Role of parents in the promotion of hand hygiene in the paediatric setting: a systematic literature review

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SUMMARY

Background: When a child is hospitalized, parents have to share their role to protect the child with the hospital, and establish a partnership with healthcare workers to deliver safe care to the child, including undertaking good hand hygiene practices.

Aim: To review the scientific evidence about the participation of parents in the promotion of hand hygiene in paediatric settings.

Methods: A systematic search of MEDLINE, EMBASE and SciELO databases was undertaken using the following terms: ('hand hygiene'[MeSH] OR 'hand hygiene' OR 'hand disinfection'[MeSH] OR hand disinf* OR hand wash* OR handwash* OR hand antisept*) AND (parent OR caregiver OR mother OR father OR family OR families OR relatives). The Integrated Quality Criteria for Review of Multiple Study Designs tool was used for quality assessment.

Findings: The literature search yielded 1645 articles, and 11 studies met the inclusion criteria for the final analysis. Most studies were observational, and were based on questionnaires or interviews. Most parents had little knowledge about the indications to perform hand hygiene, but recognized hand hygiene as a relevant tool for the prevention of healthcare-associated infections. Their willingness to remind healthcare workers about a failed opportunity to perform hand hygiene was variable and, overall, rather low. Parents felt more comfortable about reminding healthcare workers about hand hygiene if they had previously been invited to do so.

Conclusions: Literature on the subject is scarce. The promotion of hand hygiene by parents should be further explored by research as a potential intervention for enhancing patient safety in paediatric settings.

Keywords:

Hand hygiene

Paediatrics

Parents

Systematic review

Partnership

Patient participation

<A>Introduction

The parental instinct for protection of their offspring has evolved for millennia across a wide range of species, including human beings.¹ When a child is hospitalized, parents and relatives (either from a biological or a social perspective) have to share their role of child protection with healthcare workers (HCWs). Decision making is no longer attached to them, and decisions must be taken in collaboration with individuals who are strangers. This may create conflicts, but also creates an opportunity to establish a partnership between all parties.

One of the many actions to provide safe care is hand hygiene, and both parents and HCWs must adhere to optimal hand hygiene practices to prevent healthcare-associated infections, which are the most common serious adverse events during hospital stays.²⁻⁶ Unfortunately, despite global promotion programmes, hand hygiene compliance is still suboptimal among hospital staff. The World Health Organization (WHO) multimodal strategy to improve hand hygiene suggests parental promotion of hand hygiene as a promising strategy.⁴ Indeed, considering that parents are at the child's bedside for almost 24 h per day, they could act as real-time promoters of hand hygiene compliance.^{7,8} The objective of this review was to summarize the literature on strategies and evidence for the effectiveness of parental participation in the promotion of hand hygiene in paediatric settings.

<A>Materials and methods

A systematic search of MEDLINE (United States of America National Institutes of Health and National Library of Medicine), EMBASE (Reed Elsevier Properties SA) and SciELO (Scientific Electronic Library Online, by Brazilian National Council for Scientific and Technological Development and Pan American Health Organization) databases was undertaken. The following search terms were applied without filters: ('hand hygiene'[MeSH] OR 'hand hygiene' OR 'hand disinfection'[MeSH] OR hand disinf* OR hand wash* OR

handwash* OR hand antisept*) AND (parent OR caregiver OR mother OR father OR family OR families OR relatives). All studies written in English, French, Spanish, Italian or Portuguese that addressed the role of parents in the promotion of hand hygiene in a paediatric setting were eligible. All studies published before 6 October 2015 were included. Title and abstract sifting, and full-text assessment, were performed by two investigators (FBR, DP). Parental knowledge about healthcare-associated infections and hand hygiene practices, and attitudes towards the promotion of hand hygiene were assessed. This review also focused on the attitudes of HCWs about instructing parents about healthcare-associated infection and hand hygiene, and attitudes towards partnership with parents in the promotion of hand hygiene.

Quality assessment was performed using the Integrated Quality Criteria for Review of Multiple Study Designs tool (ICROMS),⁹ except for the position papers. Three quality levels were distinguished: low quality (0–12 points), medium quality (13–17), and high quality (18–26).

<A>Results

The literature search yielded 1645 articles, of which 562 were duplicates. Fifty-six articles were selected for full-text review and quality assessment; 11 met the inclusion criteria and were included in the final analysis.^{10–20} Three articles (27.3%) were position papers or guidelines;^{10–12} all three empirically recommended the education of parents and their involvement in patient safety, with hand hygiene representing a large part of the strategy. The findings from seven studies (63.6%) were based on questionnaires or interviews. One article (9.1%) used direct observation of hand hygiene practices by parents. All eight studies achieved the minimum ICROMS score (18) to be classified as high quality (Table I). However, four studies failed on one specific mandatory criteria related to ‘managing bias in

sampling'.^{13,14,16,18} Table II describes the features of all studies included, along with the main results and conclusions.

