

by Taiwan Centers for Disease Control in 2011 was 87%. However, there is lack of HH compliance data observed covertly.

**Methods:** A HH education program for medical internship students was initiated in Kaohsiung Veterans General Hospital (KVGH) in 2012. All students received HH lectures, HH observation training and validation. Participants were invited to covertly observe HH compliance of health care workers around them after validation. The results were reported through a designated website.

**Results:** From March 2012 to October 2013, a total of 60,027 HH opportunities were observed, 34,648 (57.7%) in KVGH and 25,379 (42.3%) in other hospitals all over Taiwan. The overall HH compliance was 46.12%, 56.5% in KVGH and 32.0% in other hospitals. Health care workers performed HH action most frequently in indication 4 (55.4%), followed by indication 3 (54.7%), indication 2 (51.8%), indication 1 (46.0%) and indication 5 (33.5%). The doctors (46.2%) and nurses (46.4%) had very similar HH compliance. In hospitals other than KVGH, hospitals located in Northern Taiwan (37.8%) had better HH compliance than those in other area.

**Conclusions:** The overall HH compliance was low, and the observation bias was profound. We suggested that HH compliance should be observed both overtly and covertly to decrease the bias. HH compliance observed overtly is not a suitable performance indicator due to its potential bias.

#### OS 12-8

##### VALIDITY AND RELIABILITY OF THE ASSESSMENT FOR HAND HYGIENE OBSERVERS

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**Purpose:** Additional hand hygiene observers were trained to minimize the Hawthorne effect induced by the single hand hygiene observer in a rehabilitation hospital in Hong Kong. A classroom training programme was conducted for potential hand hygiene observers in October 2013 to prepare them to observe the hand hygiene behaviour of healthcare workers on napkin changing procedure with a standardized survey tool. A post-training assessment was assigned. The purpose of this study was to examine the validity and reliability of the assessment for programme improvement.

**Methods:** The assessment included a paper presentation of eight scenarios of napkin change. Twenty-nine checkpoints were identified to evaluate the accurate use of the survey tool. Each checkpoint reviewed the documentation of hand hygiene indication(s) with corresponding observed behaviour. Correctness/incorrectness of each checkpoint was recorded for individual observers. The data were analysed by Winsteps dichotomous model 3.61.2 for Rasch measurement.

**Results:** Data from 15 persons and 29 items were collected. The first analysis identified one misfit item. After removing it, the second analysis showed that all the items fit the Rasch model. There were wide range of person estimated measures (-2.83 – 5.41 logits) and item estimated measures (-3.95 – 6.19 logits). The principal component analysis of residuals showed that 96.5% of the variances could be explained by the model and only 0.8% of the unexplained variances were left to the second dimension revealed the good construct validity of the final assessment scale. The person and item reliability ranged from 0.77 to 0.82 and 0.70 to 0.75 respectively.

**Conclusions:** The unidimensional assessment was confirmed. Using paper presentation to assess the hand hygiene observation was reliable to convey the accurate message to the participants. In future, reinforcing training of hand hygiene observation on unusual situations and adding some more difficult items should be considered.

#### OS 12-9

##### EFFICACY OF HYDROGEN PEROXIDE VAPOUR (HPV) FOR ENVIRONMENTAL DISINFECTION OF OPERATING ROOM

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**Purpose:** Healthcare-associated infections remain an important source of morbidity and mortality, and it is a significant public health issue, including surgical site infection (SSI). Healthcare-associated infections have been attributed to cross infection via the hands of healthcare personnel. Contaminations

of the hands of healthcare personnel could result directly from contacting with patients or indirectly from touching contaminated environmental surfaces. The maintenance of aseptic surfaces during the operation is important to avoid SSI, therefore we cannot ignore the cleaning and disinfection in surgical room. The aim of this study was to determine the efficacy of room disinfection with a hydrogen peroxide vapour (HPV).

**Methods:** The study was conducted in an operating room of a medical center. We cultured 90 high-touch areas in 6 rooms (15 samples each room) after routine terminal disinfection. Then, we implement HPV decontamination and cultured the same high-touch areas.

**Results:** The positive rate of culture was 81.11% after routine terminal disinfection. More terribly, we still can find healthcare-associated pathogens on the environmental surfaces, such as *Enterobacter cloacae*, *Staphylococcus aureus*, *Acinetobacter spp.*, *Pseudomonas spp.*, *Bacillus spp.*, and CNS. However, the positive rate decreased to 0.01% after the intervention of HPV decontamination.

**Conclusions:** This finding implicates that there is a higher efficacy for environmental disinfection of operating room in HPV decontamination than in routine terminal disinfection.

#### OS 13-1

##### TOPICAL VANCOMYCIN POWDER WAS NOT ASSOCIATED WITH DECREASED RISK OF SURGICAL SITE INFECTIONS (SSIs) AFTER CRANIOTOMIES OR CRANIECTOMIES (CRANI)

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**Purpose:** Published studies have not evaluated the effectiveness of vancomycin powder in preventing SSIs after CRANI. Our purposes were to evaluate the association between vancomycin powder and SSIs, to identify SSI risk factors, and to assess outcomes associated with SSIs after CRANI.

**Methods:** We performed a nested case-control study among patients undergoing CRANI during 1/2010 - 3/2013 at our hospital. We matched each patient with SSI with 3 controls without SSIs by procedure month. We abstracted data from medical records. We analyzed continuous variables with Wilcoxon rank-sum test and categorical variables with Chi-square test or Fisher's exact test.

**Results:** 53 SSIs occurred during the study period; 159 controls were selected. The overall SSI rate was 2.7%. Of SSIs, 87% were deep incisional or organ/space and 70% were detected during readmissions. The organisms causing SSI were *S. aureus* (36%), coagulase-negative staphylococci (17%), and *P. acnes* (11%).

SSIs and controls were similar in: age, gender, body mass index, diabetes, indication for CRANI, prior CRANI, preoperative length of stay (LOS), ASA score, emergent procedure, antimicrobial prophylaxis, operation duration, intraoperative blood loss, transfusion, and perioperative glucose level. Vancomycin powder was not associated with decreased risk of SSIs (SSIs 11% vs controls 10%; odds ratio [OR] 1.1; 95% confidence interval [CI] 0.4, 3.1).

Significant SSI risk factors included: smoking history (OR 1.9; 95% CI 1.0, 3.5), implant placement (OR 6.3; 95% CI 2.7, 14.9), and prolonged postoperative median LOS (SSIs 8 days vs controls 4 days). Patients with SSIs had increased risk of readmission (OR 10.9; 95% CI 5.3, 22.6), reoperations (OR 43.4; 95% CI 14.6, 128), and bone flap removal (OR 104; 95% CI 13.5, 798).

**Conclusions:** Vancomycin powder was not associated with decreased risk of SSIs after CRANI. Additional good quality studies are needed before vancomycin powder is routinely applied to CRANI incisions.

#### OS 13-2

##### DAILY CHLORHEXIDINE CARE AT EXIT SITE IN PATIENTS WITH PERITONEAL DIALYSIS: A RANDOMIZED CONTROL TRIAL

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**Purpose:** Chlorhexidine has been used in central line dressing change and is effective in reducing line infection. We don't know if daily chlorhexidine