QUALITY INITIATIVES

Entries in the 18th Annual ACHS Quality Improvement Awards 2015

Proudly supported by Baxter
Quality Initiatives

Entries in the 18th Annual ACHS Quality Improvement Awards 2015.

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Introduction

The ACHS Quality Improvement Awards

The annual ACHS Quality Improvement (QI) Awards were introduced in 1998 to acknowledge and encourage outstanding quality improvement activities, programs or strategies that have been implemented in healthcare organisations.

In 2015, the 18th Annual ACHS QI Awards were open to submissions from all domestic ACHS and international ACHSI member organisations following the ACHS NSQHS (National Safety and Quality Health Service) Standards Program, EQuIP5 (Evaluation and Quality Improvement Program), EQuIPNational, EQuIPNational Corporate Health Services, EQuIPNational Day Procedure Centres, and the ACHS Clinical Indicator Program.

This year, 95 entries were submitted with 59% in the Clinical Excellence and Patient Safety category, 27% in the Non-Clinical Service Delivery category and 14% in the Healthcare Measurement category.

Judging was conducted externally with separate panels of three judges for each of the QI Awards categories:

- **Clinical Excellence and Patient Safety**: This category recognises innovation and demonstrated quality improvement in the delivery of safe, effective patient care.

- **Non-Clinical Service Delivery**: This category acknowledges a demonstrated outcome of improvement and innovation in patient and/or consumer services and organisation-wide practice including services provided by community and allied health organisations.

- **Healthcare Measurement**: This category recognises organisations that have measured an aspect of clinical management and/or outcome of care, taken appropriate action in response to that measurement, and demonstrated improved patient care and organisational performance upon further measurement. Healthcare measurement can include data collected from the ACHS Clinical Indicator program or other methods of monitoring patient care processes or outcomes. Both quantitative and qualitative data can be used, however this category must describe the initial measurement, the analysis of that measurement, the action(s) implemented, and the improved measurement(s).

Each judging panel consisted of an ACHS Councillor, an ACHS surveyor and a representative from an ACHS member organisation.

Submissions were required to meet specific criteria that were weighted equally:

- Judges assessed all eligible submissions on the five (5) ACHS principles of: consumer focus, effective leadership, continuous improvement, evidence of outcomes and best practice;

- Judges assessed additional criteria: improvement in patient safety and care, measured outcomes, applicability in other settings, innovation in patient care and/or processes and relevance to the QI Awards category;

- The submission MUST relate to a period of up to no more than two (2) years prior to the year of entry.
The 18th Annual ACHS QI Awards 2015

Winner Submissions

<table>
<thead>
<tr>
<th>Category</th>
<th>Organization</th>
<th>Title</th>
<th>Authors</th>
<th>Submission Page</th>
</tr>
</thead>
</table>
| Clinical Excellence and Patient Safety | Hunter New England Local Health District  
John Hunter Hospital and Hunter New England Nursing and Midwifery Research Centre | Preventing Catheter Associated Urinary Tract Infection  
Michelle Giles, Wendy Watts, Sandy Berenger, Michelle Paull, Anthony O’Brien, John Ferguson | | 5 |
| Non-Clinical Service Delivery    | Metro South Hospital and Health Service - Logan Hospital  
Environmental Services and Infection Management Service | Preventing Infection through Cleaner Hospitals (PITCH): An Environmental Cleaning Bundle  
Christine Welsh, Michelle Allen, Maggie Wilson, Rose McSorley, Wayne Hebblewhite, Marjoree Sehu | | 19 |
| Healthcare Measurement           | The Children’s Hospital at Westmead  
Department of Nutrition and Dietetics and Department of Respiratory Medicine | Sustaining Improvements in Cystic Fibrosis (CF) Nutrition Outcomes  
Christie Graham, Andrea Kench, Peter Cooper, Dominic Fitzgerald, Hiran Selvadurai, Sharon Hunt, Sharon Simonds, Shoma Dutt | | 33 |

Each winning submission in the ACHS QI Awards receives a Certificate of Acknowledgement, a QI trophy from ACHS, and a cash prize generously provided by Baxter Healthcare.

ACHS publishes submissions from all participating organisations to share and encourage exceptional quality improvement strategies amongst the ACHS member organisations.

The full version of this document will be published on the ACHS website (www.achs.org.au).
Highly Commended Submissions

The 18th Annual ACHS QI Awards 2015

Clinical Excellence and Patient Safety

St Vincent’s Hospital Sydney
St Vincent’s Hospital Pain in the elderly working party

Pain assessment and management in elderly patients –
implementing evidence based practice in the acute care setting
Julie Gawthorne, Steven Faux, Jenny Stevens, Susie Welch, Jacqueline Jensen, Melissa O’Brien, Elizabeth Harper,
Angelica Thompson Butel
Abstract page 13

Princess Margaret Hospital
Infection Control Team and Information Technology Department

The Use of Mobile Technology to Improve Efficiency and Surveillance of
Hand Hygiene Audit
Charlene Kong, T K Ng, K M Tong, Bosco Lam, Queenie Lam, Mandy Ng, San Fung, Parklan Poon
Abstract page 14

South Western Sydney Local Health District
Camden Rehabilitation Unit / Camden Hospital

Implementation of a Safety Huddle for Falls and Near Miss Falls in a Rehabilitation Unit
Brian Lane, Bronwyn Everett
Abstract page 15

Non-Clinical Service Delivery

Gold Coast Hospital & Health Service
Nutrition & Food Services

Amalgamation of a clinical & non clinical service
Zane Hopper, Alan Spencer, Cameron Hill
Abstract page 27

Monash Health
Support Services

An innovative food service model @ Moorabbin Hospital
Sharon McNulty
Abstract page 30

Healthcare Measurement

Gold Coast Hospital and Health Service
Department of Medicine

The OnCallogist Mobile App in the afterhours ward-call setting.
Dr Justin Wong, Dr Siddharth Sharma
Abstract page 42
Hunter New England Local Health District
John Hunter Hospital and Hunter New England Nursing and Midwifery Research Centre

Preventing Catheter Associated Urinary Tract Infection
Michelle Giles, Wendy Watts, Sandy Berenger, Michelle Paull, Anthony O’Brien, John Ferguson

A. AIM
The aim of this project was to develop and implement an innovative nurse-led model of care in the use and management of indwelling urinary catheters (IUC) utilizing evidence-based ‘bundle interventions’ to reduce the incidence of catheter-associated urinary tract infections (CAUTI).

B. SUMMARY ABSTRACT
Background: Catheter Associated Urinary Tract Infection (CAUTI) accounts for 40% of all Healthcare-Associated Infections (HAI) (APIC 2008) and between 15% and 25% of all inpatients have an Indwelling Urinary Catheter (IUC) inserted during their admission (Gould et al., 2010; Saint 2000). There are an estimated 100 million urinary catheters used annually around the world (Nasr 2010) and urinary tract infections (UTI) are estimated to cause one death per 1000 episodes of urinary catheterization (Gokula et al., 2004). It is argued that IUC insertion can be unjustified in up to 50% of cases and risk of CAUTI increases with the duration of catheterization (Oman et al., 2012; Saint, 2000). CAUTI can delay patient discharge by approximately 2 days. There were no standardized protocols available in our Local Health District for IUC insertion and management and IUC usage and CAUTI rates were unknown.

The “bundled intervention” framework used in this project is defined as a collection of a small number of evidence based practices or steps which are vital to achieving improvement in clinical outcomes (Institute for Healthcare Improvement 2011). Nursing staff have been identified as critical in bundle’ interventions with nurse-led protocols for catheter removal under established guidelines being identified as an effective means to reduce IUC duration (Newman, 2009; Parry et al., 2013). A nurse-led approach enables nurses to influence bedside decisions if provided with appropriate information and tools. However an extensive literature review indicated that a collaborative multipronged inter-professional approach would maximize the success and sustainability of our intervention.

Aim: This pilot project aimed to develop, implement and evaluate an innovative, evidence based, nurse led model of care to guide the insertion and management practices of inpatients with indwelling urinary catheters (IUC) utilising an evidence-based ‘bundle interventions’ to reduce the incidence of catheter-associated urinary tract infections (CAUTI).

Design and Method: This project used a highly collaborative pre and post intervention approached and was conducted in three phases.

Phase one: Scoping the extent of the problem and development of resources and tools. This involved exploring the literature and extensive interprofessional collaboration with all stakeholders to develop evidence-based IUC insertion criteria, the care bundle, guidelines and educational resources and tools. Data collection pre implementation involved extensive chart audits over a 3-month period in 2013 to identify IUC usage rates and length of time in-situ in two wards thought to have high IUC usage rates. Exploration of electronic microbiology results provided CAUTI rates in this cohort. Compliance audits were attended and a staff survey identified current staff skill and knowledge and informed development of educational resources.

Phase two: Implementation. This involved further consultation with ward staff related to implementation strategies, nomination of ward champions to engage ward staff and assist in implementation of the nurse-led protocol. Education sessions were held with nursing staff in wards and medical and education staff and educational material such as DVDs and targeted resource materials such as stickers, posters and badges were also introduced. This heightened awareness of the practice changes being
implemented. The bundle audit tool was trialed and optimized based on staff feedback and regular compliance audits were attended.

Phase three: Evaluation. The primary outcome targets assessed were IUC usage rates, days IUC in situ and incidence of CAUTI. Data collection included post implementation chart audits on all admission to the two wards over a 3-month period from February to April 2015. Frequent chart and bedside auditing assessed staff knowledge and awareness through compliance with bundle elements.

Setting: An adult orthopaedic ward and urology ward in a large tertiary referral hospital in Hunter New England Local Health District. These wards had been identified anecdotally by staff as having high IUC usage rates.

Results: The scoping exercise identified higher than expected IUC usage rates with between 25% and 31% of all inpatient admission in the two pilot wards having an IUC inserted during their admission. IUC’s were being left in situ for a mean of 5 days and 8.4% of all patients with an IUC inserted were being treated for CAUTI.

Post implementation data demonstrated a statistically significant reduction in IUC usage rates from 31% to 14.6% of all inpatient admissions (p<0.001). Findings identified the demographic for patients having IUC’s inserted and has enabled the project team to target insertion practices in individual specialty groups to reduce their routine use. The majority of IUC insertions either occurred in the Emergency Department (ED) or Operating Suite so the project team extended implementation to the ED.

Mean days IUC left in situ has been reduced from 5 days to 3 days (p=0.038) which indicates that IUC removal is faster, reducing the risk of developing CAUTI.

The number of patients being treated for CAUTI has reduced in number significantly from 8.4% of all patients who had an IUC inserted, to 0.7% (p<0.001).

Generation of innovative resources such as cost effective generic catheterisation packs, an alert on urine microbiology reports assist in identifying and treating CAUTI.

The tools developed increase clinician awareness and they are better equipped to make informed decisions related to IUC insertion and removal (Table 1, Figures 1&2). The team generated innovative resources such as a DVD, insertion criteria and removal decision charts, colour coded badges, posters and stickers to alert clinicians to the risk of CAUTI. The addition of an alert on urine microbiology reports assist in identifying and treating CAUTI.

Continued auditing for compliance with guidelines will ensure that guidelines and protocols are becoming embedded in practice and will be sustainable.

Conclusion: The development of a systematic and standardised approach to IUC management using bundled care interventions and collaborative and multipronged change management strategies has ensured that implementation has successfully reduced IUC use and CAUTI significantly. There is now a clear pathway for nurse initiated removal and clarity around insertion criteria and ongoing management. This model is evidence based and transferable across all contexts within the LHD. This will facilitate the spread and sustainability of the nurse led model and will ensure long term cost savings to the health service and better outcomes for patients.

