

# Hand hygiene effectiveness among healthcare workers in Ukraine in 2022

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## INTRODUCTION

WHO recommended hand hygiene technique (HHT) has been formally approved in Ukraine since 2010, but there was no multimodal strategy to hand hygiene (HH) implementation and no surveillance system, making it impossible to discover gaps in compliance among healthcare workers (HCW).

## METHODS

Knowledge of HH practices was assessed by random selection of 407 HCW, physicians and nurses, from 9 health care facilities and evaluation of their understanding of HH indications and their ability to perform HHT using standard protocol.

Effectiveness of hand rubbing with WHO recommended hand-rub formulation (80% ethanol) was assessed. Escherichia coli K-12 test culture was used for hands contamination, number of viable bacteria were counted after performing various combinations WHO-recommended steps of HHT using methodology described in standard EN 13727:2019.

### How to Handrub?

RUB HANDS FOR HAND HYGIENE WASH HANDS WHEN VISIBLY SOILED

Duration of the entire procedure: 20-30 seconds



Figure 1: WHO-recommended hand hygiene technique



## RESULTS

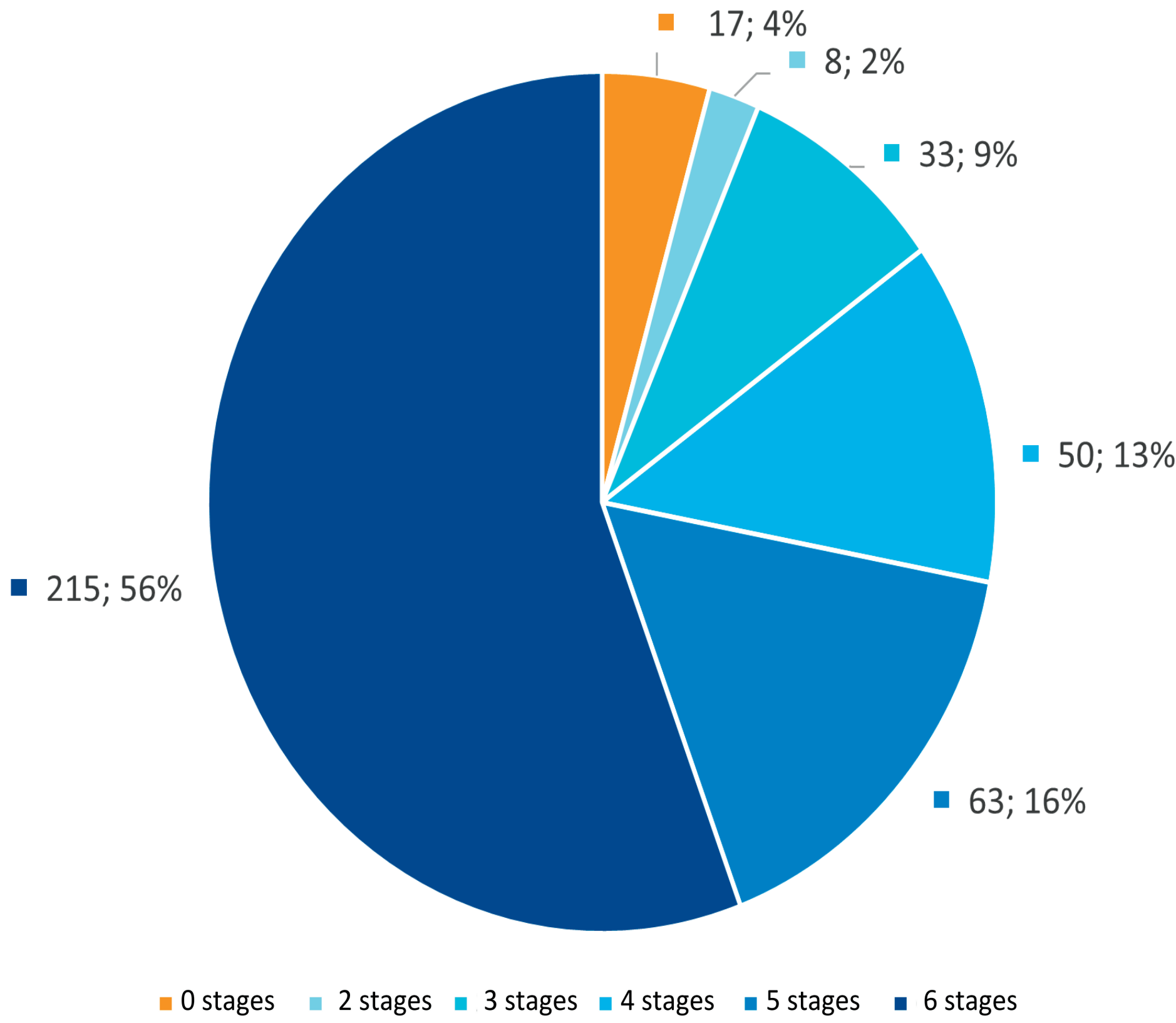


Figure 2: Number of hand hygiene steps performed by the respondents, regardless of steps sequence

55.7% of healthcare workers did six steps of HHT, 9% performed  $\leq 3$  steps and 4% performed hand treatment in a way that made it impossible to distinguish the steps.

