



SCIENTIFIC ARTICLE

Perspective of health professionals on hand hygiene

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Abstract

Objective: To identify the practices reported by health professionals on hand hygiene; To determine how the practices of hand hygiene are related to socio-demographic and professional variables and variables in the context of practice.

Material and methods: A descriptive-correlational and cross-sectional study conducted in a hospital in central Portugal, in May and June, 2012. 71 health professionals participated, with 23.9% physicians, 64.8% nurses and 11.3% operating assistants, in paediatrics, neonatology and paediatric emergencies. The majority was female (91.5%) and 32.4% are between the ages of 31 and 40 years. A questionnaire developed from DGS (General Health Directorate) recommendations was applied with questions on socio-demographic and professional characteristics as well as on the context of practice.

Results: The professionals are motivated to perform hand hygiene (98.6%). In self-assessment, they practice hand hygiene appropriately, however the results revealed that 43.7% of subjects reported little knowledge concerning the interference of ornaments on the practice of hand hygiene, 38% of the sample reported the steps of the hand washing technique improperly, and approximately 43% of the sample does not practice hygiene at the correct times. The majority of the participants who use a proper technique are nurses, with significant differences with regards to doctors and operating assistants ($P = .001$).

Conclusions: Most have knowledge about the practice of hand hygiene; however, some professional groups need to improve their practice of proper technique and the correct time to do so. Approximately a third did not attend specific training, leading us to reflect on the need to invest in training.

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Introduction

Over the years several terms were used to describe infections acquired in the context of health care including nosocomial infections, also known as hospital infection, now called Health Care-Associated Infection (HCAI). HCAI is defined as “an infection acquired by patients as a result of care and health procedures performed and which can also affect the health of professionals during the exercise of their activity”.¹

In the first half of the nineteenth century the issue of hospital infection became a concern for health professionals. During the twentieth century, the hospital suffered a radical evolution because from an institution devoted to treating the poor, it gradually became an establishment where new diagnostic and therapeutic techniques were available to all social classes and where specialization became increasingly important.² Nowadays, HCAs are a major cause of morbidity and mortality as they make treating patients more difficult and require a greater number of days of hospitalization and increased resource consumption. To prove this fact, the Survey of the Prevalence of Hospital Acquired Infection and Use of Antimicrobials, held in Portugal in emergency hospitals and which ran from May to June 2012, the overall prevalence rate of nosocomial infection was 10.6% and three quarters (76.8%) of the nosocomial infections were acquired during hospitalization at the time of the survey. Of these, the vast majority (68.2%) came after a week of hospitalization.³

There have been committees in Portugal since 1975 at each facility to monitor and prevent hospital infection. It is necessary to achieve the three key pillars of a comprehensive prevention and infection control programme: epidemiological vigilance, preparation and monitoring of compliance with standards and recommendations for good practice and training of professionals.⁴ Among the basic measures considered effective to prevent and control HCAs are hand hygiene, cleaning items and surfaces and the use of individual protection equipment.^{5,6}

Despite hand washing being relevant to prevent HCAs, adherence of professionals in the field of health is still not at the desired level⁷ and the factors that stand out with regards to the influence of hand washing are the little amount of information, being a doctor, nurse or operating assistant, working in intensive care, access to sinks, use of automatic taps, lack of paper towels, irritation and dry skin due to frequent washing with soap and water and the use of gloves.⁸

With the aim of validating the technique and skills required for hand hygiene guidelines, the Centers for Disease Control and Prevention (CDC), normalized guides and directives on the practice of hand hygiene.⁹ This centre defined the Guideline for Hand Hygiene in Health Care Settings that provides healthcare professionals with general advice on hand washing practices and specific recommendations for promoting the improvement of these practices and reducing cross-infections.

In 2004, the WHO created the World Alliance for Patient Safety programme in order to coordinate, disseminate and accelerate improvements related to patient safety, reducing the adverse effects of health care. Portugal joined the challenge and developed guidelines and strategies to implement measures aimed at adherence and to the

practice of hand washing. In 2009, the WHO presented an extension to the previous programme with the theme, Save Lives: Clean Your Hands, which reinforces the five moments of hand hygiene as a strategy to protect patients, the health care professionals and the health care environment, thereby reducing HCAs.

Caregivers should perform hand hygiene at the place and time of delivering health care, not forgetting to perform the proper technique and the proper use of the products available.