<insert Tables I and II near here>

<A>Discussion

Patient participation has recently been recognized as an essential component of the redesigned patient-centred healthcare perspective. Originally developed in the context of managing chronic health conditions, the concept has evolved towards the prevention of medical errors and the promotion of patient safety.²¹⁻²⁸ This has been advocated specifically, and is one of the five elements of the WHO Multimodal Hand Hygiene Improvement Strategy.⁴

Previous studies focusing on hand hygiene have demonstrated that adult patients may participate actively in hand hygiene campaigns when properly instructed, and that such participation eventually improved HCWs' hand hygiene performance, contributing to the prevention of healthcare-associated infections.^{29,30}

The child as a patient is not an independent individual, and needs to delegate the role of the 'participating patient' to parents and relatives as natural advocates. However, as demonstrated in this review, the literature is very scarce on the topic of parental participation in the promotion of hand hygiene. To the authors' knowledge, no interventional studies have been published, and the identified studies do not offer estimates about the effectiveness of such an intervention.

All three position papers recommended parental participation as a way to improve institutional safety culture. Strategies were proposed, such as the use of mobile carts or educational sessions, but no data on their effectiveness were presented. Three of the qualitative studies found that the majority of parents were aware of the importance of

healthcare-associated infections and hand hygiene, and might thus be motivated to accept invitations to participate in the promotion of hand hygiene. In one study, the majority of patients thought that handwashing with soap and water was more important than the use of hand rub; interestingly, this was also the opinion of HCWs replying to the questionnaire, which may have influenced the opinions of parents.¹³

Some parents may feel uncomfortable about reminding HCWs about hand hygiene, being afraid of a possible negative impact on the parent/caregiver relationship.¹⁴ Four studies found that parents were willing to remind HCWs about hand hygiene,^{15-17,20} but that a more pro-active attitude from the parents may be achieved following an invitation from HCWs to remind them about hand hygiene.^{15,17} Potential advantages of such a strategy include the high motivation regarding children's safety usually observed among parents and caregivers. Two studies found that HCWs were willing to be reminded about hand hygiene actions, and considered it a good opportunity to improve practices;^{16,18} in one study, however, physicians and nurses did not welcome such initiative.²⁰

Parental participation in the promotion of hand hygiene depends on the quality of instructions given by HCWs and parental initiative. In high-income countries, where the level of instruction is usually high, it may be easier to instruct parents about hand hygiene indications, both on the HCWs' side as well as on the parents' side. In low-income countries, where the proportion of illiteracy is higher and the average level of education is lower, parents may have difficulties understanding the message. Furthermore, social barriers between parents and HCWs could make parental participation difficult.²⁴⁻²⁶

Parental participation in the promotion of hand hygiene requires the investment of time by the HCWs assisting children and their families. However, the findings of this review suggest that both parents and HCWs can be responsive to the subject, and thus partnership for the promotion of hand hygiene should be further explored by well-designed interventional

studies. Of course, such partnership is not limited to parents reminding HCWs, but also includes HCWs instructing parents about the indications for hand hygiene. However, the involvement of parents in the promotion of hand hygiene has great potential for enhancing family satisfaction with hospital care and, most importantly, children's safety.³¹

Acknowledgements

These data were presented, in part, at the 3rd International Conference on Prevention and Infection Control (ICPIC), held in Geneva, Switzerland on 18 June 2015 (Abstract No. 290).

Conflict of interest statement

None declared.

Funding source

The present study received no specific financial support. The authors acknowledge funding for partial financial support for hand hygiene research activities by Grant # 3200BO-122324/1 from the Swiss National Science Foundation.

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Author queries

Ref 2 – please update if possible

Ref 28 – need year

Table I

Study quality assessment performed with the Integrated Quality Criteria for Review of Multiple Study Designs (ICROMS)

Quality criteria	Specific criteria	Stoner <i>et al.</i> , 2007 ^b	Ciofi degli Atti <i>et al.</i> , 2011 ^b	Buser <i>et al.</i> , 2013	Pan <i>et al.</i> , 2013 ^b	Wu <i>et al.</i> , 2013	Davis <i>et al.</i> , 2014 ^b	Islam <i>et al.</i> , 2014	Kim <i>et al.</i> , 2015
Clear aims and justification	Clear statement of aims of the research	Y	Y	Y	Y	Y	Y	Y	Y
	Appropriateness of qualitative methodology	Y	Y	Y	Y	Y	Y	Y	Y
	Appropriate study design	Y	Y	Y	Y	Y	Y	Y	Y
Managing bias in sampling	Sampling and recruitment	N	?	Y	N	Y	N	Y	Y
Managing bias in outcome measurements	Reliable primary outcome measures	N	Y	Y	N	Y	Y	N	Y
Managing bias in follow-up	Incomplete outcome data addressed	N	N	N	N	N	N	N	N
Managing bias in other study aspects	Data collection appropriate to address research aims	Y	Y	Y	Y	Y	Y	Y	Y
Analytical rigor	Analysis sufficiently rigorous	Y	Y	Y	Y	Y	Y	Y	Y
Managing bias in reporting and ethical considerations	Free of selective outcome reporting	Y	Y	Y	Y	Y	Y	Y	Y
	Limitations addressed	Y	Y	Y	Y	Y	Y	N	Y
	Conclusions clear and justified	Y	Y	Y	Y	Y	Y	Y	Y
	Free of other bias	Y	Y	Y	Y	Y	Y	N	Y
	Ethics issues addressed	Y	Y	Y	Y	Y	Y	Y	Y
Final ICROMS score ^a		18	21	24	22	24	22	18	24

Y, yes; N, no; ?, unknown.

