH, community gynaecology and GUM

Core Requirements

Network action plan

A collaborative effort across all practices within the network is essential to ensure all elements of the sexual health and contraceptive NIS are met.

Policies

Practices are required to have in place policies on

- Provision of service to unaccompanied patients under the age of 16 (see appendix)
 - Fraser guidelines and child protection (see appendix)
- Confidentiality

All staff working with young people should maintain enhanced CRB clearance.

Management of results

Positive results for Chlamydia and gonorrhoea for patients between 15-24 years old will be recalled, treated and managed by the local Chlamydia Screening office (CSO).

For patients other than the above, each practice within the network should have a clear protocol in place to ensure patients with infections are managed appropriately and to completion. Essential elements of results management include:

- Recall (return for results and treatment)
- Partner notification (ensuring action undertaken to notify sexual contacts)
- Compliance (treatment and behavioural compliance)
- Onward referral (to specialist services as needed)

A mechanism should be included within the practice to notify patients of negative results.

Patients diagnosed with uncomplicated Chlamydia or gonorrhoea can be fully managed by the practice and do not require referral to specialist services.

Patients with new cases of syphilis and / or HIV are excluded from the above and should be referred onward to specialist services.

More detailed information about the above aspects of the management of positive results is found in the reference document 'Local guidance for sexual health', available on the THPCT intranet.

Inter-practice referrals

A process of inter-practice referral should be in place within the network. A failsafe mechanism should be included in this process to ensure referred patients are seen as requested and the referring practice is made aware of the outcome.

A sample inter-practice agreement and proforma are included in the appendix.

Clinical Governance

• Clinical leadership and expertise will be led by the local sexual health and contraceptive clinical governance group consisting of membership from general practice and specialist services within Tower Hamlets

• The clinical governance group will provide bi-directional support to ensure all practices have up to date and approved prescribing and sexual health / contraceptive management guidance

- Mechanisms will be in place to report, review and respond formally to all clinical incidents and complaints Competence to deliver services
- Level of competency will vary according to staff discipline and should be relevant to the service being provided
- Individuals should work within the scope of their own competence
- Disciplines may have different professional guidance around the legalities and requirements for certain

competencies and the steps required to ensure safe practice, e.g. in relation to prescribing or the authority to use patient group directions (PGDs)

Referral to specialist services

• External referrals to specialist sexual health and contraceptive services should be undertaken for patients whose needs or symptoms are considered complex and unable to be managed appropriately in primary care

Referrals should follow pathways as outlined from specialist services (criteria found on the intranet) Accreditation (IUCD / subdermal implant)

For individuals

All new practitioners wanting to provide a service for the insertion of IUCDs and subdermal contraceptive implants should have appropriate training per the current requirements set out by the Faculty of Sexual and Reproductive Health (FSRH) which includes the Diploma of the Faculty (DFSRH) plus a letter of competence in IUCD fitting (LoC IUT), letter of competence in subdermal implant (LoC SDI) or the equivalent from the RCN.

FSRH requirements

LoC IUT (IUCD) - Perform a minimum of twelve IUD/IUS insertions over twelve months of at least two different types of device in conscious patients and enough essential contraceptive work to be eligible for recertification every 5 years.

LoC SDI (subdermal implant) - Perform a minimum of six procedures to include at least one insertion and one removal

• A log covering a consecutive 12 month period will need to be kept within 24 months of the date of recertification for both the IUCD and implant

• At least two hours education relevant to intrauterine techniques and / or subdermal implants will need to be undertaken

Practitioners who wish to recertify are advised to refer to the criteria outlined by FSRH or RCN

Local assessment

Practitioners who have previously provided IUCDs and subdermal implants (e.g. via the national enhanced scheme) but do not meet the above requirements may still be eligible to fit them if they have previous experience or other equivalent qualifications. These cases will be considered on an individual basis by the Consultant Community Gynaecologist. In these circumstances, practitioners should attend at least one session with an instructing doctor in the specialist IUCD / implant clinic for assessment of competency and be able to provide a log of the numbers of insertions they are undertaken over the preceding 12 months.

For practices

To deliver LARC, practices must meet the following requirements:

• Submission of the training, qualification and accreditation proforma (see appendix), including evidence of qualification(s) to be kept on record at the PCT

- Essential equipment as found in the appendix of this document
- Compliance with current infection control regulations
- Have in place a reliable method for recording all patients fitted with IUD, IUS and implant
- Sexual health and contraceptive teams

The provider network and its staff agree to work collaboratively with fellow clinicians and other providers within the network, the GP commissioning and community health teams and the local CSO to determine and develop the optimum model of care.