C. APPLICATION OF ACHS PRINCIPLES

1. Consumer Focus

Patients who have an indwelling urinary catheter inserted are at risk of Catheter Associated Urinary Tract Infection (CAUTI). Internationally the literature reports that a quarter of all inpatient have an indwelling urinary catheter (IUC) inserted during their hospital stay (Saint, 2000; Gould et al., 2010) and on many occasions the insertion is based on ritualistic practices, with no clinical indication for insertion (Murphy et al., 2014).

Overuse of indwelling urinary catheters has seen CAUTI become one of the most frequently occurring nosocomial healthcare infections (Crouzet et al., 2007; Klevens et al., 2007) accounting for 40% of all Healthcare Acquired Infections (APIC 2008). CAUTI was historically viewed as a normal consequence of hospitalization in catheterized patients but is now considered to be ‘an unacceptable harm resulting from medical care’ (Wald, 2007, pp 2783). This change has been realized as health care delivery models become more focused on patient centeredness, quality outcomes, and efficiency and cost effectiveness.
There is considerable risk if patients develop a CAUTI during their hospital stay. There are an estimated 100 million urinary catheters used annually around the world (Nasr, 2010) and CAUTIs are estimated to cause one death per 1000 episodes of urinary catheterization (Gokula et al., 2004). It is purported that IUC insertion can be unjustified in up to 50% of cases and the key factors is the duration of catheterization (Oman et al., 2012; Saint, 2000). For patients who have an IUC in place for between 2 and 10 days, one in four will develop bacteriuria. Symptomatic infection develops in 20% of patients with catheter-associated bacteriuria adding 1 to 2 hospital days to the length of stay (Saint et al., 2009).

CAUTI results in substantial burden of care, and significant hospitalisation costs related to length of stay and infection treatment (Gould et al., 2009). Urinary catheterisation is also associated with patient discomfort and pain, restriction of activity and there is additional concern that CAUTIs “comprise one of the largest reservoirs of multidrug-resistant bacteria in healthcare settings” (APIC, 2008, pp 41).

In our Health District no standardized protocols existed for IUC management and CAUTI rates were unknown. A nurse-led approach to IUC management was an obvious path as nurses influence bedside decisions if provided with appropriate information and tools. Our project team developed an innovative evidenced-based care bundle that used the acronym “NO CAUTI” with emphasis on involving the patients’ perspective in the model (Figure 1). This bundle is evidence based and reinforces the message that IUCs are associated with CAUTI risk and that prevention is paramount. The “bundle” includes assessment of IUC insertion indication, timely removal, documentation, patient education, clinical competency, and asepsis and preventative catheter system maintenance. One of the most important and unique elements of the care bundle that differentiates it from other work done in this area is the consideration of the consumer education and consent related to the procedure of urinary catheter insertion. Consumer involvement is also enhanced in the compliance auditing tools where consumers are asked if they were aware why they had received the IUC, whether consent was sort and if education was provided about the procedure. Continuous monitoring compliance auditing tools were developed to ensure the model becomes embedded into practice and is sustainable and that inpatients continue to get the highest quality care outcomes.

The positive results from the implementation of the nurse led model are evidence that the project has achieved its’ aim of reducing IUC catheter usage and the incidence of CAUTI and thus improved patient outcomes. The project team are keen to share this model to maximize its’ impact in inpatient settings so the results have been published in an international peer reviewed journal (Giles et al. 2015).

Figure 1: CAUTI Prevention Care Bundle. From Giles et al., 2015, originally published by Healthcare Infection.

2. Effective Leadership

The project team utilised a highly collaborative approach forming partnerships across all levels from clinicians and NUM in wards, senior clinicians across specialties such as ED, urology, orthopaedics, OT, obstetrics and community. The partnership includes educators who will now be ready to assist with implementation across other facilities. These partnerships have provided a platform of leadership and commitment to share information and knowledge, achieve our goals in reducing CAUTI and have added value to organisational outcomes in the form of patient and resource efficiency outcomes and improved staff knowledge.

The collaborative approach across professional and divisional boundaries in developing the nurse
led model, supporting resources and decision tools is a testament to the strong clinical leadership demonstrated by the project team. This project empowered others; clinicians and patients, with the knowledge they need to make informed decisions and improve their awareness of the risks associated with IUC’s. Nurses at all levels are equipped to provide leadership related to decision making related to IUC practices and are well supported to guide the practice of others.

The application of evidenced based practice using innovative ways of applying and sharing this knowledge has demanded strong commitment, collaboration across many units, specialties and professions and the harnessing of executive sponsorship was critical to the uptake and success of this project. This was demonstrated through the commitment of funding through the Innovation Support Unit as well as supportive communication at an executive and service manager level for the project and the team.

Leadership was evident in the teams’ systematic and phased approach to the collaboration with stakeholder, planning, development, implementation and evaluation components of the project. This leadership continues, as the team will now focus on gaining funding to implementation this model across all the LHD. Members of the team represent the HNELHD on the State committee aimed at reducing CAUTI.

3. Continuous Improvement

The development of a systematic and standardised approach to IUC management using bundled care interventions and collaborative and multipronged change management strategies has ensured that implementation has successfully reduced IUC use and CAUTI significantly. There is now a clear pathway for nurse initiated removal and clarity around insertion criteria and ongoing management. This model is evidence based and transferable across all contexts within the Local Health District and beyond. This will facilitate the spread and sustainability of the nurse led model and will ensure long term cost savings to the health service and better outcomes for patients across a much broader scale.

Our project team developed an innovative evidenced-based care bundle that used the acronym “No CAUTI”. This reinforces the message that IUCs are associated with CAUTI risk and that prevention is paramount. The “bundle” includes assessment of IUC insertion indication, timely removal, documentation, patient education, clinical competency, and asepsis and preventative catheter system maintenance.

The tools developed better equip clinicians to make better decisions related to IUC insertion and removal (Table 1, Figures 1&2). The team generated innovative resources such as badges, an educational DVD, posters, flowcharts and audit tools to increase awareness of the risk of CAUTI and provide the information required to make informed decisions. Cost effective generic catheterisation packs have also been negotiated across Obstetrics, OT, ED and wards with all equipment needed included in the pack, including documentation stickers and securing devices. The addition of an alert on urine microbiology reports assist in identifying and treating CAUTI.

A wide collaborative and integrated inter-professional approach assisted in the uptake of the initiatives developed across disciplines and this along with continuous bundle compliance monitoring will ensure that they will become embedded in practice and be sustainable.

Table 1: Indications of indwelling urinary insertion. From Giles et al., 2015, published by Healthcare Infection.

<table>
<thead>
<tr>
<th>Indication</th>
<th>From Giles et al., 2015, published by Healthcare Infection.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urinary retention and obstruction</td>
<td></td>
</tr>
<tr>
<td>Neurogenic bladder</td>
<td></td>
</tr>
<tr>
<td>Urosepsis</td>
<td></td>
</tr>
<tr>
<td>Management of haematuria (cysts)</td>
<td></td>
</tr>
<tr>
<td>Measure accurate urinary output in the critically ill</td>
<td></td>
</tr>
<tr>
<td>Assist with wound healing if patient is incontinent</td>
<td></td>
</tr>
<tr>
<td>To improve comfort for end-of-life care if no other option</td>
<td></td>
</tr>
<tr>
<td>Immobilisation: unstable thoracic or lumbar spine, pelvic fractures</td>
<td></td>
</tr>
<tr>
<td>Chronic indwelling urinary catheter on admission</td>
<td></td>
</tr>
<tr>
<td>Perioperative use for selected surgical procedures, NOT ROUTINELY</td>
<td></td>
</tr>
</tbody>
</table>

4. Evidence of Outcomes

Findings from this pilot project have been very positive. Overall the primary goals have been achieved as evidenced by the following;

- Reduced IUC usage rates in ward A from 30 % (N=121) of admissions to 14.6% (N=42) (P<0.001). No reduction in ward B – urology.
- Reduced length of time IUC left in situ, down from a mean of 4.6 to 3.9 days in ward A (not significant) and down from 4.9 days to 2.9 days in ward B (p<0.038). Days in situ are influenced by OT delays in ward A, however most IUCs are being removed within 24 to 48 hours post operatively. (Duration of catheterisation is a key risk factor for CAUTI (Saint et al., 2009)).
Figure 2: Nurse initiated IDC removal decision flowchart. From Giles et al., 2015, originally published by Healthcare Infection.
The Australian Council on Healthcare Standards

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Category: Clinical Excellence and Patient Safety

- Significant reduction in number of patients being treated for CAUTI in both wards
- (P<0.001) down from 2.7 % (N= 15) to 0.4 % (N=1). Reduced antibiotic use (not measured) that flows on from this change may reduce potential side effects to patients (e.g. Allergy, Clostridium difficile infection and multi-resistant organism acquisition).
- Improved patient educational resources facilitate informed patient consent and empowerment.
- Increased clinicians knowledge and risk awareness along with standardised practices, guidelines and resources assists clinicians in decision making related to IUC insertion and removal (Table 1, Figures 1&2). This facilitates the organisational “Excellence” goal to deliver quality evidence-based care to every patient every time.
- Data collection methods now capture CAUTI rates and alert systems assist in diagnosing and treating CAUTI. Clinicians are not treating asymptomatic bacteriuria unnecessarily.
- From April 2014 to March 2015 there were 217,228 admissions across the LHD, potentially $3, 057 patients (25 %) may have received an IUC. Reducing by 50%, in line with our results, could prevent up to 26,000 patients from having an IUC inserted, resulting in;
  - Saving $442,000 in equipment (Table 2).
  - Preventing 4085 (7.7 %) cases of CAUTI.
  - Saving 8170 bed days - 2 days per CAUTI (Saint et al., 2009) and cost of antibiotic therapy.

5. **Striving for Best Practice**
   This project uses best practice evidence and a person centred approach to embrace opportunities for more effective collaboration and use of resources to improve quality of care for this group of patients within their inpatient settings.

Prevention is a key initiative to keep people healthy. The predominant aim of this project is prevention of CAUTI by limiting the use of IUC, an invasive device. The project team has been successful in reducing the use of IUCs and preventing CAUTI based on development of innovative evidence based practice initiatives.

This project’s outcomes reinforce the importance of integrated and collaborative approaches in developing and implementing high quality evidence based strategies. A wide collaborative and integrated inter-professional approach assisted in the uptake of the evidenced based initiatives developed across disciplines and will ensure that they will become embedded in practice and be sustainable.

Our project team developed an innovative evidenced-based care bundle that used the acronym “No CAUTI”. This reinforces the message that IUCs are associated with CAUTI risk and that prevention is paramount. The “bundle” includes assessment of IUC insertion indication, timely removal, documentation, patient education, clinical competency, and asepsis and preventative catheter system maintenance.

D. **INNOVATION IN PRACTICE AND PROCESS**
   The findings of this project were published internationally (Giles et al., 2015).

The concept of “bundled interventions” in healthcare infection prevention is not new. However, studies aimed at reducing CAUTI have only limited success (APIC, 2008). A literature review indicated that a collaborative multipronged inter-professional approach would maximise the success and sustainability of our intervention.

No standardized protocols existed for IUC management and CAUTI rates were unknown. Up to 50 % of IUC insertions are unnecessary (Gould et al., 2009; Oman et al., 2012). A nurse-led approach to IUC management was an obvious path as nurses influence bedside decisions if provided with appropriate information and tools.

