Welcome to Hervey Bay & St Stephen’s Hospital!

We would like to respectfully acknowledge the Butchulla Traditional Owners of the land on which this event is taking place and Elders both past and present.

We also recognise those whose ongoing effort to protect and promote Aboriginal and Torres Strait Islander cultures will leave a lasting legacy for future Elders and leaders.
About UnitingCare Health
St. Stephen’s Hospital
Nicholas E. Davies Enterprise Award of Excellence

Joanne Hayden  BSc(Hons)  BPharm
Clinical Informatics Pharmacist
Who We Are

Vision

• UnitingCare Health will be a mission-driven provider of quality health care services in Australia.

• We will have excellent facilities and technology but our major strengths will be our people and partnerships.

• We will set the standards for accountability to patients, partners and the community.

• We will be known for excellent standards and for our community contributions.

Mission

As part of UnitingCare Queensland, the mission of UnitingCare Health is to improve the health and wellbeing of individuals and their families. We differentiate ourselves by living out our values to optimise patient care and experience every day.
UnitingCare Health

- The Wesley Hospital
  - 536 overnight beds
  - 24 operating theatres
  - 19 ICU beds

- St Andrew’s War Memorial Hospital
  - 250 beds
  - 15 operating theatres
  - 15 ICU beds

- The Sunshine Coast Private Hospital
  - 190 beds
  - 8 operating theatres
  - 12 ICU/CCU beds

- St Stephen’s Hospital Hervey Bay
  - 96 beds
  - 5 operating theatres

UnitingCare Queensland
- UnitingCare Health
- Child and Families
- South-East Queensland Integrated Services
- Regional and Remote Service Group
Healthcare Service

- Wide Bay Burnett Region
- Fraser Coast population approx. 110,000
- One of Australia’s fastest growing regions
- Average age 55 years
- Health & Aged Care infrastructure investment
- 10% unemployment rate
- High Dept. Veteran Affairs population
St Stephen’s Hospital Profile

**Beds**
- 96 Beds total
- 32 Bed Rehabilitation Ward
- 32 Bed Surgical Ward
- 32 Medical Ward

**Theatres**
- 5 Operating Theatres

**Staff**
- 52 Full Time
- 113 Part Time
- 85 Casual

**VMPs**
- 54 Specialist Medical and Dental VMPs

**VMP Surgical**
- General Surgery
- Orthopaedic
- Urology
- Ophthalmology
- ENT
- Gastroenterology
- Gynaecology
- Oral & Maxillofacial
- Vascular
- Plastic & Reconstructive
- Dental

**VMP Medical**
- GP/Physicians
- Nephrology
- Cardiology
- Rehabilitation
- Physicians
- Other Medicine
- Haematology
- Psychiatry

*Other Medicine includes Radiology, Respiratory Medicine & Ophthalmology

**Specialist Medical Services**
- General Medicine
- Endocrinology
- Cardiology
- Oncology/Haematology
- Dermatology
- Sleep Studies
- Rehabilitation
- Respiratory Medicine
- Nephrology
- Neurology

**Specialist Surgical Services**
- General Surgery
- Orthopaedic
- Urology
- Ophthalmology
- ENT
- Gastroenterology
- Gynaecology
- Oral & Maxillofacial
- Vascular
- Plastic & Reconstructive
- Dental

**Day Programs**
- Rehabilitation programs:
  - Orthopaedic
  - Neurological
  - General reconditioning
  - Falls prevention
  - Cardiac Rehab
- Programs coming:
  - Bariatric
  - Oncological
  - Mental health

**SSH Staff**
- Full Time: 34%
- Part Time: 45%
- Casual: 21%
St Stephen’s becomes Hervey Bay’s new Digital Hospital

- Federal Government sought submissions via Health and Hospitals Fund for projects to improve access to regional and rural health services

- Government announced $47.1M grant to UCH towards developing Australia’s first fully integrated digital hospital
  - $25.9M towards construction costs
  - $21.2M for eHealth

- Contract signed with Federal Government

- Project Director for eHealth appointed – Connie Harmsen
  - Australia’s first CMIO appointed – Dr Monica Trujillo