GP sexual health champion

• The role of the GP sexual health champion is to actively promote the delivery of primary care based sexual health services by providing practical advice, guidance and clinical support.

• The GP champion will provide leadership to the network clinical leads, including representation for general practice on the local strategy and clinical governance groups.

Network lead

Each network should ideally have a sexual health lead who is jointly nominated by other practices in the network

Desirable criteria include having completed a recognized sexual health and/or family planning qualification
 (e.g. STIF)

• The network lead should have regular contact and / or meetings with other network leads and the GP sexual health champion

• The network lead shall have responsibility for ensuring all aspects of the sexual health and contraceptive NIS are being carried out by all practices within the network

4. NIS objectives and payment structure

The following section gives further detail on practice activities, support available and the payment structure. Details of network payments can be found in section 6.

4.1 Sexual health

For sexually active men and women of any age the NIS aims to

- Reduce the levels of undiagnosed STI / HIV
- Reduce the transmission of STI / HIV
- Reduce the number of unintended pregnancies

• Improve the quality of care and access and provide choice for service users by increasing the number and range of service providers of sexual health

- Increase the confidence and skill levels of general practice staff with regard to sexual health
- Health checks

Offer of tests for HIV and Hepatitis B should be routinely incorporated into health checks for new patient registrations. Patients should be informed the HIV test will be performed and have the option to opt out. HIV and Hepatitis B testing should be considered for patients attending for mid-life health checks.HIV positive results should be referred to the HIV Outpatients Department (Grahame Hayton Unit) at the Royal London Hospital. Chronic and acute cases of Hepatitis B (sAg+) should be

referred to the hepatology clinic at Mile End Hospital. Pathways for referral to these specialist services are available on the THPCT intranet under local guidance for sexual health.

Payment schedule

Payments are based on the number of patients having a full sexual health screen (Chlamydia / gonorrhoea / syphilis, +/- HIV, +/- Hepatitis B) with an incentive payment for managing new STIs detected (excluding HIV and syphilis). Management includes recall, treatment and partner notification. There is additional support available from Barts and the London sexual health service for complex cases, e.g. blood borne infections, multiple sexual partners or those who prefer third party notification, sex workers

Sexually active individuals infected with hepatitis B virus will be identified through the sexual health screen. Please follow local guidance on management and arrange for referral to the local hepatology team. Household and sexual contacts of these individuals should then be screened for infection, and immunised against hepatitis B if susceptible.

High risk individuals including IDUs, MSM, multiple/ frequent sexual partners and sex workers should be offered the hepatitis B vaccine if both hepatitis B surface antigen (HbsAg) and anti-Hbs (cAB) are negative as there is no evidence of prior infection. Immunisation should take place as soon as possible as follows:

- First dose: immediately
- Second dose: one month later
- Third dose: two months after first dose
- Booster dose: Twelve months after the first dose

Anti-Hb sAb greater than 10 iu/l implies long term immunity.

LES 19 covers for immunisation of children at risk through perinatal transmission and household and sexual contacts of pregnant women.

vity	Payment
Screening / testing patients for STIs including offer of H HIV	25 per patient
Managing patients with positive STI results and n entifying sexual partners	250 per positive
or patients who have completed a course of H Hepatitis B vaccine and shown to have seroconverted on post immunisation serology	2177.75

4.2 Chlamydia & gonorrhoea screening

The National Chlamydia Screening Programme (NCSP) aims to screen young men and women aged between 15 and 24.

- To raise awareness of Chlamydia and gonorrhoea and their effects
 - To prevent and control through early detection and treatment of asymptomatic infection
- To reduce onward transmission to sexual partners
- To avoid the consequences of untreated infection

In Tower Hamlets Chlamydia screening is available from a range of providers including Tower Hamlets Contraception and Sexual health service (THCaSH), Barkantine Sexual Health Service (provided by Clinicenta), general practice and community pharmacies. Locally this service is managed by the Chlamydia Screening Office (CSO) based within THCaSH.

The national target for 2011/12 is to screen 35% of young people in Tower Hamlets. The current local rate of screening obtained through general practice is 6.7%. The NIS aims to increase the uptake rate within primary care through opportunistic testing of the practice registered population aged 15-24.

