

Patient Involvement in Hand Hygiene

An integrative review exploring the perceptions of patients and healthcare professionals towards patient involvement in promoting hand hygiene compliance in the hospital setting

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Abstract

Aims and objectives: To review patients' and healthcare professionals' perceptions of patient involvement in promoting hand hygiene compliance in the hospital setting. **Background:** Initiatives continue to emphasise the importance of involving patients in their safety at the point of care. A patient-centred care approach aims to empower patients to become active members of the healthcare team. However, understanding the perceptions of patients and healthcare professionals of patient involvement in promoting hand hygiene compliance among healthcare professionals has yet to be fully explored. **Design:** Integrative literature review. **Methods:** A five-stage review process informed by Whittemore and Knaf's methodology was conducted. MEDLINE and CINAHL were searched for papers published between January 2009 and July 2017. Data were extracted manually, organised using NVivo 11, and analysed using a thematic analysis. **Results:** From an identified 240 papers, 19 papers were included in this review. Thematic analysis revealed two main themes, with three related sub-themes. Patients were willing to remind healthcare professionals, especially nurses, to wash their hands. The perception of healthcare professionals toward patients' involvement varied from one study to another. However, an overall positive attitude toward patient involvement was related to how patients requested, and how healthcare professionals responded, to being asked. **Conclusion:** There is limited evidence regarding patients' actual intention to ask healthcare professionals to wash their hands, and also some evidence that patients are reluctant to do so. Further research is required to understand this area thoroughly, including the situations in which patients would feel more empowered to speak up. **Relevance to clinical practice:** Simple messages promoting patient involvement may lead to complex reactions in both patients and healthcare professionals. It is unclear yet how patients and staff react to such messages in clinical practice. There is a need for a deeper understanding of how they can work together to support harm-free care.

Keywords: patient involvement, patient participation, patient engagement, hand hygiene compliance, integrative review

What does this paper contribute to the wider global clinical community?

- To gain insight into the role of the patient in reminding healthcare professionals to wash their hands as an effort to increase hand hygiene compliance in the real life setting.
- To provide an understanding from the perspective of healthcare professionals of patient involvement in improving hand hygiene compliance of clinical staff.
- To provide direction on how future interventions should take into considerations the variation in behaviours and cultures of patients and healthcare professionals.

INTRODUCTION

There is a wealth of evidence to suggest that hand hygiene is the single, most effective way to prevent the burden of endemic healthcare-associated infection (Allegranzi *et al.* 2014, Pittet 2001). Since Ignaz Semmelweis implemented a hand washing regimen which resulted in dramatic reductions in puerperal sepsis in 1847 (Semmelweis 1983), there have been many initiatives to promote hand hygiene. In 2009, the World Health Organisation (WHO) launched a campaign *SAVE LIVES: Clean Your Hands* to promote a 'multimodal strategy' for hand hygiene compliance (WHO 2009). The multimodal approach includes the provision of alcohol-based hand rub at the point of care, education of healthcare professionals (HCPs), audit and performance feedback of hand hygiene behaviour, different forms of reminders in the workplace to prompt hand hygiene, and an institutional culture of safety (WHO 2013). Implementation of the multimodal strategy for hand hygiene has been found to provide substantial and rapid improvements in hand hygiene compliance among HCPs in the hospital setting (Luangasanatip *et al.* 2015). However, despite this, hand hygiene compliance rates remain of concern (Erasmus *et al.* 2010, Jones *et al.* 2017, Trampuz & Widmer 2004).

Patient involvement in supporting their own safety has been discussed globally (Berger *et al.* 2013, Davis *et al.* 2007, Prey *et al.* 2013, Schwappach 2010, Thompson 2007, Vaismoradi *et al.* 2015, WHO 2009). Terms such as 'patient involvement', 'patient engagement', 'patient empowerment', 'patient participation', 'collaboration', 'partnership of patients', 'client', 'consumer', and 'user' have been used to describe this approach (Sahlsten *et al.* 2008, Vahdat *et al.* 2014).

There are a range of innovative strategies to promote patient involvement. These include patients checking that they have been given the correct medication (Davis *et al.* 2007, Vincent & Coulter 2002), asking patients to report deterioration in their own condition (Rainey *et al.* 2015) and reminding HCPs to perform hand hygiene (Davis *et al.* 2015, McGuckin & Brown 2003, McGuckin & Govednik 2013, McGuckin *et al.* 1999, McGuckin *et al.* 2001). There is some evidence that these initiatives are acceptable to patients. For example, a recent multi-centre cluster, randomised controlled trial reported that patients are willing to provide feedback about the safety of their care (Lawton *et al.* 2017). Wright *et al.* (2016) designed a programme to enhance patient safety and concluded that patients are willing to "co-design, co-produce and participate in" initiatives to prevent incidents and unintended harm in the hospital setting (Wright *et al.* 2016, p.67).

Patient involvement in hand hygiene might be appropriate when patients notice that HCPs do not wash or sanitise their hands before touching them, but may not feel able or encouraged to speak up to improve the quality and safety of their healthcare (Nacioglu 2016). The concept of asking patients to remind HCPs to wash their hands may seem simple enough (Davis *et al.* 2015); however, patient involvement in this process is new, and there is little evidence to suggest it happens in practice (Ridley & Jones 2002), or indeed whether it is acceptable to both patients and HCPs.

Davis *et al.* (2015) conducted a systematic review which investigated the effectiveness of strategies aimed at involving the patient in promoting hand hygiene. They concluded that a variety of strategies such as leaflets, videos and encouragement from the HCPs themselves could promote patients' involvement. However, the variety of studies included in their review made it difficult to determine which of these strategies may be the most successful, and why.

Regarding patient willingness to be involved in prompting hand hygiene, McGuckin and Govednik (2013) undertook a review to explore patient empowerment and barriers to empowerment in hand hygiene. The researchers concluded that there was some evidence that patients were willing to be involved in prompting hand

hygiene, although the review focussed on empowerment rather than willingness. The review did not include the perceptions of staff of patient involvement in prompting hand hygiene, and the authors recommended that further work be done to address this. Thus, our review follows on from the work of McGuckin and Govednik and incorporates the views of *both* patients and staff regarding the patient's role in the prompting of hand hygiene in a hospital environment. This review presents the literature from the point of view of both patients and HCPs, whereas previous reviews have focussed on HCP perspectives only. The review also addresses some cultural variations in the views of patients and HCPs, based on studies from different countries.

