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# Nurses' Attitude Towards Various Hand Hygiene Products. Soap vs Antiseptics

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*Key words: Nursing, Hand hygiene, Alcohol-based hand rubs, Hand washing*
*Parole chiave: Scienza infermieristica, Igiene delle mani, Pulizia delle mani con prodotti a base di alcol, Lavaggio delle mani*

**Abstract**

***Background.*** *According to the latest recommendations of WHO, in most situations requiring hands treatment, alcohol-based skin antiseptics should be used. This study is aimed to determine the awareness and preferences of nurses in the city of Moscow regarding the choice of methods regarding hand hygiene treatment and the factors influencing this choice.*

***Study Design.*** *Using the specially designed questionnaire, 184 nurses working in Moscow hospitals were interviewed to find out the attitude of nurses to various methods of hand hygiene.*

***Methods.*** *The questionnaire was developed on the basis of WHO Recommendations and Russian Recommendations. The survey was conducted from May 2017 to July 2017. To confirm the statistical significance of the identified associations a chi-square test was used. To find the 95% confidence interval to the relative values the Clopper-Pearson method was used*

***Results.*** *Only 3 (1.63%) of respondents indicated that they use antiseptic as the most frequently used hand hygiene product, 27 (14.67%) use liquid soap more often, 153 (83.15%) indicated that they use soap and antiseptic with equal frequency. In none of the standard situations we examined the use of antiseptic was the most frequent choice. Only in three cases antiseptic was chosen more often than soap - before and after manipulations with wounds and catheters (36.96%) or before performing invasive procedures (36.41%) and after contact with biological material (29.35%). At the same time nurses with more than 15 years of experience have preferred antiseptic.*

***Conclusions.*** *Based on the study it can be assumed that despite the implementation of the Russian guidelines on hand hygiene developed according to WHO recommendations, nurses prefer the traditional method of washing hands with soap. This suggests that in the current conditions additional measures are needed to train nurses and to monitor their work.*

## Introduction

Every year millions of patients around the world become infected with healthcare-associated infections. Transmission of germs during medical care occurs primarily through the infected hands of medical staff (1). Pathogenic microorganisms are more frequently transmitted from patients with infected wounds or colonized areas on the skin as well as from contact with contaminated bed linen, bedside furniture and other items in close proximity to the patient. The most frequent causes of drug-related infections and healthcare-associated infections are microorganisms such as

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*S. aureus*, *Proteus mirabilis*, *Klebsiella* spp., *Acinetobacter* spp., *Enterococcus* or *Clostridium difficile*. Hand hygiene, which includes either washing hands with soap and water or wiping hands with alcohol-based antiseptics, is a simple and effective way to prevent nosocomial diseases (2).

Any health-care worker who is directly or indirectly involved in the treatment of patients should be aware of the importance of hand hygiene and be able to perform it correctly (3, 4).

Although hand hygiene is a relatively simple procedure, studies have shown that it is not fully and correctly followed by health-care workers (5-11) and currently can be confirmed by highly sensitive molecular genetic methods. Several barriers to hand hygiene were identified, such as lack of knowledge about the correctness of this procedure application, lack of confidence, high workload, held position and disagreement with the principles of prevention of healthcare-associated infections, etc. (12-15). One of the innovations in the field of hand hygiene is the use of antiseptics for skin hygiene instead of traditional hand washing with soap. Skin antiseptics have a number of advantages over soap. Having the same efficiency, they reduce the time spent on treatment (16-22).

The World Health Organization (hereinafter – WHO) recommends hand washing with soap in the event of obvious contamination, contact with spore-forming microorganisms and after visiting toilet. In all other cases and clinical scenarios, it is preferable to use alcohol-based skin antiseptics as recommended by WHO (18, 23). This situation is described as a revolutionary change in hand hygiene (24-26).

Among the works on the implementation of a multimodal hand hygiene improvement strategy, insufficient attention has been paid to the attitude of healthcare workers towards the various means of hand hygiene. There is evidence that the introduction of modern hand hygiene products is hindered by the conservative attitude of health-care workers with some of them are biased against skin antiseptics (27).