New patient health checks

Sexually active patients between the ages of 15-24 should be routinely offered a CSP test pack in addition to an HIV test as outlined in the previous section (4.1.1).

You're Welcome accreditation

You're Welcome is an initiative from the Department of Health that lays out quality criteria to ensure healthcare services are young people friendly. It is recommended all practices gain You're Welcome accreditation. A companion toolkit for quality assurance is available on the DoH website.

Payment schedule

Payments for Chlamydia screening will be based on the Network reaching incremental screening targets. The network will receive a payment for each adequate sample (urine or self taken vaginal swab) received at the lab. Networks should consider working with their local community partners and pharmacies to achieve this target.

Activity is attributed to specific providers on the basis of unique codes. General Practice and pharmacy specific codes would remain in place for kits distributed through these providers. However, networks may obtain a unique network code from the local CSO for screening kits which are distributed within the wider community and not exclusive to any one practice. Practice, pharmacy and other community partner activity would all combine to achieve the Network target.

The network will receive an initial payment which equates to reaching the 15% target. Adjustments will be made at year end to reconcile activity above 15%.

% of 15 – 24 year olds screened**	Payment per screen
15%	£5
20%	£6
30%	£7
35%	£10
Over 35%	£10

**denominator = number of patients registered with practices in the network

4.3 IUCD and subdermal implant

The government has highlighted unplanned pregnancies as key for change in the National Strategy on Sexual Health and HIV and cites unplanned pregnancies and resulting abortions as being indicators of poor sexual health.

Long Acting Reversible Contraception (LARC) is proven to be both clinically and cost-effective in reducing unplanned pregnancy including reducing teenage conceptions and abortions.

The NICE guidelines (2005) have encouraged increasing access to LARC by 8% which would have major public health and financial impact to the NHS. The NICE LARC Guideline aims to increase access to LARC through better information for women, choice, increased provision and training and have a significant impact on resource prioritisation:

Women requiring contraception should be given information about and offered a choice of all methods, including LARC methods

• Women should be provided with the method of contraception that is most acceptable to them, provided it is not contraindicated

Contraceptive service providers who do not provide LARC within their own practice or service should have an agreed mechanism in place for referring women for LARC

Healthcare professionals providing intrauterine or sub-dermal contraceptives should receive training to develop and maintain the relevant skills to provide these methods

In Tower Hamlets there will already be adequate numbers of skilled doctors and nurses to allow increased provision and training. Thus, by taking a network approach to LARC provision we anticipate that health outcomes will be improved, patient choice increased and access to services expanded.

• It will allow for Networks to respond to specific local needs and utilise skills across the Network that have previously been isolated in specific providers. Moreover it will encourage and develop effective partnership working within the Networks

To deliver high quality sexual health and contraceptive services within primary care to the resident population
of Tower Hamlets

• To complement and add value to the work of the dedicated sexual health and contraceptive services, such THCaSH, Barkantine Sexual Health Service (provided by Clinicenta) and BLT.

- Ensure a full range of contraceptives is available to all patients, including LARC
 - Increase the availability and accessibility to IUDs, IUS & the contraceptive implant

Maintain and increase the skill of general practices in the provision of IUD, IUS and the contraceptive implant
across the borough

Payment schedule

Practices will receive an initial payment based on 70% of previous year's activity and subject to year-end reconciliation. Prices will be reviewed annually.

Activity	Price per patient
IUCD insertion fee (PPA claim for device)	£82.00*
IUCD removal fee	£33.00
Implant insertion fee	£43.00
Implant removal fee	£33.00
IUCD / Implant follow-up check (as appropriate)	£21.11

*In the instance of a failed fitting, full payment will be made as per the above figure

4.3.2 Prescribing and reimbursement for LARC

IUCD

•	All IUDs and IUS can be reimbursed as personally administered					
•	FP34PD (peach form) should be used by practices to claim from the PPD					
•	IUCDs are listed in the Drug Tariff at http://www.ppa.org.uk/edt/June_2010/mindex.htm					
Contraceptive implant	(in house)					

Implant insertion is classified as minor surgery and therefore cannot be claimed as personally administered
 An FP10 must be written and dispensed by a community pharmacy Contraceptive implant (inter-practice referrals)

The cost of the script (£79.46) will be added to the implant insertion fee as above
 The service providing practice must ensure implant devices are available for planned procedures
 Referring practices will not need to issue FP10s