- St Stephen’s Hospital Hervey Bay takes its first patient

- St Stephen’s Hospital is first in Australia to achieve HIMSS Stage 6

- St Stephen’s Hospital is first in Australia to achieve HIMSS Stage 7
System Implementation Timeline

**Oct 2014**
Opening fully digital hospital with device integration & closed loop electronic medication management

**Dec 2014**
Achieved HIMSS6 status

**March 2017**
Integrated with the Australian Digital Health Agency’s My Health Record

**Jan 2018**
Implemented Cerner Bridge Transfusion Administration

**Oct 2018**
Implemented Cerner Point of Care Specimen Collection for clinician collect

**Nov 2018**
HIMSS stage 7

**Sept 2019**
HIMSS Davies Award

<table>
<thead>
<tr>
<th>Governance and Leadership</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>UnitingCare Queensland</strong></td>
</tr>
<tr>
<td><strong>UnitingCare Health</strong></td>
</tr>
<tr>
<td><strong>St Stephen's Hospital</strong></td>
</tr>
</tbody>
</table>
Medication Administration Variance Case Study

Joanne Hayden BSc(Hons) BPharm
Clinical Informatics Pharmacist
Improve variance in the medication process.

Targeted Areas for Improvement

- Adverse drug events (ADEs)
- Medication omissions
- High alert medication errors (e.g. Warfarin, etc.)
- Transcription errors
- Prescription of allergy drugs and related near misses
- Duplication of therapy
Omissions – opportunities for improvement.

Baseline Data

Time Critical Medication Omissions

2.41% of med errors due to omission\(^1\)

0.73% of med administrations cause an Adverse Drug Event\(^2\)

1. SSHB Exec Report Oct 14 – Jan 15, total medication omissions/total medication orders. Average of % medication errors due to omission.
The solution.

Create a Closed Loop Electronic Medication Management (CLEMM) System

- Implementation of Barcoded Medication Administration (BCMA), Computerised Physician Order Entry (CPOE) & CLEMM
- Clinical Decision Support (CDS)
- Develop in-house custom reports
  - Accurately report ward, patient and medication scanning rates for individual clinicians.
  - Detailed oversight of medication administration documentation.
- Time in Motion study (BCMA)
  - Hawthorne Effect witnessed
  - Reasons for workarounds identified
- Reports in conjunction with study
  - Identified reasons for workarounds & scan errors.
What is CLEMM?

• Closes the gaps within the medication management cycle.

• Reduces medication errors caused by poor documentation/communication.

• Ensures patient receives the exact medication which doctor prescribed.
The integration between the following systems was crucial to the improvement in medication safety practices:

- Electronic Medical Record (EMR)
- Clinical Decision Support
- Computerised Physician Order Entry
- Pharmacy Systems
- Electronic Medication Administration Record (eMAR)
- Automatic Drug Cabinets
Clinically driven → Doctor’s prescribing workflow
Technology supported → Ordering and decision making
Clinically driven → Doctor’s prescribing workflow  
Technology supported → Ordering and decision making

**Medication Clinical Decision Support (mCDS)**

The order was created with the following alerts:

**oxycodone (Endone) 10 mg, PO, 6 h/r (interval), PRN: Pain**

### Allergy

### Drug/Drug

**Duplicate Therapy (3)**

<table>
<thead>
<tr>
<th>DC Severity</th>
<th>Medication</th>
<th>Details</th>
<th>Status</th>
<th>Interaction Information</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>oxycodone-naloxone</td>
<td>1 tab(s), PO, BD</td>
<td>Ordered</td>
<td>oxycodone-oxycodone</td>
</tr>
<tr>
<td></td>
<td>tramadol (tramadol 50 mg oral capsule)</td>
<td>50 mg, 1 capsule(s), PO, 4 h/r (interval), PRN: Pain</td>
<td>Ordered</td>
<td>oxycodone-tramadol</td>
</tr>
<tr>
<td></td>
<td>fentanyl</td>
<td>20 microgram(s), IV, 5 minutely, PRN: Pain</td>
<td>Ordered</td>
<td>oxycodone-fentanyl</td>
</tr>
</tbody>
</table>
Vision
Why is this important and how will our future look?

