between the results with and without HH. The Hodges-Lehmann estimator was applied to estimate the difference between the medians.
Results: The median amount of baseline *S. aureus* on the fingertips of the volunteers was $10^{6.8}$ cfu. Without HH, bacteria were detected after all 20 experiments (range: 25 to 25 800 cfu), whereas with HH, bacteria were not detected after all 20 experiments. The difference between estimated medians was 351 cfu (95% CI 193-570; p = 0.0001).
Conclusion: Even with a high contamination of the fingertips with *S. aureus*, when HH was performed with this simplified method before an aseptic procedure, no bacteria were recovered from 2 critical parts of the infusion set, allowing safer care and patient safety.

Disclosure of Interest: None declared

O28

IMPACT OF THE SEVENTH MULTIMODAL COUNTRY-WIDE CAMPAIGN TO PROMOTE HAND HYGIENE IN BELGIAN HOSPITALS

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Introduction: Hand hygiene (HH) compliance by healthcare professionals has been recognized as the most important factor in preventing transmission of healthcare-associated infections to patients (1).
Objectives: We report here the outcome of the seventh Belgian national hand hygiene campaign organized in 2016.
Methods: The campaign was mainly focused on healthcare workers having contact with patients in hospitals (acute, chronic and psychiatric), and also for the first time on the patients themselves (patient questionnaires). Compliance to hand hygiene guidelines was measured using a standardized observation roster (2). An online tool (NSIHweb 2.0) was used to collect the individual or aggregated compliance data, with the possibility to obtain immediate feedback. The patient questionnaire was filled out in paper format and manually introduced in a databank.
Results: A total of a total of 235,816 hand hygiene opportunities were registered from 170 participating hospitals. At the national level, all specialties combined, the compliance (= hand hygiene opportunities with soap and/or alcohol / total number of hand hygiene opportunities observed) was 71.6% before the campaign and 78.0% after the campaign.
Ninety-seven Belgian sites / hospitals voluntarily forwarded patient inquiries and 17,454 received questionnaires were included in the analysis. The survey showed that 59.0% of the participants reported being aware that the hospital was participating in the hand hygiene campaign.
Conclusion: The seventh national campaign was another success in terms of very high participation rates, and a compliance rate tending to approach a 80% margin during post-campaign. Patient empowerment was for the first time positively stimulated.

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O29

IMPACT OF THE MULTIMODAL STRATEGY FOR INCREASING HAND HYGIENE COMPLIANCE: FOURTEEN YEARS' EXPERIENCE IN A MIDDLE INCOME COUNTRY

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Introduction: Hand hygiene is a gold standard for the prevention of health-care associated infections (HAIs). However, compliance rates are generally poor among healthcare workers (HCWs) in routine practice.
Objectives: We aimed to assess the efficacy of WHO multimodal strategy for improving hand hygiene (HH) compliance in a middle-income country.
Methods: The WHO multimodal HH improvement strategy has been implemented since 2004 in a referral university hospital in Turkey. The intervention consisted of introducing alcohol-based hand rub at bedside and nurses' treatment and dressing rooms; monitoring HH compliance; providing performance feedback; educating staff; posting reminders in the workplace; and promoting an institutional safety climate. A bundle strategy has been implemented for the prevention of device-associated infections in intensive care units (ICUs). HH compliance in medical, anaesthesiology and ICUs, hand rub consumption and HAIs rates were evaluated at baseline and at follow-up.
Results: The compliance of HH increased in medical, anaesthesiology and ICUs in all five moments. Also, the usage of alcohol based hand rub has increased from 195 litres in 2003 to 11543 litres in 2018. Point prevalence studies revealed a decrease in HAIs from 8.2% to 5.7% between 2007 and 2018. Device-associated infection rates (ventilator-associated pneumonia, catheter associated blood stream infections, catheter associated urinary tract infections) in ICUs also decreased during the time. Furthermore, multi-drug resistant pathogens (*Acinetobacter baumannii, Pseudomonas aeruginosa, Klebsiella pneumonia, Escherichia coli*) incidence rates decreased. Small bowel operations, colon, gastric, cholecystectomy, craniotomy, fusion, cranial shunt infection rates decreased over the time.
Conclusion: The WHO multimodal improvement strategy has shown to be effective in improving HH compliance and decreasing HAIs rates in a middle income country with limited nurses and heavy workload.

Disclosure of Interest: None declared

O30

IMPACT OF USING A DEVICE PROVIDING INDIVIDUAL FEEDBACK ON HEALTHCARE WORKERS HAND HYGIENE BEHAVIOUR: A STEPPED WEDGE CLUSTER-RANDOMIZED CLINICAL TRIAL (SMARTRUB®)

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Introduction: We tested the effect of an innovative wristband (SmartRub® powered by iQati™) that provides automatic, instantaneous and individual feedback on the correct duration of hand friction and volume of alcohol-based handrub (ABHR).
Objectives: We hypothesised that using it in patient care would improve hand hygiene (HH) compliance by 20%.