Practices providing fittings must agree on a notional budget with prescribing advisers for each financial year

Monitoring and data collection

•	Practices are required to record all activity using the CEG data entry template
•	Data will be collated and fed back to the networks on a quarterly basis
•	The local Chlamydia Screening office will be responsible for reporting screening activity for 15-24 year
olds	
•	All other sexual health and contraception reporting will be via THPCT
•	All practices must maintain a register of patients fitted with IUD, IUS and implants

6. Network payment and targets

Sexual health

Networks will receive an initial payment based on 70% of previous year's activity and subject to year end reconciliation. Payments for positives will be made at year end. Prices will be reviewed annually.

Chlamydia screening

The network will receive an initial payment which equates to screening 15% of the registered network population of 15-24 year olds. Adjustments will be made at year end to reconcile activity above 15%.

IUCD and Sub-dermal implant

Practices will receive an initial payment that equates to 70% of last years activity which will be reconciled at year end with actual activity. As a guide below is a summary of practice activity for 08/09 and 09/10 by network.

Network Summary

Network income is summarised below if practices were to maintain last years sexual health and IUCD/Sub-dermal implant activity and reach the 35% Chlamydia screening target.

Network	Total Patients	Incor activi	ne if 09/10 SH ty is maintained	Inco cha targ	ome if 35% Imydia screening jet is reached	Inc act	ome if 09/10 IUCD ivity is maintained	Pote	ential total
1	39,603	£	11,775	£	27,514	£	3,985	£	43,274
2	45,067	£	9,850	£	22,663	£	1,550	£	34,063
3	25,788	£	1,050	£	15,036	£	375	£	16,461
4	30,560	£	8,050	£	12,408	£	8,545	£	29,002
5	27,401	£	19,550	£	12,096	£	3,105	£	34,751
6	21,687	£	2,875	£	11,781	£	1,474	£	16,130
7	39,056	£	15,160	£	18,991	£	12,428	£	46,579
8	33,553	£	9,025	£	12,565	£	143	£	21,733

Support for networks

Supplementary materials to this document are available on the THPCT intranet and include:

- Local guidance for delivering sexual health services in primary care •
 - guidelines for taking a sexual history; assessment for post exposure prophylaxis (PEP); 0 investigations (genital, extra-genital, serology); interpreting results; partner notification; Hepatitis B immunisation for adults
 - 0
 - Pathways for patient sub-groups and the Chlamydia Screening Programme Outline and key points of local protocol, including inclusion and exclusion criteria 0
 - 0 Referral criteria for specialist services, including the Community Sexual Health Adviser
 - Local guidance for delivering contraceptive services in primary care
- Clinical governance
- Sexual health resources for primary care
- Workforce training and development •
- Related external resources

APPENDIX F - Chlamydia screening charts

Chlamydia screening uptake 15-24 age group by practice in Lambeth 2004 to 2010









Chlamydia screening in 15-24 age group by practice 2004 to 2010 Haringey



Chlamydia Screening uptake in 15-24 age group by practice in Haringey 2004-2010



Chlamydia screening volume from 2004 to 2010 by practices in Tower Hamlets



Chlamydia screening uptake in 15-24 year olds in Tower Hamlets







Chlamydia screening uptake in 15-24 age group in Hackney

APPENDIX G – An example of coding - competitiveness

	AN : 5.4 Competitiveness
1 : Haringey_GP3	Oh yeah. It's all these things in the back of my mind, so if he's doing so well, why am I so inferior? Why can't I get that target to go to that level? Because I've got the same [Unintelligible 00:26:23] or I can do better to come up to the level.
Area = Haringey	
Gender = Male	
Practice Size = <6000	
Role = GP Partner	
2 : Haringey_GP2	No, those informations are very useful, to see how you are doing and compared to other people, how you are doing and national average,
	you know, things like that, we want to do well.
Area = Haringey	
Gender = Female	
Practice Size = <6000	
Role = GP Partner	
3 : Haringey_GP1	Respondent: I think personally to me, wherever I've worked, I've wanted to be the best that you can be, for however long it might be we
	won't have the same energy levels a few days later on and might, but.
Area = Haringey	
Gender = Female	Respondent: I think though we have all these QOF and all these things, I think probably it's only the present of 10% or 20% of our workload,
Practice Size = 6000-10000	compared to everything else, but if that's the way the world is going to judge us by, why can't we be the best?
Role = GP Partner	
4 : Haringey_GP4	Well I know as a registrar, when I had to do a project, to get GPs to change their behaviour, to do something that they weren't used to doing, and it worked well to have a little competition between the doctors , and this is obviously small scale, and offer a little prize at the end, not
Area = Haringey	necessarily financial [Unintelligible 00:16:49], and with lots of male partners at the time, it worked well, and that was handing out condoms
Gender = Female	as it happened, and that worked well.
Practice Size = 6000-10000	
Role = GP Partner	
5 : Haringey_GP5	
Area = Haringey	
Gender = Female	