In this regard, the purpose of our study was to determine the awareness and preferences of nurses in the city of Moscow regarding the choice of the means (Soap vs Antiseptics) of hand hygiene treatment, and the factors influencing this choice.

## Materials and Methods

*Research Design*

With the help of a specially designed questionnaire, 184 nurses working in four Moscow hospitals were interviewed to find out their attitude to various methods of hand hygiene. The study was approved by the Local Ethics Committee.

*Sample selection*

There are 105 hospitals in Moscow with approximately 64,000 nurses. The survey was conducted in 4 hospitals. The survey was conducted directly at the workplace. Nurses who attended on the day of the survey were included. All submitted questionnaires had been returned. A preliminary assessment of the required sample size was not carried out because there was not a purpose to obtain estimates of opinions with a predetermined accuracy. Samples from 184 nurses made it possible to obtain an estimate of the opinions with a maximum error of 7.3% at a 95% confidence level.

*Tools*

The questionnaire was developed on the basis of the WHO Guidelines on Hand Hygiene in Health Care (14) and the Russian Recommendations "Hand Hygiene of Medical Personnel. Federal Clinical Guidelines." (26). To ensure that the text would be understood correctly by the

respondents the questionnaire was evaluated by a group of expert nurses.

The questionnaire contained 5 questions about gender, age, the length of service, involvement in invasive interventions as part of their functions, work in outpatient or inpatient units as well as 16 questions relating to the evaluation by nurses of the importance of hand hygiene for the prevention of healthcare-associated infections, their hand hygiene practices in general and in specific situations. The survey involved anonymous responses provided at the workplace. The survey was conducted from May 2017 to July 2017.

*Data analysis*

To describe the results of the survey after receiving the questionnaires, the frequencies of the choice of options and their 95% confidence interval using the Clopper-Pearson method were calculated. The chi-square test was used to check for an association between the choice of hand hygiene products and work experience, involvement in invasive procedures and work in outpatient units or inpatient wards.

Average age was presented as M ± standard error (SE). Statistical analysis was conducted using the free EpiInfo 7.2 statistical set of software tools for public practitioners and researches. Significance threshold was set at $p<0.05$ for all analyses.

In addition, we conducted a multivariate analysis using a logistic regression model with the "Choosing an Antiseptic" as the output variable. The output binary variable was presented as - "antiseptic selected = 1/ not selected =0". The duration of professional experience - "15 years or less/ 16 years or more" was also transformed into a binary variable.

## Results

*Sampling characteristic*

Among the respondents, women prevailed (178 female, 96.74%). The age of respondents ranged from 20 to 77 years (on the average 40.67±0.93). By age respondents were divided into 4 groups. Age groups did not differ significantly in number (Table 1).

The professional experience of the respondents ranged from 0.5 to 50 (mean 19.81±0.95) years. One third of the respondents had more than 25 years of experience. In terms of length of service, 4 groups were also identified (Table 1).

The majority of nurses (80.43%, 95% CI: 73.96-85.90) work at the inpatients facilities, 19.57% (95% CI 14.10-26.04) in outpatient departments. Invasive manipulations have been performed by 145 nurses (78.80%, 95% CI: 72.18-84.47).

Table 1 - Distribution of Respondents by Age and Professional Experience

| Variables | Groups | n (%) | 95% CI |
|---|---|---|---|
| Age group | 20-39 years old | 41 (22.28) | 16.49 - 28.99 |
| | 40-49 years old | 47 (25.54) | 19.41 - 32.48 |
| | 50-59 years old | 47 (25.54) | 19.41 - 32.48 |
| | 60 and above | 49 (26.63) | 20.40 - 33.63 |
| Professional experience | up to five years old | 38 (20.65) | 15.05 - 27.23 |
| | 6-15 years old | 41 (22.28) | 16.49 - 28.99 |
| | 16-25 years old | 42 (22.83) | 16.97 - 29.58 |
| | >25 years old | 63 (34.24) | 27.42 - 41.58 |