THE REVIEW

Aim

The aim of this review was to explore patients' and health care professionals' perceptions towards patient involvement in promoting hand hygiene compliance in the hospital setting.

Design

An integrative literature review was adopted as a design for this review.

Search methods

Literature published between January 2009 and July 2017 was retrieved from online databases MEDLINE via PUBMED and CINAHL. The search strategy was undertaken using keywords related to 'patient involvement' and 'hand hygiene compliance'. Searching was employed using Boolean operators. The final search was conducted on 31st of July 2017. The search strategy and keywords used to search all databases are as follows: patient involvement OR patient participation OR patient empowerment AND hand hygiene. In order to be inclusive, we did not search specifically for any health care professional, but compared the papers identified with our inclusion criteria. We searched through the reference lists of relevant papers but did not seek unpublished papers or grey literature. An alert was set up on all databases to avoid any missing data while undertaking the review.

Inclusion criteria were primary research studies of all types which were published in English. Studies on patient and public involvement in health care research (PPI), and studies that explored students'—medical or nursing—perceptions of patient involvement were excluded. The screening process was undertaken in four stages: identification, screening against inclusion criteria, removing duplications, and finally including or rejecting studies (Whittemore & Knafelz 2005). The original screening was undertaken by the first-named author and was verified by other members of the author team.

Authors assessed the quality of studies included in this review based on the methodology and the strength of evidence that these articles provided in assessing patients' and HCPs' perspectives in promoting HCPs to wash their hands (see table 1). Therefore, articles were not rejected based on quality alone; rather the quality of studies was taken into consideration when presenting the results and findings, and within the discussion of this review.

Data analysis and synthesis

Richards and Richards (1991) suggested the application of software to organise data may add to the rigour of qualitative research. NVivo 11 (Houghton *et al.* 2016) was used to organise and support thematic data analysis and the construction of themes. All initial codes relevant to the research question were incorporated into a theme

(Node). A thematic map as suggested by Braun and Clarke (2006) was developed to aid the generation of themes. The thematic map helped in visualising the links and relationship between themes using NVivo. After repeated reading of included articles, the researchers independently constructed a code list of emerging codes and main themes, codes were compared and cross-checked and consensus was reached. Themes were divided into two categories: patients' view of involvement and HCPs' view of patient involvement. Themes comprised a number of subthemes and are reported below (see figure 1).

Findings

From 240 articles located through searching, 19 met the inclusion criteria and were therefore included in this review (see figure 2). Included studies were international and drew on a range of methods (see table 2). The 19 papers represent data from 3,400 patients, 1174 families/parents, and 3077 HCPs from Europe, Australia, North America and Asia. The next section will provide detailed findings from specified countries, namely the UK, US, Australia, Switzerland, South Korea, Georgia, and Taiwan.

The review reports findings from the four UK studies (Davis *et al.* 2011, Davis *et al.* 2012, Davis *et al.* 2014, Pittet *et al.* 2011) as patients are more inclined to ask nurses, rather than doctors, about their hand hygiene. Likewise, patients reported a difference between their perceived importance of asking HCPs to wash their hands and their actual intention to make the request. Patient education, watching learning videos, and providing the patient with authorisation (*It's OK to Ask* campaign) were some of the interventions responsible for an increase in patient intention to request that UK HCPs wash their hands. Results from the four studies carried out in the US (Clare *et al.* 2013, Lastinger *et al.* 2017, Lent *et al.* 2009, Michaelsen *et al.* 2013) reported that knowing the HCP's name increases patient willingness to ask about hand hygiene. Further, US patients reported a greater intention in asking HCPs to wash their hands when they presented the 'Thanks for Washing' script. Yet, differences existed in patients' willingness to ask HCPs compared with their actual intention to do so.

Australian HCPs reported some barriers to patient empowerment such as lack of support, busy workloads and negative attitudes (Seale *et al.* 2016). Australian patients would feel comfortable and happy to ask HCPs to wash their hands (Seale *et al.* 2015b). However, patients were more likely to be willing to ask a doctor or nurse a factual question than a challenging question (Seale *et al.* 2015a).

A South Korean study reported that it is not the patient's responsibility to remind HCPs to wash their hands (Kim *et al.* 2015). When HCPs were questioned why they did not wash their hands, most patients suggested that they had either forgotten or were too busy. Patients from Georgia stated that their willingness to ask HCPs about their hand hygiene depended on the situation, while HCPs stated that they had not been asked to wash their hands over a period of one month, and that it would depend on the manner in which the patient asked (Garcia-Williams *et al.* 2010).

Cross-cultural variations were reported among the studies' populations. Indeed, patients from Taiwan reported that they could assist in reminding HCPs that they needed to wash their hands (Pan *et al.* 2013). On the other hand, patients from Switzerland would feel uncomfortable in requesting that HCPs wash their hands (Longtin *et al.* 2009). These variations describe the need for future research to qualitatively address such cross-cultural and cross-national differences in patients' views and intentions in asking HCPs to wash their hands.

Alongside methodological differences, most studies are based on a self-reported, cross-sectional survey which assesses patients' perceptions of participating in safety-related behaviours, including patient willingness to request that HCPs wash their hands. Yet only three studies used a qualitative approach based on interviews and

focus groups in exploring patients' attitudes and knowledge of HCPs and patients toward patient empowerment. Thus, future research needs to feature more focused qualitative studies which interview both patients and HCPs to understand their perception and actual intention towards patient involvement in asking HCPs to perform hand hygiene. The following section offers a detailed analysis of both patients and HCPs' views on patients requesting that HCPs wash their hands.