Practice Size = 6000-10000	
Role = GP Partner	
	We're pretty good here at this surgery, we're well informed and co-operative and we keep up with these trends that are sent our way.
	Respondent: We do that with lots of things, at a PCT level, there are no PCTs any more but we get regular emails showing us where we are with cervical cytology, where we are with childhood immunisations, where we are with those things. Yes, it does. You want to be at the top of the list and when you're halfway down the list or three quarters of the way down the list, you do tend to say, what can we do about this.
6 : Haringey_PN1	It's the list, if you're halfway down the list, then you know you've got to improve so that's peer pressure isn't it, from people who are higher on the list.
Area = Haringey	
Gender = Female	Respondent: I don't know how we did with the graph in comparison to other practices, the one you were showing me earlier, but I am proud
Practice Size = 6000-10000	of the practice. I was the first practice nurse here when it started up and we have developed a lot since then, the services we give both
Role = Practice Nurse	nursing and from the doctors' point of view.
7 : Tower_Hamlets_GP2	
Area = Tower Hamlets	
Gender = Male	
Practice Size = <6000	
Role = GP Partner	
8 : Tower Hamlets GP4	
8. Tower_namiets_014	
Area = Tower Hamlets	
Gender = Male	
Practice Size $= 6000-10000$	
Role - GP Partner	
9 : Tower Hamlets GP5	I think some of these you know if you show me for example, a graph like that, it only takes a minute amount of deterioration and you
5. Tower_namets_015	suddenly are on that end. So although the red har is within the ton quarter, a tiny difference could dron you two quarters on
Area = Tower Hamlets	I mean it's strange but of course I'm competitive. These grants anneal to a competitive made person don't they
Gender = Male	You want to do the best: you want to do better than
9 : Tower_Hamlets_GP5 Area = Tower Hamlets Gender = Male	I think some of these you know if you show me for example, a graph like that, it only takes a minute amount of deterioration and you suddenly are on that end. So although the red bar is within the top quarter, a tiny difference could drop you two quarters on I mean it's strange but of course I'm competitive. These graphs appeal to a competitive made person don't they. You want to do the best; you want to do better than
Practice Size = 10000+ Role = GP Partner	I think the [unintelligible 00:24:51] in Tower Hamlets have definitely helped with the competition, not in a negative way but I think because you are constantly compared at least to practices within your network and then your network compared to other networks. There's constantly this thinking you know, we definitely don't want to be bottom.
---	---
10 : Tower_Hamlets_PN1	
Area = Tower Hamlets Gender = Female Practice Size = 6000-10000 Role = Practice Nurse	
	So I think it does make a difference and I think it's not just the financial pressure of the NISs actually, the network element is a really interesting one because it's also that competitive element of wanting to be as good as or better than your peers in the area, so
11 : Tower_Hamlets_PN2 Area = Tower Hamlets Gender = Female Practice Size = 6000-10000	Well, out network has four practices in it. Two of the practices are based in wealthier areas and two of us are based in poorer areas demographically. So the two of us in the poorer areas are always making direct comparisons and one practice - the other practice of course has been established a lot longer than we have and we're the new kid on the block relatively speaking. And so we're always trying to keep up with the Jones'. And therefore there's always that incentive to try and be pushing yourself that bit further to do as well as they have or even better do better than they have and so, yes, it drives up standards in theory, or at least it drives up your markers, whether that's standards or not and whether they correlate I don't know, but, yeah, to some extent.
Role = Practice Nurse	Yes, it's that sort of competitive instinct isn't it of trying to prove your worth.
12 : Tower_Hamlets_GP3	
Area = Tower Hamlets Gender = Female Practice Size = 6000-10000 Role = GP locum	
13 : Tower_Hamlets_GP6	
Area = Tower Hamlets Gender = Female Practice Size = 10000+ Role = GP Partner	