Guiding Principles
How will difficult decisions be made?
Scope & Structure, Implementation Plan, Testing!

Benefits
How will we measure our success?
What do we need to implement to achieve our targeted benefits?
Governance and Decision Making.
CPOE: Clinician Adoption

✔ Hospital & Group Leadership
  • Encouraging clinicians to have a voice in design and build decisions.
  • Regular personal communication.

✔ Clinicians, and specifically Doctors, closely involved in governance committees.

✔ Demonstrated benefits to clinicians.
  • Reporting, time savings, patient safety.

✔ Demonstrated ease-of-use and alignment with workflow.

✔ Availability of technical support.
  • On-site, over the phone and remote screen sharing to assist with troubleshooting and workflow questions.
Improving CPOE with clinician engagement

- Monthly, then weekly reports emailed to individuals by General Manager.
- De-identified data emailed to all clinicians.
- Generate an atmosphere of friendly competition/rivalry.
- Identify individuals requiring extra support and provide elbow-to-elbow training and guidance.
- Understanding individual’s barriers and opportunities for learning.
- Clinicians reported problem with the data, investigation by eHealth team to correct background build issues resulting in improved accuracy of reporting.
BCMA Design Factors

• Selecting a barcode system
  • Type of identification band
  • Longevity & wearability.

• Where the barcode exists on the band
  • Distance between different types of barcodes.

• Scanner and mobility of scanner
  • wireless or fixed? Bedside or workstation on wheels?

• Infrastructure to support the technology.
  • Ensure no “dead spots” of connectivity throughout the hospital.

• Unit Dose Packaging
  • Manufacturing license, legislative requirements, machinery, skills.
What is Unit Dose Packaging?

- Repackaging of medications into single unit packages.
- Tablets, ampules, vials, syringes, are repackaged where possible.
- Barcode on package uniquely identifies the medication.
What is Unit Dose Packaging?

Packing ampules and vials

Packing tablets and capsules
What is Unit Dose Packaging?

• Practical considerations – if each medication is repackaged, then they will each need double the shelf space.
• Redesign of pharmacy shelving and space requirements.
Profiled Automatic Drug Cabinets & Unit Doses

Profiled = orders flow from the electronic medical record to the drug cabinets. This allows nurses to remove medications specific to their patient and the time that the medication is due to be administered.

Increases medication safety and reduces administration errors as only medications due for that patient are shown for removal.
Barcode Medication Administration Rates

- Reporting on positive patient scan along with positive medication scan. Did the nurses scan the correct patient and then scan the correct medication before administering the medication?
- Different to HIMSS Stage 7 requirements which look at medication scanning attempts only and not on positive scans.
• Identifies ALL medication administrations in real time.

• Identifies if patient and medication barcode were scanned upon administration.

• Identifies exactly which number / code was scanned upon administration.

Reporting Data = Increased Visibility
Issues identified:

- Scanning of incorrect barcode for medications
- CAPs Lock FIN errors identified
- Scanning of incorrect barcode on arm bands (Matrix vs linear)
- Scanners losing charge / not charging
- Attempts now identifiable
- Scrambled reads
How is the Health IT utilised?

Technology in clinical workflows.

- Electronic Medical Record integration
- Computerised Physician Order Entry
- Barcoded Medication Administration
- Technology focused on safety and improved medication process
Technology in clinical workflows.
Medication History

Pharmacist documents medications taken prior to admission.

