Rationing

How much will Herceptin really cost?

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New guidance from the National Institute for Health and Clinical Excellence recommends Herceptin in early breast cancer, but it provides no additional funding or any suggestion of which services to cut. This leaves medical staff with difficult decisions to make

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In the United Kingdom the "value for money" of new medical technologies is formally assessed through the National Institute for Health and Clinical Excellence (NICE), which commissions cost effectiveness analyses. These analyses are summarised in terms of cost per quality adjusted life year. Services with a cost per quality adjusted life year less than £30 000 are usually viewed as good value for money, and NICE will recommend their adoption by the National Health Service.[1 2]

The debate over trastuzumab (Herceptin) in early breast cancer has highlighted a major deficiency in the system—although NICE now recommends adopting this new technology, it provides no extra funding and does not suggest what cuts should be made to release these extra funds.[3] We outline how the cost of giving Herceptin should not be measured in money alone, but also in the treatments that will have to be dropped to balance the books.

The Herceptin debate

Herceptin is a monoclonal antibody against the HER2 protein that is overexpressed in 20-25% of patients with breast cancer. For palliation and in certain other clinical circumstances, NICE recommended its use in women whose tumours have high (3+) expression of the HER2 receptor.[4] The NICE appraisal of Herceptin as adjuvant treatment has just been released, and the National Cancer Research Institute has also issued clinical guidelines.[3 5]

Readers will be aware of the heated debate surrounding this treatment.[6 7] The media have made little mention of the restricted categories of patients for whom Herceptin may be appropriate, or of the lack of long term toxicity data, especially concerning effects on the heart. Although the three published trials showed a statistically significant improvement in rates of recurrence, as yet, only one has shown a benefit in survival (4.8% at four years).[8–10] Despite the lack of NICE approval at the time, several patients obtained Herceptin through their local NHS by appealing to the courts.[11] NICE promised to "fast track" Herceptin, and it is no surprise that the resulting guidance is positive.[12]

This means that our trust (Norfolk and Norwich University Hospital) will have to find £1.9m (€2.9m; $3.6m) each year in drug costs alone to make Herceptin available to the 75 patients who may be eligible. This becomes £2.3m if the costs of pathology testing, cardiac monitoring, pharmacy preparation, and drug administration are added. On the face of it, the answer to our question is simple—Herceptin will cost our trust £2.3m—but the real cost lies in the services that will be cut to provide this money. This is an important element currently missing from the debate.

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Cost effectiveness comparison

To illustrate this, we audited drug costs in the oncology centre of our hospital. We then hypothesised how we could save £1.9m by cutting curative and palliative chemotherapy treatments (tables 1[1] and 2).

The sum of £1.9m would enable us to treat 75 patients with Herceptin, but at four times the cost of the adjuvant treatments shown in table 1. These treatments have been proved to be clinically effective and their estimated cost effectiveness is far greater than that currently expected for Herceptin. The cost of giving adjuvant Herceptin is double that of all the palliative treatments shown in table 2.

So we could fund Herceptin if we did not treat 355 patients receiving adjuvant treatment (16 of whom would be cured) or 208 patients receiving palliative chemotherapy, and if we found £0.5m from another source. These untreated patients will be people we know. We will be the ones to tell them they are not getting a treatment that has been proved to be effective, which costs relatively little, because it is not the "treatment of the moment."

These results are obviously not definitive, but illustrate the fundamental challenge facing the NHS—the tension between national priority setting and local implementation.[13] Currently central government allocates the overall NHS budget to primary care trusts and other substructures. Local bodies, such as primary care trusts, then divide these funds between primary and secondary care, treatment, and prevention, etc.[14]

Extra references w1-w14 are on bmj.com

Table 1 Cost and potential benefits of adjuvant cancer treatments in Norfolk and Norwich University Hospital Trust

