

# Measuring How Public Health Stakeholders Seek to Influence Alcohol Premises Licensing in England and Scotland: The Public Health Engagement In Alcohol Licensing (PHIAL) Measure

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**ABSTRACT. Objective:** In the United Kingdom, some public health teams (PHTs) routinely engage with local alcohol premises licensing systems, through which licenses to sell alcohol are granted. We aimed to categorize PHT efforts and to develop and apply a measure of their efforts over time. **Method:** Preliminary categories of PHT activity were developed based on prior literature and were used to guide data collection with PHTs in 39 local government areas (27 in England; 12 in Scotland), sampled purposively. Relevant activity from April 2012 to March 2019 was identified through structured interviews ( $N = 62$ ), documentation analysis, and follow-up checks, and a grading system was developed. The measure was refined based on expert consultation and used to grade relevant PHT activity for the 39 areas in 6-month periods. **Results:** The Public Health engagement In Alcohol Licensing (PHIAL)

Measure includes 19 activities in six categories: (a) staffing; (b) reviewing license applications; (c) responding to license applications; (d) data usage; (e) influencing licensing stakeholders or policy; and (f) public involvement. PHIAL scores for each area demonstrate fluctuation in type and level of activity between and within areas over time. Participating PHTs in Scotland were more active on average, particularly on senior leadership, policy development, and working with the public. In England, activity to influence license applications before decision was more common, and a clear increase in activity is apparent from 2014 onward. **Conclusions:** The novel PHIAL Measure successfully assessed diverse and fluctuating PHT engagement in alcohol licensing systems over time and will have practice, policy, and research applications. (*J. Stud. Alcohol Drugs*, 84, 318–329, 2023)

Received: January 17, 2022. Revision: August 23, 2022.

This study has received grant funding from the UK National Institute for Health and Care Research (NIHR; Public Health Research programme, project number 15/129/11). The views expressed are those of the authors and not necessarily those of the National Health Service, the NIHR, or the Department of Health and Social Care. The study funders had no role in the study design. Frank de Vocht is partly funded by NIHR Applied Research Collaboration West (NIHR ARC West) and the NIHR School for Public Health Research.

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doi:10.15288/jsad.22-00020

Niamh Fitzgerald, Matt Egan, Frank de Vocht, Colin Angus, Niamh Shortt, Laura Mahon, Linda Bauld, and James Nicholls conceived the study, wrote the protocol, and secured the funding. Along with Tim Nichols, Nason Maani, Cheryl McQuire, Richard Purves, Madeleine Henney, Gemma Crompton, and Andrea Mohan, they contributed to discussions regarding the design of the measure. Frank de Vocht and Cheryl McQuire managed the matching process for sampled public health teams. Andrea Mohan, Richard Purves, Nason Maani, Niamh Fitzgerald, and Matt Egan supported public health team recruitment. Andrea Mohan, Richard Purves, Nason Maani, and Niamh Fitzgerald conducted data collection, coded activity data, and assigned grades. Niamh Fitzgerald managed the expert consultations. Frank de Vocht, Cheryl McQuire, Colin Angus, and Madeleine Henney supported visualization of the data. Niamh Fitzgerald led the writing of the manuscript and produced the first and final drafts. All authors read and approved the final manuscript.

**STRONG REVIEW-LEVEL EVIDENCE** suggests that controls on the physical and temporal availability of alcohol can reduce alcohol-related harms (Campbell et al., 2009; Middleton et al., 2010; Popova et al., 2009; Sherk et al., 2018; Wilkinson et al., 2016). Although the cumulative evidence is relatively strong, uncertainty about mechanisms of effect remains (Gmel et al., 2015a, 2015b; Holmes et al., 2014; Maclennan et al., 2015; Miller et al., 2014). Evidence from high-income countries suggests a strong association between outlet density, alcohol-related harms, and deprivation (Angus et al., 2017; Huckle et al., 2008; Maheswaran et al., 2018; Pearce et al., 2015; Richardson et al., 2015; Shortt et al., 2015; Weitzman et al., 2003; West et al., 2010); however, the direction of causation is complex and context dependent. In relatively permissive licensing regimes, existing evidence cannot easily be translated into local practice recommendations, and there remains minimal research on the impact of local alcohol licensing on longer term health harms (Gmel et al., 2015a; Holmes et al., 2014; Wilkinson et al., 2020).

Many countries require outlets to hold a license or permit to legally sell alcohol. Most Australian states and territories have “minimising harm from alcohol,” or similar, as an object of liquor licensing (Manton, 2012; O’Brien, 2013), and public health leaders can object to the granting of licenses. In New Zealand, public health authorities have supported community groups to object to license applications (Langworthy, 2019; Stewart et al., 1993). Public health involvement in these systems has not been systematically captured. Under both the English and Scottish systems, responsibility for licensing lies with local government committees, guided by national legislation. Public health teams (PHTs) and others have statutory roles, such that they are informed of new license applications and can object. Objections will not succeed unless they demonstrate that granting the license would breach one of the statutory “licensing objectives.” The statutory objectives are to (a) prevent crime and disorder; (b) promote public safety; (c) prevent public nuisance; (d) protect children (and young people) from harm; and (e) in Scotland, but not England, to protect and improve public health (Scottish Parliament, 2005, 2015; UK Parliament, 2003). Following the introduction of these statutory roles (in 2011 in Scotland/2012 in England), many PHTs increased their engagement with premises licensing (Fitzgerald et al., 2017; Reynolds et al., 2018).

In the United Kingdom, qualitative studies focusing on small numbers of local authorities have described how local PHTs have sought to influence local licensing systems, including by responding to applications, collaborating with other stakeholders, and seeking to influence local policy (Egan et al., 2016; Fitzgerald et al., 2018b; Wright, 2019). Separately, quantitative studies found that changes in local licensing systems can reduce health and social harms (de Vocht et al., 2015, 2017, 2020). However, the importance of PHT input in generating such changes is unclear. Despite ef-

forts to describe and guide “good practice” (Fitzgerald et al., 2018a; Gmel et al., 2015a, 2015b; Holmes et al., 2014), to our knowledge, no previous studies have examined whether PHT efforts to influence alcohol licensing are successful in reducing alcohol-related harms. The ExILEnS study (Exploring the Impact of alcohol premises Licensing in England and Scotland, NIHR PHR 15/129/11) sought to assess the nature and intensity of PHT input to licensing over time and to examine whether greater levels of involvement were associated with reduced alcohol-related harms (Fitzgerald et al., 2018a).

This article describes the development of the Public Health engagement In Alcohol Licensing (PHIAL) Measure for the ExILEnS study, a composite measure designed to describe, categorize, and assess the intensity of PHT activity to influence licensing over time.

## Method

The study was approved by the University of Stirling Ethics Committee for NHS, Invasive or Clinical Research (NICR 16/17 – 64) and the Research Ethics Committee at London School of Hygiene and Tropical Medicine (LSHTM 14283/RR/8365).

The PHIAL Measure was developed iteratively in five stages, informed by Organisation for Economic Co-operation and Development (OECD) guidance for constructing composite measures (OECD, 2008).

*Public health activity to influence licensing* was defined as any deliberate effort or activity, by practitioners or teams who have a primary remit in relation to health or alcohol, to engage with or influence local alcohol premises licensing decisions, processes, and policies with the aim of reducing alcohol-related harms. For the purposes of this article, the term *public health team* (PHT) is used to describe practitioners or teams with this remit, engaging in this activity, even if titled/organized differently across Scotland/England.