Patients' view of involvement

Fifteen articles explored patients' view of involvement in questioning HCPs' hand hygiene behaviours in the hospital setting (see table 3). In two studies, some patients were willing to prompt HCPs to wash their hands (Seale *et al.* 2015a, Zhang *et al.* 2012) but many were reluctant to do so (Longtin *et al.* 2009), suggesting that patients may be less willing to ask challenging questions, such as "Have you washed your hands?" than asking factual questions, such as "How long will the pain last?" (Davis *et al.* 2011, Seale *et al.* 2015a). Reasons for patient reluctance were wide-ranging and included: viewing involvement as not the patients' role (Kim *et al.* 2015, Longtin *et al.* 2009, Michaelsen *et al.* 2013), feeling disrespectful, embarrassed or awkward (Longtin *et al.* 2009, Michaelsen *et al.* 2013, Seale *et al.* 2015b) especially with opposite gender and/or senior staff members (Seale *et al.* 2015b), feeling intimidated and/or upset (Lastinger *et al.* 2017), fear of causing annoyance (Seale *et al.* 2015a), being uncertain (Zhang *et al.* 2012), and fear of reprisal (5%) (Longtin *et al.* 2009, Michaelsen *et al.* 2013, Seale *et al.* 2015b).

A factor that might increase patients' willingness to ask HCPs to wash their hands is knowing the name of the HCP. Clare *et al.* (2013) found that willingness to ask increased from 25% to 79% when the patient knew the name of the care provider. Patients were also more willing to ask HCPs if they had received encouragement, or an invitation or a reminder from nurses or doctors to do so (Davis *et al.* 2011, Kim *et al.* 2015, Michaelsen *et al.* 2013). For example, patients who had received an explicit invitation from nurses to be reminded of hand hygiene led to 82.5% feeling comfortable to ask, a rise from an initial 34% patients (Lent *et al.* 2009). Patients were also more willing to ask after watching a video, (Davis *et al.* 2012), being given a script *Thanks for Washing* (Lent *et al.* 2009), feeling that the HCPs would appreciate the reminder (Wu *et al.* 2013), and previous hospitalisation (Garcia-Williams *et al.* 2010).

Healthcare professionals' view of patient involvement

Healthcare professionals have mixed views about of patient involvement

Nine studies explored HCPs' views and their willingness to accept patient involvement in reminding them to wash their hands (Davis *et al.* 2014, Davis *et al.* 2012, Garcia-Williams *et al.* 2010, Kim *et al.* 2015, Lastinger *et al.* 2017, Pan *et al.* 2013, Pittet *et al.* 2011, Schwappach *et al.* 2013, Seale *et al.* 2016). The majority of HCPs had a positive attitude towards patient involvement and were willing to be reminded by patients to wash their hands (Pan *et al.* 2013). However this appeared to be dependent on the way in which the patient asked (Garcia-Williams *et al.* 2010). HCPs preferred to be prompted to prevent medication error than to perform hand hygiene (Davis *et al.* 2014, Schwappach *et al.* 2013). One study reported that doctors were less supportive than other HCPs regarding receiving a prompt from patients on hand hygiene compliance (Lastinger *et al.* 2017). In one study, HCPs stated that they had not been asked or prompted by their patients to perform hand hygiene in the last three months (Garcia-Williams *et al.* 2010).

HCPs were increasingly willing to be reminded of complete hand hygiene if institutional factors reinforced this. Methods for reminders included a poster or badge stating *Ask Me If I've Washed My Hands* (Seale *et al.* 2016),

and watching a video to encourage patient involvement (Davis *et al.* 2012). Factors that negatively impacted on HCPs' attitudes toward patient involvement in hand hygiene were lack of support from the hospital and busy workloads (Kim *et al.* 2015, Seale *et al.* 2016). Additionally, Kim *et al.* (2015) reported that HCPs do not want to be judged negatively by patients regarding their actions.

Patient involvement experienced as confrontation and embarrassing

Many HCPs reported that they would feel irritated, embarrassed or insulted if asked to wash their hands by a patient (Garcia-Williams *et al.* 2010, Lastinger *et al.* 2017, Seale *et al.* 2016) and were concerned that tension could develop as a result (Pittet *et al.* 2011). This was enhanced if the patient chose the wrong time or asked in the "wrong way" - one nurse described that she had "turned red in the face" after being asked by a patient to perform hand hygiene. Similarly, "asking at the wrong time while I am very busy, it would irritate me" (Garcia-Williams *et al.* 2010, p.82). Nurses and doctors reported that they would feel ashamed if they were reminded by patients or their families (Pan *et al.* 2013). HCPs perceived patient involvement as a "slap on the face" (Seale *et al.* 2016, p.266). Other HCPs reported feeling embarrassed, shy, shocked, and uncomfortable by the strategy (Pittet *et al.* 2011, Seale *et al.* 2016). HCPs also reported that being asked by a patient to perform hand hygiene was frustrating and they interpreted the request as having patients question their professionalism (Seale *et al.* 2016). HCPs felt degraded, incompetent, and annoyed to be frequently asked by patients about their hand hygiene activities (Seale *et al.* 2016).

Patient involvement as a potential threat to patient-provider relationship

Many HCPs perceived patient involvement in promoting hand hygiene would damage their professional relationship with patients (Kim *et al.* 2015, Seale *et al.* 2016). Sometimes, HCPs responded to patients in a discouraging way which had the potential to disrupt the therapeutic patient-provider relationship, irrespective of whether an omission had occurred or not (Davis *et al.* 2014). Due to the fact that HCPs are concerned about the possible negative effects on their relationship with patients (Kim *et al.* 2015), family involvement has been suggested as a solution to avoid any possible tension between patients and HCPs (Kim *et al.* 2015). Therefore, helping both patients and families to understand the process of patient involvement in asking HCPs to wash their hands, and providing them with appropriate knowledge is identified as a prerequisite to developing a mutual partnership between patients, their families and HCPs (Kim *et al.* 2015).

However, not all HCPs felt that the prompting of hand hygiene was necessarily disruptive. Nurses who accepted prompts by patients to wash their hands perceived this to have a positive effect on the patient-nurse relationship (Davis *et al.* 2014). Schwappach *et al.* (2013) found that health care professionals supported patient involvement in promoting hand hygiene compliance if asked in an appropriate way and without causing any offence to the HCPs, believing this to have a positive effect on the therapeutic patient-provider relationship (Lastinger *et al.* 2017).

DISCUSSION

This review aims to provide an explicit understanding of the views of both patients and HCPs regarding the involvement of patients in promoting hand hygiene compliance in the hospital setting. The studies included in this review are international in scope and all identify the need for further research in this area, as described below.