Our project team developed an innovative evidenced-based care bundle that used the

<table>
<thead>
<tr>
<th>Equipment</th>
<th>Cost</th>
<th>Comment</th>
</tr>
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<tbody>
<tr>
<td>Foley urinary catheter</td>
<td>$3</td>
<td></td>
</tr>
<tr>
<td>Generic catheterisation pack</td>
<td>$7</td>
<td>Previously ranged from $ 3.50 to $10 without securing device ($5).</td>
</tr>
<tr>
<td>Urine bag</td>
<td>$2</td>
<td></td>
</tr>
<tr>
<td>Hourly measuring chamber</td>
<td>$8</td>
<td>Majority previously had this device included</td>
</tr>
<tr>
<td>Valve</td>
<td>$5</td>
<td></td>
</tr>
<tr>
<td>Xylocaine (male catheterisations)</td>
<td>$4</td>
<td>In urology ward over 83% of catheterisations are male</td>
</tr>
<tr>
<td>Securing device - $5</td>
<td></td>
<td>(cost eliminated with generic catheterisation pack which includes this)</td>
</tr>
</tbody>
</table>
acronym “No CAUTI”. This reinforces the message that IUCs are associated with CAUTI risk and that prevention is paramount. The “bundle” includes assessment of IUC insertion indication, timely removal, documentation, patient education, clinical competency, and asepsis and preventative catheter system maintenance.

The tools developed better equip clinicians to make better decisions related to IUC insertion and removal (Table 1, Figures 1&2). The team generated innovative resources such as badges, an educational DVD, posters, flowcharts and audit tools to increase awareness of the risk of CAUTI and provide the information required to make informed decisions. Cost effective generic catheterisation packs have also been negotiated across Obstetrics, OT, ED and wards with all equipment needed included in the pack, including documentation stickers and securing devices. The addition of an alert on urine microbiology reports assist in identifying and treating CAUTI.

One of the most important and unique elements of the care bundle that differentiates it from other work done in this area is the consideration of the consumer education and consent related to the procedure of urinary catheter insertion. Consumer involvement is also enhanced in the compliance auditing tools where consumers are asked if they were aware why they had received the IUC, whether consent was sort and if education was provided about the procedure.

E. APPLICABILITY TO OTHER SETTINGS

This nurse-led model is extremely transferable across all inpatients settings within the district. Intra-organisational knowledge sharing is optimised and provides for an environment that enhances all clinicians’ knowledge and decision-making ability related to standardised IUC insertion and management practices. Nurses throughout the local health district will now have access to a variety of innovative resources and decision support tools to guide and standardise practices, providing quality care for every patient every time.

This model can be applied across any setting and context within and outside our own Local Health District. Regular compliance audits are undertaken with continued surveillance a key component of this model. Monitoring of trends and feedback of CAUTI rates and bundle compliance is necessary to sustain project gains. The pilot has created interest amongst clinicians in other sites, units and wards. This model is currently being rolled out at Maitland and Belmont Hospital and in all the surgical units at John Hunter Hospital. Nurse Educators at these locations are providing education about the bundle as well as completing catheterisation competency assessments. Project guidelines and resources have been made available across the district and at State level (CEC &HETI) by members of the team representing HNELHD on the State committee aimed at reducing CAUTI.

Formal district wide-implementation of the project is under strong consideration. This would mainstream the practice changes across all settings, supported by nurse consultants and nurse educators. Identification of CAUTI champions at each site is envisaged. The ability to objectively measure IUC management compliance and impact of the bundle will enhance its rapid adoption and sustainability across all locations.

Study findings are published in an international peer reviewed journal (Giles et al., 2015) and this serves to promote adoption of the bundle and other system changes across Hunter New England LHD and elsewhere.

F. REFERENCES


AIM
The aim of the project was to improve the pain assessment and management in patients greater than 75 years of age presenting with traumatic injuries.

SUMMARY ABSTRACT
Background and Aim: Severe pain is reported in 50-75% of elderly patients suffering from fractured neck of femur (NOF) and has been linked to comorbid complications (e.g. myocardial infarction). Pain and some oral pain medications have also been linked to an increased incidence of delirium and/or cognitive decline that can limit the recovery process. Early effective pain management can reduce complications, augment recovery, promote early mobilization and decrease healthcare costs. Fascia Iliaca Block (FIB) is an alternative pain management method of injecting locally acting anaesthetic. The aim of the project was to improve pain assessment and management in patients over 75 years presenting to St Vincent’s Public Hospital, Sydney with fractured NOF and other traumatic injuries. Here we discuss the results from three audits that together examine the effects of these new pain assessment and management techniques.

Method: A multi-disciplinary working party was established in 2012 to standardise pain assessment tools and develop analgesia guidelines for elderly patients based on clinical best practice. Specific to the guideline was the introduction of FIB for patients with a fractured neck of femur (NOF). A formal FIB credentialing program was introduced for senior nursing and medical staff. The most recent audit examines 3 months of admissions at 3 time points; 2011 prior to FIB introduction (n=38) and 2013 (n=37) and 2014 (n=30) after FIB introduction. All patients were >75 years of age and presented to the Emergency Department with a fractured NOF. Outcome measures included patient demographics, analgesia prior to admission, analgesia prescribing in the Emergency Department and ward, FIB insertion rates, Hospital and Emergency Department length of stay, & episodes of delirium.

Results: The average age of patients increased across time points from 72 years in 2011, to 82 years in 2013 and 87 years in 2014 while the proportion of females remained higher at all 3 time points (79 %, 59 % and 70 %, respectively). The percentage of elderly patients receiving a FIB to manage pain after fractured NOF increased from 3 % in 2011 to 73 % in 2013 and 60 % in 2014. 33 % of all FIB’s were inserted by credentialed nursing staff with no adverse events recorded. Regular paracetamol prescription increased from 34 % in 2011 to 73 % in 2013 and 2014 and regular opioid prescription increased from 26 % in 2011 to 70 % in 2013 and 97 % in 2014. The FIB managed pain and was associated with a decrease in delirium from 45 % in 2011 to 33 % in 2014. However the prevalence of dementia increased from 13 % in 2011 to 40 % in 2014. In addition the average length of stay (LOS) in the Emergency Department decreased from 20 hours in 2011 to 9 hours in 2013 which was maintained in 2014.

Discussion: The FIB minimised complications of delirium in the acute period despite the increase in patient age and prevalence of dementia. This higher prevalence may be explained by the older age of patients in 2014. The project highlighted that appropriately trained senior Emergency Department nurses can safely and effectively insert FIB’s with no adverse effects for patients. By improving pain management techniques in the elderly we decrease the delay in commencing rehabilitation and returning home.

Conclusion: This multidisciplinary approach provides a successful and safer alternative to managing pain in the acute period in elderly patients with fractured NOF with lower rates of delirium and length of stay in the Emergency Department.
Princess Margaret Hospital
Infection Control Team and Information Technology Department

The Use of Mobile Technology to Improve Efficiency and Surveillance of Hand Hygiene Audit
Charlene Kong, T K Ng, K M Tong, Bosco Lam, Queenie Lam, Mandy Ng, San Fung, Parklan Poon

AIM
The aim of this project is to improve the efficiency and surveillance of hand hygiene audits by streamlining the audit process to eliminate manual data manipulation and analysis, and standardizing the hand hygiene audit tool to produce consistent and accurate measurements.

SUMMARY ABSTRACT

Background:
Mobile technology provides an opportunity to innovate healthcare delivery. It offers tools that are interactive, real-time and ubiquitous, making them the ideal solutions for improving the quality and efficiency of healthcare services. In our study, we have developed a Mobile App based on the World Health Organization’s (WHO) 5 Moments of Hand Hygiene Audit Tool. The app facilitates the Infection Control Team to conduct hand hygiene audits to assess the compliance rate with infection control practices and identify areas for improvement.

Objectives:
The objectives of the study are to (1) explore how mobile technology could provide an effective method to improve the efficiency and quality of hand hygiene results, (2) standardize the WHO hand hygiene audit tool to produce consistent and accurate measurements, and (3) streamline the audit process through elimination of manual data manipulation and analysis.

Methodology:
The Information Technology Department worked closely with the Infection Control Team to develop a standardized approach to conduct hand hygiene audit using iPads. The project initially involved the analysis of the paper-based audit workflow, followed by a prototype design of Mobile App and Web Portal to tackle the inefficient processes identified. Benchmarking, user experience study and LEAN process analysis were conducted to develop the system that best fits the needs of infection control surveillance and maximizing operational efficiency.

Outcomes:
Major project outcomes include:
1. 57 % reduction in manual works, with significant decreases in data transcription and report preparation works;
2. 89 % reduction in paper printings;
3. 10 % increase in overall hand hygiene compliance and various improvements in infection rates;
4. The optimal frequency of hand hygiene audit could be achieved to cover 100 % clinical departments in every audit;
5. Real-time reports to facilitate prompt review and remedial actions.

Conclusion:
The success of transforming a paper-based audit process to a mobile one is proven to benefit the overall hand hygiene surveillance through improvements in efficiency, accuracy and communication. The project is extended to other aspects of infection control surveillance and adopted by 7 other hospitals in Hong Kong.
South Western Sydney Local Health District
Camden Rehabilitation Unit / Camden Hospital
Implementation of a Safety Huddle for Falls and Near Miss Falls in a Rehabilitation Unit
Brian Lane, Bronwyn Everett

AIM
The Safety Huddle was implemented with the aim of reducing repeat inpatient falls and near miss falls, most importantly focusing on and involving the patient.

SUMMARY ABSTRACT
Inpatient falls are one of the most common patient safety incidents reported in rehabilitation wards, and can result in serious adverse patient outcomes, including permanent physical disability and occasionally, death. However, limited research has focused on including patients within a multidisciplinary approach to falls prevention, following a fall, or near fall event in rehabilitation settings.

A Safety Huddle was a suggested strategy from South Western Sydney Local Health District Falls Working Party that had the potential to reduce repeat falls. The Safety Huddle consists of a NUM led multidisciplinary review of a fall or near miss fall in consultation with the patient.

After determining the need for emergency care and acting accordingly, whenever possible the post-fall safety huddle meeting was convened as soon as practically possible. The following process was implemented:

1. The NUM prepares the patient by explaining the purpose of the safety huddle and that the team will be coming to see the patient.
2. The Nurse Unit Manager (NUM) assumed the role of the Safety Huddle Team Leader.
3. Nursing and allied health staff, medical officer, patient and (carer if present) participated in the safety huddle.
4. Staff apologised for the fall or near fall, and explain that we want to work with the patient and to prevent a reoccurrence, using strategies that we develop in consultation.
5. The team completed an analysis of the fall event, and intervention(s) for preventing a repeat fall were decided by the safety huddle team and patient. This process was documented in the clinical record and on the electronic nursing hand over.
6. After the post fall huddle, the NUM followed up with staff and patient to ensure interventions were implemented to prevent a repeat fall occurring. The NUM also answered any questions or concerns voiced by the patient or carer.
## Category: Clinical Excellence and Patient Safety

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Improving the patient discharge experience: The Introduction of Post Discharge Phone Calls at St Vincent’s Private Hospital Sydney
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Kirsty Stafford, Gemma Craig

The Wound Improvement Program – an organisational approach to improved patient skin integrity
Wimmera Health Care Group
Marita Ticchi, Sally Taylor, Don McRae

Breaking Down the Barriers for a “Heart to Heart”
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Coronary Care
Olivia Watson, Michelle Rothery

Falls Prevention and Post Fall Management
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Busting Groundhog Day – a Clinical Service Redesign Journey in a tertiary hospital Cardiology Department
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Cardiology Department
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The OnCallogist Mobile App in the afterhours ward-call setting.
Gold Coast Hospital and Health Service
Department of Medicine
Justin Wong, Siddharth Sharma

Pathways to Health – GP Referrals to Nepean ED, Clinical Redesign Project
Nepean Blue Mountains Local Health District
Nepean Blue Mountains Medicare Local
Danielle Xerri, Tracy Forsythe, Chris Baird
A. AIM
The aim of the Preventing Infection through Cleaner Hospitals (PITCH) project is to develop, implement and evaluate an environmental cleaning bundle to reduce healthcare associated infection (HAI). By combining evidence based practices with implementation science, this project works on improving staff knowledge and attitudes with resultant improvement in hospital cleaning performance.