### *Stage 1: Preliminary activities and categories*

We examined published and gray literature including national guidance (Alcohol Focus Scotland, 2017; Egan et al., 2016; Fitzgerald et al., 2017; Martineau et al., 2014; Phillips & Green, 2015; Public Health England, 2017; Sumpter et al., 2016) to identify typical activity types. Relevant publications were sourced from team members and study advisors (including academics, public health, and licensing experts in Scotland and England). This informed development of seven broad categories of engagement that were used to guide data collection in Stage 2: (a) resources; (b) reviewing alcohol licensing applications; (c) shaping and responding to license applications; (d) analysis and use of routine or bespoke data; (e) efforts to influence licensing policy and stakeholders; (f) engagement with public and wider stakeholders; and (g) initiatives with alcohol license holders.

TABLE 1. Variables used to match English and Scottish areas (all 2009)

Variable	Country	
	England	Scotland
Deprivation/inequality	<ul style="list-style-type: none"> <li>–Percentage of population living in a rural area</li> <li>–Percentage of population living in area in most deprived quintile</li> <li>–Long-term unemployment (job-seekers claimant &gt; 12 months)</li> </ul>	<ul style="list-style-type: none"> <li>–Percentage of the population who live in a rural area</li> <li>–Scottish index of Multiple Deprivation score (average score across data zones for each local authority)</li> </ul>
Population/outlet density	<ul style="list-style-type: none"> <li>–Population density per square kilometer</li> <li>–On-license density</li> <li>–Off-license density</li> </ul>	<ul style="list-style-type: none"> <li>–Estimated mid-year population</li> <li>–Population density per square kilometer</li> <li>–On-license density</li> <li>–Off-license density</li> </ul>
Alcohol-related harm	<ul style="list-style-type: none"> <li>–Alcohol-related hospital admissions (standardized rate; narrow measure)</li> </ul>	<ul style="list-style-type: none"> <li>–Alcohol-related hospital admissions (standardized rate)</li> </ul>
Demographic variables	<ul style="list-style-type: none"> <li>–Median age</li> </ul>	<ul style="list-style-type: none"> <li>–Median age</li> </ul>

### Stage 2: Activity data collection from local public health teams

*Sampling and recruitment.* In accordance with our protocol (Fitzgerald et al., 2018a), we recruited PHTs working in 40 local authority areas (28 in England, 12 in Scotland). All PHTs in Scotland and England were emailed to introduce the study and invite expressions of interest. Calls with interested PHTs gauged their level of engagement in alcohol licensing using the categories above and led to selection and recruitment of 20 active PHTs working in purposefully diverse areas in terms of region and rurality.

To maximize sample variation in terms of activity levels, these areas were matched to 20 others with less active PHTs. English areas were 1:1 matched to other English areas using propensity score matching with propensity scores calculated using “optimal matching” (using the MatchIt 4.2.0 package in R 4.0.5 statistical software). Scottish areas were directly matched to other Scottish areas because the pool of local authorities was much smaller. This was done by minimizing the cumulative root mean square error across all variables after normalizing the variable values. The matching variables used are outlined in Table 1. Where the PHT in a matched area declined to participate or was found to be highly active, they were excluded from the matching set and matching was re-run until we had recruited 20 “lower activity” areas.

All participating teams were provided with an information sheet and a consent form that was completed on behalf of the team by the lead professional. One recruited lower activity area later failed to participate in final data collection, leaving a final sample of 39 areas (Supplemental Table S1). (Supplemental material appears as an online-only addendum to this article on the journal’s website.)

*Data collection.* Representatives of each PHT with experience of licensing activity took part in one or more face-to-

face or telephone interviews (total  $N = 62$ ) in 2018 and 2019 to identify relevant activity from April 1, 2012, to March 31, 2019. Interviews started with an exploration of participant role within their organization and in relation to licensing, and were then structured by the activities within each category identified in Stage 1. Participants were encouraged to report any other relevant activities. Interviews sought to identify when activity took place, focusing on 6-month periods. PHTs were asked to submit relevant documentation, such as meeting minutes or application responses covering the full time period (Supplemental Table S2). Where necessary, interviews and follow-up communications took place to clarify/complete the timeline of activity for each area. Exhaustive efforts were made via snowball sampling to find and interview former staff who could account for activity in earlier years. Such staff often still worked in the PHT’s parent body or locally. Initial interviews were usually face-to-face; however, lower activity teams were generally interviewed by telephone because there was less activity to report. Interviews were audio-recorded and transcribed in full.

*Analysis.* A coding framework was developed based on the preliminary relevant activities within each category by 6-month period across the full 2012–2019 period. Coding was performed in Nvivo (Version 11.0.0.317, QSR International, Melbourne, Australia). Activities and categories evolved iteratively as further data were coded. Documentation and transcripts were read and re-read, and cross-checked to identify and date relevant activities, which were coded deductively. Researchers kept reflective logs of coding uncertainties, which were discussed with the full team and activities/categories amended as needed. Data were re-coded as needed to the amended framework. The most significant change was that Activity Category 7, which covered direct engagement between PHTs and license holders, was dropped from the measure because it did not meet the definition of

activity relating to “local alcohol premises licensing decisions, processes and policies.”

*Stage 3: Expert consultation on measure content: Activities, categories, and definitions*

Following the first round of data collection with all higher activity areas, feedback on the developing measure was received from 13 UK-based experts: academics independent of the team ( $n = 3$ ), local public health stakeholders not in participating areas ( $n = 5$ ), and colleagues in regional or national organizations with a remit to support PHTs on alcohol licensing ( $n = 5$ ). Experts were invited to comment on the relevance of activities, clarity of category, and activity definitions and completeness. All 13 responded, providing written feedback that informed final team decisions on resulting amendments. Amendments focused on definitions of each activity or coding guidance but also led to the introduction of new activities on senior leadership and on continuity of staffing. Much of the feedback also informed the development of a grading and scoring system (Stage 4).

*Stage 4: Developing an activity grading system for each subcategory*

We aimed to develop simple categorical assessments that would enable the extent and nature of each activity to be graded for each 6-month period, given the nature and depth of typical PHT data. An initial grading system was developed following extensive internal discussion and taking into account relevant feedback from Stage 3. This included binary ratings (e.g., *yes/no*) or up to a 4-point rating scale (e.g., *higher/medium/lower/none*), depending on the activity. The resulting grading system was applied to the data from all 39 areas to generate preliminary grades for each period, noting any instances where grading was not straightforward. These informed further team discussions and amendments to finalize grading scales for all activities, along with accompanying guidance notes.

*Stage 5: Expert consultation on weighting of subcategories*

The Stage 4 PHIAL measure was then sent back to the Stage 3 experts and ExILEnS team members who were asked to consider each of the 19 activities and categorize them as high, medium, or low according to their likely relative impact on alcohol-related health harms and crime. Responses were received from both a Scottish and an English national organization, a Scottish PHT, an English local authority licensing colleague, three academic experts, and three ExILEnS team members. Ratings and comments were collated and circulated to all respondents and discussed in a video call with six experts. Weightings for each activity were discussed in turn and consensus was reached (see Supple-

mental Table S3 for collated weightings and notes). Weightings were applied as a simple multiplier (low =  $\times 1$ ; medium =  $\times 2$ ; high =  $\times 3$ ) to the score for each activity type in each 6-month period. The final measure (abbreviated version in Table 2, full version in Supplemental Table S4), therefore, enables calculation of a weighted overall intensity score for total relevant activity for each 6-month period.