14 : Tower_Hamlets_GP1	
Area = Tower Hamlets	
Gender = Female	
Practice Size = 10000+	
Role = Salaried GP	
15 : Lambeth_GP2	You want to look good for patients, number one, that's the real reason and number two, we want to provide [Unintelligible 10:02] someone doesn't say that we're at this end of the scale. Someone has to be at this end of the scale but that's usually a type of practice in trouble and we want to enjoy our work and not feel like we're in trouble.
Area = Lambeth	We would then launch an investigation as to why we are in the middle. We look at it once a year. It's taken us a lot of years to get to that, it
Gender = Male	doesn't happen overnight. It's a whole team quality improvement, techniques you mentioned we've learned about and then implemented
Practice Size = 6000-10000	so instituting innovation meetings, looking at Department of Health toolkits, a lot of training on health improvement and leadership. We are
Role = GP Partner	one of the top ten practices in Lambeth now because of it.
	Even the Chlamydia screening programme, the payment for that is not that great. So in the great scheme of things to either get paid or not get paid for an organisation like us is not a major issue. It's more reputationally we feel it's important that we're near the top, and we actually target that at the beginning of the year.
	From an organisational point of view we are what we call an [unintelligible 0:03:31] APMS contractor which basically means that we need to bid for these practices against other competitors. So one of our key selling points is that we need to be able to show that we're equally effective, not more effective clinically in terms of achieving targets than our competitors.
	You can say you're good and you can see you [unintelligible 0:03:49] deliver high quality care, but actually nowadays I think you need to be able to prove that. And so over a whole range of markers, not just public health indicators, we're quite in tune with what is recorded and what's measurable and what PCTs and commissioners look for . And some of these public health markers fall heavily in that basket of things that people look at. I mean of course you talk about access QOF which are really probably more important but these are important and we do like to tell people when we've done some good work.
16 : Lambeth_GP4	
	Yeah. All the time. It's a core part of the way I've trained myself to consult because - well, obviously for the reason I went over before we
Area = Lambeth	need to aspire to full QOF points for the reasons that I just went over. To get 990 or 1,000 the financial difference is not massive, but for us
Gender = Male	it's quite - it's quite important for us. 990 would be a bit of a disappointment whereas 1,000 is where we need to be. So that's why I need
Practice Size = 6000-10000	to - I can't be telling my colleagues this is something that's really important for the practice and trying build that culture of achievement if
Role = GP Partner	I'm not consistently doing it myself. So something about leading by example in that. Something about that.

17 : Lambeth_GP1	
Area = Lambeth	
Gender = Female	
Practice Size = 10000+	
Role = GP Partner	
18 : Lambeth_GP3	
Area = Lambeth	
Gender = Female	
Practice Size = 10000+	
Role = Salaried GP	
19 : City_Hackney_GP1	
Area = Hackney	
Gender = Male	
Practice Size = 10000+	
Role = GP Partner	
20 : City_Hackney_GP2	Gosh, I don't think it's a competition but certainly it's significant if we're an outlier and not achieving what our colleagues nearby are
	achieving for our population. Yes, of course.
Area = Hackney	
Gender = Female	
Practice Size = 6000-10000	
Role = GP Partner	
	In my mind, there's a few practices I know that are very good so I compare us with them and there are some practices I know aren't very
	good. So if we're near the poor performing practice, I know we're going on a very downward spiral that's appalling but if we're generally
	up with the better practices that I consider, then that's good enough for me, which might not be the best answer!
21 · City Hackney DN1	To make the quite compatitivel. Only within our practice and I'd like to think this is a very good practice so obviously if reality talk us we're
21. City_Hackney_FN1	only in 50th but in your bood you're thinking we must be up in the 70s, then that's a push to see what else we can de
Area = Hackney	only in Joth but in your nead you're thinking we must be up in the 70s, then that 5 a push to see what eise we call uo.
Gender - Female	And also finding out how other practices are doing. I know it's not reflected on there with the chlamydia one but it does neuchologically give
Practice Size = 10000+	And also multiplot now other practices are doing. Tknow it's not reflected on there with the chamyon one but it does psychologically give
Role - Dractice Nurse	give you a bit of a unive, just like the minimum sations one. When that comes through and you see now you re doing on the qualiterry list, it does
NOIE - FIACULE NUISE	give you a push to increase these.