B. SUMMARY ABSTRACT
Healthcare Associated Infections (HAI) are a major preventable clinical and economic problem around the world (Safety, 2011). In Australia, HAI affects nearly 200,000 patients and 1.9 million bed days are diverted to treat them annually (Graves et al., 2008). Environmental surfaces in hospitals are regularly contaminated via infected patients and staff colonised with micro-organisms (Trillis et al., 2008, Dancer, 2009, Hota, 2004, Hardy et al., 2006). Many common micro-organisms are able to survive for several months on surfaces (Kramer et al., 2006, Wagenvoort et al., 2011), with transmission through contamination from the hospital environment becoming increasingly well documented (Otter et al., 2013, Dancer, 2011, Rutala and Weber, 2013, Weber et al., 2013).

Whilst numerous lengthy cleaning standards and guidelines exist, there is heterogeneous practice across hospitals in Australia (Mitchell B et al., 2013), and translating current evidence into meaningful and sustained improvements in cleaning practice is challenging. A bundle is a small, straightforward set of evidence based practices that when performed collectively and reliably improve patient outcomes (Resar et al., 2005).

The PITCH cleaning bundle is a research project developed in collaboration between Queensland University of Technology (QUT) and Logan Hospital a 410 bed secondary public teaching hospital. The Hospital is located in Logan City, the fastest growing area in South East Queensland. The hospital provides acute paediatric and adult medical and surgical services, rehabilitation, maternity and mental health service.

The PITCH cleaning bundle was developed through a combination of evidence based best practices from a structured literature review with a multi-disciplinary expert panel that prioritized practices for inclusion into the bundle. The 5 key areas identified were product use, cleaning technique, enhanced auditing through the use of ultraviolet (UV) gel dots markers, comprehensive training and improved communication. The Promoting Action on Research Implementation in Health Services (PARIHS) framework provided an easy to use, yet comprehensive implementation process. This framework helped to identify specific areas key to successful implementation, such as early staff engagement. It also helped guide synthesis of information obtained from context mapping, environmental services staff consultations, and patient and staff surveys, to develop targeted training and project resources.

The PITCH project was conducted as a pilot study and proof of concept in May 2014 for 6 months at Logan Hospital. The bundle was successful by demonstrating not only improvements in both staff knowledge of infection prevention and cleaning practices, but also improved cooperation on the wards and overall job satisfaction. These positive changes in knowledge and attitudes also translated to significant improvements in cleaning performance (from 61.1% clean to 97.4%), and this has remained at over 90% in the post intervention period.

The PITCH project has provided a practical evidence-based strategy to improve environmental cleaning practices in the hospital,
which will ultimately reduce HAI. This project has now been embedded into the routine cleaning procedures of Logan Hospital.

C. APPLICATION OF ACHS PRINCIPLES

1. Consumer Focus
Healthcare Associated Infections are the leading cause of preventable illness and death. The role of the hospital environment in the transmission of these infections is a focus for infection prevention and environmental services globally. Effective environmental cleaning procedures are an important aspect of Standard 3 of the National Safety and Quality Health Service Standards.

In 2011-2012, Logan Hospital saw an increase in the colonisation and transmission of Vancomycin Resistant Enterococci (VRE). Increased cleaning hours were required to facilitate bed turnaround times for improved patient flow with decreased patient waiting times. As part of our Infection Prevention strategy, several key changes were implemented during 2013:

- The hospital wide use of disposable bed screens which were resistant to the majority of multi-resistant organisms. This was previously trialled in the Renal Dialysis Unit with success.
- One-step disinfectant cleaner for all cleans using a 2-in-1 product with 1:1000 ppm Sodium Hypochlorite.
- Focus on cleaning Frequently Touched points with Infection Control nurses reminding cleaning staff of the risk of infection transmission from high touch areas and the need to focus when cleaning on those areas.

These interventions showed a positive effect on new health care associated multi-resistant organisms with a steady decline in the rate of acquisition (Figure 1).

![Figure 1: New Healthcare Associated Multi-resistant Organism Acquisitions.](image)

Results from a Best Practice Australia survey of patients in late 2013 concluded that hospital cleanliness is the number one expectation from hospital inpatients. Hence, a proposal from QUT to be involved in a study implementing a cleaning bundle was seen as an excellent opportunity for both parties to improve patient care in an area that was highlighted as key for infection prevention and patient satisfaction.

A cleaning specific patient survey was developed by environmental services in conjunction with the Quality and Safety Unit, designed to assess patient satisfaction with current cleaning practices. This survey was conducted by volunteers from St John’s Hospital Volunteers. The aim of the survey was to ascertain patient opinions and satisfaction of the quality of cleaning. The results showed that patients were greatly interested in hospital cleanliness. It was felt that cleaning was performed at an appropriate time with patient’s needs taken into consideration.

Not only were patients greatly interested in hospital cleanliness before the PITCH project, but they were very excited to see the use of UV gel dot marker auditing technology to assess cleaning performance. Some patient comments included
“great to see the dedication to cleanliness” and thought the UV light was “a bit CSI”. The general comments were very positive for the whole program.

The core component of this project is the Environmental Services cleaning staff. Although traditionally not considered consumers like hospital patients, their job satisfaction is an important component of this project and part of the Logan Hospital executive’s recognition that the success of health services provided at Logan Hospital is largely due to the skills, energy and efforts of staff.

Environmental Services cleaning staff were initially surveyed to gain some demographic data of our cleaning staff, to assess their understanding and satisfaction of their job and to look for areas where cleaning services could be improved. From this initial survey, it was noted that:

- 95% had worked at Logan Hospital for 3 or more years with 67% of them having had 3 or more years of cleaning experience
- 70% had one or more workplace certification
- The preferred training method was face to face, hands on group training with greater emphasis on new staff training
- Over 90% knowledge regarding germ transmission and hand hygiene
- The importance of "elbow grease" in cleaning

This initial staff survey was very valuable as not only did it highlight areas that could be targeted in the PITCH project, such as better communication with suggested communication strategies including white boards in cleaning cupboards to communicate outstanding or other matters to the following cleaner, it raised other concerns not directly related to the project which were areas for service improvement. These included the need for improved staffing for example, a cleaning supervisor on the floor and developing new services including scheduling regular confidential bin runs. These suggestions were taken up and the enhanced services that resulted from them were very empowering for the staff.

The outcomes of the project demonstrated not only improvements in environmental staff knowledge, attitudes and cleaning performances but they experienced validation of their concerns and received feedback on their work. Subsequently, there has been a change in culture and a shift in attitude and perception towards cleaning, not only within the cleaning staff themselves but also in the wider health service community at Logan Hospital.

2. Effective Leadership
The key to the success of the PITCH program is the leadership of the Environmental Services cleaning staff themselves in steering the direction of this program. A small group was formed in early March 2014 comprising ten volunteer cleaning staff who was involved in:

- Developing project awareness strategies including posters and engagement with other staff
- Identification of barriers to cleaning
- Access to better cleaning equipment
- Training strategies and ideas including the use of instructional flip charts for each cleaning cart
- Work instructions and cleaning routines including check lists

Direct involvement of the cleaning staff in the decision making process made it possible for the staff to own the project. Most staff cared about what they were doing and wanted to do a good job. Therefore, the regular feedback from the project team, the objective nature of the UV audit as well as the formal recognition of good work were positive steps towards greater job satisfaction.

There was a dedicated PITCH project team which comprised of the Facilitator from QUT, the Infection Prevention Clinical Nurse Consultant and Environmental Services management and supervisory staff. This team met on a regular basis throughout the project to educate, monitor progress, feedback results, address concerns and problems as well as to improve engagement with clinicians especially the Nurse Unit Managers of the clinical wards. The senior leadership within Corporate Services encouraged involvement of environmental services workers in numerous consultation workshops, surveys, and other activities which contributed to the development of the cleaning bundle and project resources. Environmental services workers that were respected by their peers were also engaged to be change champions.

In addition, the PITCH team were supported and championed by the Corporate Services Manager, Chair of the Infection Prevention and Management Committee and the IMPACT nurses (the infection control nurse representatives in each clinical ward). Due to this commitment, the PITCH team were able to engage across departments and build
on the multi-disciplinary input. In addition, this project was underpinned with the rigour of a scientific research study including collaborative research agreements, ethics approval, and review of interventions by an expert panel with measured process and outcome indicators.

3. Continuous Improvement
PITCH strived to be innovative in both the development and implementation of the cleaning bundle. By utilising the PARIHS framework PITCH focused on collecting a range of evidence including clinical, operational, staff and patient experience and an understanding of Logan Hospital’s systems and processes, culture and people. There was also active engagement of environmental services staff to empower them to affect change.

Environmental services staffs were directly involved in multiple pre-implementation and implementation stage activities. Each set of data collected informed the next set of data collection, following the normal Quality Improvement cyclical pattern. This included:

- consultation workshops in which barriers and enablers were discussed
- staff survey to assess training requirements, knowledge and attitudes
- feedback on possible tools and resources needed for an effective bundle
- regular feedback on processes and audit outcomes and
- educational outcomes from the different training sessions.

Communication and education was ongoing between all stakeholders from environmental services, nursing and QUT; through to the state-wide services such as Operational Services Network (SOSAN) and CHRISEP (part of Communicable Diseases Unit); plus the commercial organisations that provided in-kind support. PITCH team regularly presented at state and local stakeholder meetings to ensure that information was disseminated and that issues raised were addressed. PITCH also conducted hospital wide promotional activities including a launch day, posters and staff recognition.

Feedback and suggestions were actively sought and acted upon by the PITCH Team to ensure that the implementation was smooth, yet dynamic enough to adjust to any changes that needed to be made. Ongoing evaluation of this process has shown continued benefits with UV auditing now routinely used for evaluation of cleaning services at Logan Hospital alongside the more traditional Topcat auditing tool.

4. Evidence of Outcomes
The bundle was evaluated on cleaning performance (UV markers – primary), infection rates (hospital data), staff knowledge and attitudes (pre and post surveys + interviews) and cost.

Environmental services staff knowledge remained consistently high (over 80 %) for hand hygiene, transmission precautions, and the importance of “elbow grease” in cleaning practice. An added benefit was the improvement across the majority of indicators including statistically significant improvements in knowledge on frequently touched points (p<0.001), product contact time (p=0.023), and where and when to use Disinfectant (p=0.045).

Staff had consistently positive attitudes within their team including with their managers. This was due to improvements in hospital support, investment in cleaning, better cooperation on the wards (78 % indicated improved relationships with nursing staff), overall improved job satisfaction including involvement in decision making and defined role expectations.

