

ORAL PRESENTATION

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O040: The effect of improved hand hygiene compliance on nosocomial transmission of *Staphylococcus aureus*

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Objectives

The objective of this prospective interventional study was to observe the effect of improved hand hygiene compliance (HHC) on nosocomial transmission of *S. aureus* between patients.

Methods

The study was conducted between Oct 2011 and Dec 2012 in the oncology ward of a Dutch Teaching Hospital and contained multiple consecutive interventions: [I] increase number of hand alcohol dispensers; [II] education on HH; [III] replacing standard hand alcohol and soap dispensers by new automated dispensers, no feedback was given; [IV] personal feedback of HHC.

HHC was manually monitored according to the WHO method, twice a week during the whole study period. All patients were cultured weekly to detect nasal carriage of *S. aureus*. Isolates collected in period [II] and [IV] were typed using Amplification Fragment Length Polymorphism (AFLP). The ratio between secondary and primary cases, Transmission Index (TI), was calculated.

Results

The HHC improved significantly from 31.5% (92/302; CI 25.3-36.0) in period [II] to 52.9% (139/263; CI 46.6-59.0) in period [IV] ($p < 0.001$).

In period [II] 266 patients were hospitalized on the days of culture; 246 nasal swabs (92.5%) were collected from 151 unique patients. In total 42/151 patients (27.5%) were *S. aureus* carriers. AFLP revealed 6 unrelated isolates and 13 clusters (2-14 isolates, median 3). Number of primary cases (PC) was 19. Transmission of *S. aureus* from a PC to

other patients occurred in 10 out of 19 (52.6%) PC, resulting in 22 secondary cases (SC). TI of 1.2 (22/19).

In period [IV] 314 patients were hospitalized on the days of culture; 268 nasal swabs (85.4%) were collected from 134 unique patients. In total 45/134 patients (33.6%) were *S. aureus* carriers. AFLP revealed 16 unrelated isolates and 9 clusters (2-7 isolates, median 3). Number of PC was 25. Transmission of *S. aureus* from a PC to other patients occurred in 9 of 25 (36.0%) PC, resulting in 17 SC. TI of 0.7 (17/25).

The ratio of unique versus clustered strains was significantly higher in period IV ($p = 0.028$).

Conclusion

An improvement of HHC from 31.5% to 52.9% (RR:1.68) was associated with a 32% reduction of the TI. This study shows that improvement of HHC using automatic dispensers with personal feedback reduces the transmission of *S. aureus* in the hospital substantially.

Disclosure of interest

None declared.

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