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Author(s)	Madden, Caoimhe; Lydon, Sinéad; Lambe, Kathryn; O'Connor, Paul
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A Mixed Methods Evaluation of Hand Hygiene Guidance in the Irish Health Service

Caoimhe Madden[a,c], Sinéad Lydon[b,c], Kathryn Lambe[a,c], Paul O'Connor[a,c].

[a] Department of General Practice, School of Medicine, National University of Ireland, Galway, Galway, Ireland.

[b] School of Medicine, National University of Ireland, Galway, Galway, Ireland.

[c] Irish Centre for Applied Patient Safety, National University of Ireland, Galway, Galway, Ireland.

Corresponding author: Dr. Paul O'Connor. **Post:** Department of General Practice, National University of Ireland, 1 Distillery Road, Co. Galway, Ireland.

Email: paul.oconnor@nuigalway.ie. **Telephone:** + 353 91 492897

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Abstract

Introduction

Despite its' role in infection prevention, hand hygiene (HH) compliance rates in healthcare settings remain sub-optimal. Little research has examined policy-makers' perceptions of contributory barriers and facilitators to compliance, and whether these are addressed in national-level guidelines.

Methods

Interviews were conducted with national-and hospital-level policy-makers. The COM-B model was used as a coding framework. Google© was used to source suitable Irish health service guidelines, policies, and regulations relating to HH. Data were extracted from documents using a structured tool.

Results

Six themes emerged from the interviews. Four documents were determined to meet the inclusion criteria, with some of the themes identified from the interviews also present in the documents.

Discussion

Policy-maker perceptions help identify potential areas for targeting in future interventions. The varied extent to which the issues identified in the interviews were addressed in the guidelines, policies and standards suggest that revision of such documents is required.

Introduction

In Ireland, preventing Healthcare Associated Infections (HCAIs) has been identified as a system-wide priority area of the Health Services National Service Plan[1]. HH is considered the primary means of preventing HCAIs[2-4]. However, internationally HH compliance rates are poor, with estimations of around 40% compliance[5] in hospital settings; this suggests there is a need to understand variables that impact upon HH and impede compliance with WHO guidelines.

Although a number of studies have examined perceived barriers and facilitators of front line healthcare workers to HH compliance[5-7], the opinions of HH policy-makers have not been examined to the same extent, despite being in a stronger position than front line healthcare workers to influence HH policy[8].

Therefore, the purpose of this study was to: (1)examine the barriers to, and facilitators of, hand hygiene practices perceived by national and hospital-level HH key policy-makers in Ireland; and (2)identify the extent to which the issues identified in the interviews by HH policy-makers are addressed in national Irish HH guidelines, policies and standards.

Methods

Seven interviews were conducted with national-level policy-makers (4 nurses and 3 doctors defined as individuals who can influence national-level HH policies), and five interviews with hospital-level policy-makers (2 nurses and 3 doctors defined as individuals who can influence hospital, or healthcare group level, HH policies). Interviews were conducted until it was judged that data saturation had been reached for each of the two groups of policy makers. Interview prompts were based upon the COM-B ('capability', 'opportunity', 'motivation'- behaviour') model of behaviour change[9]. Ethical approval was obtained from Galway University Hospitals Research Ethics Committee.

Interviews were carried out between July and December 2017. The participants returned their consent form via email or post. Interviews were conducted by telephone and were audio recorded and transcribed. The interview data was analysed using a deductive content analysis approach[10]. The COM-B model[9] was used as the initial framework for coding the data. Two coders read all the interview transcripts, coded the interviews against the COM-B model, and compared their coding of the data until consistent coding was achieved. Changes to the COM-B model were made through discussion and consensus.

Google© was used to source Irish health service guidelines, policies, and regulations relating to HH suitable for review. Websites of relevant Irish health organisations and agencies and Irish hospital groups were also searched, in order to identify additional potentially relevant material. The search was limited to documents published since 2009, the year in which the WHOs HH guidelines were published[11]. The approach was based on previously used methods[12]. In order to be included, guidelines had to: (a)be published by government or non-governmental organisations at a national-level within Ireland; (b)describe standards or guidelines for appropriate HH practices in a healthcare setting; and (c)be the most current version of the document. A structured approach was used to extract information from the guideline documents and assess the extent to which the documents addressed the themes identified from the stakeholder interviews. Data extraction and theming was conducted by two of the authors and any disagreements were resolved through discussion until consensus was reached.