This improvement in knowledge and attitudes has translated into significant improvements in cleaning performance (% of UV marks on frequently touched points removed/ cleaned) from the hospital average of 61.1 % at baseline to a peak of 97.4 %, within the final 3 months of the study (Sept-Nov) having hospital average scores over 90 % across the 8 study wards (Figure 2).

In addition, there were no outbreaks of MROs requiring interruption to patient flow in the hospital during this period and infection transmission rates which were already decreased from the earlier interventions (Figure 1) remained stable in the short period of the project.

Costs for the bundle implementation were minimal, with the exception of the opportunity cost of staff time, as there was wide and regular engagement. Many staff were involved in the development and implementation of the bundle including

- filling out surveys
- auditing
- attending meetings
- hands on training and support.
The PITCH project’s uniqueness and success has also been acknowledged with invitations for oral or poster presentations at the following conferences:

- Australasian College of Infection Prevention and Control 2013, 2014 and 2015
- Health Round Table 2014
- Queensland Translating Research into Practice Symposium 2015
- Asia Pacific Society of Infection Control Congress 2015
- International Forum for Safety and Quality Conference 2015
- European Congress for Clinical Microbiology and Infectious Diseases 2015

In addition, the PITCH project formed the basis of a successful NHMRC partnership project grant (GNT 1076006) for a randomised controlled trial of this cleaning bundle in 11 hospitals nationally.

5. Striving for Best Practice

The PITCH project, an environmental cleaning bundle, is based on evidence from a combination of published literature, national and international guidelines, clinical and operational expertise, and end-user and patient experience. It has been targeted to a specific environment and staff to ensure maximum uptake of the new process and procedure. In addition, it has embraced new technology with UV auditing, which is an improvement of the current Australian standard of visual auditing. Electronic data collection and reporting via an app allowed for real-time performance feedback direct to the environmental services staff themselves.

The PITCH project has reformed cleaning practices at Logan Hospital. Whereas reporting of cleaning traditionally only occurred via Topcat, UV auditing has now been embedded as part of the cleaning audit schedule and the resulting reporting and feedback mechanisms are integral to the Infection Management Plan for the organisation.

More importantly, this practice is evidence that ownership of responsibility can result in excellence in performance outcomes. This project has been driven by the Environmental Services cleaning staff and the outcome is credit to the dedication and commitment of the staff to do a good job.

This is the first hospital in Australia to have developed, implemented and evaluated this type of hospital environmental cleaning bundle, and the success not only on cleaning performance, but on staff knowledge and attitudes, demonstrates not only each environmental services worker’s pride in their work, but Logan Hospital’s greater commitment to best practices.

D. INNOVATION IN PRACTICE AND PROCESS

The PITCH cleaning bundle is innovated in its design by incorporating a number of cleaning components into a concise tool that has been successful in increasing cleaning standards in our hospital. It is known that common barriers to effective cleaning practices are heterogeneous guidelines and practices, lack of clarity around...
responsibilities leading to missed items, limited training, language and literacy issues, and the view by some hospital staff that cleaning is only aesthetic and not important for infection control. This bundle was designed not only to improve cleaning practice, but also fundamentally change the systems that support Environmental Services.

Five key components of the bundle are:

- Consistent product use including disinfectant cleaning and point of care wipes (for medical equipment);
- Defined cleaning techniques including sequence, frequently touched points, manual pressure, and manufacturer’s instructions;
- Enhanced auditing by adding Ultraviolet markers to visual audits, including direct feedback of audit results to cleaning staff as well as relevant safety committees;
- Training for all who clean with clear responsibilities + annual knowledge assessment for environmental services staff;
- Improved communication through daily communication on the ward and hospital wide promotion “cleanliness is everyone’s responsibility”.

Training of staff was structured to cover the following points in two 45-minute sessions:

- the equipment and cleaning technique required (cleaning sequence, frequent touch points);
- understanding infections and infection control;
- understanding reasons for different cleaning requirements (daily vs discharge cleaning);
- understanding auditing and the role of UV dot gels;
- effective teams and communication.

The cleaning staffs were also given a further hour of training on the cleaning product of choice and the new microfibre mops and cloths purchased following feedback from the initial staff survey requesting better cleaning equipment.

The process of UV gel auditing involves placing a number of UV gel dots on frequently touched surfaces within a patient’s room and bathroom. A frequent touch point checklist designed by the Centre for Disease Control was modified for the project (Appendix). The same touch points are audited in each area. Auditing was conducted on a hand held tablet and the results were uploaded onto a specially designed programme for this project.

An audit schedule was developed to ensure that every room was evaluated in a cycle. The gel dots were placed after the cleaner had gone home for the day and were rechecked with an ultra violet light after daily cleaning in that area had occurred. Audit results were returned to the nurse unit manager and the cleaning staff of the area. This real time feedback allowed the cleaner to self-assess their cleaning practice and highlighted the cleaning of frequent touch points which were commonly missed. To our knowledge, the innovative idea of a cleaning bundle utilising an objective marker like the UV gel dots and the provision of real time performance feedback directly to the staff involved is the first of its kind in Queensland, if not in Australia.

By clearly defining best practice in terms of cleaning technique and product use, and ensuring all relevant staff were fully trained, we were able to be confident that they were equipped with what was needed to improve individual performance and in turn, reduce the overall risk of infections with a cleaner environment. In addition, cleaning performance was objectively measured and directly fed back to the people doing the job. The subjective visual auditing as practised in most Australian hospitals is now backed up by the objective UV auditing tool. The daily communication on the ward between nurses and cleaners, reporting up to the relevant governance committees, and promoting cleanliness across the organisation has created a change in culture and attitude towards cleaning within the organisation.

E. APPLICABILITY TO OTHER SETTINGS

The PITCH bundle is effective, easy to use and could be utilised in any hospital within Australia and across the developed world. The practical application of the implementation framework ensured that:

- the collection of sufficient evidence from a variety of sources including literature, clinical and operational experience, patients and local data to help develop a bundle that was effective, practical and feasible;
- the understanding of the hospital context including available resources, systems and processes, leadership structures, and culture in which this bundle was undertaken made it acceptable to all staff;
- the provision of active facilitation through multi-disciplinary team, adult learning initiatives, active participation and internal and external change agents enabled staff to improve their own performance.
Using this implementation strategy, other facilities can customise the bundle to their staff, patients and organisation.

The randomised controlled trial following on from this research will hopefully demonstrate the applicability of this bundle across 11 hospitals nationally. Due to its longer timeframe and increased number of sites, the trial should be able to demonstrate the effectiveness, not only in staff knowledge, attitudes and cleaning performance, but also a statistically significant improvement in HAI transmission rates across a variety of setting. The cost-effectiveness of this cleaning bundle can also be assessed in a more comprehensive way.

F. REFERENCES


• RUTALA, W. A. & WEBER, D. J. 2013. Role of the hospital environment in disease transmission, with a focus on Clostridium difficile. Healthcare Infection, 18, 14-22.


G. APPENDIX

Figure A1: Instructional flip book for each cleaning cart (front cover, touch points page).

Figure A2: Christine Welsh and Michelle Allen undertaking a UV audit for cleaning performance.

Figure A3: Wayne Hebblewhite and Christine Welsh being recognised at the PITCH wrap-up meeting.
Gold Coast Hospital & Health Service
Nutrition & Food Services
Amalgamation of a clinical & non clinical service
Zane Hopper, Alan Spencer, Kameron Hill

AIM
To undertake a Gold Coast Hospital & Health Service (GCHHS) district food and nutrition review with the aim of providing excellence in the provision of food & nutrition and successfully meet all core actions of EQuIP National Standard 12 Criterion 2 - Management of Nutrition: The organisation ensures that the nutritional needs of consumers / patients are met.

SUMMARY ABSTRACT
BACKGROUND: In late 2013 the Gold Coast Health Service underwent a district restructure. This was brought on by the transitional move from the previous Gold Coast Hospital (400 beds) to the new 1.8 billion dollar Gold Coast University Hospital (GCUH) (700+ beds). This gave opportunity for a district review on food service processes and structure. As part of this process the clinical nutrition service, which historically sat under Allied Health Services, was amalgamated with Food Services, which sat under Infrastructure & Support Services with all other operational services. The GCHHS comprises of three separate sites: GCUH 700+ beds, Robina Hospital 350 beds, and Carrara Health Centre 60 beds – totaling over 1100 beds for the district.

This would incorporate three stages (i) formal review of food services (ii) creating one service line which amalgamated two distinct hospital services (Clinical Nutrition & Food Services), and (iii) implementation of a new electronic IT food service ordering system.

HOSPITAL TRANSITION
With the move from the old Gold Coast Hospital to the new GCUH it soon became apparent that there were many complications to new service provision. These included (i) the initial relocation process from Gold Coast Hospital to the new Gold Coast University Hospital (ii) the introduction of a new cold plating system and (iii) the impending introduction of a new food service IT system. The new kitchen infrastructure and equipment was not compatible with the new cold plating process, neither was the frozen SOA food which was part of a State wide Tender. Combined with limited prior staff training this caused patient satisfaction to drop and there were multiple complaints with the food quality, temperature, patients getting the wrong diets, and delayed meal times. Formal patient complaints totaled 20+ per month during these initial stages, complements were zero. The current working relationship between the Nutrition Department and Food Services was also divided and fragmented.

1. PLAN – RECOGNISING AN OPPORTUNITY
As a result of this, a project person was temporarily employed to review the service. Many meetings were organised with food service managers, dietitians from public & private hospitals in the State and the Statewide Food Services experts. In house meetings were organised with clinical nutrition & food service staff to identify and address issues. One key recommendation of the outcome report was to combine Nutrition and Food Services. This unison was promulgated in an attempt to improve what had historically been a very fragmented working relationship despite the fact that both were reliant on each other. There was initial tension and apprehension to this unison as the two services had not worked harmoniously in the past.

After some minor position changes, transparent meeting forums, and directional leadership from management, this was however short lived. A new and successful partnership was now being forged which was working towards one common goal – providing excellence in the provision of food & nutrition to consumers.

2. DO – PROMPTING CHANGE
Based on the new service amalgamation, multiple Initial improvements occurred as a result of service streamlining and improved communication lines. These included:
1. Food transport processes and temperature settings fine-tuned with the new Burlodge Trolleys to avoid over-cooking of food.
2. Staff rosters and processes were changed to allow for same day ordering of breakfast, lunch and dinner for patients.
3. The district menu was reviewed and changed from pre-cooked frozen food to mainly fresh cook.
4. Consumers were now being engaged in all processes of menu review resulting in increasing the quantity of ethnic foods.
5. As the Statewide SOA food tenders had expired the service changed to using local suppliers to provide more local and fresher foods.
6. Succession planning and up skilling. Providing the opportunity for kitchen managers to be up skilled in nutrition by offering the opportunity to complete Certificate III in Nutrition (Tafe level). Also facilitating periods of acting up in roles when covering periods of annual leave, etc.
7. Providing an opportunity for the previously separated departments to spend 1 day work shadowing each other – so far all clinical Dietitians have spent a day work shadowing kitchen supervisors/menu monitors, and vice-versa.

In an attempt to further improve patient food service provision, in early 2014 a multidisciplinary project team was set up to oversee the installation of the “Delegate” food service IT system. Food Service IT systems have the ability to streamline patient meal ordering processes and improve quality, consistency and safety of patient intake. The project team comprised of a Project Manager, Business Analyst, Change Analysts, IT services, Food & Nutrition services & Nursing. A site visit was organised to The Canberra Hospital, whom had the Delegate system in place for the past 3 years. Information and experience were taken away and used for our local implementation. Education sessions were organised for all key stakeholder groups by the company and the project team. Change processes were rolled out district wide. In mid - 2015 the IT system went “live” across two hospital sites despite minor teething problems – according to the Delegate company it turned out to be the quickest and most successful implementation of this system across all Australian sites to date.