The literature review supports the findings of Nacioglu's (2016) systematic review which concluded that enabling patients to speak up was critical to improve quality and safety in healthcare. This indicates that, although this strategy can be challenging to both patients and staff, it is one that should be explored further. This review also

supports McGuckin and Govednik (2013) who concluded that there was support from patients in involvement in promoting hand hygiene compliance and this was facilitated when institutional prompts were in place. In addition, staff were receptive to patient involvement in promoting hand hygiene compliance if they received training on how to communicate effectively with patients and respond to them (Schwappach *et al.* 2013); however, patients highlighted concerns about the effect on the therapeutic patient-provider relationship and the ongoing delivery of care (Longtin *et al.* 2010).

Wyer *et al.* (2015) emphasise that patient involvement depends on the quality of the therapeutic patient-provider relationship and conversations. Our findings highlight sensitivities of patients having reservations, and staff feeling discomfort and distress if prompted to perform hand hygiene by patients. Before involving patients in asking HCPs about hand hygiene, it is important to adequately prepare patients (McGuckin *et al.* 2011) and to take into consideration their knowledge (Kim *et al.* 2015), health conditions, beliefs and experiences (Vaismoradi *et al.* 2015). Interventions such as video and leaflets are effective in encouraging patient involvement in safety-related behaviours including hand hygiene (Davis *et al.* 2013). As a result of this review and in line with other reviews (Davis *et al.* 2015, McGuckin & Govednik 2013), it is evident that patients are more willing to prompt hand hygiene when they receive encouragement from HCPs both directly and indirectly through institutional prompts, such as wearing a badge with “*It Is OK To Ask*” (Pittet *et al.* 2011, p.301) or the presence of posters (Seale *et al.* 2016).

Both patients and HCPs should jointly advocate the culture of patient involvement in reducing the burden of healthcare-associated infections, and nurses should play a vital role in encouraging and facilitating involvement as they spend more face-to-face time with the patient (Seale *et al.* 2016). Promoting hand hygiene compliance needs to be understood as a tool to enhance patient safety rather than a direct challenge to the care provided by health care staff. It is important that both nurses and patients build a strong personal relationship to better promote successful patient involvement in their care and safety (Bishop & Macdonald 2017).

Patients can support safe care, but HCPs are ultimately responsible for patient safety, including hand hygiene (Davis *et al.* 2007, Duncanson & Pearson 2005). More studies are needed to focus on the challenges involved in reminding HCPs to wash their hands and testing strategies to overcome these. There is currently “insufficient high-quality evidence informing real-world implementation” regarding patient involvement in safety and this area is yet to be fully understood (Berger *et al.* 2013, p.548). Current studies focus on what patients and staff ‘say they would do’ rather than what actually happens in practice. Further qualitative and observational studies are needed to capture the realities of patient prompting handwashing in the clinical practice environment would shed further light in this area.

However, cultural factors might also affect patient involvement in promoting hand hygiene compliance (Butenko *et al.* 2017) which could also be explored. A systematic review by Vaismoradi *et al.* (2015) stresses the importance and the need for future research to cover the cultural differences at the point of care concerning patient involvement in safety. Limited research is currently available on patient involvement in promoting hand hygiene in the hospital setting exploring the impact of cultural differences.

LIMITATIONS OF THIS REVIEW

A limitation of this review was the challenge to combine information in studies on patient involvement in promoting hand hygiene compliance in the hospital setting due to several factors. Firstly, studies used different terms to describe ‘patients asking HCPs to wash their hands’, such as ‘patient involvement’, ‘patient participation’, ‘patient engagement’, and ‘patient empowerment’. Secondly, there were variations in reporting the

profession of HCP in the studies included in this review. It was also difficult to identify the views of nurses, doctors, and allied health professionals independently, and therefore we applied the term HCP.

CONCLUSION

There is evidence that the seemingly simple request to ask patients to prompt HCPs to wash their hands is, in reality, far from simple. Some patients and staff are willing to be involved in promoting hand hygiene compliance but that this is an area that is complex and warrants further study. Although patient involvement in their safety is a promising strategy for enhancing hand hygiene compliance among HCPs, successful implementation requires a deeper understanding of the different complex factors such as the therapeutic patient-provider relationship, patients' level of understanding and knowledge of their role in involvement, and HCPs' acceptance of patient involvement. Therefore, to ensure high quality and sustainable outcomes of the involvement, further collaborative work should be undertaken with patients and HCPs to facilitate the role of patients in prompting HCPs to wash their hands.

RELEVANCE TO CLINICAL PRACTICE

The study's findings suggest that further evidence is required to support the patient's role in the promotion of hand hygiene compliance in a clinical setting, and consider patients as active contributors to infection prevention and control. This review shows that there is a need for comprehensive practice guidelines to encourage patients' involvement in promoting hand hygiene compliance among HCPs in the hospital setting. We suggest the following for guiding the development of practical strategies:

- A more comprehensive understanding of patients and HCPs' experiences in reminding HCPs to wash their hands would provide robust evidence which will enable patients to speak up when they notice that HCPs are not performing effective hand hygiene.
- Recognising cross-cultural and cross-national differences among patients in the hospital setting, and its relativeness to patients in asking HCPs to wash their hands, needs more work to reduce patient harm because of failure in performing hand hygiene.
- Understanding patients' experiences by listening to them would help to establish a comfortable environment for patients to ask questions about their safety without appearing to be confrontational or adversely affecting the patient-provider relationship.
- Mutual understanding of not only patients' acceptance of involvement but also the HCPs' acceptance that the patient will be involved would help shape future interventions and may cause patient involvement to be part of a multimodal strategy in improving compliance of hand hygiene in the hospital setting.