Table 2 - Nurses' opinion on hand hygiene

| Question | Answer | n (%) N=184 | 95% CI |
|---|---|---|---|
| To what extent do you think the quality of staff hand hygiene treatment affects the risk of healthcare-associated infections? | Has a direct relationship | 172 (93.48) | 88.89 - 96.59 |
| | It does, but a strong one | 11 (5.98) | 3.02 - 10.44 |
| | Doesn't affect | 1 (0.54) | 0.01 - 2.99 |
| Do you think that the hand hygiene of medical personnel can be considered resolved completely as of today? | No answer | 1 (0.54) | 0.01 - 2.99 |
| | Yes | 72 (39.13) | 32.03 - 46.58 |
| | Not in full | 104 (56.52) | 49.03 - 63.80 |
| | No | 7 (3.80) | 1.54 - 7.68 |

*Attitudes Towards Hand Hygiene*

The survey showed that 93.48% (n = 172) of nurses agree that this factor directly affects the risk of developing UTI. Only 5.98% (n=11) replied that hand processing affects the development of healthcare-associated infections but not strongly and in one case the response was that there was no such link (Table 2).

The problem of hand hygiene of medical personnel is considered resolved completely by 39.13% (n=72) of respondents. However, the majority of nurses (56.52%, n=104) believe that the problem of hand treatment is not fully solved and 3.8% (n=7) consider it not resolved completely (Table 2).

*Evaluation of personal preference towards hand hygiene habit*

To the question "Do you always and fully perform hand treatment?", the number of nurses who responded positively was 134 (72.83%, 95% CI: 65.79 – 79.11). Only 45 nurses (24.46%, 95% CI: 18.43 – 31.32) chose the answers "I always do, but not in full" and 3 nurses (1.63%, 95% CI: 0.34 – 4.69) chose "Not always and not in full". The answer "more often I don't do it than do" was not chosen by anyone. Two people did not answer the question.

The WHO Guidelines on Hand Hygiene in Health Care identify the factors that have the greatest negative impact on a high-quality hand hygiene. Nurses who admitted that they do not follow in full the guidelines (48 persons) were asked to choose the reasons for that.

The main reason for non-compliance with hand treatment requirements was an excessive workload (64.58%, 95% CI: 49.46-77.84, n=31). The second most frequent answer was "Antiseptics are not provided to the required extent" (27.08%, 95% CI: 15.97 – 40.89, n = 3).

Other answers were rarely chosen. The answer «Located in inconvenient places» was chosen by 12.5%, 95% CI: 4.73% - 25.25 of respondents (n=3), and «In an inconvenient form to use» by 6.25%, 95% CI: 1.31-17.2 (n=3). Three respondents (6.25%, 95% CI: 1.31-17.2) chose the answer «I don't think you should use antiseptics a lot»

It should be noted that only one respondent indicated the cause of the allergic reaction as a reason for non-compliance the requirements. At the same time 115 nurses (62.50%, 95% CI 55.08-69.51%) responded positively to the question "Did you notice the negative impact of hand treatment on the skin?"

*Attitudes Towards Hand hygiene*

Based on WHO Guidelines on Hand Hygiene in Health Care hand rubbing with

Table 3 - Nurses' opinion on hand hygiene products

| Question | Answer | n (%) N=184 | 95% CI |
|---|---|---|---|
| What forms of hand hygiene products would you choose if you had choice? | Aqueous Alcoholic solution | 67 (36.41 ) | 29.46 - 43.81 |
| | Liquid soaps | 132 (71.74 ) | 64.65 - 78.12 |
| | Disinfectant wipes | 48 (26.09 ) | 19.90 - 33.06 |
| | Gel (Alcohol-based antiseptic) for hands in individual packages | 71 (38.59 ) | 31.52 - 46.03 |
| Why do you think you prefer this product? | It's easier | 49 (26.63 ) | 20.40 - 33.63 |
| | It's faster | 65 (35.33 ) | 28.44 - 42.70 |
| | It's more effective | 138 (75.00 ) | 68.10 - 81.08 |
| | Other s | 3 (1.63 ) | 0.34 - 4.69 |

antiseptic is preferable in most situations where hand treatment is required. However, when answering the question: "What kind of hand hygiene treatment do you use more often than others?" only 3 nurses chose skin antiseptic treatment (1.63% 95%CI 0.34 - 4.69%), 27 (14.67% 95%CI 9.90 - 2 0 .63%) use liquid soap more often. The most popular answer was "I would use both methods" with 153 nurses (83.15%, 95% CI 76.95 -88.26). One (0.54% 95%CI 0.014 - 2 .99%) of the respondents did not answer this question

Given that the method of treatment applied is determined not only by the free choice of a nurse, but also by established practice, the following question was asked: "What forms of hand hygiene products would you choose if you had choice?" It was possible to choose several answers.