Treatment	No of patients given treatment	Drug cost (£000)	Proven benefit	Potential benefit at our hospital	Cost per patient cured (£000)
Adjuvant chemotherapy for lung cancer	15	23	5-15% improved 5 year overall survival[w3]	1 extra patient cured	23
Oxaliplatin as adjuvant therapy for colon cancer compared with fluorouracil alone	20	137	5% improved 3 year disease-free survival; no benefit to overall survival[w4]	1 extra patient without recurrence at 3 years	137
Neoadjuvant chemotherapy for oesophageal cancer	25	8	9% improved 5 year survival[w5]	3 extra patients cured	2.67
Rituximab in addition to CHOP for non-Hodgkin lymphoma in patients over 60	25	215	13% improved 2 year overall survival[w6]	3 extra patients cured	71.67
Adjuvant aromatase inhibitors in postmenopausal breast cancer	270	120	3.7% improved disease-free survival compared with tamoxifen; no benefit to overall survival[w7]	8 extra patients without recurrence at 5 years	15
Total	355	503		16 extra patients cured	
Herceptin for early stage breast cancer	75	1940	0-4% improved 4 year overall survival[w1 w2]	3 extra patients cured	650

CHOP=cyclophosphamide, doxorubicin, vincristine, and prednisolone.

The situation is more complex for long term treatments (such as Herceptin), which—under practice based commissioning—fall on primary care budgets rather than hospitals. Although in practice this means that Herceptin may eventually be vying with other clinical areas, such as paediatrics or orthopaedic surgery, it does not affect the central message of our example here—that the real cost of Herceptin is in the other patients not treated, whether they are patients with cancer or those with other conditions. NICE gives no guidance on this issue. The current situation with Herceptin highlights our central argument—that as NICE guidance provides no extra funding or suggestions of which services to cut, medical professionals ultimately have to make these difficult decisions.

A further complicating factor, well illustrated by Herceptin but seen in many other cases, is the susceptibility of these decisions to external pressures.[15 16] The relative media and public appeal of "sexy" versus "Cinderella" services and the power of different clinical specialties have always exerted external pressure on allocation of resources in the NHS (and other healthcare systems).[17] In the case of Herceptin, high profile patients, media bias, industry support, and political gaming put considerable pressure on the NHS to offer this drug in early stage breast cancer. NICE's decision highlights the "rubber stamping" role that this government appointed body seems to have adopted, and that in priority setting NICE's bark is much worse than its bite.[18]

Their decision is understandable as an appeal to the emotional principle of "rule of rescue" (the imperative people feel to rescue identified individuals facing avoidable death).[19] When new technologies (such as Herceptin) arise, it is relatively easy to pit the known patient in need against either the system in general or a set of "anonymous" patients elsewhere. Priority setting tends to be focused at this "anonymous" level.[20] But no patient is anonymous, especially not to the attending doctor who also has the ultimate rationing responsibility in the current system. We have deliberately not discussed priority setting between Herceptin and, for example, neonatal intensive care or hip replacements. We think that it is important to focus, for a change, on the "clinical coal face" as this is the ultimate reality. We, not NICE, have to choose which other treatments will not be provided and which of our patients will not be treated.

Nobody has suggested what treatments we cut in favour of Herceptin—not the media, medical advocates of the drug, the courts who upheld patient appeals, or NICE. It would be especially interesting to know what the secretary of state for health would like us to cut.

Political pressure, patient advocacy, and media hyperbole should not determine who is treated and what they are treated with. NICE is an established system, but it currently creates more problems than solutions. This organisation must be given responsibility to decide what should be cut to fund newly recommended technologies or the ability to allocate extra funds for implementation (or both). Without these

Table 2 Cost and potential benefits of palliative cancer treatments in Norfolk and Norwich University Hospital Trust