APPENDIX G – Coding chart

Name	Sources	References	Created On	Created By	Modified On	Modified By
1 General attitudes about public health programmes	2	6	15/06/2013 10:34	RM	16/06/2013 18:02	RM
1.1 Intentions	1	1	15/06/2013 12:33	RM	15/06/2013 13:51	RM
1.2 Prevention of ill health	7	21	15/06/2013 14:14	RM	14/05/2014 21:03	RM
1.3 Cynicism	4	14	16/06/2013 18:02	RM	14/05/2014 17:38	RM
2 Attitudes to chlamydia screening	2	18	15/06/2013 11:09	RM	16/06/2013 17:09	RM
2.1 Screening vs diagnostic testing	3	3	15/06/2013 13:15	RM	13/05/2014 17:22	RM
2.2 Logistics of screening as barrier	7	16	20/04/2014 12:59	RM	14/05/2014 20:27	RM
Opinions about NCSP	11	16	20/04/2014 13:49	RM	14/05/2014 20:31	RM
3 Behaviour change strategies	0	0	15/06/2013 11:09	RM	15/06/2013 11:09	RM
3.1 Audit & Feedback	12	40	15/06/2013 11:12	RM	14/05/2014 21:01	RM
3.10 Educational Outreach Visits	12	29	16/06/2013 17:53	RM	14/05/2014 20:25	RM
3.2 Computer reminders	13	31	15/06/2013 11:13	RM	14/05/2014 20:11	RM
3.3 Opinion leader	7	14	15/06/2013 11:14	RM	13/05/2014 20:12	RM
3.4 (Social) Marketing	7	17	15/06/2013 11:15	RM	14/05/2014 18:23	RM
3.5 Educational	12	48	15/06/2013 11:15	RM	14/05/2014 20:20	RM
3.6 Printed Educational Materials	6	7	15/06/2013 11:15	RM	14/05/2014 18:19	RM
3.7 Economic	12	49	15/06/2013 11:16	RM	14/05/2014 20:37	RM
3.8 Peer influences	12	26	15/06/2013 13:43	RM	14/05/2014 20:48	RM
3.9 League tables	13	56	15/06/2013 14:10	RM	14/05/2014 20:48	RM
guidelines	1	5	13/05/2014 20:01	RM	13/05/2014 20:07	RM
4 Behaviour change theories	0	0	15/06/2013 11:10	RM	15/06/2013 11:12	RM
4.1 Behaviour belief and attitidues	2	6	15/06/2013 12:07	RM	25/04/2014 18:21	RM
4.1.1 Evidence	12	41	15/06/2013 12:30	RM	14/05/2014 20:48	RM
4.1.2 Experience	12	34	15/06/2013 12:58	RM	14/05/2014 20:50	RM
4.1.3 Belief it is worthwhile	13	76	15/06/2013 13:06	RM	14/05/2014 20:47	RM