The most popular answer was "Liquid soap" (132 people, 71.74%). Answers related to the choice of products containing alcoholic solutions or other antiseptics were less popular, as shown in the Table 3 below.

First and foremost, nurses explain their preferences by the fact that they consider the chosen forms of hand treatment more effective. This option was chosen by 75.0% of respondents. The speed and simplicity of the method were indicated by 35.33% and 26.63% of the respondents respectively (several answer options could be chosen).

The issue was also examined what hand hygiene products should be used in different situations (Table 4).

According to the WHO guidelines hand washing with soap and water is the only recommended method of hand hygiene, and it should be used when hands are visibly dirty or visibly blood-stained or stained with other body fluids or after using the toilet. The use of soap is preferable in the case of contact with a source of contamination by a potential spore-forming pathogen. Before handling medication or preparing food, washing hands with soap and rubbing them with antiseptic can be considered interchangeable. In other situations, as indicated in the WHO guidelines, alcohol-based antiseptics should be preferred and hand washing with soap should only be used if the antiseptic is not available.

Nurses were asked to determine what kind of hand treatment they considered necessary in various standard situations described in the WHO guidelines.

In none of the eight situations was an antiseptic the most frequent choice.

In four situations (before application of invasive procedures, after contact with biomaterial, before and after touching the patient or procedures with wounds and catheters) the choice of liquid soap was the most popular. In the other four, the choice

Table 4 - Choosing a Hand Hygiene Product in Standard Situations

| Situations | Antiseptic n (%) 95% CI | Soap n (%) 95% CI | Soap or Antiseptic n (%) 95% CI | No processing required n (%) 95% CI | No answer n (%) 95% CI |
|---|---|---|---|---|---|
| Before and after touching the patient | 42 (22.83) 16.97-29.58 | 63 (34.24) 27.42-41.58 | 77 (41.85) 34.63-49.33 | 1 (0.54) 0.01-2.99 | 1 (0.54) 0.01-2.99 |
| Before the drug is distribution | 25 (13.59) 8.99-19.40 | 124 (67.39) 60.11-74.11 | 29 (15.76) 10.82-21.84 | 4 (2.17) 0.60-5.47 | 2 (1.09) 0.13-3.87 |
| Before and after procedures with wounds and catheters | 68 (36.96) 29.97-44.37 | 5 (2.72) 0.89-6.23 | 109 (59.24) 51.77-66.41 | 1 (0.54) 0.01-2.99 | 1 (0.54) 0.01-2.99 |
| Before application of invasive procedures | 67 (36.41) 29.46-43.81 | 11 (5.98) 3.02-10.44 | 104 (56.52) 49.03-63.80 | 0 | 2 (1.09) 0.13-3.87 |
| Before preparing food | 4 (2.17) 0.60-5.47 | 161 (87.50) 81.84-91.91 | 16 (8.70) 5.05-13.74 | 1 (0.54) 0.01-2.99 | 2 (1.09) 0.13-3.87 |
| If there's visible contamination of the hands | 12 (6.52) 3.41-11.11 | 107 (58.15) 50.67-65.37 | 64 (34.78) 27.93-42.14 | 0 | 1 (0.54) 0.01-2.99 |
| Before wearing gloves and after their removal | 32 (17.39) 12.21-23.66 | 76 (41.30) 34.11-48.78 | 69 (37.50) 30.49-44.92 | 6 (3.26) 1.21-6.96 | 1 (0.54) 0.01-2.99 |
| After contact with biomaterial | 54 (29.35) 22.88-36.50 | 5 (2.72) 0.89-6.23 | 123 (66.85) 59.54-73.60 | 1 (0.54) 0.01-2.99 | 1 (0.54) 0.01-2.99 |

of soap and antiseptic as equivalent was on the first place (Table 5).