Results

Phase one: Interviews

The mean interview length was 19 minutes 58 seconds (*SD*=8 minutes 11 seconds). Examples of the themes and subthemes that emerged are presented in Table 2, and descriptive examples are shown in Table 1.

Table 1. Summary of content of included Irish hand hygiene guidance.

Title	Guidelines for Hand Hygiene in Irish Healthcare Settings (2015)[13]	Healthcare-Associated Infections: What all doctors must know and do (2011)[14]	Infection Prevention and Control for Primary Care in Ireland: A Guide for General Practice (2013)[15]	National Standards for the Prevention and Control of Healthcare Associated Infections (2017)[16]
Pages	7	2	8	1
Prepared by	HH Subcommittee of the RCPI group on HCAI and AMR. Consultation with patients and public.	RCPI policy group on HCAI	Infection Prevention and Control Subcommittee of HCAI/ AMR & ICGP	HIQA
Stated aims	To assist Irish healthcare facilities and services to improve hand hygiene.	Reduce/prevent HCAI's, lessening the need for antibiotic use.	To highlight the relevant issues for infection prevention and control in Irish general practice.	To minimise the risk of acquiring or transmitting infection.
WHO guidelines	✓	✓	✓	✓
Target population	All HCWs, patients, visitors, carers and members of the public.	All HCWs	GP staff	Health service providers
Setting	All healthcare services.	Not stated	Primary care	All acute healthcare services provided or funded by the HSE
Theme 1: Capability	Five moments provided. Preparation for HH. Additional indications. Information about products and techniques.	Five moments provided. Information about products and technique. Preparation for HH.	Four and five moments provided.	Five moments provided. Preparation for HH.
Theme 2: Environmental enablers and barriers to HH compliance.	(+) Physical facilities that should be made available.		Additional indications.	(+) Social enabler: leadership and setting a good example. (+) HH facilities should be made available.
Theme 3: Interventions	Audit with feedback recommended. HH education.		Information about products and technique.	HH measurement. Audit with feedback recommended.
Theme 4: Motivating factors	Prevention of skin damage.		Preparation for HH.	Patients encouraged to enquire whether HCW has performed HH.

Table 2. Themes, sub-themes, and descriptive examples for interview data.

Theme	Sub-themes	Quote
Capability		'I still think there is a lack of awareness of the potential for transmission for infections' 'despite five years of us selling it, the message that alcohol hand gel is better than soap and water, 90 percent of the time is not understood by staff' 'they don't know the moments, yeah, they don't!'
Environmental enablers and barriers	Social enablers & barriers	'But obviously I think leadership is the key one, whatever team they're on, if their leader puts emphasis on it, they will follow suit' 'that sense of ownership, that the frontline staff feel that this is something that they have ownership of.. I think that that's one of the key drivers' 'sheer pressure on staff and the dependency level of our patients you know'
	Physical enablers & barriers	'there's supposed to be hand gel at each patients' bedside. If it's not there, it's harder, if people have to walk outside the door to clean their hands, they're just not going to do it' 'ease of availability of hand hygiene facilities.. I think the location you know, making sure they have your alcohol soap readily available to you'
Interventions	Capability interventions	'so even around the training, that it's just not a lecture, that there's interactive devices used' 'it's only by physically standing and observing people and watching their processes...that you can actually help them change their process flow' 'those national audits have been very useful in helping to drive improvement'
	Opportunity interventions	'priorities for hospitals have included the ensuring that the correct handwash sinks are in place, eh, that alcohol hand gel is accessible at the point of care' 'we put down floor graphics reminding people as well about the importance of hand hygiene' 'door handles that automatically dispense alcohol hand gel and a lot of these sort of automated processes'
	Motivation interventions	'Well, feeding them back good results, and encouraging compliance, because they compare themselves to other users, and other groups of staff and other wards and departments, and sometimes they can be a bit of rivalry between departments so that can be helpful'
Motivating factors	No sub-themes identified	'I think the interventions that foster that local frontline ownership are critical' 'I think if people really understood, how they could be putting themselves, their colleagues, or their patients at risk…..they would do it more.' 'I only have to do this because I think somebody might be watching me'
Protocol impact	No sub-themes identified	'Well they give you a set standard of expectation. Gives a clear direction towards what is expected of you' 'But really translating that into what people actually do in clinical practice is very different'
Future suggestions	Facilities	'a good floor design ergonomically and enough space between everybody you know, sufficient space between beds that staff would do it'
	Changes to protocols	'the best way to improve them [protocols] is to actually include every step that's needed'
	Education	'So, it's to get the moments right and for people to understand them properly, I think that will really improve practice and improve compliance'
	Culture change	'if we don't get that culture back, where people are working together and are... that ethos comes from the top down'
	Targets	'We have to, we have to strive for the 100%. That needs to be the goal.'