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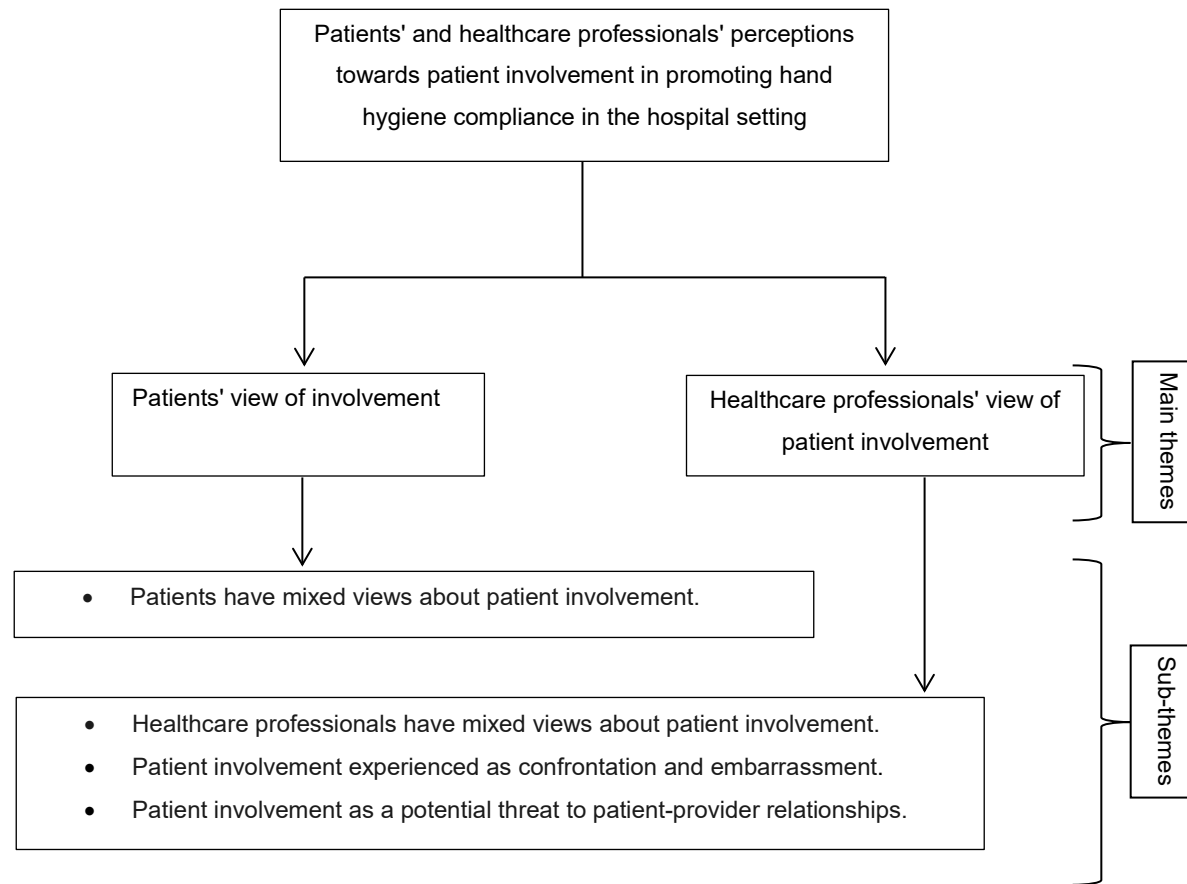


Figure 1: Thematic map.

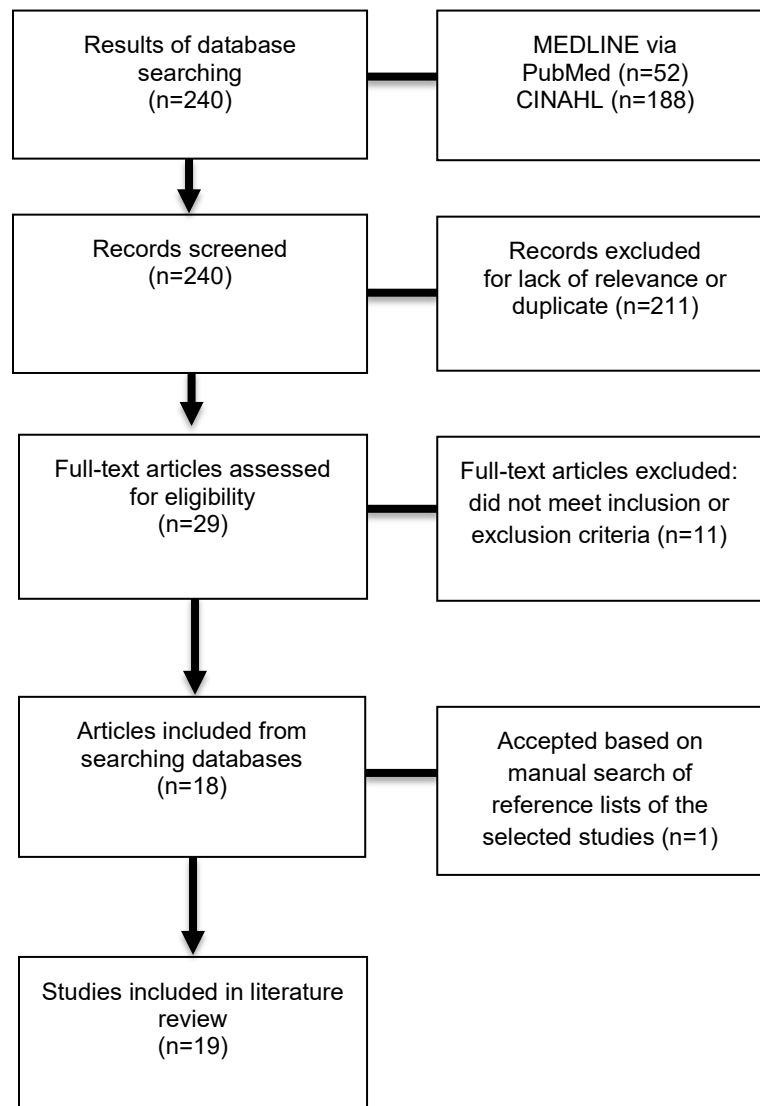


Figure 2: PRISMA diagram: search process and study identification

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Table 1: Characteristics and findings of the main articles