The HCW did not adhere to the sequence of steps, five steps (quantitatively) were performed by 16% of the respondents, and only 4,1% performed those steps in a correct sequence.

The ability to perform hand hygiene depended on the healthcare worker's specialty - nurses demonstrated better HH skills than doctors. Six steps were completed by 52,9% of doctors and 57,3% of nurses.

49,5% of respondents named five basic indications for hand hygiene.

Indications for hand hygiene	Times mentioned
Before touching a patient	90,7%
Before aseptic procedure	78,0%
After body fluid exposure risk	73,1%
After touching a patient	89,4%
After touching patient surroundings	58,8%

There was no correlation between age, hand rubbing skills, and awareness for HH indications ( $r = -0,06$ ).

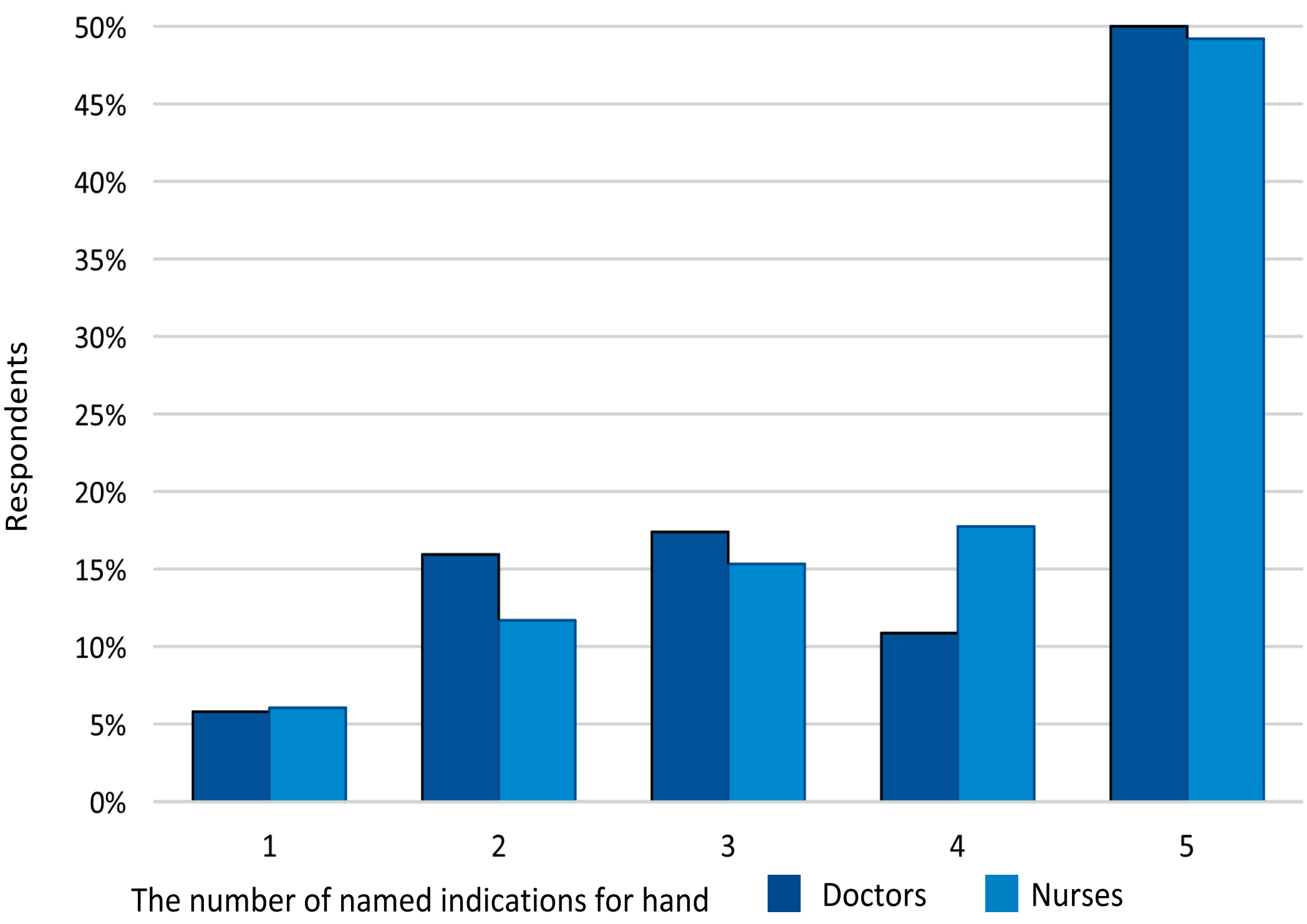


Figure 3: Knowledge of indications for hand hygiene among doctors and nurses

The high bactericidal activity of the WHO recommended hand-rub formulation was demonstrated (logarithm reduction of viable microorganisms ( $\lg R$ ) = 5.31). Conducting all steps of WHO recommended HHT contributes to a significant reduction of contamination of the hands during 30 seconds,  $\lg R = 3.33$ ; and 15 seconds,  $\lg R = 3.03$ . When completing not all recommended HHT steps,  $\lg R$  ranged from 1.854 (1 stage at 15 sec) to 2.814 (5 stages at 30 sec).