Theme 1. Capability of healthcare staff to engage in HH. Capability refers to individuals' psychological or physical ability to enact a particular behaviour[9]. Interviewees frequently expressed the opinion that there was a lack of knowledge, skills and awareness of HH issues amongst healthcare staff.

Theme 2. Environmental enablers and barriers to HH compliance. The environmental factors theme had two subthemes: *social enablers and barriers* and *physical enablers and barriers* (see Table 1). Effective leadership and a sense of ownership of HH interventions amongst frontline staff was identified as a crucial social enabler of HH compliance by participants. Unfavourable working conditions characterised by understaffing, overcrowding and lack of HH facilities were identified as barriers to HH compliance.

Theme 3. Range of interventions. This theme had three subcategories (see Table 2). Participants described *capability interventions* which aimed to promote or improve knowledge, skills and awareness of HH issues. The most frequently mentioned such intervention was the provision of education and training to healthcare staff. *Opportunity interventions* were also identified, and constituted those that aimed to improve the social and physical environment in support of HH compliance. These mostly related to the provision and accessibility of supplies and facilities. Lastly, participants described *motivation interventions*, key among these being the performance of audits and feedback. Punitive approaches were considered to be effective in some cases: for example, refusing staff their car parking passes if they had not completed HH training was suggested.

Theme 4. Motivating factors. A range of *motivating factors* that prompt staff to engage in appropriate HH behaviour were identified by interviewees, and included perceived

importance, consequences of poor compliance, perceived surveillance, and perceived prioritisation.

Theme 5. Impact of protocols. Interviewees had mixed responses regarding the impact of HH protocols on behaviour. Whilst some participants believed them to be useful for providing clear instruction and direction regarding expectations and regulations, others felt that there was inadequate information provided on the specific HH moments and felt they did little to actually improve HH, suggesting there exists a discrepancy between protocols and translation into clinical practice.

Theme 6. Future suggestions. A number of suggestions to improve HH practice and policy in the future were made by the interviewees, relating to protocols, education, culture change, facilities, and targets. Table 1 provides examples of suggestions from participants in these areas.

Document analysis

Four documents were determined to meet the inclusion criteria. Documents were developed by a range of healthcare organisations including subgroups of the Royal College of Physicians Ireland group on HCAI and antimicrobial resistance (AMR)[13-15], the Irish College of General Practitioners[15], and the Health Information and Quality Authority (HIQA)[16].

Three of the guidelines' focus was on infection control[13-15], with sections on HH embedded within. One guideline[16] was centred exclusively on HH. One document was developed based on previous guidelines[13], another[16] was developed following a review of the literature and existing guidelines, followed by an extensive consultation exercise involving

key stakeholders. The remaining documents[14,15] did not provide any information on their development process. All of the documents made reference to the WHO's five moments[11].

