eMR Opportunities for the Future

Dr Peter Kennedy,
Clinical Adviser for eHealth NSW
“Every day, over 32,000 clinicians use the eMR to open 290,000 charts, order 165,000 tests and book 22,000 appointments electronically.”

From December 2010 -
• 111% more users
• Daily appointments increased 105%
• Daily chart opens were up 122% across the state
• Daily orders were up 102% across the state
The most mature EMR in the country. Usage growing

Concurrent user growth
- There has been significant growth in concurrent users accessing the eMR domains with the roll-out of eMR2, CHOC, eMeds and Rural eHealth Programs.
Favourable comparisons for Order Entry and Clinical Documentation

Cerner and NSW Health have identified joint initiatives aimed at taking lead sites in the State, through and beyond electronic medications management (eMM) to HiMSS Stage 6 and ultimately, Stage 7.

Sydney Local Health District (SLHD) and South Western Sydney Local Health District (SWSLHD) as well as the Sydney Children’s Hospital Network (SCHN) are positioned to be lead sites for these initiatives.
Build Safe systems

People use IT safely

Using IT to improve / monitor safety

Sittig & Singh NEJM Nov 2012
TeamSTEPPS

Situational Awareness

Shared Mental Model

Mutual Support
Five Dysfunctions of a Team

1. Absence of trust
2. Fear of conflict
3. Lack of commitment
4. Unwillingness to hold one another accountable
5. Inattention to results
Principles for EMR Rollout

Executive Sponsorship

Clinical Leadership

Technical Expertise

Equity
<table>
<thead>
<tr>
<th>Risk Category</th>
<th>Enablers</th>
<th>Change Management</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policy</td>
<td>Strategy and Architecture</td>
<td>Local Project Management, Implementation and Training</td>
</tr>
<tr>
<td></td>
<td>Governance</td>
<td>Education</td>
</tr>
<tr>
<td></td>
<td>Central Infrastructure (Data Centres) and Operations (EMR)</td>
<td>Local Networks / Bandwidth</td>
</tr>
<tr>
<td></td>
<td>Program Management, Procurement</td>
<td>End User Computing (PCs, Mobile Devices, TeleHealth Endpoints, Wireless Networks, Phones)</td>
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<tr>
<td>Enablers</td>
<td>Ownership</td>
<td>ACI / CEC / HETI / NSW Kids and Families</td>
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<tr>
<td></td>
<td>Work Practice Review</td>
<td><strong>Owner</strong></td>
</tr>
<tr>
<td></td>
<td>Standardisation and Content Knowledge</td>
<td><strong>Ministry</strong></td>
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<tr>
<td></td>
<td>Education</td>
<td>eHealth NSW</td>
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<td></td>
<td>Clinician Support</td>
<td>Local Health Districts</td>
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<td>Benefits Realisation</td>
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<td></td>
<td>** Owners**</td>
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</table>
Clinical Analytics

- Data Warehouse
  - Linked data, Trends, Population Health, Research

- Operational Data Store
  - Actionable decision support, Patient portal, Journey board

- Outcome Measures
  - Provides intelligence for improvement

- Other Clinical Data Sources

- Technovigilance

- eMR, eMeds, Community, ICU

- Business Applications

- IT Platform
  - Standardisation
  - Interoperability
  - Infrastructure
Who would interact with the data

- Researchers
- Policy and Executive
- Clinical Directors and Heads of Departments
- Front line clinicians and individual patients
Use their IT system to drive safety, quality, efficiency and effectiveness through:

I. Work practice review

II. Standardisation of care

III. Focusing on the patient

IV. Clinical analytical data that could both drive the change and reflect the change

V. Recognition of high performance
Complex Adaptive Systems

WORK AS IMAGINED
How managers believe work is being done (rules)

GAP

WORK AS PERFORMED
Every-day work: How work IS being done

Adapted from: Ivan Pupulidy
Clinical Analytics

Acute Stroke
Acute Stroke Management Clinical Pathway

• Acute Stroke Management Clinical Pathway developed with involvement from
  – Agency for Clinical Innovation (ACI)
  – Stroke Network Group
  – eHealth NSW
Acute Stroke Management Clinical Pathway