Furthermore, the GCHHHS had created a food & nutrition steering committee in 2012 – with the new amalgamation of these previous two separate services (Nutrition and Food Services) this committee became more instrumental in overseeing many of the food & nutrition activities and strategic direction and the composition of the committee widened to include consumers (n=3), nursing executive, food service staff, quality & safety, public health & a CNC Nutrition position. Thus enabling consumer related food and nutrition matters to be actioned far more promptly and efficiently.

In the process the newly acquired bond between Nutrition and Food Services was further reinforced and strengthened.

3. CHECK – REVIEWING THE CHANGES
As part of the QA required to meet the Queensland Health Statewide Food Service KPIs, Nutrition & Food Service Students on their food service placements undertook food satisfaction & food quality audits. The Patient Entertainment System (PES) was also used to develop a real time survey through Delegate food service system to allow patients to comment on the meals at the time of eating. Increased consumer feedback was also sourced as a result of increasing representation at all stages of menu development and review. This gave valuable feedback for service review and refinement.

Since these changes patient satisfaction has increased dramatically, wastage has reduced as patients only get to order was is clinically suitable for them due to the Delegate filtering system, patient safety has improved with respect to therapeutic diets & allergy filtering, food costs have gone down due to the ability to buy local produce at competitive prices. Meal accuracy improved from 78 % to 99 % with the new IT food ordering system. Patient satisfaction also improved by over 15 % in less than one year. Plate wastage has reduced by close to 10 %. Patient food and nutrition related complaints reduced from over 20 per month to less than 2. Food complements went from zero per month to now 20+. As well as these clinical indicators, no fewer than 6 food service staff have now completed their Cert III in nutrition through TAFE.

4. ACT – IMPROVING ON WHAT WE HAVE LEARNT
The senior Food Service Dietitian recently attended and presented at the Annual Dietitian’s Association of Australia (DAA) National Conference in Perth (May 2015) on the implementation of the Delegate IT and Personal Entertainment System (PES) – the response was fantastic with many sites wanting to visit the Gold Coast University Hospital site. To date we have visits from West Moreton HHS, Sunshine Coast, Cairns Base Hospital, St
Vincent’s Private Hospital (Sydney) and Ho Chi Minh City and proposed visit from Fiona Stanley (Perth).

As part of the ongoing improvement of services we are locating food service staff in wards to provide a ward based service – this has been greatly received to date, aiming to employ a pastry chef to produce our own desserts rather than buy them in which will make further cost savings, have commenced research with a $47,000 grant from the hospital private practice fund into identifying patient barriers to food intake, which will inform service changes to address these issues. We have also received $10,000 funding through a GCHHS “improvers grant” to use iPad technology for menu collation (with the current Delegate software installed) at Robina Hospital (which currently does not have the PES system technology) instead of scanning which has been a slow and resource intensive system. We have also further organised staff work-shadowing for clinical staff with food service staff & vice versa to allow to get an appreciation of each other’s work – which has received great feedback and reduced tension issues staff demands through appreciation of each other’s workloads. A concretive effort has also been made to continually up skill staff in higher positions, thus helping improve service sustainability.

OUTCOME: The overall outcome was the successful amalgamation between two initial separate services who once had a fragmented and divided working relationship – this being Nutrition and Food Services. Now the combined service has a mutual aim of providing excellence in the provision of food and nutrition and successfully meeting consumer’s needs in a satisfying, safe, efficient and sustainable model.
Monash Health Support Services
An innovative food service model @ Moorabbin Hospital
Sharon McNulty

AIM
In 2013, Moorabbin Food Services faced significant challenges ensuring the kitchen was functioning efficiently and effectively to enable the delivery of a high standard of food services to patients. There was significant opportunity to improve patients’ satisfaction with the food services, and ageing infrastructure and equipment required substantial improvement.

The objective of this initiative was to provide patients with a cost effective, healthy, nutritious meal service that meets and exceeds the needs and expectations of our patients. This was supported by research that shows patients rely on the presentation, aroma and temperature of their meals to stimulate their appetite, which improves nutritional intake.

The new food model at Moorabbin provides every patient an option of 23 hot meals. In addition to this, we are able to cater for cultural meals, special diets and texture modified meals. These additional meal options align with our aim to provide a patient centred approach to food services.

SUMMARY ABSTRACT
The significant opportunity to improve patients’ experiences of Moorabbin Hospital Food Services (evidenced by patient experience surveys commissioned by the Department of Health and Human Services) coupled with the need for urgent improvements to food services capital and infrastructure, were the drivers for Support Services to investigate alternative and superior food service options.

Support Services considered and reviewed various options, and ultimately partnered with The Monash Health Central Production Kitchen to plan implementation of a model which includes a cook freeze option developed by the Central Production Kitchen. The Central Production Kitchen has consulted with the Monash Children’s Hospital team and consumers and has support to introduce this innovative model to Monash Children’s Hospital in 2016. The Central Production Kitchen based the model on a similar model implemented in the National Health Service in England, as a way of providing cost effective, multiple hot meal choices to patients.

The ultimate solution is a cook freeze meal in a “Smartpak”, with a removable base enabling the heated meal to be placed on the plate, while maintaining the presentation of a restaurant quality meal. The primary benefit of this model is the improved food quality due to retention of the colours and freshness of the meal, the primary driver of patient satisfaction.

This innovative model is the first of its type to be implemented in Australian hospitals. It offers 23 hot lunch and dinner meal choices, as opposed to the previous food service offering two hot options for each of lunch and dinner. It also enables patients to receive a meal of their choice within 15 minutes of admission or requesting a meal, an outcome not previously achievable. Previously, patients did not receive a meal of their choice for at least two meal periods.

The Smartpak meals provide the patients a restaurant-style dining experience, reduce food wastage and have resulted in a 40 % EFT saving. This innovation is a first for Australian public health, achieving sustainable, high quality healthcare service.
## Category: Non-Clinical Service Delivery

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<td>Metro South Hospital and Health Service - Logan Hospital Environmental Services and Infection Management Service</td>
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A. AIM
The primary aim of this project was to improve the nutrition status of Cystic Fibrosis (CF) patients aged 2-18 years attending the CF service at The Children’s Hospital at Westmead over a 5 year period.

B. SUMMARY ABSTRACT
BACKGROUND: The correlation between BMI percentile, lung function and long term survival in CF is well established. Successful quality improvement (QI) initiatives primarily focussed on achieving the CF Foundation recommendation of BMI greater than the 50\(^{th}\) percentile for all patients with CF have been reported by CF centres in the USA. In 2009, we commenced a QI initiative that aimed to improve the nutritional outcomes of CF patients aged 2-18 years attending the CF clinic at The Children’s Hospital at Westmead (CHW). The mean BMI z score of patients attending CHW CF service at that time was -0.46, which rated amongst the lowest performing centres in Australia.

METHOD: A QI initiative was commenced with focus on the following key strategies; (1) Introduction of a nutrition risk screening tool; (2) Frequent dietetic review of high risk patients; (3) A nutrition assistant; (4) Specific focus on patients 6-11 years; and (5) Improved team communication. Anthropometric data and nutrition classification were retrospectively collected for all patients aged 2-18 years on their first clinic visit annually from 2009 to 2012 and repeated in 2014. Generalised estimating equation analysis and binary and ordinal logistic models were used for statistical analysis.

RESULTS: Overall, the change in BMI z-score from 2009 to 2014 was significant with a mean increase of 0.053 units per year (CI: 0.03-0.08 units; p<0.0001). Importantly, the improved nutritional status was sustained with a mean BMI z-score of -0.18 in 2012 compared with -0.15 in 2014. Between 2012 and 2014 significantly fewer patients required immediate dietetics review (Nutrition Failure and High Risk) (p=0.008). The BMI z-score in the adolescent age group (12-18 years) remained static at -0.6 between 2009-2012, however the 2014 data highlights this group had largest improvement with an increase in BMI z-score to -0.3.

CONCLUSIONS: This QI initiative demonstrates significant improvements in the nutrition status of CF patients between 2009 and 2012 with sustained improvement thereafter. Multiple strategies based on evidenced based and best practice recommendations were implemented. Incorporation of the multidisciplinary team including the employment of a Nutrition Education Assistant was vital in the success of this project. Improvements seen in the adolescent group are likely reflective of the earlier focus on patients aged 6-11 years and the overall shift in the multidisciplinary team culture in regard to the importance of good nutrition status in CF health outcomes.

C. APPLICATION OF ACHS PRINCIPLES
1. Consumer Focus
Nutrition status is correlated with long term outcomes for CF patients and as such BMI z-score is one of the internationally accepted clinical outcomes in CF management (1). This project aimed to improve the nutrition status of our CF patients and their families by engaging them directly to work in partnership with the cystic fibrosis team, in particular the dietitian, to reach their nutritional goals. Specific consumer focused initiatives included:
• A consumer satisfaction survey and clinical audit of dietetic service and patient nutrition outcomes (2006).
  o Response rate: 19 %, with a total of 31 families responding to the survey.
Survey results: The survey results were mixed with only 23% of families reporting that they thought the dietitian was a very important member of their child’s CF team. Approximately 45% of families did not feel that an annual review with the dietitian was sufficient to address their concerns.

The Survey results concluded that nutrition follow up of patients with compromised nutritional status was infrequent. Parent feedback identified that adopting the changes required for the CF patient with regard to food are often the most challenging and frustrating part of managing care at home. Food and eating are an essential aspect of socialisation in the family unit and messaging around ensuring children eat well encourages families to treat children the same way, with a consistent approach around meals and snacks. Pressure to ensure the person with CF eats high fat foods and maintains growth, while the non-CF children have more limited access to high fat, high energy snacks is a cause for conflict and anxiety in the home as siblings begin to identify differences in the way they are treated. Families identified the need for consistent dietetic input, practical and individualised action plans, a more proactive approach to nutrition management to include a whole family food focus and updated information, resources and recipes.

- Consultation with the parent-led fundraising committee led to agreement to employ a full time senior cystic fibrosis dietitian to lead the CF team approach to nutrition care. The fundraising committee further supported the dietitian to undertake an international visit to the North American CF conference and visit two of the best performing CF centres in the USA for nutrition outcomes.
- Regular communication with parents and families during the planning and implementation of the nutrition strategy through a series of presentations at parent education evenings which included the opportunity to ask questions, as well as quarterly newsletter articles, ‘nutrition news,’ featuring an education piece and recipes and feedback opportunities.
- Employment of a nutrition education assistant (newly created position). This was approved and funded by the parent led fundraising committee.
- Themed nutrition displays were created for families when attending clinic including written resources, recipe ideas and quizzes or competitions to engage the children and adolescents in educational activities.
- A nutrition evening with celebrity chef Julie Goodwin in response to parent requests for practical ideas and cooking tips. This included cooking demonstrations, recipe ideas and taste testing along with a practical nutrition education session focused on what’s normal and what to expect with regard to food and eating as children grow up.
- Within individual sessions families were engaged in understanding current nutrition status, identifying actions for improvement and setting goals for future appointments.
- Introduction of the ‘Bravery Beads Program’ (CF parent funded), which includes a number of nutrition achievement beads that patients are awarded when their nutrition goals are achieved.