In only three situations, an antiseptic was chosen more often than soap:

- before and after manipulations with wounds, catheters 36.96% vs 2.72%
- before performing invasive procedures 36.41% vs. 5.98%
- after contact with biological material 29.35% vs. 2.72.

We tested the hypothesis about the possible influence on the choice of hand treatment method of such factors as performing invasive manipulations, working in the in-patient or outpatient facility as well as experience in a specialty.

A statistically significant association for the choice of antiseptic has been identified only with work experience.

The length of service was associated with the choice of antiseptic in three situations: before and after procedures with wounds and catheters; before invasive procedures; after contact with biological material (Table 5). This method of processing is more often chosen by nurses with 16-25 years of experience, respectively, in 52.38% 54.76%, and 47.62% of cases. This is followed by specialists with more than 25 years of experience. Antiseptic was least frequently chosen by nurses with up to 5 years and 6-15 years of work experience.

In a multi-parameter analysis, nurses who chose an antiseptic had a 2.05-fold higher probability of experience over 15 years (adjusted OR 2.05, 95% CI 1.06–3.98, Table 6). There was no association between the choice of antiseptic and work related to invasive procedures or in inpatient units (adjusted OR 0.60, 95% CI 0.25–1.41 and adjusted OR 0.64, 95% CI 0.27–1.50, respectively).

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Table 5 - Choosing an Antiseptic as the Preferred Hand Sanitizer

| Length of service | After contact with biological material n (%) 95% CI | Before performing invasive procedures n (%) 95% CI | Before and after manipulating the wounds, the catheters n (%) 95% CI |
|---|---|---|---|
| Up to five years N=38 | 5 (13.16) 4.41-28.09 | 10 (26.32) 13.40-43.10 | 10 (26,3) 13.40-43.10 |
| 6-15 years old N=41 | 6 (14,63) 5.57-29.17 | 10 (24,39) 12.36-40.30 | 10 (24,4) 12.36-40.30 |
| 16-25 years N=42 | 20 (47,62) 32.00-63.58 | 23 (54,76) 38.67-70.15 | 22 (52,38) 36.62-68.00 |
| >25 years N=63 | 23 (36,51) 24.73-49.60 | 24 (38,10) 26.14-51.20 | 26 (41,27) 29.01-54.38 |
| p-value | 0,001 | 0,043 | 0,017 |

Table 6 - Crude and adjusted odds ratio and 95% confidence interval of association between choosing an antiseptic as the preferred hand sanitizer and employment in the in-patient or outpatient facility, work connection with invasive manipulations and professional experience by logistical regression model.

| Variables | Crude | | | **Adjusted** | | |
|---|---|---|---|---|---|---|
| | OR | 95% CI | p-value | OR | 95% CI | p-value |
| **Before and after manipulating the wounds, the catheters** | | | | | | |
| Employment in the in-patient or outpatient facility | 0.78 | 0.37 -1.64 | 0.514 | 0.64 | 0.27 - 1.50 | 0.305 |
| Work connection with invasive manipulations | 0.82 | 0.39 - 1.72 | 0.597 | 0.60 | 0.25 – 1.41 | 0.239 |
| Professional experience > 15 years | 1.96 | 1.02 - 3.77 | 0.042 | 2.05 | 1.06 – 3.98 | 0.034 |
| **Before performing invasive procedures** | | | | | | |
| Employment in the in-patient or outpatient facility | 0.76 | 0.36 – 1.60 | 0.465 | 0.63 | 0.27 – 1.47 | 0.281 |
| Work connection with invasive manipulations | 0.84 | 0.40 – 1.78 | 0.653 | 0.60 | 0.25 – 1.42 | 0.247 |
| Professional experience > 15 years | 2.12 | 1.09 -4.11 | 0.025 | 2.21 | 1.13 - 4.33 | 0.020 |
| **After contact with biological material** | | | | | | |
| Employment in the in-patient or outpatient facility | 0.59 | 0.27 – 1.25 | 0.161 | 0.56 | 0.23 – 1.35 | 0.197 |
| Work connection with invasive manipulations | 1.26 | 0.60 – 2.71 | 0.538 | 0.84 | 0.35 – 2.04 | 0.705 |
| Professional experience > 15 years | 2.87 | 1.36 – 6.06 | 0.005 | 2.87 | 1.35 – 6.12 | 0.006 |

to invasive procedures or in inpatient units (adjusted OR 0.60, 95% CI 0.25–1.41 and adjusted OR 0.64, 95% CI 0.27–1.50, respectively).

