Conclusion: Cleaning validation is best done with visual inspection combined with ATP test as these assessed cleanliness of both external surfaces and inner housing as well as the channels of medical devices. The ATP test is an objective and sensitive method compared to visual inspection.

**Conclusions**:

The study results indicated the need to seriously and continuously promote and support hospitals in prevention of NSIs among hospital personnel in order to reduce the impact on personnel and hospitals.

**CONVERSION FROM A TRADITIONAL BEDPAN SANITIZER TO A SINGLE-USE DISPOSABLE SYSTEM, TO ELIMINATE BEDPAN CLEANING AND IMPROVE OPERATIONAL PROCESSES**

S. Salmon 1, W. S. Chin 1, D. Fisher 2, 1Nursing Administration, National University Hospital Singapore; 2Department of Medicine, National University Health System, Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore

Purpose: To assess the potential benefits of a system of single-use receptacles to eliminate the need to share and reuse receptacles amongst patients. Specifically considering productivity gains, prevention infection, cost and acceptance.

Methods: During October & November 2012, NUH trialed a disposable single-use system to understand challenges and acceptance. The trial was conducted across 4 wards; a Medical ward, an Oncology Ward, the Cardiac Intensive Care Unit and the Emergency Department.

A survey was conducted to receive user feedback and comments (Table 1). Based on user feedback, a proposal for implementation was developed and submitted to the NUH executive board. Patients were also interviewed by staff. Calculations were made to consider time of nurses and housekeepers in supporting the activities related to the 2 systems, water and power consumption.

Results: 24,703 nursing-hours saved p/year (34% savings); 8,460 housekeeping hours saved p/year (100% savings); 50% reduction in water consumption (19,068,816 litres less water used per year); 99.7% reduction in power consumption (4,754,015Kwh less power per year).

<table>
<thead>
<tr>
<th>Table 1</th>
<th>Nurses Feedback Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Question</td>
<td>Percentage of respondents in agreement (n = 172)</td>
</tr>
<tr>
<td>Training was comprehensive</td>
<td>99%</td>
</tr>
<tr>
<td>Installation process was satisfactory</td>
<td>95%</td>
</tr>
<tr>
<td>Likelihood that the system will save time</td>
<td>92%</td>
</tr>
<tr>
<td>before giving more time for the patient</td>
<td></td>
</tr>
<tr>
<td>Likelihood that the disposable system could help reduce the risk of cross infection</td>
<td>99%</td>
</tr>
<tr>
<td>Preference for the disposable system to the previous reusable system</td>
<td>91%</td>
</tr>
<tr>
<td>Interest to continue using the new disposable system</td>
<td>90%</td>
</tr>
</tbody>
</table>

Conclusion: Based on overwhelming positive results from the pilot trial, NUH replaced 47 bedpan sanitizer units across 41 inpatient areas during January – March 2014. NUH will continue to review financial and labour savings, patient satisfaction and infection control benefits to ensure optimal results and impact hospital-wide.

**PREVENTING INFECTIONS IN VASCULAR ACCESS — A SUCCESS STORY**

Geetha Samethadka. Bhagwan Mahaveer Jain Hospital, Millers Road, Vasantnagar, Bangalore 560052, India

Purpose: Peripheral Intravascular Catheters are a common aspect of hospital practice and are commonly associated with phlebitis. This condition causes
inflammation of the veins — either due to mechanical or physico-chemical factors. Catheter related complications can damage the patient’s health and increase hospital stay/cost. Thorough patient assessment and careful catheter management significantly reduce risk of complications and infections.

Methods: Peripheral Intravenous Catheter management program was introduced at a 250 bed tertiary care hospital in Bangalore in 2011 so as to bring about changes in healthcare practices to minimize phlebitis rate through implementation of best practices in PIVA (Preventing Infections in Vascular Access).

Standardisation of aseptic care included introduction of PIVA documentation forms, regular hand wash audits, infection control rounds and surprise checks, continuing education and training for healthcare providers, analysis of phlebitis rates and discussions for continuous improvement. Severity of phlebitis was measured using Visual Infusion Phlebitis (VIP) Score at 8 hourly intervals.

Results: Data collected during the period 2011-2014 show significant and continuing reduction in phlebitis incidence and rate. A total of 16309 peripheral venous catheter insertions were studied during January 2012 to June 2014, totalling 59857 catheter days. Implementation of PIVA documentation and phlebitis management helped reduce hospital wide phlebitis rate from 13.1% (prior to PIVA implementation) to 2.97% during the first half of 2014. Particularly significant were the reductions achieved in Neonatal ICU/Labour Rooms (28.2% to 2.70%), private/semi-private wards (26.8% to 3.9%), Paediatric ICU (10.4% to 4.0%) and ICU (12.3% to 2.97%).

Conclusions: Transparent sterile dressing secures the device and allows continuous visual inspection of the insertion site. It reduces frequency of changes compared to unsterile dressing. Maintaining the date/time of insertion and accurate documentation helps track infection outbreaks. Introduction of PIVA documentation with sterile transparent dressing played a major role in reducing the incidence of phlebitis.