*Application of the PHIAL measure*

The measure was applied to each area's activity data and re-checked by another team member. Any gaps in information were checked with the relevant PHT. Where data gaps remained for a period, we reviewed the grades in the periods before and after to estimate a grade on the balance of probabilities depending on the indicator. Grades were converted to scores that were fractions of 1 for each activity type for each period, and weighted to generate an overall intensity score for each participating PHT for each 6-month period.

## Results

The final PHIAL Measure (Table 2, Supplemental Table S4) includes six overall categories of PHT activity: (a) staffing, (b) reviewing license applications, (c) responding to license applications, (d) use of data, (e) influencing licensing stakeholders or policy, and (f) public involvement. Each category covers 2–5 of the 19 relevant activities. The measure outlines how activities should be graded and weighted to enable the generation of scores for any 6-month period for each PHT broken down by category and activity. The maximum available overall weighted score for any 6-month period is 42.

The scores for PHT activity ranged from 0 to 35 (Supplemental Table S5). Figure 1 illustrates the overall score over time for PHTs in higher and lower activity areas in England and Scotland. The measure successfully identified variations in intensity of activity between different areas and differences in intensity of activity within areas over time. The recruitment strategy was successful in sampling a diversity of higher and lower activity areas in both nations. In England, a step-change in activity is apparent from 2014 onward in active areas. Participating PHTs in Scotland tended to be more active on average in the early years (2012–2014, approximately) across all areas, and across all periods for higher activity areas.

Category-level scores for each area (Supplemental Figure S6) reflect variation in choice and intensity of activity by PHTs over time. Some areas in England did not engage in any relevant activity during the whole study period. Considering activity scores, PHTs in Scotland also had higher scores, on average, for 1.1 Senior leadership, 5.1 Developing policy, and 6.1 Working with the public (Figure 2). There was a high level of staff continuity (1.2) in all areas and the



TABLE 2. The ExILEnS Intensity Measure of Public Health Involvement in Alcohol Premises Licensing (abbreviated version, for full version with notes, see Supplemental Table S4)

Activity category	Activity category definition	Activity subcategory	Activity subcategory definitions	Grading: Each scale to be rated for each 6-month period (grades converted to fractional scores out of 1 as indicated in parentheses).	Weighting High (×3) Medium (×2) Low (×1)
1. Staffing for PHT activity to influence local alcohol licensing	Staffing of PHT activity to influence local alcohol licensing	1.1 Senior leadership	Active involvement and support from senior public health figures.	Higher: Director of Public Health (DPH) or equivalent senior leader is actively involved in influencing local alcohol licensing. (1) Lower: DPH or equivalent senior leader is not actively involved. (0)	High
		1.2 Staff continuity	Continuity of staffing engaged with activities described in this measure.	Length of time the longest serving person has been actively working on licensing issues in current or other organization: Higher: 3+ years (1) Medium: 1–3 years ( $\frac{2}{3}$ ); Lower: <1 year ( $\frac{1}{3}$ ) None: Nobody in post (0)	High
2. Reviewing alcohol licensing applications:	Engaging in an activity or process to decide whether to take action in relation to individual alcohol licensing applications	2.1 New license applications/license variations (other than 2.2)	Engaging in any activity or process to decide whether or not to take action in relation to new local alcohol licensing applications or license variations (other than variations in opening hours—which is covered by 2.2).	Higher: Routine process is used to review all applications or to screen all to identify a subset for more detailed review; (1) Lower: Ad hoc process is used or applications are only reviewed if flagged by another body (e.g., police); ( $\frac{1}{2}$ ) None: No process in place for reviewing applications. (0)	Medium
		2.2 Reviewing or monitoring applications or decisions relating to temporary increases in availability	Engaging in any process to review or monitor applications or licensing decisions that may lead to temporary increases in availability.	Higher: Engaged in reviewing or monitoring of temporary increases in availability through both opening hours and one-off license applications (1). Lower: Engaged in reviewing or monitoring of temporary increases in availability through either opening hours OR one-off license applications ( $\frac{1}{2}$ ). None: Not engaged in reviewing or monitoring of temporary increases in availability through either opening hours OR one-off license applications (0).	Low
		2.3 Monitoring responses to applications	Any action or process used for keeping track of the number and type of local alcohol licensing applications received, and/or applications responded to by the PHT, the rationale for the response, or outcome of such applications, other than 2.2.	Higher: A database is maintained of applications received, responses made and outcomes, with additional intelligence added e.g. reasons for decision, follow-up, notes for future similar applications (1). Medium: A database is maintained of applications received, responses made and outcomes ( $\frac{2}{3}$ ) Lower: Applications received are logged only ( $\frac{1}{3}$ ). None: No process or database (0).	Medium

Table continued

use of data (4.1 and 4.2) was a prominent feature of practice in higher activity areas in both nations. PHTs in England engaged in a greater diversity of activities in Category 3 around responding to license applications, being more likely than their colleagues in Scotland to have sought to influence license applications pre-submission (3.1) or to have shaped submitted applications (3.2). In Scotland, PHTs were more commonly involved in making or leading representations to object to license applications (3.3). Involvement in reviews of premises licenses (3.4) was unusual but more common in England, whereas working with the public (6.1) was more

common in higher activity areas in Scotland. Working with the media (6.2) was rare overall.

## Discussion

Although the sale and consumption of alcohol are linked to health and other harms, assessing the effectiveness of local efforts to reduce those harms through licensing is challenging, because it involves identifying and taking account of a wide range of policies, laws, and activities that differ between countries, localities, teams, and individuals.

TABLE 2. *Continued*

Activity category	Activity category definition	Activity subcategory	Activity subcategory definitions	Grading: Each scale to be rated for each 6-month period (grades converted to fractional scores out of 1 as indicated in parentheses).	Weighting High (×3) Medium (×2) Low (×1)
3. Influencing & responding to individual license applications	Engaging in any activity to influence the submission, type, content or outcome of alcohol licensing applications (excluding that covered elsewhere)	3.1 Influencing or preventing applications prior to submission	Any activity/process intended to influence the content or submission of local alcohol licensing applications before the point of submission.	Higher: PHT provides guidance to applicants on what they will object to (either direct, or in writing) (1). Lower: No guidance is provided to applicants on the PHT policy (0).	Low
		3.2 Shaping submitted applications prior to decision	Any activity/process (other than a representation) intended to influence the content of submitted local alcohol licensing applications before a decision is made on them.	Higher: PHT provides direct guidance to applicants on what they will object to, to enable the applicant to redraft the application or operating plan as needed (1). Lower: No guidance is provided to applicants on the PHT policy (0). If there are no potential applications in that period, grade as low.	Low
		3.3 Making representations or objections	Formal representations or objections in relation to local alcohol licensing applications of any type.	Higher: PHT makes 4 or more of their own representations or objections in relation to licensing applications received (3). Medium: PHT makes 1–3 of their own representations or objections ( $\frac{2}{3}$ ). Lower: PHT supports representations or objections made by other parties ( $\frac{1}{3}$ ). None: No action is taken in relation to representations or objections (0). If no applications received during 6 months, score as none.	High
		3.4 Involvement in reviews of premises licenses	Any activity or process intended to influence the likelihood or outcome of a review of an alcohol premises license or appeal of a review decision.	Yes/No in the 6-month period (1 or 0)	Medium
		3.5 Involvement in appeals to decisions resulting from 3.3	Any activity to support the defense of a licensing decision (other than a review) resulting from PH representation/objection.	Yes/No in the 6-month period (1 or 0)	Medium
4. Use of routine or bespoke data on alcohol licensing and alcohol-related harms	Collection, collation, analysis, or other use of data (other than specified in 2.3 above or 6.1 below) to inform, or use in support of, PHT activity to influence local alcohol licensing	4.1 Collation or analysis of existing data	Collating, analyzing, preparing, curating, or illustrating routinely available data.	Higher: Analysis, preparation, curation, or illustration of relevant routine data is conducted to support activities in other dimensions (1). Medium: Preparation, curation, or illustration of relevant routine data is conducted to support activities in other dimensions ( $\frac{1}{2}$ ). Lower: Little/no attempt is made to analyze, prepare, curate or illustrate routine data to support other dimensions (0).	High
		4.2 Establishing new or expanded data collection processes	Establishing new or expanded processes for conducting research or gathering data (of any kind) to inform or use in support of PHT activity to influence licensing.	Yes: A new or expanded data collection or process is established requiring major effort (1). No: No new data collection or process is established (0).	Medium