<table>
<thead>
<tr>
<th>Home Medications</th>
<th>Status Days</th>
<th>Compliance Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>amoxicillin-clavulanate (Augmentin Duo Forte 875 mg/125 mg oral tablet)</td>
<td>Documented</td>
<td>Last Documented On 26/04/2017 16:39</td>
</tr>
<tr>
<td>enoxaparin (Clexane 30 mg/0.2 mL injectable solution)</td>
<td>1 tab(s), PO, BD, tab, EA</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>ibuprofen (Brufen 400 mg oral tablet)</td>
<td>Documented 1 tab(s), PO, TDS, tab, Take with food, EA</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>levonorgestrel-ethinyl estradiol (Levlen ED oral tablet 28 x 0.03 mg)</td>
<td>Documented 1 tab(s), PO, DAILY, tab, pack(s)</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>morphine (morphine sulfate 5 mg/ml injectable solution)</td>
<td>Documented 2.5 mg, IV, 2 hrly (interval), PRN for Pain</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>ondansetron (ondansetron 4 mg orally disintegrating tab)</td>
<td>Documented 1 tab(s), PO, TDS, tab, EA, PRN for Nausea/Vomiting, EA</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>oxycodone-naloxone (Targin 5 mg/2.5 mg oral modified release tablet)</td>
<td>Documented 1 tab(s), PO, BD, tab-SR, EA</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>oxycodone (Endone 5 mg oral tablet)</td>
<td>Documented 1 tab(s), PO, 4 hrly (interval), tab, PRN, EA</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>paracetamol (Panaxol 500 mg oral tablet)</td>
<td>Documented 2 tab(s), PO, 6 hrly (interval), tab, PRN, EA</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>polyethylene glycol 3350 with electrolytes (Mitosol oral powder for reconstitution 13.125g x 30)</td>
<td>Documented 1 EA, PO, BD, powder reconst, pack(s)</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>pregabalin (lyrica 75 mg oral capsule)</td>
<td>Documented 1 cap(s), PO, BD, cap, PRN for Pain, EA</td>
<td>Still taking, as prescribed</td>
</tr>
<tr>
<td>wheat dextrin (Benefiber Powder (containing wheat dextrin))</td>
<td>Documented 2 tsp, PO, TDS, powder, PRN for Constipation, pack(s)</td>
<td>Still taking, as prescribed</td>
</tr>
</tbody>
</table>
Admission Medication Reconciliation & Inpatient Ordering

Computerised Physician Order Entry
- Product Formulary
  - Unlimited in private hospital
- Medication Order Catalogue
- Medication Order Sentences

Build considerations include:
- Maximising conversion rates through medication reconciliation.
  - Reduce selection error on conversion home medication → inpatient → discharge.
- Maximising auto product assignment (APA) rates to aid ADC profiling.
  - APA = drug item assigned to order for ADC/scanning.
Pharmacist Verification of Inpatient Orders

Auto Product Assignment – the system will assign a product to the order based on built in variables.

Pharmacist verifies orders and assigns products where necessary.
## Technology Enabled Pharmacists