Reference	Study aim/s	Study design/data collection tool	Sample/location	Key findings/outcome measures
Clare <i>et al.</i> (2013)	To determine patient's level of assertiveness and how other factors influence their comfort level in asking HCPs to wash their hands.	Cross-sectional pilot survey	50 patients <i>United States</i>	25% (who answered NO when asked assertive questions) said they would ask HCPs to wash their hands 68% (who answered YES when asked assertive questions) said they would ask HCPs to wash their hands. Knowing HCPs' name increased patients' willingness to ask about hand washing to 79%.
Davis <i>et al.</i> (2011)	To investigate medical and surgical patients' perceived willingness to participate in different safety-related behaviours, and the potential impact of doctors'/nurses' encouragement on patients' willingness levels.	Cross-sectional exploratory Qualitative	80 patients <i>United Kingdom</i>	<u>Interactional behaviours:</u> Patients reported increased willingness to ask doctors factual questions than to ask challenging questions, or notify doctors of problems or errors. Patients reported greater willingness to notify nurses of problems or errors than to ask them factual questions. <u>After receiving doctor or nurse encouragement:</u> Patients reported greater willingness to ask doctors challenging questions, and to notify doctors of problems or errors. Patients reported greater willingness to ask nurses factual questions.
Davis <i>et al.</i> (2012)	To examine patients' and HCPs' attitudes towards a video aimed at promoting patient involvement in safety-related behaviours.	pre/post intervention design was used using participant self-report surveys.	201 patients 95 HCPs: 46 Doctors 49 Nurses <i>United Kingdom</i>	Patients are more willing to ask HCPs about hand washing after watching the PINK video. A significant and notable disparity reported between patients' perceived importance of asking HCPs to wash their hands and their actual willingness to do so.
Davis <i>et al.</i> (2014)	To investigate HCPs' attitudes toward patient involvement in safety-related behaviours.	Cross-sectional functional fractional survey	4 hospitals 116 Doctors 100 Nurses <i>United Kingdom</i>	HCPs reported more favourable intention to report medication errors than failure to use hand sanitizers for hand hygiene. Doctors view patient intervening less favourably than nurses. Predictions focused mainly on how patients would ask and how the provider would

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Garcia-Williams <i>et al.</i> (2010)	To evaluate lay persons' and HCPs' perceptions toward hand hygiene and willingness to ask HCPs to wash their hands before and after watching a video.	Four focus groups Interviews Qualitative	18 laypersons 8 doctors 9 nurses <i>Georgia</i>
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respond.

A negative response from HCPs to the patient (irrespective of whether an error actually occurred); perceived as having negative effects on the provider-patient relationship.

Before watching the video:

Laypersons with previous hospital experience are less likely to ask their nurse to wash their hands.

Laypersons with hospital experience:

Asking about hand hygiene: depends on the situation 50%, fear of reprisal 16.7%, perception of need 16.7%, believe it's not their job to ask 16.7%.

Laypersons without hospital experience:

Feel comfortable to ask: 71.4%.

Based on the situation: 100% "if provider scratches his/her head or nose of something".

HCPs (nurses and doctors):

Over a one month period, 0% had been asked to wash their hands.

Comfortable being asked:

Depends on the situation: 58.5% "how the patient asks".

Depends on the situation: "asking in the wrong time while I am very busy, it would irritate me" 55.6%.

Nurses would feel embarrassed 75% or insulted 25% if asked.

Nurses (55.6%) were more comfortable than doctors (25%) if requested to wash their hands.

After watching the video:

Laypersons with or without hospital experience reported more willingness to ask nurses to wash their hands: "I am more encouraged now", "I am not scared anymore".

Laypersons were more likely to ask doctors than nurses about hand washing.

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Kim *et al.* (2015) To examine patients'/families' and HCPs' perception of patient participation in hand hygiene.
 Cross-sectional Survey
 152 doctors
 387 nurses
 148 patients
 177 families
 South Korea

Laypersons with previous hospital experience reported that they would feel more likely to be scared: "I'd still be scared or nervous", "I am still scared".

Patients / families perceptions:

75% of patients and 84% of their families reported that they should be aware of nurses or doctors hand hygiene.

60% of patients/families reported that they observed HCPs washing their hands. Less willingness from patients/families was reported* when the extent of the intention to ask was examined.

**when patients/families asked why:*

It is not a patient's role: patients 72%, families 70%.

Threat to relationships with HCPs: patients 26%, families 39%.

HCPs are too busy: patients 20%, families 28%.

Authoritarian attitude of HCPs: patients 6%, families 7%.

Hand hygiene is less important than other medical problems: patients 1%, families 1%.

HCPs' perceptions:

More doctors (69%) than nurses (62%) reported the need for additional programmes for hand hygiene improvement.

When HCPs were asked why they are not complying with hand hygiene: "too busy" 70%, "having forgotten" 26%, "skin trouble due to handrub" 15%, "annoyed" 9%, and "not motivated" 6%.

Doctors (46%) and nurses (55%) anticipated less positive effect of patient participation in hand hygiene than patients (70%) or families (76%).

26% of doctors supported the idea of patients' participation.

31% of nurses reported their willingness to accept patient participation in hand washing.

4% of nurses reported being reminded by patients.

15% of doctors reported being reminded by patients.

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Lent <i>et al.</i> (2009)	To assess patients participation in the “Partners in Your Care” programme.	Before-after interventional study	193 patients <i>United States</i>	<p>Of the 193 patients:</p> <ul style="list-style-type: none"> a) 3% of patients stated that they had asked at least one HCP to wash their hands. b) 8% of patients did not comment, although they observed HCPs failing to wash their hands. c) 90% of patients reported that they did not ask HCPs to wash their hands as they had observed HCPs washing their hands. <p>After editing the script and providing 38 patients with script “Thanks for Washing”:</p> <ul style="list-style-type: none"> a) 45% of patients reported that they had monitored HCPs hand hygiene. b) 16% of patients reported not commenting on hand washing despite the fact they observed HCPs failing to wash their hands. c) 100% of patients presented with script thanking HCPs to wash their hands. d) 0% of patients did comment on doctors hand hygiene while working rounds. e) 7% of nurses reported they were asked to wash their hands.
Longtin <i>et al.</i> (2009)	To assess patients’ perception to participate in programme aim to improve HCPs hand hygiene.	Cross-sectional survey	194 patients <i>Switzerland</i>	<p>Of the 194 patients:</p> <ul style="list-style-type: none"> a) 76.3% of patients would not feel comfortable asking nurses to wash their hands. b) 77.3% of patients would not feel comfortable asking doctors to wash their hands. <p>After receiving an explicit invitation from nurses and doctors:</p> <ul style="list-style-type: none"> a) Intention to ask nurses increased from 34.0% to 82.5%. b) Intention to ask doctors increased from 29.9% to 77.8%.
Michaelsen <i>et al.</i> (2013)	To seek understanding of patients’ involvement in reminding doctors to wash their	Cross-sectional interview and survey.	250 patients <i>United States</i>	<p>96% of patients thought it very important that doctors wash their hands. 78% of patients believed they should remind doctors to wash their hands. 66.67% of patients felt that doctors are not aware of their hand hygiene</p>