2. Effective Leadership

The Senior CF dietitian travelled to the North American Cystic Fibrosis Conference (NACFC) 2009, and undertook site visits at top performing CF centres in the USA for the nutrition outcome mean BMI z-score presented at the 2007 NACFC (2). Conference feedback was provided to the CF team, the fundraising committee and CF families at an education evening featuring:

- A literature review of improvement activities and initiatives presented at the conference.
- A summary of team based practical implementation strategies that were observed at other sites, including discussion of nutrition culture.

A strategic plan to improve CF nutrition outcomes and dietetic services was developed by the senior CF dietitian and implementation commenced in 2009. The overall vision for nutrition outcomes was to significantly improve the mean BMI z-score of patients with CF aged 2-18 years over the next 5 years. The Head of the Cystic Fibrosis Service was engaged as the project sponsor to support communication of this vision. Key stakeholders were identified and engaged in the vision for improving the focus on nutrition, where the desired state was a BMI of greater than the 50th centile for all patients with CF. Stakeholders included Respiratory, Gastrointestinal and Endocrine Physicians, CNCs and allied health. A clear and consistent communication strategy was communicated to stakeholders and the wider multidisciplinary team. This included:
• Education and updates about the evidence related to nutrition outcomes in CF.
• Identification of at risk patients through written and verbal communication to the CF team.
• Visual display of BMI charts at MDT meetings, inclusion of BMI centiles and z-scores in clinic letters.
• Regular feedback pertaining to changes in patient status.
• Overall clinic outcomes presented to the team at the annual CF planning days.

Throughout the 5 year period, clinical champions were identified through their participation and interest in nutrition and were engaged in specific elements affecting nutrition including investigation of glucose tolerance or other CF related comorbidities. Changes in practice were reinforced through regular and consistent communication with the CF team and CF patients and their families, with reporting of nutrition status, plotting of growth outcomes and investigation of the potential causes of nutrition failure.

3. Continuous Improvement
The success of this improvement initiative was reliant on effective measurement and staged, planned implementation of the solutions identified to improve patient care. Diagnostic investigations were utilised to inform the nutrition strategy for the CF clinic. The early implementation phase for this project (2009-2010) identified a number of strategies for improving everyday practice. Solutions that addressed fundamental components of nutrition care were implemented first:
• Assessment of weight and height measures recorded accurately and routinely at every visit
• Introduction of a routine nutrition screening tool with clearly documented parameters that dictate frequency of dietetic and medical review (Appendix 1)
• Increased frequency of dietetic review for high risk and nutritional failure patients
• Emphasis on practical, individualised advise for patients and their families
• Increased use of education opportunities and communication to families through newsletters, parent evenings and clinic visits.
• Implementation of a written post clinic action plan documenting nutrition measurements and consumer agreed goals for the next clinic review

• Increased communication with multidisciplinary CF team including allied health attendance at ward rounds

Testing of solutions included monitoring of data entry, improving clinician understanding of the growth parameters and goals and multidisciplinary clinical reasoning to agree the best course of action. As the fundamental elements of nutrition care became part of the routine clinic management, additional multidisciplinary changes to care were implemented. These included:
• Collaborative development and implementation of a nutrition care algorithm to guide escalation of investigations to be undertaken systematically for high risk and nutritional failure patients (Appendix 2). This algorithm outlined the approach for investigation of possible respiratory, gastrointestinal, nutritional and psychological causes of poor weight status and was developed collaboratively with each of the relevant clinical specialist Physicians and CF nursing team.
• Use of nutrition care pathway assessment forms amongst CF dietitians to improve consistency of care. This tool was particularly important for the teaching and training of graduate dietitians in clinical reasoning and decision making. Despite six different dietitians working in CF over this period of time, the improved growth outcomes have been sustained.

Between 2009-2012 annual retrospective audits of patient nutrition status, BMI centiles and BMI z-scores were conducted, analysed and presented to the CF team. Growth data was collected for patients on their first clinic visit and nutritional classification was determined according to the nutrition screening tool (Appendix 1).

As part of the analysis of annual outcome data, sub-group analysis based on 3 set age groups was completed, 2-5 years, 6-11 years and 12-18 years. In 2012 it was noted that significant improvements had been made in the 2-5 year age groups and the 6-11 year age groups with a reduction in the proportion of patients identified as high risk or nutritional failure, however no shift was seen in the proportion of adolescent patients who fell into the high risk or nutritional failure categories. As a result additional strategies were identified and incorporated into clinical practice during 2013-14. This included a specific focus on working directly with the adolescent patients. Strategies included informal assessment of the adolescent’s
understanding and knowledge of CF, re-education and motivational interviewing techniques to engage the adolescent in setting realistic and achievable goals. In addition, we formed increased links with the adolescent medicine service to support referral of CF patients for focussed investigation of significant psychosocial factors thought to be impacting on the adolescents’ health. In the subgroup analysis completed as part of the 2014 retrospective audit, the 12-17 year age group had the largest improvement in mean BMI z-score.

6. Evidence of Outcomes
As part of the five year QI initiative, we monitored clinical nutrition outcomes on an annual basis to determine whether the strategies employed were proving successful. Figure 1 demonstrates change in mean BMI z-score of all patients aged 2-18 years from baseline data in 2009 to a statistically significant improvement in mean BMI z-score in 2012*. Given this success, an additional objective for the project was incorporated, to maintain improvement in mean BMI z-over a 2 year time-frame.

A repeat audit was therefore completed in 2014. The result of this audit highlights that improvements in BMI z-score remained statistically significant compared with baseline data (Figure 1)#. Importantly, the 2012 improvement was sustained with a mean BMI z-score of -0.18 in 2012 compared with -0.15 in 2014. Overall, the change in BMI z-score from 2009 to 2014 remains significant with a mean increase of 0.053 units per year (CI: 0.03-0.08 units; p<0.0001).

Results from the annual retrospective audit of primary outcome measures nutrition category and mean BMI z-score for all CF patients age 2-18 years are presented in Table 1. A significant difference was seen in the proportion of patients aged 2-18 years in Nutritional Failure with the odds of falling into this category decreasing by 11 % per year (CI: 5 - 18%; p=0.001). Significantly fewer patients required immediate and frequent dietetic review (Nutritional Failure and High Risk) with the odds of falling into these categories falling by 15 % per year (CI: 7-13 %; p=0.0003). In addition, between 2012 and 2014 significantly fewer patients also required immediate dietetics review (Nutrition Failure and High Risk) (p=0.008).

Table 1: Primary outcome measures – nutrition category and mean BMI z-score for 2009–2012 and 2014.

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<th>Year</th>
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<th>High Risk</th>
<th>Acceptable</th>
<th>Optimal</th>
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<td>2009</td>
<td>216</td>
<td>46 (21%)</td>
<td>52 (24%)</td>
<td>44 (20%)</td>
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<td>-0.45</td>
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<td>2010</td>
<td>224</td>
<td>45 (20%)</td>
<td>43 (19%)</td>
<td>52 (23%)</td>
<td>84 (38%)</td>
<td>-0.33</td>
</tr>
<tr>
<td>2011</td>
<td>201</td>
<td>33 (16%)</td>
<td>31 (15%)</td>
<td>57 (28%)</td>
<td>80 (40%)</td>
<td>-0.28</td>
</tr>
<tr>
<td>2012</td>
<td>209</td>
<td>28 (13%)</td>
<td>33 (16%)</td>
<td>57 (27%)</td>
<td>91 (44%)</td>
<td>-0.18</td>
</tr>
<tr>
<td>2014</td>
<td>188</td>
<td>20 (11%)</td>
<td>39 (21%)</td>
<td>56 (30%)</td>
<td>73 (39%)</td>
<td>-0.15</td>
</tr>
</tbody>
</table>

*Classification for nutrition categories based on the Nutrition Screening Tool used throughout the project (Appendix 1).
Further analysis of the outcome measures data by age groups was completed on an annual basis (Figures 2&3). Whilst a detailed discussion on the breakdown and analysis of this data is beyond the scope of this report, it is important to note the success of the adolescent age group (12-18 years) between 2012 and 2014. With a static BMI of -0.6 between 2009 and 2012, the 2014 data highlights this group had largest improvement with an increase in BMI z-score to -0.3. Improvements seen in the adolescent group are likely reflective of the earlier focus on patients aged 6-11 years and the overall shift in the multidisciplinary team culture in regard to the importance of good nutrition status in CF health outcomes.

![Mean BMI z-score across age categories](image)

**Figure 2:** Mean BMI z-score for CF patients aged 2-5 years, 6-11 years and 12-18 years.

![Proportion of patients falling into each nutrition category](image)

**Figure 3:** Proportion of patients falling into each nutrition category; Nutritional Failure, High Risk, Acceptable and Optimal from 2009-2012 and 2014. (a) for all patients between the ages of 2-18 years; (b) for patients aged 2-5 years; (c) for patients aged 6-11 years and (d) for patients aged 12-18 years.

7. **Striving for Best Practice**

Corey *et al.*, (1988) demonstrated that improved nutrition status resulted in a significant improvement in mean survival. Evidence of the correlation between BMI percentile, lung function and long term survival in CF is well established (3). Successful initiatives focussed on achieving the CF Foundation recommendation that all CF patients should achieve a BMI greater than the 50th centile, have been presented and published by CF centres in the USA (4). The Australian Cystic Fibrosis Data Registry (ACFDR) has been collecting key outcome data and analysing and reporting on the disease progress of CF patients at CF centres nationally since 1998 (5). The ACFDR compiles a defined set of benchmarking data to allow national comparison of both mean FEV_{1} (lung function outcomes) and mean BMI z-score as an indicator of nutrition status. Figure 4 represents one year of BMI z-score outcomes for the major CF centres in 2010. Annual registry reports between 2006 and 2010 identified that CHW was the worst performing centre for...
nutrition in the country (5). The horizontal red line represents the target of a BMI on the 50th percentile. Our mean BMI percentile was 55th percentile which exceeded this target however this data is not representative of the norm, as it represents the maximum BMI percentile recorded for each child during the calendar year.

Figure 4: Australian CF Centre comparisons 2010 (5). (a) BMI Percentile, persons 2-17 years, and (b) BMI z-score, persons 2-17 years.

During our improvement initiative we collected data based on the first clinic visit of the year, regardless of the patient’s condition to ensure a ‘real-time’ picture was collected. While recent centre comparison data is not available, the annual retrospective analysis of outcome measures (Figure 1) highlights the success of this QI initiative suggesting a likely improvement in our nutrition outcomes at a national level.

The Cystic Fibrosis Standards of Care, Australia recommend senior grade dietetic resourcing for a clinic of greater than 150 patients be equivalent to 2 full time equivalent staff (6). In contrast, between 2005 and 2008, despite a population of greater than 220 CF patients, the CHW CF clinic was supported by only 0.4-0.8 FTE of a junior grade dietician. A general lack of satisfaction with the current level of nutrition support and service was demonstrated through the 2006 parent satisfaction survey. Low parental satisfaction was further compounded by limited consistency of care, with no senior dietician and nine different dieticians noted to have provided care to CF patients within a 5 year period. Increasing the dietetic resourcing toward the recommended level through the recruitment of a full time senior dietician with experience in the field of cystic fibrosis and the decision to employ a nutrition education assistant enhanced the CF nutrition team services to 1.9 FTE.