Reinforcing the importance of hand hygiene, whether by soap and water, with or without antiseptic, or by Alcohol-Based Antiseptic Solution (ABAS), it is important that certain principles are adhered to, including and before starting the day/shift: removing jewelry and ornaments from the hands and forearms; keeping clean, short, unvarnished nails; not using artificial nails while providing care; correctly applying the product, with special attention to spaces between fingers, pads of fingers, thumbs and wrist; drying or leaving hands to dry; avoid re-contaminating after washing hands, using a paper towel to turn off the tap if it does not have a remote control; and using skin protectors.¹⁰

The DGS¹⁰ adheres to the hand hygiene methodology campaign proposed by the WHO¹¹, and adopts the conceptual model of the Five Moments, as the points of fundamental temporal reference for health professionals: 1. Before patient contact; 2. Before clean or aseptic procedures; 3. After risk of exposure to body fluids; 4. After contact with the patient; 5. After contact with patient surroundings.

Several studies have emerged in the context of perception, knowledge and opinion of health professionals on hand hygiene to prevent HCAs and Tipple et al.⁷ found that although health professionals demonstrate theoretical knowledge about hand hygiene, they have poor adherence in situations where it needs to be performed. These authors concluded that it is important to adopt strategies to raise awareness about the need for hand hygiene. Other researchers¹² have found low rates on proper hand washing, concluding that there is need to renew education in health services, maintaining observation and awareness among health workers about the importance of this aspect in preserving patients' health. In an observational study,¹³ only 7% of the participants washed their hands before the procedure and, of these, one in two followed the steps described in the technique, by which it was concluded that the participants did not apply the correct technique for hand hygiene.

Because each professional has an important role in this regard, this study has the following objectives: to identify the practices reported by health professionals on hand hygiene; to determine whether the practices of health professionals' hand hygiene are related to socio-demographic and professional variables and the context of their practice.

Our aim is to contribute to health professionals' awareness on hand hygiene in the preventing HCAs.

Material and methods

This is a descriptive-correlational, cross-sectional study with a quantitative approach, for a non-probabilistic sample of 71 health professionals, consisting of 23.9%, physicians,

64.8% nurses and 11.3% operating assistants. They practice their professional activity in paediatrics, neonatology and paediatric emergencies in a hospital in central Portugal. 91.5% are female and the predominant age group is 31-40 years (32.4%). We found that 46.5% have worked for under 10 years and 33.8% for over 21 years. The data were collected by questionnaire during May and June 2012.

The questionnaire included socio-demographic and professional characteristics and the context of practice. It also included questions regarding hand hygiene practices by professionals. To identify the practice of hand washing, three dimensions were established: 1 – Knowledge of the interference of adornments; 2 – Hand hygiene technique; 3 – Moments of hand hygiene. A score was attributed to the questions in each dimension based on current recommendations.^{1,10} Correct answers were awarded 1 point, and wrong answers given 0 (zero).

SPSS Version 21.0 for Windows and the level was used and statistical significance was set at 5%.

Results

A total of 94.4% of health professionals reported know the conceptual hand washing model proposed by the WHO, known as the “Five Moments” and 66.2% have conducted training on hand hygiene.

A large majority feels very motivated to perform hand hygiene in the workplace (98.6%) and a self-assessment on the usual practice of hand washing verified that all regard it as adequate or very adequate.

Regarding the use of adornments, 75.0% fully agree with their interference in proper hand washing. Rings were mentioned most (98.6%), followed by bracelets (97.2%), and long varnished nails (91.5%) and watches (88.7%). 93.0% consider that the use of earrings does not interfere. Table 1 shows the professionals' responses on the steps they habitually practice in hand hygiene.

As for the moments and frequency which the professionals practice their hand hygiene, more than 80% of them reported that the technique is always practiced before clean/aseptic/surgical procedures, after the risk of exposure to body fluids, and between different patients before invasive procedures. Approximately 60% of the professionals mention always

practicing the technique after contact with patients, before preparing medicines, after collaborating on patient meals, after using gloves after cleaning and changing patients' linen, after tidying the patient's unit and after the patient's physical examination.

The most widely used product for hand hygiene is liquid soap and water (88.7%) followed by ABAS (35.2%). Disposable paper towels are mostly widely used method for drying hands (98.6%).

The obstacles mentioned for proper hand hygiene were work overload (83.65%) and 23.9% of the professionals reported long varnished nails.

38.6% mention taking 40-60 seconds on hand washing, and 67.1% reported that antiseptic friction takes 20-30 seconds.

The results revealed that 43.7% of subjects reported little knowledge concerning the interference of ornaments in hand hygiene.

In the dimension, Hand Hygiene Technique, it was found that 38% of the sample reported the steps of the hand washing technique inadequately.

In dimension, Moments of Hand Hygiene, approximately 43% of the sample were found not to practice hand hygiene at the correct times. It was the older participants (≥ 41 years) who have higher percentages (66.7%) of performing hand hygiene at the correct times.

No statistically significant differences between age groups or between sex and moments of hygiene hands were verified.