### Pharmacy Multi-Patient Task List

#### Unverified Orders Monitor (UVOM)

<table>
<thead>
<tr>
<th>Name</th>
<th>Order</th>
<th>Start Date/Time</th>
<th>Rx Priority</th>
<th>Last Unverified Action</th>
<th>FIN</th>
<th>MRN</th>
<th>Facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingran</td>
<td>WARNED</td>
<td>18/05/2015 12:50</td>
<td>* Order</td>
<td>3055122 17961 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alton</td>
<td>UNSPEC</td>
<td>01/05/2015 20:00</td>
<td>* Order</td>
<td>3882300 19777 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNeil</td>
<td>GOODBY</td>
<td>31/05/2015 12:00</td>
<td>* Order</td>
<td>5000123 19780 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingran</td>
<td>RAVISHV</td>
<td>19/05/2015 10:00</td>
<td>* Order</td>
<td>3658919 17960 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alton</td>
<td>UNSPEC</td>
<td>03/05/2015 13:00</td>
<td>* Order</td>
<td>5000344 19785 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingran</td>
<td>WARNED</td>
<td>04/05/2015 08:00</td>
<td>* Order</td>
<td>3658919 17961 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNeil</td>
<td>INSPIRA</td>
<td>25/05/2015 14:45</td>
<td>* Order</td>
<td>5000003 19765 S5H</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Alton</td>
<td>FLOWER</td>
<td>14/06/2015 15:18</td>
<td>* Order</td>
<td>3892341 19741 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alton</td>
<td>FLOWER</td>
<td>12/06/2015 08:00</td>
<td>* Order</td>
<td>5000123 19782 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alton</td>
<td>MORGAN</td>
<td>14/06/2015 20:00</td>
<td>* Order</td>
<td>3892307 19761 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNeil</td>
<td>CERNER</td>
<td>20/06/2015 00:00</td>
<td>* Order</td>
<td>5000304 19763 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNeil</td>
<td>INSPIRA</td>
<td>28/05/2015 12:00</td>
<td>* Order</td>
<td>5000123 19782 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alton</td>
<td>SNOW</td>
<td>10/06/2015 08:00</td>
<td>* Order</td>
<td>5000121 19782 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>McNeil</td>
<td>CERNER</td>
<td>25/06/2015 00:00</td>
<td>* Order</td>
<td>5000309 19780 S5H</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Alton</td>
<td>WEWEN</td>
<td>11/05/2015 10:00</td>
<td>* Order</td>
<td>3652227 19764 S5H</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Alton</td>
<td>SNOW</td>
<td>09/06/2015 14:00</td>
<td>* Order</td>
<td>5000221 19782 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingran</td>
<td>FLOWER</td>
<td>03/07/2015 10:30</td>
<td>* Discontinue</td>
<td>3655191 17960 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingran</td>
<td>RAVISHV</td>
<td>28/04/2015 12:37</td>
<td>* Discontinue</td>
<td>3655191 17960 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alton</td>
<td>SAVAGE</td>
<td>28/07/2015 16:37</td>
<td>* Order</td>
<td>3882330 19839 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingran</td>
<td>CRACKERS</td>
<td>19/07/2015 15:23</td>
<td>* Discontinue</td>
<td>3862200 19823 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ingran</td>
<td>MAHRET</td>
<td>14/07/2015 20:23</td>
<td>* Order</td>
<td>3862273 19828 S5H</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
# Technology Enabled Nurses

**CareCompass**

<table>
<thead>
<tr>
<th>Location</th>
<th>Patient</th>
<th>Status</th>
<th>Care Team</th>
<th>Activity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admit 1</td>
<td>SNOW, John</td>
<td>33 yrs</td>
<td>FEMALE</td>
<td>No Known Allergies</td>
</tr>
<tr>
<td>14 - Red 1</td>
<td>SNOW, John</td>
<td>33 yrs</td>
<td>FEMALE</td>
<td>No Known Allergies</td>
</tr>
<tr>
<td>15 - Red 5</td>
<td>BOLAND, Jica</td>
<td>38 yrs</td>
<td>FEMALE</td>
<td>Allergies</td>
</tr>
<tr>
<td>17 - Red 7</td>
<td>FARQUHAR, Davies</td>
<td>87 yrs</td>
<td>MALE</td>
<td>No Allergies Recorded</td>
</tr>
<tr>
<td>19 - Red 9</td>
<td>JACKSON, Claude</td>
<td>35 yrs</td>
<td>MALE</td>
<td>No Allergies Recorded</td>
</tr>
<tr>
<td>21 - Red 12</td>
<td>SAVAGE, DCMed One</td>
<td>75 yrs</td>
<td>FEMALE</td>
<td>Allergies</td>
</tr>
</tbody>
</table>

**Discharge**
- Med History
- Admission Med Rec
- Inpatient Ordering (including Clinical Decision Support)
- Profiled ADCs & Unit Dose

**BCMA** (Barcode Med Administration)
Medication Administration Wizard (MAW)

- 2 hour window (adjustable) of medications due to be administered.
- Scanning & documentation
Technology Enabled Nurses

BCMA – at the bedside.

Scan patient wristband

Scan medication

Administer medication
Discharge Medication Reconciliation and Medication List

This discharge medication summary contains information about your current medications only. Please contact the hospital pharmacy department if you have any questions about your medication list.

If you have any questions, please phone 07-4510 0000 to speak with a pharmacist.