Evidence based recommendations for cystic fibrosis patients with a BMI of less than the 10th percentile are that a dietetic review and intervention should occur every 1-2 months until improvements in BMI outcome measures are achieved (7). The dietetic audit completed in 2006 identified that patients with a BMI of less than the 10th centile (nutrition failure) had suboptimal lung function and received dietetic review on average, less than twice a year and that dieticians focussed on completing the annual review assessments independent of their nutrition status (8). As part of this improvement initiative, identification of urgency of dietetic review was included in the nutrition screening tool (Appendix 1). As part of early implementation in 2009, a 4 month pilot to assess the number of patients requiring urgent review and the actual number of patients seen by the dietician was collated. Within the first 4 months, the dietician successfully reviewed 90 % of attendances requiring an urgent review, whilst maintaining an 80 % success rate with completion of annual review assessments indicating a more effective and efficient use of clinic time.

D. INNOVATION IN PRACTICE AND PROCESS

As nutrition and growth outcomes are affected by many factors in CF, engagement of respiratory, gastroenterology and endocrine specialists was critical in this process. A cultural shift in the whole team approach to nutrition management was required to successfully improve patient nutrition outcomes as families were comfortable with physician-led decisions about their child’s care, making physician reinforcement and clear communication between team members and the family critical. Nutrition screening was commenced as part of the routine preparation for
The nutrition education assistant (NEA) position created as part of the QI initiative is an innovative position within the field of nutrition and dietetics and in particular cystic fibrosis. Traditionally dietary assistants or nutrition assistants have worked within the food service system ensuring inpatient dietary requirements are met using a set of standard diet codes and standard menu systems. Our part time CF NEA was created as a support role for dietitians to translate the best practice dietary guidelines into practical food ideas for families. This was achieved through planning and implementing a nutrition cooking evening for parents with a celebrity chef, food photography for visual food ideas, development of education resources, communication of practical food examples and recipes modification ideas to meet the specific dietary needs of both the patient and family.

E. APPLICABILITY TO OTHER SETTINGS

Evidence supports the need for CF care to be provided by a multidisciplinary specialist tertiary service, there are a limited number of specialist services across Australia and New Zealand for paediatric CF patients, resulting in increased reliance on international practices to guide improvements in care. The progress achieved through this QI initiative was documented and presented biannually at the Australia and New Zealand Cystic Fibrosis conference between 2009 – 2015 (9-12). Significant interest in this QI project was developed over time with professionals from a number other specialist centres requesting information on the screening tool and algorithm in addition to the written abstracts. In 2013 this QI project was awarded the conference prize for best new researcher due to its success in improving health outcomes and its applicability to other centres across Australasia.

F. REFERENCES

8. Noy A; Cooper, P. An audit of dietetic practice, nutrition services and patient demographics of Cystic Fibrosis patients attending the Children’s Hospital at Westmead during 2006. 7th Australasian CF Conference Abstract; Sydney 2007.
9. Graham C; Brown, S; Kench, A; Cooper P. AUDIT OF NUTRITION STATUS FOLLOWING COMMENCEMENT OF A NUTRITION FOCUSED QI INITIATIVE. 9th Annual Cystic Fibrosis Conference; Melbourne 2011.
10. Graham C; Cooper, P. Introduction of Routine Nutrition Screening at a Cystic Fibrosis Clinic 8th Annual Australasian Cystic Fibrosis Conference; Brisbane 2009.
11. Graham C; Kench, A; Brown, S; Cooper, P. QI Project to Improve BMI outcomes in CF. 10th Annual Australasian Cystic Fibrosis Conference; Auckland, New Zealand, 2013.
G. APPENDIX

Appendix 1: DIETETIC REVIEW CRITERIA

Children requiring dietetic review in outpatient clinic are considered to be as follows:
- All children < 2 years (ideally at each clinic appointment)
- All children in the ‘High risk’ and ‘Nutritional Failure’ Category on Nutritional Screening (as per screening tool)
- All children in the ‘Acceptable’ Category + further decline in BMI centile (as per screening tool)
- All children with a Gastrostomy tube or Cystic Fibrosis Related Diabetes
- All children who are due for Interval Check (annual review)

<table>
<thead>
<tr>
<th>Category</th>
<th>BMI percentile</th>
<th>Weight loss OR Weight Plateau*</th>
<th>Within Genetic Height Potential#</th>
<th>Urgency Dietetic Intervention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overweight</td>
<td>BMI &gt;97%</td>
<td>?</td>
<td>?</td>
<td>Screen next clinic Review when able, when requested and at Interval Check</td>
</tr>
<tr>
<td>Optimal</td>
<td>50-96%</td>
<td>NO</td>
<td>YES</td>
<td>Screen next clinic Review when able, when requested and at Interval Check</td>
</tr>
<tr>
<td>Acceptable</td>
<td>50-96%</td>
<td>NO</td>
<td>NO</td>
<td>Screen growth at clinic Review this clinic if height z-score or BMI percentile stable or increasing</td>
</tr>
<tr>
<td></td>
<td>25-49%</td>
<td>NO</td>
<td>?</td>
<td>Screen next clinic if height z-score/BMI percentile stable or increasing</td>
</tr>
<tr>
<td>High Risk</td>
<td>25-96%</td>
<td>YES</td>
<td>?</td>
<td>Dietitian review this clinic</td>
</tr>
<tr>
<td></td>
<td>10-24%</td>
<td>?</td>
<td>?</td>
<td></td>
</tr>
<tr>
<td>Nutritional Failure</td>
<td>&lt;10%</td>
<td>?</td>
<td>?</td>
<td></td>
</tr>
</tbody>
</table>

? Move to next step
* Weight crossing one or more percentile line or plateau in weight for more than 6 months
# Genetic Height Potential - Mid Parental Height

ALL UNINTENTIONAL WEIGHT LOSS SHOULD BE REFERRED
Appendix 2: CF Nutrition Care Algorithm

High risk, urgent need or drop in category noted
- PFTs
- Dietitian assessment
- OGTT (>10yrs)

Inadequate dietary intake?

YES

Assessment for common GI co-morbidities
PANcreatic insufficiency (regardless of symptoms)
- ensure adequate enzyme
- add acid-blocker to optimise enzyme efficiency
- 72hr faecal fat study to assess enzyme dose

Constipation
- Assess and treat
GERD
- Add PPI or optimise current dose
Celiac Screen

Improved?

YES

Assessment for common GI co-morbidities
Pancreatic insufficiency (regardless of symptoms)
- ensure adequate enzyme
- add acid-blocker to optimise enzyme efficiency
- 72hr faecal fat study to assess enzyme dose

Constipation
- Assess and treat
GERD
- Add PPI or optimise current dose
Celiac Screen

Continued follow-up:
- Monthly, if urgent
- Every 2 months, if at-risk
- Every 3 months, if acceptable

Improved?

YES

Consider medical psychology
Consider OGTT 6–9 years
NG or GT for supplemental feedings

NO

Continued follow-up as outlined in algorithm

Unstable lung disease?

YES

Treatment of Pulmonary Exacerbation
Follow-up in 4 weeks

Improved?

YES

Reassess other causes of urgent need

NO

Consider additional pulmonary therapy
Consider imaging (CXR, CT)
Consider medical psychology
Consider OGTT 6–9 years
NG or GT for supplemental feedings

NO

Continued follow-up as outlined in algorithm

Unstable lung disease?

NO

Culture for new bacterial pathogens
Consider imaging (CXR, CT)
Consider additional pulmonary therapy

Improved?

YES

Reassess other causes of urgent need

NO
Gold Coast Hospital and Health Service
Department of Medicine
The OnCallogist Mobile App in the afterhours ward-call setting.
Dr Justin Wong, Dr Siddharth Sharma

AIM
Our aim is to improve patient safety and by reducing completion times of patient-care requests in the afterhours ward-call setting through the early-adoption of an innovative mobile app technology (the OnCallogist App). We also aim to extract actionable data from real-time information continually gathered by this app. Finally, we aim to demonstrate alignment with best practices in developing software in the healthcare setting.

SUMMARY ABSTRACT
Patient care activities performed in the afterhours setting are vital and safety-critical activities but are often neglected when it comes to healthcare analytics. Many of the activities that occur overnight in hospitals, such as cannula re-sites, fluid orders, medications requests etc. are currently requested through the following methods:

- Paging the on-call doctor
- Calling the on-call doctor directly
- A piece of paper or whiteboard with a list of jobs for the on-call doctor.

These activities after-hours often go unrecorded and valuable actionable analytical data are lost.

The current after-hours ward-call process described above is arguably inherently unproductive. Productivity is defined simply as output over input. If a medical resident is tasked to perform a certain job (output) but is frequently interrupted by pages and calls (inputs) while trying to perform this job, then productivity suffers.

It is difficult to quantify metrics like productivity, workload, request type distribution due to the lack of data relating to after-hours activities.

The inefficiencies and lack of metrics in the afterhours ward-call process spawned the idea for the OnCallogist mobile app – an app that provides real-time information on pending requests to afterhours doctors to empower them to prioritise and tend to jobs in an efficient manner without unnecessary interruption from pages and calls. This idea became a reality through the Gold Coast Hospital and Health Service’s "Improver's Challenge" in mid-2014 where the idea won a grant for $50,000. The money was used to outfit five trial wards with Apple iPads and to provide Apple iPhones to the afterhours resident medical officer (RMO) and Clinical Team Consultant (CTC). The software was developed locally over the course of 10 months.

The main purpose of the OnCallogist app was to increase productivity of ward-call process at the Gold Coast University Hospital (GCUH). Productivity gains were validated by using the request completion times as a surrogate and comparing the average completion times of the wards using paper-based lists against the trial wards on which the OnCallogist app was deployed. Paper job lists that had not been destroyed dating from December 21, 2014 to April 18, 2015 from all wards (except the trial wards during the trial period) were collected examined for request and completion time entries. Note that very few of the several hundred job list sheets actually had completion times filled out. Nonetheless, we were able to extract a sample size (n=83) from these paper lists. Completion times from the OnCallogist app were obtained easily by performing a simple SQL query (structured query language) against the OnCallogist database (n=1916).

Our other main priorities were as follows:
1. To develop a mobile app that aligns to best practices in the areas of user-centered software design, security, and government ICT policies.
2. To provide the ability to extract actionable data related to afterhours ward-call activities.
3. To provide a frictionless handover process that facilitates NHQHS Standard 6 (Handover).
4. To achieve 100 % compliance with NHQHS standard 5.1 (Patient Identification).
5. To architect a solution that is portable to other health districts.

Outcomes: Data gathered at three months post-deployment of the OnCallogist app showed an
impressive 41% difference in average completion times: 104 minutes (paper-based, n=83) to 62 minutes (OnCallogist app, n=1916).

We achieved 100% compliance to NHQHS Standard 5.1 (Patient Identification) for all requests made through the app.

Data-mining of the OnCallogist database yielded unprecedented data on workload, completion times, and request type distribution. We were able to identify workload and delay hotspots, and we also took the opportunity to perform a workload analysis on the Easter long weekend ward-call activities.

The OnCallogist app gained positive reception from the nurses and doctors and has completely replaced the paper-based jobs list on all five trial wards.

The app has successfully implemented encryption modalities that meet and exceed the Queensland Government Enterprise Architecture Network Transmission Assurance Framework’s highest security level classification.

The app has been successfully tested on the Cloud as well as internal infrastructure and is architected in a way that is easily portable to other health districts.

Note that the data presented in this paper are for wards B5S, B5N, D5N, B4S, B4N for the date range: February 9, 2015 to April 19, 2015.
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| Creating a culture of performance improvement through an integrated quality, education, safety and training team. The creation of "QuEST" and the celebrated outcomes.  
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| Dianne Barr | The OnCallogist Mobile App in the afterhours ward-call setting.  
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Justin Wong, Siddharth Sharma |
| The Mercy Health Audit system – thinking outside and inside the box  
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