Nurses and operating assistants who reveal better knowledge about the interference of adornments for hand hygiene and professionals with more than 20 years of experience have less knowledge regarding the interference of adornments. We also found no statistically significant difference between these variables.

In the relationship between professional category and the dimension of Hand Hygiene Technique, mostly nurses reported practicing proper technique with statistically significant relationship between professional category variable and this dimension ($P = .001$).

Most professionals mentioned the correct moments/situations for hand hygiene. It was the night shift who consider having less difficulty in correctly complying with the moments of hand hygiene and is the morning shift which reported more difficulties in complying with the appropriate

Table 1 Steps habitually taken in practicing hand washing technique

	Yes		No	
	N	%	N	%
Removing rings, bracelets and watches	43	60.6	28	39.4
Wetting hands and applying enough soap to cover all surfaces	70	98.6	1	1.4
Scrubbing one palm with the other palm	67	94.4	4	5.6
Rubbing right palm with back of the left hand and vice versa	59	83.1	12	16.9
Scrubbing between fingers and nails	56	78.9	15	21.1
Rubbing wrists and thumbs	49	69.0	22	31.0
Drying hands with disposable paper towel	70	98.6	1	1.4
Turning off the tap with the aid of a disposable towel	37	52.1	34	47.9
Washing hands from the fingers towards the wrists	40	56.3	31	43.7

moments for hand hygiene. There were no statistically significant differences, however, between the professional categories, length of experience and shift and the correct moments for hand hygiene.

Discussion

The aim of this study was to identify the practices reported by health professionals on hand hygiene of health and to determine whether their practices relate to socio-demographic and professional variables and the context of practice. Given that this is the description of the practices of hand hygiene referenced by health professionals themselves (nurses, doctors and operating assistants), we consider it desirable to compare these data with a future observational study.

We found that most respondents report knowing about the conceptual hand washing model proposed by the WHO, known as the “Five Moments” and, although most had attended training on hand hygiene, 34% reported not having attended specific training leading us to reflect on the need to invest in training.

We also found that the vast majority feels very motivated to perform hand hygiene and a self-assessment on their practice regarded it as adequate or very adequate. These data demonstrate that the professionals evaluate their hand washing technique favourably; however, we verified that they did not actually practice some important measures properly. This applies to products used for hand hygiene in which the vast majority (88.7%) only use liquid soap and water, and 35.2% used ABAS. We know that the use of ABAS reduces up to 40% HCAs.¹⁴ Approximately 13.4% of the respondents said that one of the barriers to greater use of the ABAS involves the small number of dispensers.

We found that 98.6% of the professionals use the recommended practice of using disposable paper towels when it comes to drying hands. As far as how long it usually takes to perform hand washing our results are higher than those found in another study.¹⁵

A excessively heavy workload was reported by 83.6% of the respondents as an obstacle to proper hand washing.

Regarding knowledge of the interference of ornaments on correct hand hygiene, we find that younger people and women have better knowledge about this, but there were no significant differences in age ($P = .059$) and sex ($P > .05$).

We observed in the relationship between professional category and the knowledge of the interference of adornments dimension that doctors have less knowledge than nurses and operating assistants. There were no significant differences ($P = .353$).

As for the steps in the hand hygiene technique such as they are habitually practiced, 62.0% of the participants indicated them correctly. From the literature we found that low adherence to hand hygiene is indicative of little knowledge of the technique, solutions and/or disinfectants to be used and about the moments that should perform the technique. There were no significant differences between gender ($P = .563$) and age ($P = .133$) with this dimension.

Analysis by occupational group with regard to this dimension we find statistically significant differences. Nurses are best at performing the proper technique. Our

results corroborate another study¹⁶ where it was found that the technique of hand washing was more common in nurses and nursing students compared to physicians.

With respect to when the technique is practiced we found that, generally speaking, it is performed in the five moments as defined by the WHO in the Save Lives: Clean Your Hands campaign. We note that the practice is mostly performed before clean/ascetic/surgical procedures (83.1%) after exposure to organic fluids (98.5%), between different patients (81.4%) and before invasive procedures (87.5%). Before contact with the patient the percentage decreases to 47.1% and, after contact with patients' surroundings, to 47.8%.

We found that it is mostly older people who perform hand hygiene at the correct times. Regarding the variable, length of experience, there were no differences between the groups in all of the dimensions of the dependent variable.

What we know about the theme

- HCAs are an important cause of morbidity and mortality.
- Hand hygiene is among the basic measures considered effective in preventing and controlling HCAs, yet professional adherence related to health is not at the desired level.

What we get out the study

- Some health care workers need to improve their practice of appropriate technique and the right moments to do so.
- Approximately one third of the professionals did not attend any specific training which leads us to reflect on the need to invest in training.

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Conflicts of interest

The authors declare that there are no conflicts of interest.

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