*Table continued*

Many recent studies have demonstrated that changing local licensing provisions can make a difference to public health outcomes in such diverse locations as Norway (Rossow & Norström, 2012), Australia (Kypri et al., 2014), and the Netherlands (de Goeij et al., 2015), as well as in England

(de Vocht et al., 2015, 2020). Qualitative studies have provided valuable insight into the processes behind such changes (Cook et al., 2020; Grace et al., 2016; Kypri, 2016; Rossow & McCambridge, 2019; Stewart et al., 1993; Wilkinson et al., 2020) and the challenges faced by public health and

TABLE 2. *Continued*

Activity category	Activity category definition	Activity subcategory	Activity subcategory definitions	Grading: Each scale to be rated for each 6-month period (grades converted to fractional scores out of 1 as indicated in parentheses).	Weighting High (×3) Medium (×2) Low (×1)
5. Influencing local stakeholders or licensing policy	Any activity to influence licensing policy or people, or other stakeholders (other than the public).	5.1 Contributing to the development of licensing policy	Any activity to directly inform or contribute to the development of local licensing policy including statements of licensing policy, standard licensing hours, cumulative impact or overprovision policy or other licensing-specific local policy.	Higher: The PHT leads or is directly involved in the drafting of licensing policy (1); Medium: The PHT makes written submissions on licensing policy—e.g., commenting on or submitting draft text, reports, or recommendations ( $\frac{2}{3}$ ); Lower: The PHT makes some efforts to influence the drafting of licensing policy—e.g., policy-specific meetings or presentations ( $\frac{1}{3}$ ); None: Little or no evidence of attempts to directly influence policy (0).	High
		5.2 Influencing or collaborating with local authority licensing team and associated services	Any contact or collaboration with local authority licensing stakeholders including local authority lawyers or licensing teams, on licensing matters.	High: Collaboration/close working with local authority licensing stakeholders (1). Medium: Regular routine contact with local authority licensing stakeholders ( $\frac{2}{3}$ ). Low: Infrequent or ad hoc contact with local authority licensing stakeholders ( $\frac{1}{3}$ ). None: No contact—e.g., if nobody in post (0).	Medium
		5.3 Informing or influencing elected representatives responsible for licensing decisions	Any contact or liaison on licensing matters with elected representatives who have responsibility for decision-making on licensing.	High: Close partnership working (1). Medium: Regular routine contact ( $\frac{2}{3}$ ). Low: Infrequent or ad hoc contact ( $\frac{1}{3}$ ). None: No contact (0).	High
		5.4 Involvement in formal or statutory multi-agency licensing groups.	Any involvement in multi-agency groups, consisting of stakeholders from several organizations or backgrounds, which meet regularly to discuss licensing matters.	High: PHT takes a leadership role in multi-agency groups as defined and participates regularly (1). Medium: PHT participates regularly in multi-agency groups as defined ( $\frac{2}{3}$ ). Low: PHT participates infrequently or ad hoc ( $\frac{1}{3}$ ). None: No such groups are known to exist or PHT does not participate (0).	Medium
		5.5 Collaboration with statutory bodies with legal responsibilities in relation to alcohol licensing.	Any collaboration or joint working with other statutory bodies with legal responsibilities in relation to alcohol licensing matters (other than coded above).	High: Close partnership working (1). Medium: Regular routine contact ( $\frac{2}{3}$ ). Low: Infrequent or ad hoc contact ( $\frac{1}{3}$ ). None: No contact if nobody in post on licensing (0).	Medium
6. Engagement or involvement of the public	Any activity to engage or involve the public in relation to alcohol licensing including the use of media.	6.1 Contact, collaboration, or initiatives with members of the public or community groups regarding alcohol licensing	Any contact, meetings, or collaboration between PHTs and members of the public or community groups, including involvement of the public in data collection or formal consultations.	Higher: PHT leads or initiates engagement, consultation with or a survey of the general public or community groups (1). Medium: PHT contributes to existing public meetings/research/groups about licensing issues ( $\frac{1}{2}$ ). Lower: PHT has little or no involvement in public engagement as described (0).	High
		6.2 Media publicity	PHT engagement or use of the press, media outlets, or social media on licensing matters.	Yes: PHT makes proactive use of media or social media to promote their stance on alcohol licensing (1). No: PHT makes no use of media/social media on licensing issues (0).	Low

Notes: PHT = public health team; ExILEnS = Exploring the Impact of alcohol premises Licensing in England and Scotland.