Treatment	No of patients given treatment	Drug cost (£000)	Proved benefit	Cost per quality adjusted life year gained (£000)
Second line docetaxel for lung cancer	15	45	Median survival improved by 2 months	17.55[w8]
Taxanes for breast cancer	35	150	Median time to progression improved by 5-16 weeks	19[w9]
Temozolomide for glioma	18	100	Median survival increased by 6 weeks	35[w10]
Paclitaxel for ovarian cancer	50	100	Median survival improved by 0-14 months	7-45[w11]
Irinotecan and oxaliplatin, first line treatment for colorectal cancer	45	300	Median survival increased by 2-3 months	Irinotecan 30-58, oxaliplatin 23-57 per progression-free life year[w12]
Herceptin for breast cancer	15	250	Median time to progression improved by 4 months	37.5 per quality adjusted life year in combination regimen, 7.5 per life year as single agent[w13]
Gemcitabine for pancreatic cancer	30	55	Median survival improved by 6 weeks	7-18[w14]
Total	208	997		

Summary points

Treating early breast cancer with trastuzumab (Herceptin) would cost our hospital trust £1.9m (€2.9m; $3.6m) per annum in drug costs alone

Guidance from the National Institute for Health and Clinical Excellence on new treatments does not have additional funding attached, and does not recommend which services should be cut to pay for new treatments

NICE should be given responsibility to decide what should be cut to fund newly recommended technologies or the ability to allocate extra funds for implementation, or both

changes Herceptin will not be the last controversial case of "rationing by media."

Contributors and sources: AB has more than 130 publications across paediatric and psychosocial oncology and radiotherapy health service issues. RS has more than 100 publications covering aspects of health service reform, the valuation of health benefits, and globalisation and health policy. Main sources of information were the websites of Cancer Research UK and National Institute for Health and Clinical Excellence and electronic databases of the department of oncology, Norfolk and Norwich University Hospital NHS Trust. AB and RS had the original idea for the article. All authors helped write the article. AB is guarantor.

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Somebody cut my brain in half with a Sabatier knife

"The moment I first realised that my world had changed was just after I'd finished a busy surgery and I went out to have a conversation with one of the receptionists and I started to feel very odd. I felt as though somebody had taken a Sabatier knife and cut my brain in half. I felt disconnected and unplugged and I knew at that moment, that this was something major." Dr Chris Manning is a former general practitioner and also a patient—he has had severe depression, and this is how he first realised that something was wrong. You can listen to the rest of his story in one of BMJ Learning's most recent multimedia modules—on anxiety and depression, which we have produced in association with the National Institute for Health and Clinical Excellence (NICE). The module offers an interactive guide to the NICE guidelines and contains a short video outlining the patient's perspective on how best to put them into practice.

One of the challenges that providers of online learning face is how to use multimedia in a way that is effective and economical and that helps learning. According to Donald Clark, a leading authority in multimedia learning in the UK, "early multimedia learning looked like a car that had been cobbled together from different scrap yards with components of different sizes, colours, models and ages. It was a mongrel beast."[1] He was referring to the early flood of learning websites that had loud music and equally loud colour. Videos were mixed with animation, and graphics popped up all over the screen. The designers loved it, but users were at first bemused and then distracted, and in the end they learnt little. BMJ Learning, however, has gone for short and simple videos of patients and experts speaking to camera, but we want to hear from you to find out if we have got it right. Would you prefer doctors speaking in sherry ripe voiceovers à la Orson Welles or slapstick or even costume romps? Let us know.

One of the main thrusts of the NICE guidelines on depression is to recommend a stepped care approach—that is, to offer treatment that is tailored to the severity of the patient's symptoms. For example, NICE recommends that "for patients with mild depression who do not want an intervention or who, in the opinion of the healthcare professional, may recover with no intervention, a further assessment should be arranged, normally within 2 weeks (watchful waiting)."[2] For patients with mild depression who do need an intervention, NICE advises guided self help programmes based on the principles of cognitive behaviour therapy in most circumstances.[2] Chris Manning describes his first experience of stepped care as a bear hug from his Russian psychiatrist, who visited him at home. According to Chris, he gave him "optimism and hope—evidence based nutrients for the human mind."

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