<table>
<thead>
<tr>
<th>Medication Name</th>
<th>Commanded for</th>
<th>Doses</th>
<th>Morning</th>
<th>Noon</th>
<th>Night</th>
<th>Special Instructions</th>
<th>Dispersal Quantity</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metronidazole</td>
<td></td>
<td>3</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td></td>
<td></td>
<td>Unchanged</td>
</tr>
</tbody>
</table>

Allergies and adverse drug reactions:

<table>
<thead>
<tr>
<th>Date</th>
<th>Medicine</th>
<th>casual agent</th>
<th>Reaction</th>
</tr>
</thead>
</table>

Discharge Med Rec

Med History

Admission Med Rec

Inpatient Ordering (including Clinical Decision Support)
Pharmacy Interfaces at St Stephen’s Hospital
Benefits of CLEMM

✓ Time saved with automatic restocks
✓ Security – fingerprint access
✓ Traceability easy generated discrepancy reports
✓ Expiry tracking – less shrinkage
✓ Flexible stock control – PARs & Reorder levels
✓ No running out of imprest stock
✓ On call pharmacists – remote access
EMR = transparency & facts

True representation of medication incidents vs reliance on reporting culture

- Meaningful use of data to improve patient safety and workplace efficiencies
- Reporting improves accuracy of data recorded
- Transparency of reporting
- Drives training & system improvement
Value Derived.

Patient Safety and Quality Results.

- Reliable data
- Medication error investigation immediately in conjunction with ADC and MAR
- Medication error prevention

<table>
<thead>
<tr>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Wrong Drug / Wrong Patient</strong></td>
</tr>
<tr>
<td>Patient prescribed Sinemet 250/25mg tabs – Madopar Rapid 50/12.5mg scanned</td>
</tr>
<tr>
<td>Patient prescribed candesartan 8mg tabs – candesartan/hct 16/12.5mg tabs scanned</td>
</tr>
<tr>
<td>Patient prescribed temazepam 10mg – diazepam 2mg scanned</td>
</tr>
<tr>
<td><strong>Warfarin scanned – patient not prescribed</strong></td>
</tr>
<tr>
<td>Patient prescribed ramipril 10mg – enalapril scanned</td>
</tr>
<tr>
<td>Gabapentin scanned – not prescribed for that patient</td>
</tr>
<tr>
<td>Prednisone scanned – not prescribed for that patient</td>
</tr>
<tr>
<td><strong>Wrong Dose</strong></td>
</tr>
<tr>
<td>Seretide 250/25 MDI prescribed – Seretide 250/50 Accuhaler scanned</td>
</tr>
<tr>
<td>Symbicort Rapihaler 100/3 prescribed – Symbicort 400/12 Turbuhaler scanned</td>
</tr>
<tr>
<td>Magnesium 500mg tabs prescribed – Magnesium 750mg scanned</td>
</tr>
</tbody>
</table>
What is an Omission?

- Report on med admin tasks documented as "Not Done" or "Not Given".
- Reasons are clinically evaluated as either valid or invalid. Invalid Omissions included in monthly reports.
# Cost Avoidance and Clinical Efficiencies

<table>
<thead>
<tr>
<th>Clinical Area</th>
<th>Paper Based</th>
<th>Digital</th>
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</thead>
<tbody>
<tr>
<td>Surgical</td>
<td>192</td>
<td>343</td>
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<tr>
<td>Medical</td>
<td>157</td>
<td>351</td>
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<tr>
<td>Theatre</td>
<td>208</td>
<td>358</td>
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</tbody>
</table>

- **69% reduction in imprest stock value**
- **189% increase in # imprest lines**
- **accessibility of imprest lines**
Patient Safety and Clinical Efficiencies

Less than 6 minutes for Day Surgery discharge medication preparation and dispatch.

35% reduction in time to prepare complex medical patient discharge med list.

47% Reduction in administration errors

Barcode scanning functionality reduces medication administration errors at the bedside where the incorrect drug, patient, dose or route has been administered. This has shown a significant reduction in ‘near misses’ associated with medication administration errors at the bedside. Of those errors, approx. 1% has the potential to lead to an adverse drug event.