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	hands.				compliance rate.
	To determine which method would be acceptable for patients to prompt doctors to wash their hands.	Mixed methods			98% of patients believed reminding doctors to clean their hands might help prevent them from contracting an infection. 32 of patients did not observe doctors washing their hands. Patients less willing to discuss hand hygiene with doctors: Feel disrespectful 33%, feel embarrassed or awkward 31%, not a patient's role 8%, fear of reprisal 5%, trust the doctors 4%. Patients would be more comfortable to discuss hand hygiene with doctors if they received an information pack on hospital acquired infection (HAIs), 7% vs. 93%. 84% of patients said that doctors should get reports on how often they clean their hands before touching patients.
Pan <i>et al.</i> (2013)	To assess hand hygiene knowledge and the attitudes and intentions regarding patient empowerment among HCPs, patients'/families.	Cross-sectional Survey based on questionnaire	115 patients 220 families 241 doctors 505 nurses 69 medical/nursing students 65 technicians, <i>Taiwan</i>		77.1% of patients/families observed that HCPs had washed their hands. 96.5% of patients/families reported that they could help to remind HCPs to wash their hands. 67.2% of patients/families stated that they would do it and remind HCPs to wash their hands. Reported risk factors associated with 'no intention to ask': female, illiteracy, patients/families in the paediatric department, age above 25 years, negative attitudes toward patient empowerment.
Pittet <i>et al.</i> (2011)	To assess the feasibility of the UK National Patient Safety Agency programme to promote patients to ask about hospital hand hygiene.	Telephone Survey	254 HCPs 530 Member of public 210 Inpatients, <i>United Kingdom</i>		Of the 530 members of the NPSA: 57% of the public were unlikely to question doctors about their hand hygiene. 43% of inpatients reported that HCPs should already clean their hands. 20% of inpatients did not want to be involved in asking HCPs to wash their hands, that they could be misunderstood in questioning professional ability to do the job correctly. Interventions such as the reminder <i>It's OK To Ask</i> attitude was one of the most useful to counteract the possible negative effect on the patientHCPs. relationship.

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Schwappach <i>et al.</i> (2013)	To investigate how HCPs evaluate patients and how they responded to safety-related behaviours and potential error.	Cross-sectional functional fractional survey	876 nurses 161 doctors 55 other professions <i>Switzerland</i>	<p>A survey of 2 error scenarios related to hand hygiene and medication error, based on the following measures:</p> <ul style="list-style-type: none"> a) Approval of patients' behaviours. b) HCPs response to patients. c) HCPs' support of being asked by a patient. d) An effective response to the vignettes. <p>Higher acceptance from patient to safety-related interventions. Less correlation between being asked and patient-HCPs relationship. HCPs reported that patients exhibit more favourable attitude toward patients' involvement in preventing medication errors than the use of hand sanitation to perform hand hygiene.</p>
Seale <i>et al.</i> (2016)	To explore the knowledge and attitudes of HCPs toward the concept of patient empowerment; focused on improving infection control practices.	Semi-structured interview. Qualitative	20 Nurses 9 HCPs <i>Australia</i>	<p>Unanimous agreement on patient engagement in preventing HAI. The degree of patient responsibility and level of system engagement varied. HCPs reported some barriers for patient empowerment:</p> <ul style="list-style-type: none"> a) Lack of support. b) Busy workloads. c) Negative attitudes.
Seale <i>et al.</i> (2015b)	To explore the attitudes of hospital patients towards patient empowerment as one of the key components of patient engagement.	Semi-structured interview Qualitative	15 patients <i>Australia</i>	<p>Patients have a right to ask HCPs about infection control and/or asking them to wash their hands, and that they would feel comfortable and happy to do so. Only one participant suggested that infection control should be an open issue and that patients should feel comfortable asking "Have you washed your hands?" Some other patients would find it challenging asking these questions to HCPs of the opposite gender and/or senior staff members. What makes them less willing to engage are: feeling intimidated, embarrassed or shy. Some patients reported that when asking staff about hand hygiene might upset or</p>

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Seale <i>et al.</i> (2015a)	To examine the receptiveness of hospital patients toward a new empowerment tool aimed at increasing awareness and engagement of patients in preventing HAI.	A prospective, controlled intervention. Pre- and post-surveys. Randomised Control Trial	60 patients <i>Australia</i>	<p>embarrass or annoy the staff members.</p> <p>Active engagement by the patient was seen as an implied criticism of the work of the staff members and could cause harm.</p> <p>More intention to talk to doctors and cleaners about hand hygiene than nurses as nurses already doing that and will be happy to do so if being asked.</p> <p>Patients show more intention toward asking HCPs about hand hygiene if they saw member of staff (doctor, nurse) visiting the bathroom without performing hand washing. This would encourage them to intervene.</p>
von Lengerke <i>et al.</i> (2017)	To estimate the extent to which patients with type-2-diabetes intend to speak up for HCPs' hand hygiene during inpatient foot treatment.	Cross-sectional Questionnaire survey.	473 patients <i>Germany</i>	<p>Patients were more likely to be willing to ask a doctor or nurse a factual question than a challenging question.</p> <p>95% of patients reported that they felt they will acquire infection when staff do not wash their hands before or after a procedure.</p> <p>3 participants asked an HCP if they had washed their hands.</p> <p>70% of the patients reported that they did assume that HCPs are already washing their hands and trusted them.</p> <p>The study test:</p> <p>Whether motivation was given by the hospital would invite patients to speak up.</p> <p>Results show:</p> <ol style="list-style-type: none"> 41% of patients strongly intended to speak up. Institutional encouragement increases patient intention to speak up. Knowledge is an important start as patients will not be able to speak up about less hand hygiene compliance without knowledge.
Wu <i>et al.</i> (2013)	To better understand patients' attitudes and perceptions toward hand hygiene. To identify patients with the	Cross-sectional Survey. Self-reporting questionnaire.	303 patients 556 family members <i>Taiwan</i>	<p>89.8% reported that hand hygiene is important.</p> <p>93.9% would feel comfortable knowing that HCPs performed hand hygiene before contacts.</p> <p>75% reported that they did observe HCPs washing their hands.</p>

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highest motivation to participate in hand hygiene.