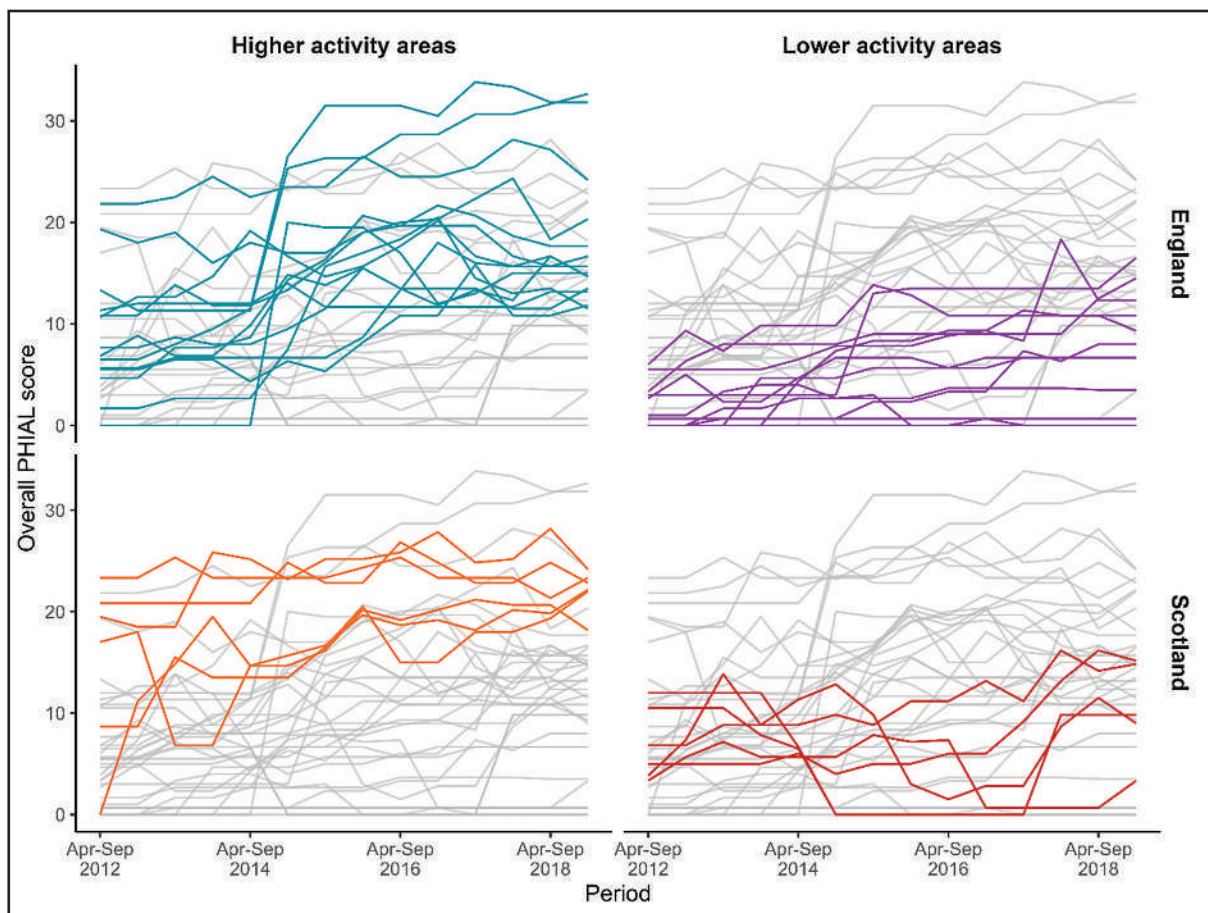


FIGURE 1. Overall PHIAL (Public Health Engagement In Alcohol Licensing) score over time for higher and lower activity areas in England and Scotland. Apr. = April; Sep. = September.

community actors in engaging in this arena (Fitzgerald et al., 2017; Kypri et al., 2019; Reynolds et al., 2018, 2019). However, no previous study has sought to quantify public health activity. Previous scales have measured the strength and implementation of alcohol laws/policies (Naimi et al., 2014; Nilsson et al., 2015), but this is the first attempt to develop a (semi-quantitative) measure of the range and intensity of public health efforts to influence alcohol harms through local premises licensing.

The overall aim of the ExILEnS study is to critically assess the impact and mechanisms of impact of public health stakeholders' engagement in alcohol premises licensing on alcohol-related harms in England and Scotland from 2012 to 2018, by comparing areas with differing types and intensities of engagement. The PHIAL Measure reported here has successfully enabled assessment of this activity for each 6-month period between April 2012 and March 2019 and has identified differences in activity types and intensity over time, both within and between areas, with face validity. For example, the step-change in activity in England in 2014 likely reflects a known increase in support to PHTs from national and local agencies rather than any legal change and is

discussed further elsewhere (Fitzgerald et al., 2022). Echoing prior qualitative work, we identified that PHTs use diverse proactive and reactive approaches to engaging in alcohol licensing: seeking to influence local policy development; supporting and/or leading representations on individual applications; using and developing relevant data sources; and seeking to influence applicants, the public, and other licensing stakeholders.

The 19 activities included in the PHIAL measure are wide-ranging, and no single PHT was highly active across all of the activities. This may reflect differing philosophies, views on appropriate ways of working, resources or demands on staff, or local needs. Differences in approach and innovative practices appear to have developed iteratively in areas and nations, but previous work was not comparative (Fitzgerald et al., 2018b; Grace et al., 2016; Reynolds et al., 2018). Although separate analysis found no clear evidence that PHIAL activity levels were associated with improved health or crime outcomes over a 7-year follow-up period, such activity was deemed likely to have benefits in shaping the licensing system to take account of health issues longer term (de Vocht et al., 2022). The findings reported here il-



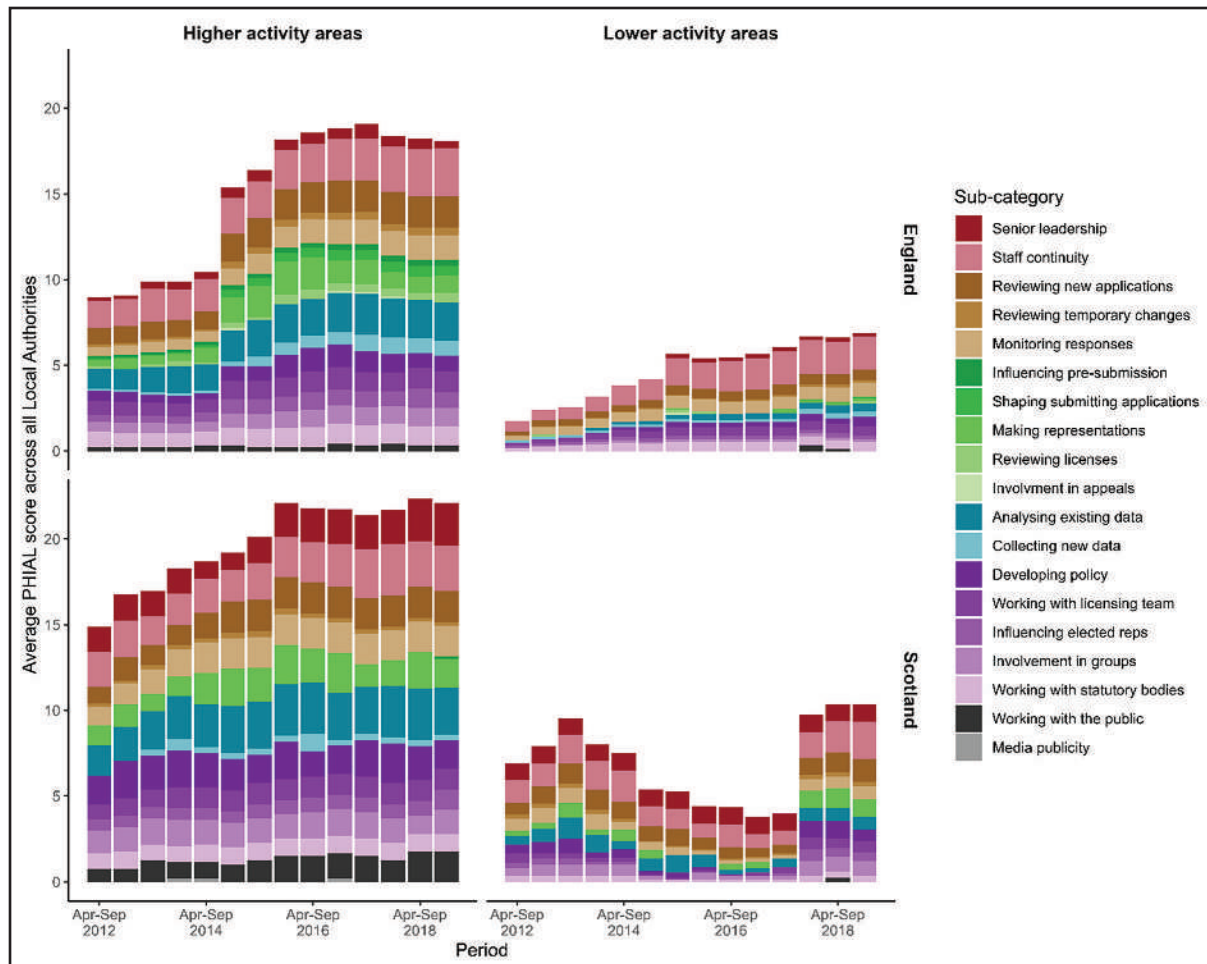


FIGURE 2. PHIAL (Public Health Engagement In Alcohol Licensing) scores at subcategory level over time averaged for all participating public health teams. Apr. = April; Sep. = September.

illustrate how PHTs could do more in this space. No areas scored the maximum available, and the variation in activity points to many opportunities for learning between PHTs. This has previously been facilitated by national agencies and welcomed by PHTs (Fitzgerald et al., 2017; Mooney et al., 2022) and provides a route by which the practices and innovation identified in this study could be shared in greater detail.