Keywords: Documentation, Hand wash, Infection Control, Phlebitis management, Peripheral Intravenous Catheters, PIVA, Standardisation, Visual Infusion Phlebitis (VIP) Score

PREVENTING INFECTIONS THROUGH CLEANER HOSPITALS (PITCH): AN ENVIRONMENTAL CLEANING BUNDLE
Nichelle J. Allen 1,2,*, Kate Halton 1,2, Lisa Hall 1,2, Christine Welsh 1, Nicholas Graves 1,3, 1Centre for Research Excellence in Reducing Healthcare Associated Infections (CRE-RHAI); 2Institute of Health and Biomedical Innovation, School of Public Health and Social Work, Queensland University of Technology (QUT); 3Logan Hospital, Metro South Healthcare and Hospital Service, Queensland Health, Brisbane, Australia

Purpose: Translating the numerous lengthy cleansing standards and guidelines into meaningful and sustained improvements in cleaning practice is challenging. This research hypothesized that an evidence based cleaning bundle would improve cleaning performance, knowledge and attitudes, and ultimately reduces healthcare associated infections (HAI) in a way that is value for money. A bundle is a small, straightforward set of evidence based practices, that when performed collectively and reliably, improves patient outcomes.

Methods: A structured literature review identified evidence and a multidisciplinary expert panel prioritized practices for inclusion into the bundle. The 5 key areas identified were product use, cleaning technique, enhanced auditing, comprehensive training and improved communication. The Promoting Action on Research Implementation in Health Services (PARIHS) framework provided an easy to use, comprehensive process to support implementation of the bundle, which identified key areas specific to successful implementation and guided synthesis of information obtained from staff consultations and surveys to develop targeted training and project resources.

Results: The bundle was implemented in a large metropolitan hospital for 6 months (June – November 2014). Preliminary results (June - September) demonstrate significant improvements in cleaning performance, the average proportion of UV markers removed during cleaning across the 8 research wards increasing from approximately 61% to over 90%. New HAI acquisition rates have remained constant even though the burden of colonisation has increased. Over 90% of environmental services staff have received the bundle training including patient handling and casual staff, with staff across the hospital engaged in promoting the importance of cleanliness. In addition to cleaning performance and changes to infection rates, the full evaluation will also measure improvements in staff cleaning knowledge, attitudes and costs.

Conclusion: This research provides evidence of the success of a practical evidence-based strategy to improve environmental cleaning practices in hospital, which will ultimately reduce the risk of HAIs.

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EVALUATING THE Efficacy OF ENVIRONMENTAL CLEANLINESS BY ADENOSINE TRIPHOSPHATE BIOLUMINESCENCE ASSAY AT A MEDICAL CENTER
Yu-Shan Huang 1, I. C. en Hung 2, Mei-Ling Chen 2, Jann-Tay Wang 1,2, Wang-Huei Sheng 1,2, Yee-Chun Chen 1,2, Shan-Chwen Chang 1, 1Department of Internal Medicine, National Taiwan University Hospital, Taipei, Taiwan; 2Center for Infection Control, National Taiwan University Hospital, Taipei, Taiwan

Purpose: Environment cleaning is an important strategy to prevent microbial colonization and healthcare-associated infections at hospitals. However, there is no consensus for the standard to judge hospital cleanliness, and the comparison of different methods is still limited.

Methods: A prospective study was conducted at a medical center during January 2013 and August 2013. In each selected rooms, 10 to 12 high-touch surfaces were sampled before and after terminal cleaning. The effectiveness of cleaning was evaluated by visual inspection, adenosine triphosphate (ATP) bioluminescence assay, and aerobic colony counts (ACC).

Results: Eighty-six environmental surfaces from 8 rooms were tested by all three methods. The overall failure rates defined by visual inspection, ATP level, and ACC were 11.6%, 51.2%, 19.8% before cleaning and 4.7%, 21.2%, 5.9% after cleaning, respectively. Correlation between ACC and ATP was found (r = 0.283, p < 0.001) by using Log10 values. Using ACC~2.5 CFU/cm² as the cut off level of true cleanliness, the ATP assay had better sensitivity (63.6% vs. 27.3%) but lower specificity (68.0% vs. 94.7%) than visual inspection. The ROC of the ATP assay indicated that the optimal ATP cut-off value was estimated to be 597 RLU/100cm².

Conclusions: ATP bioluminescence assay is a sensitive and objective tool in evaluating the quality of terminal cleaning. We emphasize the value of using a quantitative method to monitor environment cleaning at hospitals.

HOW DO MANAGERS WORK TO IMPROVE HAND HYGIENE AND HYGIENE PROCEDURES? - A QUALITATIVE STUDY AT A HOSPITAL IN STOCKHOLM
M. Ling-Roo 1, L. Povlsen 2, 1Department for Infection Control at Stockholm County Council, Sweden; 2The Nordic School of Public Health, Gothenburg, Sweden

Introduction: Every year, millions of patients worldwide contract healthcare-associated infections, which pose a public health problem and a threat to patient safety. According to the World Health Organization, all countries must focus on and reduce the prevalence of health-care associated infections by improving hygiene procedures by health professionals.

Aim: This study aims to increase insight, understanding, and knowledge about how managers at an emergency hospital in Stockholm work to improve patient safety through hygiene procedures, clothing, and hand hygiene routines. The goal is to provide suggestions and inspiration on how adherence to hygiene procedures can be optimized at the hospital where the study was conducted, and may possibly also serve as inspiration to other caregivers.

Method: 41 managers at various levels were interviewed. A qualitative research approach was chosen and manifest qualitative content analysis was used for data analysis.

Results: Managers perceive that adherence to hygiene procedures are generally good, but may differ between professions. There are individuals...