Methods: We performed a stepped wedge, cluster-randomized, controlled, open-label clinical trial. All wards of our geriatric university hospital were randomized to 1 of 4 steps. Each step consisted in a unique sequence of 3 phases: baseline (no device;1-4 months), transition (device without feedback;1 month) and intervention (device with feedback;1-4 months). Primary outcome was HH compliance measured by direct HH observation. Secondary outcomes were the duration of HH friction and ABHR volume. Generalized linear mixed models with nested random effects on the intercept (HCW within ward-level) were performed on an intention-to-treat level.
Results: A total of 97 of the 370 HCWs participated (63 nurses, 32 auxiliary nurses, 2 physios). Overall, 6'878 HH opportunities (opp) were observed with a median of 72 opp per HCW (IQR 61-84). Mean HH compliances (95%CI) were 72% (67-76), 70% (65-75) and 62% (57-67) at baseline, transition and intervention, respectively. HH compliance decreased significantly over time (p=0.015) and there was no effect of the duration of active device use (p=0.448). HH compliance was independently and inversely associated with age (p=0.015) and workload (p<0.001). Both ABHR volume and duration of HH friction have increased significantly from transition to intervention (1.4 mL, 95%CI 1.1-1.6 to 2.1 mL 95%CI 1.8-2.3 and 9.3 sec 95%CI 8.5-10.0 to 11.1 sec 95%CI 10.3-11.8).
Conclusion: The use of SmartRub® did not show an effect on HH compliance. We observed a gradual decrease in compliance throughout the study that could be attributed to fading of the initial Hawthorne effect. On the other hand, the use of SmartRub® improved the quality of HH both in ABHR volume and duration of HH friction.

Disclosure of Interest: None declared

O31

EXPLORING INSTITUTIONAL SAFETY CLIMATE TO PROMOTE HAND HYGIENE: RESULTS FROM AN INTERNATIONAL SURVEY

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Introduction: Institutional safety climate (ie, the safety aspects of organizational culture) is an essential component of the World Health Organization's (WHO) multimodal hand hygiene (HH) improvement strategy for sustained health systems quality.
Objectives: We sought to explore the key elements representing the institutional safety culture.
Methods: We developed a survey based on the WHO Hand Hygiene Self-Assessment Framework (HHSAF). A convenience sample of infection control preventionists (ICPs) from more than 100 countries attending the International Conference on Prevention and Infection Control (ICPIC) in June 2017 was invited by email to complete the survey. The survey included questions regarding the following subcategories within the HHSAF: 1) commitment of leadership; 2) champions and role models; 3) patient participation; 4) system for accountability 5) HH compliance targets and 6) reporting.
Results: 198 ICPs from 71 countries across all WHO regions completed the questionnaire (14% Africa; 11% Americas; 5% South East Asia; 43% Europe; 9% Eastern Mediterranean and 18% Western Pacific). Only 9% of respondents reported having all six elements in place. 36% reported that facility leadership made a clear commitment to support HH improvement and undertook leadership hospital walkabouts. 38% had a designated system of HH champions (HHC), primarily nurses. Significantly less doctors and almost no housekeepers were designated HHC (p= 0.007). It was almost non-existent for patients to challenge nurses (3.7%) and doctors (2.1%) about poor hand hygiene practices. 44% of respondents claimed some form of HH accountability systems was present. However, programmes that reward good HH practices and disincentivize non-compliance were only reported by 26% and 12%, respectively. 42% reported established HH institutional targets, of which only 24% were required to publicly report them.
Conclusion: Our findings demonstrate that there is a general lack of inclusion of key elements constituting institutional safety climate within HH programmes worldwide. Unless political and leadership determinants are addressed, sustained and genuine HH improvement is unlikely.

Disclosure of Interest: None declared

O32

PREVENTATIVE MEASURES TO IMPROVE HAND HEALTH OF HEALTHCARE WORKERS AND THE POTENTIAL IMPACT UPON HAND HYGIENE BEHAVIOUR

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Introduction: Healthcare workers (HCWs) are at high risk of developing hand dermatitis (HD). Current guidelines on HD prevention recommend use of emollients however adherence is poor. Compliance to hand hygiene (HH) guidelines depends on several factors including skin health.
Objectives: To assess whether provision of emollient cream, electronic monitoring and feedback on consumption can improve skin care in HCWs and to consider the relationship between improved skin health and HH compliance.
Methods: A cluster randomized controlled trial was conducted on 19 academic hospital wards, including 501 HCWs, for 12 months. Intervention wards were provided with hand cream dispensers equipped with an electronic system to monitor use, regularly communicated using posters. Process measures were self-reported and electronically measured cream use in the intervention group (IG) vs control group (CG). Primary and secondary outcomes were change from baseline in Hand Eczema Severity Index (ΔHECSI) and Natural Moisturizing Factor (ΔNMF). HH compliance was audited independently and trends later compared.
Results: Self-reported cream use at follow-up was significantly higher in IG than in CG before and during shift. At baseline there was no difference between groups. In IG, electronically measured cream use averaged 0.4 events per shift per HCW. HECSI reduced in IG by -6.2 and in CG by -4.2 points. There was no difference in ΔHECSI or ΔNMF between groups however relative improvement was significantly higher in IG (56% vs. 44%). In a subgroup of HCW with mild HD, IG showed significantly larger HECSI decrease than CG (P<0.001). HH compliance on IG wards increased from 55% (Q3 2015) to 70% (Q2 2017) during the project.
Conclusion: The intervention improved hand cream use, however consumption remained low. Although there was no significant effect on the primary outcomes, the intervention showed overall positive effects on HECSI and may be considered a practical means to promote skin care in HCWs. Reported HH compliance increased during the study. While causality cannot be assigned, this suggests a relationship and highlights the importance of HCW skin health in infection prevention strategies.

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