- Multidisciplinary
  - Medical
  - Nursing
  - Allied Health

- Phased Care approach
Acute Stroke Management
Clinical Pathway

• Groupings of orders based on phase of care including:
  – Pathology
  – Medical Imaging
  – Consults
  – Patient Care
  – Medical Assessments
  – Medications

• Clinical decision support incorporated
• Aligned with best practice guidelines
Quality Informatics

Use Quality Informatics for Stroke related assessments (FAST, Swallow Screen, Speech Pathology Assessment, NIHSS)

This screen shows real time data as of NOW and allows clinical staff to act if things aren’t done.

Assessments / observations (height, weight) can be completed from this screen.
Near real-time insights – summary and patient level

This screen shows near-real time data and allows clinical staff to see variances in treatment and outcomes.

Users can click on graphs and tables to drill down into the data.

Dashboard

Current Selections

<table>
<thead>
<tr>
<th>Age</th>
<th>Gender</th>
<th>Pathway</th>
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<tbody>
<tr>
<td>60-69</td>
<td>F</td>
<td>OFF</td>
</tr>
<tr>
<td>70-79</td>
<td>M</td>
<td>CN</td>
</tr>
<tr>
<td>80-89</td>
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</tr>
<tr>
<td>90+</td>
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</table>

Ward | Diagnosis
--- | ---
1 West | Haem Stroke
2 North | Isch Stroke
Stroke Unit | TIA

Clear Selections

<table>
<thead>
<tr>
<th>MRN</th>
<th>Clinician</th>
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<tr>
<td>123456789</td>
<td>Dr Brown</td>
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<tr>
<td>1234567890</td>
<td>Dr Dennis</td>
</tr>
<tr>
<td>123456789123</td>
<td>Dr Green</td>
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<tr>
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<td>Dr Jonas</td>
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<tr>
<td>1234567891237</td>
<td>Dr Morris</td>
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<tr>
<td>1234567891245</td>
<td>Dr Smith</td>
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<tr>
<td>12345678912568</td>
<td>Dr Stevens</td>
</tr>
<tr>
<td>1234567891234</td>
<td>Dr Williams</td>
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</table>

Refresh Listed Data

Diagnosis

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Count</th>
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<tbody>
<tr>
<td>Haem Stroke</td>
<td>20</td>
</tr>
<tr>
<td>Isch Stroke</td>
<td>35</td>
</tr>
<tr>
<td>TIA</td>
<td>8</td>
</tr>
</tbody>
</table>

Previous Stroke / TIA recorded in eMR?

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Count</th>
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</thead>
<tbody>
<tr>
<td>HAEM</td>
<td>40</td>
</tr>
<tr>
<td>ISCH</td>
<td>30</td>
</tr>
<tr>
<td>NO</td>
<td>10</td>
</tr>
<tr>
<td>TIA</td>
<td>40</td>
</tr>
</tbody>
</table>

Length of Stay

- <4hrs: 20
- 4-8hrs: 35
- 8-12hrs: 10
- 12-24hrs: 5
- 24-72hrs: 15
- 72-96hrs: 8

ALL DATA Average LOS (hrs) 63.6

CURRENT SELECTION Average LOS (hrs) 63.6

TIMES TO KEY EVENTS

Onset time to first Aspirin dose

- <1hr: 20
- 1-2hrs: 15
- 2-5hrs: 5

Onset time to first CT scan

- <1hr: 20
- 1-2hrs: 15
- 2-5hrs: 5

VTE Prophylaxis

- No: 62
- Yes: 12

SWALLOW SCREEN / ASSESSMENT

Onset time to first Swallow Screen (ASSIST)

- <1hr: 13
- 1-2hrs: 20
- 2-5hrs: 16

Swallow Screen Completed? (ASSIST)

- No: 17
- Yes: 42

ASSIST result

- Fail: 30
- Pass: 20