## Discussion and conclusion

The survey showed that nurses correctly assess the importance of hand hygiene in the prevention of healthcare-associated infections. Respondents views on whether this problem has been resolved were different. The prevailing view is that the problem has not been completely resolved. However, a significant proportion of nurses (39.13%) are convinced that the situation does not need to be changed but their answers to the questions concerning their hand hygiene habits do not confirm that. Incorrect assessment of the current situation by nurses may be an obstacle to the implementation of improvements.

We examined the actual frequency of use of various hand hygiene products. The WHO Guidelines on Hand Hygiene in Health Care and based on them Russian Guidelines on hand hygiene for health-care workers suggest that alcohol-based antiseptics should be used in most situations.

According to the research data, the use of alcoholic antiseptic is not a preferred method in the current practice. Only 3 nurses (1.63%) indicated that antiseptic is the most commonly used hand hygiene product, 27 (14.67%) use more often liquid soap, and the vast majority 153(83.15%) indicated that they use soap and antiseptic with equal frequency. Thus, the situation in practice does not follow the WHO guidelines.

It could be assumed that the choice of hand hygiene products in the workplace is not determined by the nurses themselves but by the availability of antiseptics and/or requirements by the management. But when asked which hand hygiene methods they would have chosen on their own, the majority (71.74%) also indicated liquid soap.

This result is consistent with data of other studies. In 2013, a survey of 40 nurses working in the Moscow out-patient unit showed that only 25% of them consider that the treatment with an alcohol antiseptic was the most effective way of hand hygiene (27). A previous survey among 117 nurses and 119 medical students at a large university in Rome, Italy, had shown that less than 50% of students answered correctly of questions related to the use of alcohol-based hand rubs (28).

Moreover, the choice of hand hygiene product was more often than not justified by its higher efficiency. The result suggests that nurses understand the key criterion for hand hygiene choices but do not consider the fact that hand washing with soap or alcohol-based antiseptics are comparable in effectiveness. In this case the choice that one should consider is simplicity, availability and the possibility of saving time. At the same time, 62.0% of nurses admitted that they did not always fully comply or follow the recommendations on hand treatment based on established requirements due to existing high work load. This is consistent with the results of many other studies (29-31).

Despite the fact that in most situations, WHO recommendations give preference to an antiseptic, in none of the assessed situations the use of it was the most common.

Only in three situations the antiseptic was chosen more often than the soap. The most common was the use before and after procedures with wounds and catheters (36.96%), then before invasive procedures (36.41%) and eventually after contact with biological material (29.35%). However, at the same three situations the most popular answer was still the equivalent choice of soap and antiseptic, 59.24%, 56.52% and 66.85%, respectively. In all these cases the use of an antiseptic is preferable, as recommended by the WHO.

In those situations where WHO recommendations consider soap and an antiseptic as equivalent means, nurses more often chose only soap before dispensing drugs in 67.39% and before eating in 87.50%.

It is likely that, according to nurses an antiseptic is needed where the natural barriers of the body such as skin and external mucous membranes are damaged or there is a high risk of infection. It should be noted that in these situations the choice of hand hygiene products was influenced by the length of service. The antiseptic was preferred by nurses with more than 15 years of experience. It can be assumed that personal experience had a greater impact on preferences for hand hygiene products than vocational training programmes. Nurses with a long experience of work are in a better position to assess the convenience and availability of antiseptic use and reduce the time spent on hand hygiene.

A study involving 84 registered nurses from the Intensive Care showed that nursing experience of more than 15 years strongly affects adherence to a hand hygiene practice (32).