#### *Strengths and limitations*

Standardization of measurement is an essential tenet of the scientific method, but applying standard measures within complex public health systems can be challenging (Raleigh & Foot, 2010). The PHIAL Measure is new, has been transparently and robustly developed, and explicitly accounts for the diversity in real-life approaches taken by PHTs as they engage in local alcohol premises licensing. We sought to capture PHT activity levels accurately across the period, using extensive documentary and interview data. Given the duration

and breadth of data of interest, our large sample of diverse PHTs is a strength, providing examples of a comprehensive range of relevant activities. Advisory input from a wide pool of PHT and licensing representatives as well as national experts gives us confidence that the resulting PHIAL measure will be relevant and applicable to PHTs across England and Scotland, despite differences in organizational structures and licensing law. Our approach was informed by best practice in developing composite measures (OECD, 2008).

Because this is the first measure of its kind in the United Kingdom or internationally to our knowledge, there is no gold standard or alternative against which we can assess the PHIAL Measure. The measure and the scores generated are also subject to several other limitations. First, the measure is unlikely to have captured all possible public health approaches to engagement in alcohol licensing in England and Scotland and less so where different licensing regimes apply (in Northern Ireland as well as abroad). However, some of the activities (e.g., public involvement, influencing stakeholders) will likely have relevance for other local authorities

in the United Kingdom and internationally, and could be adapted to suit local contexts.

Second, through in-depth discussion among our large and varied team, with input from experts and taking cognizance of prior literature, we made a series of judgments on the scope and the granularity of measurement. These will ultimately have an impact on what was scored/weighted. Our final definition of relevant PHT activity excludes efforts to change retail practices through direct engagement with premises (which was in our first draft) but includes efforts to place binding operating conditions on new licenses. This reflected our primary interest in licensing systems rather than business practices and evidence suggesting that such direct engagement was unlikely to have significant impact (Babor et al., 2010).

Third, we assessed activity up to 7 years before interviews. Interview data were limited by recall bias, staff changes, and poor records such that uncertainties could not always be resolved through documentation analysis. In many cases, we were able to interview former staff, but not always. Having exhausted all PHT sources, we resolved uncertainties in discussion by taking an “on the balance of probabilities” approach where necessary. This limitation would not apply to a prospective study in which the PHIAL measure could be applied to contemporaneous public health activity.

Fourth, the grading process for individual PHTs inevitably involved some subjectivity of judgment, especially where data quality was lower. We sought to reduce variability by asking graders not to grade data if unsure, keeping reflective logs of uncertainties, having a second researcher review all grading, and resolving all issues by consensus. Grading guidance notes were added to the measure as needed. Although this will have improved the reliability of grading, we were unable to conduct formal inter-rater reliability checks because of changes of staff within the study team.

### *Implications for other countries*

Many countries have permit-based licensing systems, and in the global South, such systems sometimes retain features of older laws from the United Kingdom or other colonizing countries. Systems differ in terms of who decides on applications and what (if any) formal role public health stakeholders have in that process, and they are continually evolving (Northern Ireland Assembly, 2021). Nonetheless, community and health stakeholders in many countries advocate or campaign on local licensing matters or specific license applications (Kypri, 2016; Kypri et al., 2019; Rossow & McCambridge, 2019), and the PHIAL measure may include novel approaches that they could adopt or adapt to the local context. The measure also allows consideration of the influence of the public health objective in Scotland (Nicholls et al., 2022) and structural differences in the systems in Scotland and England (Fitzgerald et al., in press).

Further work could use the PHIAL Measure to compare practice in the United Kingdom with that of public health in other licensing jurisdictions and countries, or to examine the impact of specific PHT activities. Where changes are made to a licensing regime, the measure, or an adaptation of the measure, could be used to examine the resulting impact on public health approaches and practices in the licensing arena.

### *Conclusion*

The Public Health engagement In Alcohol Licensing (PHIAL) Measure, presented in Table 2/Supplemental Table S4, describes 19 activities in 6 broad categories and proved sensitive to differences in type and intensity of activity from 2012 to 2019 within and between the 39 PHTs in our sample, and between Scottish and English areas. Participating PHTs in Scotland were more active on average, particularly on senior leadership, policy development, and working with the public. In England, activity to influence license applications before decision was more common, and a clear increase in activity is apparent from 2014 onward. Further research (Fitzgerald et al., in press) has examined these differences in detail and used the measure to assess whether public health engagement in licensing is associated with reduced alcohol-related harms (de Vocht et al., 2022). The measure has further potential for supporting strategic planning and benchmarking of public health practice in the United Kingdom and could be adapted to, or used as a model for, similar analyses internationally, especially where the licensing regime is broadly similar.

### **Acknowledgments**

The authors thank all participating PHTs and their current or former staff who provided documentation, took part in interviews, or responded to queries. We are very grateful to the experts who reviewed the measure and/or supported the allocation of weightings. We acknowledge the input and advice of international colleagues at workshops during the Kettil Bruun Society annual symposium, and the support of all members of our Study Steering Committee. We are grateful to all who transcribed the data. Last, we acknowledge the contributions of all researchers on the ExILEnS study who did not merit co-authorship on this specific article (Nathan Critchlow, Colin Sumpter, Courtney Scott, Isabelle Uny, and Rachel O'Donnell).

### **Conflict-of-Interest Statement**

Colin Angus has received funding related to commissioned research from Systembolaget and Alko, the Swedish and Finnish government-owned alcohol retail monopolies. All other authors declare that they have no competing interests.

### **References**

- Alcohol Focus Scotland. (2017). *Licensing resource pack*. Glasgow, Scotland: Author. Retrieved from [www.alcohol-focus-scotland.org.uk/resources/](http://www.alcohol-focus-scotland.org.uk/resources/)
- Angus, C., Holmes, J., Maheswaran, R., Green, M., Meier, P., & Brennan, A.