^aLow quality: 0–12 points; medium quality: 13–17 points; high quality: 18–26 points.

^bStudies failing one specific mandatory criterion.

Table II

Relevant features and main results of articles addressing the role of parents on the promotion of hand hygiene in the paediatric setting

Authors, year	Setting	Design and methods	Main results	Comments
Fleming-Carroll <i>et al.</i> , 2006	Toronto's Hospital for Sick Children (Canada)	Position paper	Proposed the use of a mobile cart for educating parents about HH, and proposed satisfaction questionnaires to parents as an audit for HH practices	Authors did not address the impact of the interventions suggested
Stoner <i>et al.</i> , 2007	Children's Hospital Columbus (USA)	Survey, based on questionnaire	Most parents and HCWs (88%) believed handwashing to be 'better' than hand rubbing with ABHR	Authors highlighted the inconsistency of their findings with the CDC guidelines
Ciofi degli Atti <i>et al.</i> , 2011	Hospedale Gesù Bambino (Italy)	Survey, based on questionnaire	Most parents (97.9%) recognized the relevance of HH for patient safety, but 55.7% did not believe they should or would need to remind HCWs to perform HH	Factors affecting these perceptions included prior information on HH and prior hospitalization of their child
Buser <i>et al.</i> , 2013	Children's Hospital of Philadelphia (USA)	Cross-sectional, based on interview	Most parents (84%) were aware of the risk of HAIs, and 78% said that they would remind HCWs about HH if they had being invited to do so	Authors emphasized that HCWs should explain to parents that they could remind them about HH
Pan <i>et al.</i> , 2013	National Taiwan University Hospital (Taiwan)	Cross-sectional, based on questionnaire	59.4% of patients/parents had good knowledge about the 'five moments', and 67.2% of them had positive intentions to remind HCWs about HH; 62.8% of HCWs were willing to be reminded about HH	Risk factors for not being willing to remind HCWs about HH were being female, illiteracy, and being in the paediatric department
Wu <i>et al.</i> , 2013	Kaohsiung Veterans	Cross-sectional, based	Most parents considered HH as a relevant practice	Authors provided comments on

	General Hospital (Taiwan)	on questionnaire	for patient safety (86.8%) and actually paid attention to HCWs' attitudes regarding HH (75.5%); they felt more comfortable about reminding a HCW to perform a HH action if they knew that the HCW would appreciate that	patient and family participation as an essential part of the institutional safety culture
Anthony <i>et al.</i> , 2013	UK	Review, guidelines	HH recognized as a key action to prevent and control outbreaks of HAIs in neonatal setting, and education of parents and visitors about HH is recommended, even when no HAIs are detected	Authors emphasized that HH education to parents should be promoted even when no HAIs are detected
Davis <i>et al.</i> , 2014	Five teaching hospitals (UK)	Cross-sectional, based on questionnaire	Most HCWs (88%) supported the intervention of a family member if a HCW missed a HH opportunity, but only 41% agreed that this would have positive effects on the family member/HCW relationship	Doctors found the hypothetical situations less embarrassing and more comfortable to manage than nurses
Islam <i>et al.</i> , 2014	Three public tertiary care hospitals (Bangladesh)	Survey, based on direct observation	Among the 2065 observed episodes of care provided by family caregivers, 1544 involved close contact with the patients, but HH was only performed four times	Authors emphasized that relatives are at risk of acquiring infectious diseases, and for cross-transmitting pathogens to their relatives
Basu <i>et al.</i> , 2014	Gondar University Hospital (Ethiopia)	Position paper	Described the concept of 'patient guardians' in Africa who are from the patient's family or close friends. They collaborate with HCWs for patient care and attend health education sessions about	None

			topics such as HH and infection prevention	
Kim <i>et al.</i> , 2015	1000-bed teaching hospital in South Korea	Cross-sectional, based on questionnaire	Most parents (79%) supported the idea of reminding HCWs about a missed HH opportunity, while only 26% of physicians and 31% of nurses endorsed this idea	HCWs were concerned about a possible negative impact of the 'reminding act' on their relationship with the families

HCWs, healthcare workers; ABHR, alcohol-based hand rub; CDC, Centers for Disease Control and Prevention; HH, hand hygiene; HAI, healthcare-associated infections.