58.6% would prefer to see HCPs washing their hands within their field of vision.
 77.1% thought that HCPs should be reminded to perform hand hygiene whenever necessary.
 75.9% would consider hand hygiene when they chose hospital to receive care.
 78.4% desired more information on hand hygiene.
 48.9% was willing to remind a doctor to wash their hands.*
 50.8% was willing to remind a nurse to wash their hands.*
 If the HCP would appreciate the reminder, patients' willingness increased to 74.6% for doctors and 76.3% for nurses.

Zhang <i>et al.</i> (2012)	To investigate the baseline status of patients' awareness, knowledge, and attitudes to patient safety. To determine the factors that influence patients' involvement in their safety.	Cross-sectional Survey based on questionnaire Quantitative	1000 patients <i>China</i>	<p>Questionnaire items included:</p> <ul style="list-style-type: none"> a) Medical errors. b) Infection. c) Medication safety. d) Other patient safety aspects. <p>Results of 959 questionnaires collected:</p> <ul style="list-style-type: none"> a) 78% of patients thought that HCPs are already washing their hands before the examination. b) 68% are willing to remind HCPs about the need for sanitation.
Lastinger <i>et al.</i> (2017)	To examine the attitudes of adult patients and parents of pediatric patients toward a new patient empowerment tool (PET).	Cross-sectional Survey	531-bed tertiary care teaching hospital in West Virginia. 89 doctors 114 patients' parents 108 adult patients <i>United States</i>	<p>Most parents (77.0% for doctors and 81.4% for nurses) and most adult patients (64.8% for doctors and 71.2% for nurses) felt comfortable using the PET to remind HCPs to wash their hands.</p> <p>114 surveys completed by patients' parents:</p> <p>Parents were more likely than adult patients to feel that it is their role to speak up if a doctor (95.6% vs. 77.6%) or to a nurse (99.1% vs. 86.0%) if did not perform hand hygiene.</p> <p>22% of patients' parents would feel shy to speak up about hand hygiene.</p> <p>108 completed by adult patients:</p>

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Most patients reported it was their role to speak up about providers' hand hygiene compliance.

89 surveys completed by doctors:

65.5% of doctors agreed on patients involvement in reminding them to wash their hands.

Doctors reported that patient involvement would have a positive effect on provider-patient relationship.

Those who did not support patient involvement reported that it is not the patient role to remind the providers to wash their hands.

54.9% of doctors felt that patients should be involved in reminding HCPs to perform hand hygiene.

Overall, doctors preferred that patients use words rather than the PET to remind them to perform hand hygiene.

Table 2: Characteristics of included studies

Code	Reference	Study participants	Country/setting	Study design/data collection tool
1	Clare <i>et al.</i> (2013)	P	US	Cross-sectional survey
2	Davis <i>et al.</i> (2011)	P	UK	Cross-sectional survey
3	Davis <i>et al.</i> (2012)	P, N, D	UK	Before and after intervention
4	Davis <i>et al.</i> (2014)	N, D	UK	Cross-sectional survey
5	Garcia-Williams <i>et al.</i> (2010)	N, D, MOP	Georgia	Focus group study
6	Kim <i>et al.</i> (2015)	P, N, D, FM	South Korea	Cross-sectional survey
7	Lent <i>et al.</i> (2009)	P	US	Before and after intervention
8	Longtin <i>et al.</i> (2009)	P	Switzerland	Cross-sectional survey
9	Michaelsen <i>et al.</i> (2013)	P	US	Cross-sectional survey
10	Pan <i>et al.</i> (2013)	P, N, D, FM	Taiwan	Cross-sectional survey
11	Pittet <i>et al.</i> (2011)	P, HCPs, MOP	UK	Telephone survey
12	Schwappach <i>et al.</i> (2013)	N, D	Switzerland	Cross-sectional survey
13	Seale <i>et al.</i> (2016)	N, HCPs	Australia	Interview
14	Seale <i>et al.</i> (2015a)	P	Australia	Randomised control trial
15	Seale <i>et al.</i> (2015b)	P	Australia	Interview
16	Von Lengerke <i>et al.</i> (2017)	P	Germany	Cross-sectional survey
17	Wu <i>et al.</i> (2013)	P, FM	Taiwan	Cross-sectional survey
18	Zhang <i>et al.</i> (2012)	P	China	Cross-sectional survey
19	Lastinger <i>et al.</i> (2017)	P, D, FM	US	Cross-sectional survey

P: patients; **HCPs:** Healthcare Professionals; **N:** Nurses; **D:** Doctors; **FM:** Family Members; **MOP:** Member of Public; **UK:** United Kingdom; **US:** United States.

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Table 3: Total number of sub-themes reported across the studies

Reference	Patients have mixed views about patient involvement	Healthcare professionals have mixed views about patient involvement	Patient involvement experienced as confrontation and embarrassing	Patient involvement as a potential threat to patient-provider relationships
Clare <i>et al.</i> (2013)	✓			
Davis <i>et al.</i> (2011)	✓			
Davis <i>et al.</i> (2012)	✓	✓		
Davis <i>et al.</i> (2014)		✓	✓	✓
Garcia-Williams <i>et al.</i> (2010)	✓	✓	✓	
Kim <i>et al.</i> (2015)	✓	✓		✓
Lent <i>et al.</i> (2009)	✓			
Longtin <i>et al.</i> (2009)	✓			
Michaelsen <i>et al.</i> (2013)	✓			
Pan <i>et al.</i> (2013)		✓	✓	
Pittet <i>et al.</i> (2011)	✓	✓	✓	✓
Schwappach <i>et al.</i> (2013)		✓	✓	✓
Seale <i>et al.</i> (2016)		✓	✓	✓
Seale <i>et al.</i> (2015a)	✓			
Seale <i>et al.</i> (2015b)	✓			
Von Lengerke <i>et al.</i> (2017)	✓			
Wu <i>et al.</i> (2013)	✓			
Zhang <i>et al.</i> (2012)	✓			
Lastinger <i>et al.</i> (2017)	✓	✓	✓	✓
Number of times sub-themes reported	15	9	7	6