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4.1.4 Beliefs and values about sequelae	11	41	15/06/2013 13:13	RM	14/05/2014 20:08	RM	
4.2 Normative beliefs and subjective norms and social influences	1	5	15/06/2013 12:08	RM	15/06/2013 13:49	RM	
4.2.1 Department of health policy	6	10	15/06/2013 13:02	RM	13/05/2014 20:20	RM	
4.2.2 Fashion and trends	3	6	15/06/2013 13:50	RM	26/04/2014 11:20	RM	
4.2.3 Normal practice	7	14	20/04/2014 13:57	RM	14/05/2014 19:44	RM	
4.2.4 Influence of peers	8	15	20/04/2014 16:35	RM	14/05/2014 18:12	RM	
4.3 Control beliefs and Perceived behaviour control - perceived ease or difficulty	2	2	15/06/2013 12:13	RM	16/06/2013 11:30	RM	
4.3.1 Facilitating Factors	6	31	15/06/2013 13:04	RM	06/05/2014 19:58	RM	
4.3.2 Barriers	5	24	15/06/2013 13:04	RM	13/05/2014 16:47	RM	
4.4 Behaviour intention	4	10	15/06/2013 12:34	RM	26/04/2014 14:40	RM	
5 Other	0	0	15/06/2013 11:18	RM	15/06/2013 11:18	RM	
5.1 Professionalism	9	40	15/06/2013 11:18	RM	14/05/2014 20:49	RM	
5.2 Consultation dynamics	7	8	15/06/2013 11:19	RM	14/05/2014 18:18	RM	
5.3 Reputation of profession, self, practice	7	33	15/06/2013 14:08	RM	14/05/2014 20:48	RM	
5.4 Competitiveness	6	23	15/06/2013 14:11	RM	14/05/2014 20:17	RM	
5.5 Responding to patient agenda	10	17	15/06/2013 12:15	RM	14/05/2014 18:18	RM	
5.6 Nudges	1	2	16/06/2013 17:37	RM	16/06/2013 17:47	RM	
5.7 Use of own and other's expertise to get things done	2	2	20/04/2014 14:20	RM	14/05/2014 18:12	RM	
5.8 Non involvement with programmes	5	11	20/04/2014 16:52	RM	13/05/2014 20:18	RM	
5.9 Social or Media	9	30	25/04/2014 16:46	RM	14/05/2014 18:20	RM	
Academic network	1	4	26/04/2014 13:03	RM	26/04/2014 13:24	RM	
Behaviour change techniques	2	2	13/05/2014 17:11	RM	14/05/2014 19:29	RM	
Being a mentor - learning about new things and setting examples	2	2	25/04/2014 16:55	RM	26/04/2014 13:35	RM	
belief about influence	2	6	09/05/2014 10:09	RM	13/05/2014 18:35	RM	
Competitive advantage - APMS	1	3	13/05/2014 19:26	RM	13/05/2014 19:43	RM	
contractual requirement PMS	1	2	14/05/2014 20:33	RM	14/05/2014 20:35	RM	
Different personal beliefs	4	10	06/05/2014 20:40	RM	14/05/2014 21:04	RM	
Different values on different programmes	3	10	06/05/2014 20:33	RM	14/05/2014 20:48	RM	
Feedback about outcomes	2	6	13/05/2014 17:10	RM	14/05/2014 20:33	RM	
Gender and PH issues eg chlamydia, cervical screening	1	1	13/05/2014 10:13	RM	13/05/2014 10:14	RM	
Habit forming	3	4	26/04/2014 14:41	RM	14/05/2014 17:28	RM	

Having the right patients to deliver	1	2	14/05/2014 20:29	RM	14/05/2014 20:30	RM
Managing fallout of screening eg false +ves	1	2	13/05/2014 16:16	RM	13/05/2014 16:46	RM
Own knowledge about subject	1	1	13/05/2014 17:58	RM	13/05/2014 18:00	RM
peer group learning	6	8	26/04/2014 13:30	RM	14/05/2014 20:20	RM
Perceived patient needs and benefits	4	13	06/05/2014 19:59	RM	14/05/2014 21:00	RM
Personal mission	1	3	14/05/2014 21:04	RM	14/05/2014 21:04	RM
personal satisfaction	1	1	13/05/2014 19:25	RM	13/05/2014 19:25	RM
Personalities	4	7	06/05/2014 20:41	RM	14/05/2014 20:59	RM
Pharma reps	5	11	25/04/2014 17:11	RM	13/05/2014 19:57	RM
Practicalities of implementation	1	1	13/05/2014 20:08	RM	13/05/2014 20:08	RM
Professionals accepting PH programes	1	2	14/05/2014 18:30	RM	14/05/2014 18:30	RM
Provenance of message	2	3	13/05/2014 20:06	RM	14/05/2014 18:20	RM
PUNs DENs	1	2	13/05/2014 10:44	RM	13/05/2014 10:46	RM
QOF	3	6	26/04/2014 13:39	RM	14/05/2014 20:12	RM
Reminders	1	1	06/05/2014 15:47	RM	06/05/2014 15:47	RM
Resistance from patients	2	7	13/05/2014 15:51	RM	14/05/2014 17:49	RM
scepticism	3	5	06/05/2014 17:11	RM	13/05/2014 18:47	RM
Seeing results of public health programmes	1	1	14/05/2014 20:34	RM	14/05/2014 20:34	RM
Tension respecting patient choice and autonomy	1	3	13/05/2014 16:11	RM	13/05/2014 16:58	RM
Want succint messages	1	1	13/05/2014 09:11	RM	13/05/2014 09:11	RM
Working as managed network	3	9	26/04/2014 11:52	RM	06/05/2014 20:06	RM
worried well	1	1	13/05/2014 16:47	RM	13/05/2014 16:47	RM

APPENDIX H – Framework Matrix (CD ROM)