Four of the six themes identified from the interviews were also present in the guideline documents. The *impact of protocols* and *future suggestions* themes were not present in the four documents reviewed. As shown in Table 1, information related to the capabilities theme was identified in all of the documents (e.g., details of the HH moments, products and techniques). *Environmental enablers and barriers to HH compliance* was identified in three of the documents, with two providing advice on physical enablers, and one discussing both physical and social enablers. In relation to Theme 3, two documents addressed the *range of interventions* by advising the use of audit and feedback and HH education, while one mentioned education only. *Motivating factors* was identified in two guidelines; one provided information on prevention of skin damage, and another provided advice on encouraging patient enquiry.

Discussion

HH compliance is regarded as the primary means of preventing HAIs[2-4]. This study sought to explore the perceptions of national- and hospital-level policy-makers in the Irish health service relating to HH compliance, and its barriers and facilitators, and identify the extent to which the barriers and facilitators reported by these individuals are addressed in national Irish HH guidelines, policies and standards.

Ownership and leadership were the most notable enablers of HH compliance mentioned by the interviewees. There is a large body of literature to support the need for positive social influences[17]. The importance of social enablers was also acknowledged in one of the guidelines in the document analysis, suggesting that 'leaders at all levels support and

encourage colleagues to adhere to good hand hygiene practices by leading by good example'[16]. Future HH interventions could harness these factors to improve HH. Strategies that incorporate leading by example (e.g., 'the executive walk-around'[18,19]) are effective strategies for engaging frontline staff[8]. Despite this, in a recent review of interventions to improve HH compliance[20], modelling was not used in any of the included studies.

Interviewees also frequently noted a lack of knowledge, skills and awareness of HH issues amongst Irish healthcare staff. In particular, they suggested that there was lack of understanding of the link between HH and infection transmission, and 'when' to perform HH rather than 'how'. Recommendations for strategies on how to improve HH compliance, and related teaching, are also lacking from the HH documents reviewed- likely a result of the absence in research evidence. Systematic reviews have consistently found poor quality of research concerning which strategy, or combination of strategies, are effective in improving HH compliance[20,21]. Consistent with the document analysis, the main motivational intervention recommended by interviewees was the performance of audits and provision feedback. However, it has been suggested that a refocus towards HH programmes and delivery of targeted interventions may be a more effective strategy than an 'obsession with auditing'[22], which is resource-intensive and comes with a considerable financial burden.

The policy-makers recognised that procedure and protocols alone have limited utility in improving HH compliance. Suggestions for improving the use of protocols included using 'stories' to apply the five moments to specific situations within various HCW roles. Adapting the five moments to specific care situations has been previously identified as a useful improvement strategy[8]. Additional suggestions made by interviewees for improving HH compliance included the provision of adequate facilities and appropriate ergonomic space, greater education efforts surrounding HH compliance, and increasing HH targets. Changing

the culture was also noted as a potential area for change, with policy-makers emphasising the importance of involving management and leaders in promoting HH practice.

This study had a number of limitations. First, this study explored policy-maker perceptions of barriers and facilitators to HH compliance; it could be argued that because policy-makers are operating at a higher level, their perceptions of the exact difficulties experienced may not be in alignment with the practice experiences of HCWs[23]. Nevertheless, all of the interviewees were, or had been front line healthcare professionals. Second, only national-level guidelines were examined, which may have resulted in the exclusion of potentially useful hospital-level guidelines. However, the difficulty in systematically accessing hospital-level guidelines precluded their inclusion. Finally, only Irish HH guidelines were reviewed. However, the scope of this study was to consolidate HH guidelines in an Irish context exclusively as there is clear value in examining these issues at a national level.

Conclusion

Policy-makers are in a strong position to influence policy and guidance on HH. Examination of their perceptions provides a valuable insight regarding the areas that could be targeted for improvement in future interventions. The varied extent to which the issues identified in the interviews by HH policy-makers were addressed in the national Irish HH guidelines, policies and standards suggest that refinement and revision of such documents is required.

Compliance with ethical standards

Conflict of interest The authors have no conflicts of interest relevant to this article to disclose.

Informed consent Ethical approval was obtained for this research, and informed consent was obtained from the interview participants.

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