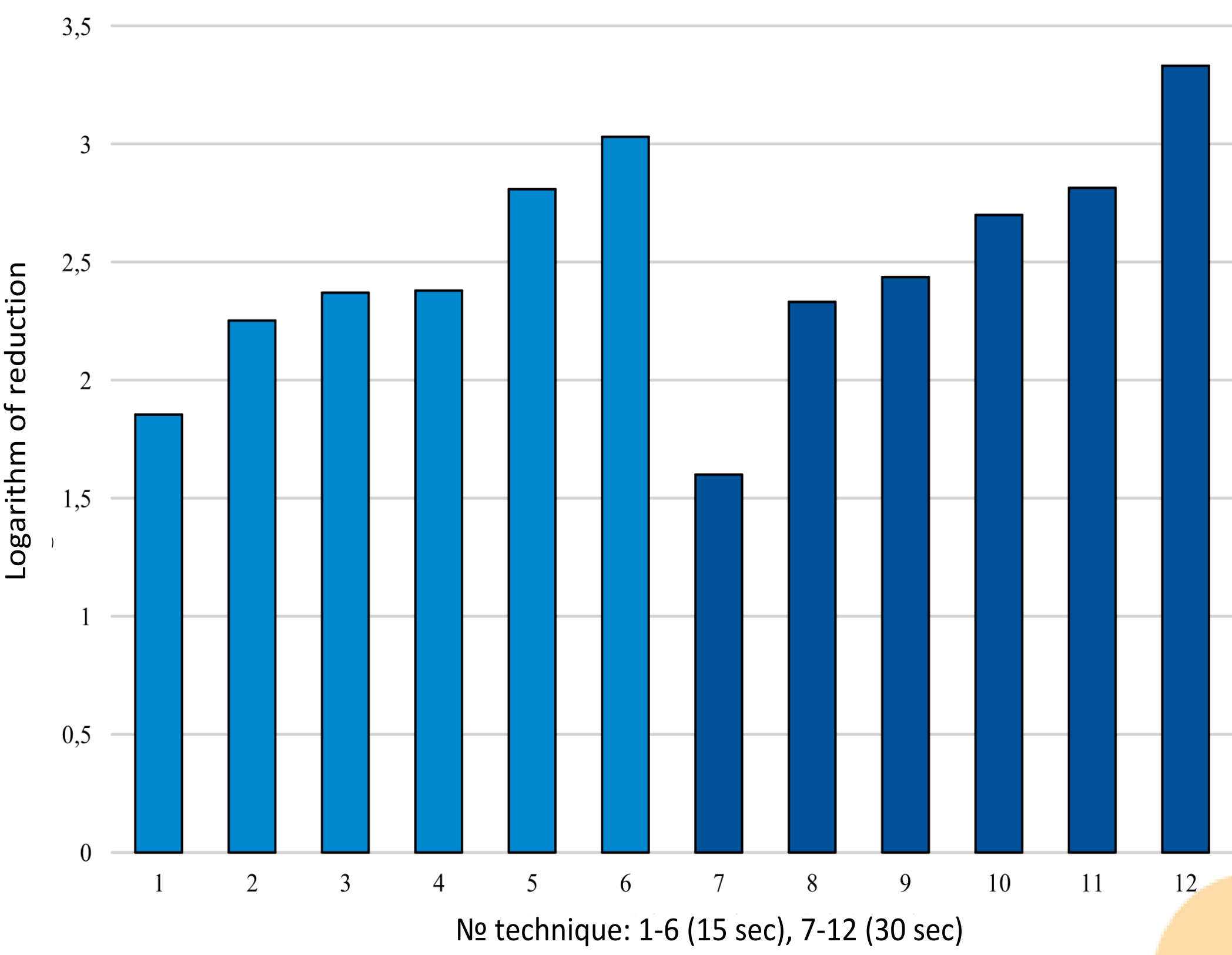


Figure 4: Logarithm of reduction of test cultures in washings depending on the number of stages of processing of hands

## CONCLUSIONS

The effectiveness of HH are related to duration and performing of all stages of hand rubbing. In Ukraine, 44.3% of HCW don't have the hand rubbing skills, and more than half are unaware of all 5 moments of HH. The results show that teaching HCW on HH practices, regardless of age or specialty, is important step in infection prevention and control program strengthening at facility level.

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