81% Reduction in critical omission errors (relative)

Medication omissions without a valid reason is a leading cause of adverse drug events that can cause significant harm to a patient.
## Pharmacy Workflows: Digital vs Paper

<table>
<thead>
<tr>
<th></th>
<th>Digital</th>
<th>Paper</th>
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<tbody>
<tr>
<td>Med History</td>
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<td>Med Rec</td>
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<td>Chart Review</td>
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<td>Chemo Protocol Review</td>
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<td>Clinical Med Order Review</td>
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<td>TDM</td>
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<td>Pathology Review</td>
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<td>Drug Information</td>
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<tr>
<td>ADR management</td>
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<td>Staff Education</td>
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<tr>
<td>Discharge dispensing</td>
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<td>Discharge Med List /MAR</td>
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<tr>
<td>Patient Counselling &amp; Education</td>
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<thead>
<tr>
<th></th>
<th>Digital</th>
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<tbody>
<tr>
<td>Med Dispensing and Distribution</td>
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<tr>
<td>Chemo Ordering</td>
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<td>Imprest management</td>
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<td>PBS claim management</td>
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<td>Owning Script Management</td>
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<tr>
<td>CSM Management</td>
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<tr>
<td>Unit Dose Packaging</td>
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<tr>
<td>Barcode maintenance</td>
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<tr>
<td>Controlled Drug discrepancies</td>
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<tr>
<td>eHealth support (med mgmt.)</td>
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<tr>
<td>Logging eHealth issues</td>
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<tr>
<td>ADC alerts</td>
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Lessons Learnt.

- Change in traditional workflows for pharmacy
- Longer orientation & on-boarding processes
- Machines and maintenance
- Barcode maintenance
- Increase stock: UDP and bulk
- Processing Pharmaceutical Benefits Scheme claiming
- Budget vs efficiency
- Unit Dose Packaging Workload
- Task oriented vs. patient oriented nursing
- Slow uptake of scanning medication workflow
- Frustrations and ADCs - jams
Implementation & Challenges

Clinical Nurse Manager & Ward Ownership

- Benchmarking per user
- Benchmarking per ward
- Traffic light reports
- Competition and positive reinforcement
- Identify opportunities for targeted training
- Nurses reporting to eHealth onsite to investigate builds

- Real time reporting of scanning failures to pharmacy & eHealth to investigate build issues & continuously improve.

- Build Changes required:
  - IV product barcodes built
  - Manufacturer barcodes built system

- In-services provided by pharmacy, eHealth & nurse leadership focus on patient safety
Optimisation and Continual Improvement

• Clinical informaticist on-site; face to face
• Identifying superusers
• Barcode scanning reports & in-services
• CPOE and continual doctor training
• Encouraging all users to log problems
  • Pharmacy, Nursing, Doctor workflows & Non-Clinical services
I’m worried that health care has become too impersonal, Doc.

Nonsense... just relax and lie back on the bar code scanner.
In Summary

Local problem: Decrease variance in the medication process with device integration, closed loop electronic medication management, and unit dose medication cabinets.

Design and Implementation: The implementation of a barcode medication administration process (BCMA) helped to decrease Adverse Drug Events (ADEs) which are often the leading cause of harm to hospitalised patients. St Stephen's leadership tasked their teams with developing a clinically driven, technology supported, medication safety process.

Healthcare IT: A key factor and workflow change was the implementation of Computerised Practitioner Order Entry (CPOE). In the CPOE workflow, errors are intercepted at the time of order entry with Clinical Decision Support (CDS). The integration between the CPOE, pharmacy systems, eMAR, barcode system, and medication dispensing cabinets was crucial to success.

Value derived: The improved workflows in moving from the paper environment to the digital environment enabled St Stephens to reduce the variance in their medication process. With an increase in CPOE adoption and the utilisation of BCMA, St Stephens has realised a significant decrease in ADEs and medication omissions.
## Literature

<table>
<thead>
<tr>
<th>Author</th>
<th>Title</th>
<th>Year</th>
<th>Journal</th>
<th>Vol</th>
<th>Issue</th>
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<tr>
<td>Melbourne Health</td>
<td>Electronic Medical Record Business Case</td>
<td>2013</td>
<td>Australian Hospital</td>
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<td>30-31</td>
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</table>
Thank you.

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