- (2017). Mapping patterns and trends in the spatial availability of alcohol using low-level geographic data: A case study in England 2003–2013. *International Journal of Environmental Research and Public Health*, *14*, 406. doi:10.3390/ijerph14040406
- Babor, T., Caetano, R., Casswell, S., Edwards, G., Giesbrecht, N., Graham, K., . . . Rossow, I. (2010). *Alcohol: No ordinary commodity: Research and public policy* (2nd ed.). Oxford, England: Oxford University Press.
- Campbell, C. A., Hahn, R. A., Elder, R., Brewer, R., Chattopadhyay, S., Fielding, J., . . . Middleton, J. C., & the Task Force on Community Preventive Services. (2009). The effectiveness of limiting alcohol outlet density as a means of reducing excessive alcohol consumption and alcohol-related harms. *American Journal of Preventive Medicine*, *37*, 556–569. doi:10.1016/j.amepre.2009.09.028
- Cook, M., Livingston, M., Wilkinson, C., Shanthosh, J., & Morrison, C. N. (2020). Alcohol industry vs. public health presentations at judicial reviews of liquor licence applications in Australia. *International Journal of Drug Policy*, *82*, 102808. doi:10.1016/j.drugpo.2020.102808
- de Goeij, M. C. M., Veldhuizen, E. M., Buster, M. C. A., & Kunst, A. E. (2015). The impact of extended closing times of alcohol outlets on alcohol-related injuries in the nightlife areas of Amsterdam: A controlled before-and-after evaluation. *Addiction*, *110*, 955–964. doi:10.1111/add.12886
- de Vocht, F., Heron, J., Angus, C., Brennan, A., Mooney, J., Lock, K., . . . Hickman, M. (2015). Measurable effects of local alcohol licensing policies on population health in England. *Journal of Epidemiology and Community Health*, *70*, 231–237. doi:10.1136/jech-2015-206040
- de Vocht, F., Heron, J., Campbell, R., Egan, M., Mooney, J. D., Angus, C., . . . Hickman, M. (2017). Testing the impact of local alcohol licensing policies on reported crime rates in England. *Journal of Epidemiology and Community Health*, *71*, 137–145. doi:10.1136/jech-2016-207753
- de Vocht, F., McQuire, C., Brennan, A., Egan, M., Angus, C., Kaner, E., . . . Hickman, M. (2020). Evaluating the causal impact of individual alcohol licensing decisions on local health and crime using natural experiments with synthetic controls. *Addiction*, *115*, 2021–2031. doi:10.1111/add.15002
- de Vocht, F., McQuire, C., Ferraro, C., Williams, P., Henney, M., Angus, C., . . . Fitzgerald, N. (2022). Impact of public health team engagement in alcohol licensing on health and crime outcomes in England and Scotland: A comparative timeseries study between 2012 and 2019. *The Lancet Regional Health – Europe*, *20*, 100450. doi:10.1016/j.lanepe.2022.100450
- Egan, M., Brennan, A., Buykx, P., De Vocht, F., Gavens, L., Grace, D., Halliday, E., . . . Lock, K. (2016). Local policies to tackle a national problem: Comparative qualitative case studies of an English local authority alcohol availability intervention. *Health and Place*, *41*, 11–18. doi:10.1016/j.healthplace.2016.06.007
- Fitzgerald, N., Egan, M., de Vocht, F., Angus, C., Nicholls, J., Shortt, N., Nichols, T., . . . Bauld, L. (2018a). Exploring the impact of public health teams on alcohol premises licensing in England and Scotland (ExLEnS): Protocol for a mixed methods natural experiment evaluation. *BMC Medical Research Methodology*, *18*, Article no. 123. doi:10.1186/s12874-018-0573-z
- Fitzgerald, N., Mohan, A., Purves, R., O'Donnell, R., Egan, M., Maani, N., et al. (in press). Factors influencing public health engagement in alcohol licensing in England and Scotland including legal and structural differences: comparative interview analysis. *Public Health Research*.
- Fitzgerald, N., Nicholls, J., Winterbottom, J. J., and Katikireddi, S. V. (2017). Implementing a public health objective for alcohol premises licensing in Scotland: A qualitative study of strategies, values, and perceptions of evidence. *International Journal of Environmental Research and Public Health*, *14*, 221. doi:10.3390/ijerph14030221
- Fitzgerald, N., Winterbottom, J., & Nicholls, J. (2018b). Democracy and power in alcohol premises licensing: A qualitative interview study of the Scottish public health objective. *Drug and Alcohol Review*, *37*, 607–615. doi:10.1111/dar.12819
- Gmel, G., Holmes, J., & Studer, J. (2015a). Are alcohol outlet densities strongly associated with alcohol-related outcomes? A critical review of recent evidence. *Drug and Alcohol Review*, *35*, 40–54. doi:10.1111/dar.12304
- Gmel, G., Holmes, J., & Studer, J. (2015b). We have to become more specific: A reply to Morrison et al. *Drug and Alcohol Review*, *35*, 58–60. doi:10.1111/dar.12365
- Grace, D., Egan, M., & Lock, K. (2016). Examining local processes when applying a cumulative impact policy to address harms of alcohol outlet density. *Health & Place*, *40*, 76–82. doi:10.1016/j.healthplace.2016.05.005
- Holmes, J., Guo, Y., Maheswaran, R., Nicholls, J., Meier, P. S., & Brennan, A. (2014). The impact of spatial and temporal availability of alcohol on its consumption and related harms: A critical review in the context of UK licensing policies. *Drug and Alcohol Review*, *33*, 515–525. doi:10.1111/dar.12191
- Huckle, T., Huakau, J., Sweetsur, P., Huisman, O., & Casswell, S. (2008). Density of alcohol outlets and teenage drinking: Living in an alogenic environment is associated with higher consumption in a metropolitan setting. *Addiction*, *103*, 1614–1621. doi:10.1111/j.1360-0443.2008.02318.x
- Kypri, K. (2016). Science, politics, and the play of chance in recent Australian drinking law changes. *Drug and Alcohol Review*, *35*, 657–660. doi:10.1111/dar.12498
- Kypri, K., MacLennan, B., Brausch, S., Wyeth, E., & Connor, J. (2019). Did New Zealand's new alcohol legislation achieve its object of facilitating public input? Qualitative study of M ori communities. *Drug and Alcohol Review*, *38*, 331–338. doi:10.1111/dar.12886
- Kypri, K., McElduff, P., & Miller, P. (2014). Restrictions in pub closing times and lockouts in Newcastle, Australia five years on. *Drug and Alcohol Review*, *33*, 323–326. doi:10.1111/dar.12123
- Langworthy, M. (2019, November 1). Helping locals stem the tide of alcohol. *Matters of Substance*, *30*. Retrieved from <https://www.drugfoundation.org.nz/matters-of-substance/november-2019/helping-locals-stem-the-tide-of-alcohol/>
- MacLennan, B., Kypri, K., Connor, J., Potiki, T., & Room, R. (2015). New Zealand's new alcohol laws: protocol for a mixed-methods evaluation. *BMC Public Health*, *16*, Article no. 29. doi:10.1186/s12889-015-2638-9
- Maheswaran, R., Green, M. A., Strong, M., Brindley, P., Angus, C., & Holmes, J. (2018). Alcohol outlet density and alcohol related hospital admissions in England: A national small-area level ecological study. *Addiction*, *113*, 2051–2059. doi:10.1111/add.14285
- Manton, E. (2012). *Objectives of liquor licensing in Australian states and territories: Trends in legislation and current application in case law*. Fitzroy, Victoria: Centre for Alcohol Policy Research.
- Martineau, F. P., Graff, H., Mitchell, C., & Lock, K. (2014). Responsibility without legal authority? Tackling alcohol-related health harms through licensing and planning policy in local government. *Journal of Public Health*, *36*, 435–442. doi:10.1093/pubmed/fdt079
- Middleton, J. C., Hahn, R. A., Kuzara, J. L., Elder, R., Brewer, R., Chattopadhyay, S., . . . Lawrence, B., & Task Force on Community Preventive Services. (2010). Effectiveness of policies maintaining or restricting days of alcohol sales on excessive alcohol consumption and related harms. *American Journal of Preventive Medicine*, *39*, 575–589. doi:10.1016/j.amepre.2010.09.015
- Miller, P., Curtis, A., Palmer, D., Busija, L., Tindall, J., Droste, N., . . . Wiggers, J. (2014). Changes in injury-related hospital emergency department presentations associated with the imposition of regulatory versus voluntary licensing conditions on licensed venues in two cities. *Drug and Alcohol Review*, *33*, 314–322. doi:10.1111/dar.12118
- Mooney, J. D., Sattar, Z., de Vocht, F., & Ling, J. (2022). Assessing the feasibility of using place-based health information in alcohol licensing:



- Case studies from seven local authorities in England. *Cities & Health*, 6, 575–586. doi:10.1080/23748834.2022.2091880
- Naimi, T. S., Blanchette, J., Nelson, T. F., Nguyen, T., Oussayef, N., Heeren, T. C., . . . Xuan, Z. (2014). A new scale of the U.S. alcohol policy environment and its relationship to binge drinking. *American Journal of Preventive Medicine*, 46, 10–16. doi:10.1016/j.amepre.2013.07.015
- Nicholls, J., O'Donnell, R., Mahon, L., & Fitzgerald, N. (2022). 'Give us the real tools to do our jobs': Views of UK stakeholders on the role of a public health objective for alcohol licensing. *Public Health*, 211, 122–127. doi:10.1016/j.puhe.2022.07.06
- Nilsson, T., Leifman, H., & Andréasson, S. (2015). Monitoring local alcohol prevention in Sweden: Application of Alcohol Prevention Magnitude Measure (APMM). *Nordic Studies on Alcohol and Drugs*, 32, 479–494. doi:10.1515/nsad-2015-0047
- Northern Ireland Assembly. (2021, June 29). *Licensing and Registration of Clubs (Amendment) Bill: Final Stage. Official Reports of the Northern Ireland Assembly*. Belfast: Author. Retrieved from <http://aims.niassembly.gov.uk/officialreport/report.aspx?&eveDate=2021/06/29&docID=345034#3553467>
- O'Brien, P. (2013). A risk-based approach to harm minimisation in liquor licensing decisions. *Drug and Alcohol Review*, 32, 536–538. doi:10.1111/dar.12038
- Organisation for Economic Co-operation and Development (OECD). (2008). *Handbook on constructing composite indicators: Methodology and user guide*. Retrieved from <https://www.oecd.org/els/soc/handbookonconstructingcompositeindicatorsmethodologyanduserguide.htm>
- Pearce, J., Shortt, N., Rind, E., & Mitchell, R. (2015). Tobacco & alcohol retail environments: Inequalities in individual-level smoking & drinking. *European Journal of Public Health*, 25, Supplement 3, ckv174.055. doi:10.1093/eurpub/ckv174.055
- Phillips, G., & Green, J. (2015). Working for the public health: Politics, localism and epistemologies of practice. *Sociology of Health & Illness*, 37, 491–505. doi:10.1111/1467-9566.12214
- Popova, S., Giesbrecht, N., Bekmuradov, D., & Patra, J. (2009). Hours and days of sale and density of alcohol outlets: Impacts on alcohol consumption and damage: A systematic review. *Alcohol and Alcoholism*, 44, 500–516. doi:10.1093/alcalc/agg054
- Public Health England. (2017). *Alcohol licensing: A guide for public health teams*. Retrieved from <https://www.gov.uk/guidance/alcohol-licensing-a-guide-for-public-health-teams>
- Raleigh, V., & Foot, C. (2010). *Getting the measure of quality: Opportunities and challenges*. Retrieved from <https://www.kingsfund.org.uk/publications/getting-measure-quality>
- Reynolds, J., McGrath, M., Engen, J., Pashmi, G., Andrews, M., Lim, J., & Lock, K. (2018). Processes, practices and influence: A mixed methods study of public health contributions to alcohol licensing in local government. *BMC Public Health*, 18, 1–13. doi:10.1186/s12889-018-6306-8
- Reynolds, J., McGrath, M., Engen, J., Pashmi, G., Andrews, M., Sharpe, C., . . . Lock, K. (2019). 'A true partner around the table?' Perceptions of how to strengthen public health's contributions to the alcohol licensing process. *Journal of Public Health*, 41, e1–e8. doi:10.1093/pubmed/fdy093
- Richardson, E. A., Hill, S. E., Mitchell, R., Pearce, J., & Shortt, N. K. (2015). Is local alcohol outlet density related to alcohol-related morbidity and mortality in Scottish cities? *Health & Place*, 33, 172–180. doi:10.1016/J.HEALTHPLACE.2015.02.014
- Rosow, I., & McCambridge, J. (2019). The handling of evidence in national and local policy making: A case study of alcohol industry actor strategies regarding data on on-premise trading hours and violence in Norway. *BMC Public Health*, 19, 44. doi:1186/s12889-018-6348-y
- Rosow, I., & Norström, T. (2012). The impact of small changes in bar closing hours on violence: The Norwegian experience from 18 cities. *Addiction*, 107, 530–537. doi:10.1111/j.1360-0443.2011.03643.x
- Scottish Parliament. (2005). *Licensing (Scotland) Act 2005*. Statute Law Database. Retrieved from <http://www.legislation.gov.uk/asp/2005/16/contents>
- Scottish Parliament. (2015). *Air Weapons and Licensing (Scotland) Act 2015*. Retrieved from <http://www.legislation.gov.uk/asp/2015/10/introduction>
- Sherk, A., Stockwell, T., Chikritzhs, T., Andréasson, S., Angus, C., Gripenberg, J., . . . Woods, J. (2018). Alcohol consumption and the physical availability of take-away alcohol: Systematic reviews and meta-analyses of the days and hours of sale and outlet density. *Journal of Studies on Alcohol and Drugs*, 79, 58–67. doi:10.15288/jsad.2018.79.58
- Shortt, N. K., Tisch, C., Pearce, J., Mitchell, R., Richardson, E. A., Hill, S., & Collin, J. (2015). A cross-sectional analysis of the relationship between tobacco and alcohol outlet density and neighbourhood deprivation. *BMC Public Health*, 15, 1014. doi:10.1186/s12889-015-2321-1
- Stewart, L., Casswell, S., & Duignan, P. (1993). Using evaluation resources in a community action project: Formative evaluation of public health input into the implementation of the New Zealand Sale of Liquor Act. *The Free Library*. Retrieved from <https://www.thefreelibrary.com/Using+evaluation+resources+in+a+community+action+project%3A+formative...a015590654>
- Sumpter, C., McGill, E., Dickie, E., Champo, E., Romeri, E., & Egan, M. (2016). Reducing the strength: A mixed methods evaluation of alcohol retailers' willingness to voluntarily reduce the availability of low cost, high strength beers and ciders in two UK local authorities. *BMC Public Health*, 16, Article no. 448. doi:10.1186/s12889-016-3117-7
- UK Parliament. (2003). *Licensing Act 2003* (p. 87). Retrieved from <https://www.legislation.gov.uk/ukpga/2003/17/contents>
- Weitzman, E. R., Folkman, A., Folkman, K. L., & Wechsler, H. (2003). The relationship of alcohol outlet density to heavy and frequent drinking and drinking-related problems among college students at eight universities. *Health & Place*, 9, 1–6. doi:10.1016/S1353-8292(02)00014-X
- West, J. H., Blumberg, E. J., Kelley, N. J., Hill, L., Sipan, C. L., Schmitz, K. E., . . . Hovell, M. F. (2010). Does proximity to retailers influence alcohol and tobacco use among Latino adolescents? *Journal of Immigrant and Minority Health*, 12, 626–633. doi:10.1007/s10903-009-9303-2
- Wilkinson, C., Livingston, M., & Room, R. (2016). Impacts of changes to trading hours of liquor licences on alcohol-related harm: A systematic review 2005–2015. *Public Health Research & Practice*, 26, e2641644. doi:10.17061/phrp2641644
- Wilkinson, C., MacLean, S., & Room, R. (2020). Restricting alcohol outlet density through cumulative impact provisions in planning law: Challenges and opportunities for local governments. *Health & Place*, 61, 102227. doi:10.1016/j.healthplace.2019.102227
- Wright, A. (2019). Local alcohol policy implementation in Scotland: Understanding the role of accountability within licensing. *International Journal of Environmental Research and Public Health*, 16, 1880. doi:10.3390/ijerph16111880