As a way of treating hands in situations not involving contact with the patient, typically before eating or giving out medication, most nurses do not even consider rubbing hands with antiseptic preferring traditional soap. In general, most nurses do not consider that antiseptic should be used in a routine basis. The opinion of nurses is probably more influenced by stereotypes than by scientific evidence.

Our study had a number of limitations. In this study nurses were interviewed only in 4 out of 105 Moscow hospitals. Another limitation that the study included nurses who attended on the day of the survey rather than randomly selected ones. It is possible that with a sample size of 185 of 64,000 nurses in Moscow surveyed, not all existed associations were identified due to insufficient test power.

On the basis of the conducted research it is possible to assume that despite the implementation of the Russian Recommendations on Hand Hygiene based on the WHO Guidelines on Hand Hygiene in Health Care, nurses prefer the traditional method - hand washing with soap and water. This suggests that additional training and monitoring of nurses is needed in the current environment. Guidance and experience in developing national hand hygiene programmes using multimodal strategies is required. As part of such strategies, explaining to nurses the benefits of antiseptic use and the advantages of it should be highlighted. Recommendations on the predominant use of antiseptics should be integrated into the process of studying practical algorithms of various procedures.

The development of hand hygiene training programmes should not only include the recommendations to nurses, but emphasize the rationale for them, based on the results of specific research in this area.

**Author contributions**

NT was responsible for the study conception and design. It was not expected to be approved by the Ethics Committee. IuP performed the data collection. NT and IuP performed the data analysis. NT was responsible for the drafting of the manuscript. NT and AB provided administrative, technical or material support. AB supervised the study. All authors have read and approved the final version of the manuscript. No conflicts of interests exist.

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## Riassunto

***Atteggiamenti degli infermieri verso i prodotti per l'igiene delle mani: sapone vs antisettici***

**Razionale.** Secondo le ultime raccomandazioni dell'Organizzazione Mondiale della Sanità (OMS), nella maggior parte delle situazioni che richiedono un trattamento per le mani, devono essere utilizzati anti-

settici cutanei a base di alcol. Questo studio ha lo scopo di determinare la consapevolezza e le preferenze degli infermieri nella città di Mosca in merito alla scelta dei metodi per l'igiene delle mani e ai fattori che influenzano questa scelta.

**Disegno dello studio.** Utilizzando un questionario appositamente elaborato, sono stati intervistati 184 infermieri che lavorano negli ospedali di Mosca per capire l'atteggiamento del personale infermieristico nei confronti di vari metodi per l'igiene delle mani.

**Metodi.** Il questionario è stato sviluppato sulla base delle raccomandazioni dell'OMS e della Russia. L'indagine è stata condotta da maggio 2017 a luglio 2017. Per confermare la significatività statistica delle associazioni identificate è stato utilizzato il test di chi-quadro. Per calcolare l'intervallo di confidenza al 95% rispetto ai rispettivi valori è stato utilizzato il metodo Clopper-Pearson.

**Risultati.** Solo 3 (1,63%) degli intervistati ha indicato di usare un antisettico come prodotto più frequentemente utilizzato per l'igiene delle mani, 27 (14,67%) usano più spesso un sapone liquido, 153 (83,15%) hanno indicato di usare sapone e antisettico con uguale frequenza. In nessuna delle situazioni considerate l'uso dell'antisettico è stata la scelta più frequente. Solo in tre casi l'antisettico è stato scelto più spesso del sapone - prima e dopo le manipolazioni riguardanti ferite e cateteri (36,96%) o prima di eseguire procedure invasive (36,41%) e dopo il contatto con materiale biologico (29,35%). Allo stesso tempo, gli infermieri con più di 15 anni di esperienza preferiscono l'antisettico.

**Conclusioni.** Secondo i risultati del presente studio, si può presumere che, nonostante l'attuazione delle linee guida russe sull'igiene delle mani sviluppate secondo le raccomandazioni dell'OMS, gli infermieri preferiscono ancora il metodo tradizionale di lavaggio delle mani con il sapone. Ciò suggerisce che nelle attuali condizioni sono necessarie misure aggiuntive per formare gli infermieri e monitorarne il comportamento.

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