A Tale of an Application’s Evolution

Dr David Evans
Deputy Director Medical Services,
Princess Alexandra Hospital, Brisbane

Mr Paul Carroll,
Senior Director, Program Delivery Directorate,
HSIA, Queensland Health
The Holy Grail

• The Electronic Discharge Summary was for many the Holy Grail of the electronic health record.

• One of the first elements of health informatics to demonstrate how eHealth would impact clinical care, and in particular the continuum of care between facilities, specialists and primary care deliverers.
Dear Doctor,

my journey was well, the illness declined from me and I look forward to seeing him in a market.
I change to his punctuation. All his facts were normal.

Yours sincerely,

[Signature]
Dear Doctor...

- Often no summary just a letter
- Often illegible
- Not loved by general practitioners.
- Containing minimal useful information
- Arrived long after the information was relevant
- Poor quality of Information in any event.

Hard to see the way forward.
Dear Doctor Smith,

Mr Jones is now well. He is being discharged home and I look forward to seeing him in a month. No change to his medication. All his tests were normal.

Dr Peter Edwards.
The early electronic discharge summaries were simple word-processing templates with typed text filling text boxes with headings such as Presenting Complaint, Current Medications and Past Medical History.

Then the Word Processor, Templates, Dragon Dictate ....

We could see a way forward....
The EDS arrived in Queensland!

- Electronic delivery systems were created
- Textual material came directly from patient administration, surgery, pathology, imaging, and pharmacy systems
- Reduced risk of transcription errors
- Risk of mistaken identity substantially removed.
Forms an essential element communication application and inherent aspect of The Viewer and Queensland’s SEHR as well as the National PCEHR.
The Queensland EDS

Overview of information flows across enterprise systems

DH

Enterprise Integration Platform

HBCIS

ORLIMS

ORLIMS

eLMS

EDIS

CIMHA

Heartlab

DH

Client Directory

ieMR

The Viewer

Electronic Discharge Summary

PCEHR

Outside QH

Mater Doctor Portal

The Queensland EDS

Overview of information flows across enterprise systems
Discharge Summaries on PCEHR
### Discharge Summary (Amended)

**DON HESTER**<br>DoB 27 Aug 1980 (32y)  <br>**SEX** Male <br>**BIB** 8003 6081 6668 7574  <br>**MRN** 810201

#### The Townsville Hospital
**Author** Simon Sanderson (Health Professionals ndd)  
**Phone** (07) 4796 1111  
**Discharge To** Usual Residence/Other

#### Event
**Details of stay**

<table>
<thead>
<tr>
<th>Problems/Diagnoses This Visit</th>
<th>Event &gt; Problems/Diagnoses This Visit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nil Entered</td>
<td></td>
</tr>
<tr>
<td>Principal Diagnosis</td>
<td></td>
</tr>
<tr>
<td>PD</td>
<td></td>
</tr>
<tr>
<td>Other Active Problems</td>
<td></td>
</tr>
<tr>
<td>Nil Entered</td>
<td></td>
</tr>
<tr>
<td>Complications</td>
<td></td>
</tr>
<tr>
<td>Nil Entered</td>
<td></td>
</tr>
</tbody>
</table>

#### Clinical Synopsis
**Registrar**
BEFORE DELETE

**Consultant**
DR HEINZ ALBRECHT

**Admission Source**
Transferred from another hospital

**Reason for Discharge**
simon

**Inpatient Clinical Management**
Nil Entered

#### Diagnostic Investigations
**Event > Diagnostic Investigations**

<table>
<thead>
<tr>
<th>Imaging Examination Result</th>
<th>Event &gt; Diagnostic Investigations &gt; Imaging Examination Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical Imaging</td>
<td></td>
</tr>
<tr>
<td>Nil Entered</td>
<td></td>
</tr>
</tbody>
</table>

#### Significant Other Investigations
**Event > Significant Other Investigations**
Nil Entered

**Health Profile**
Valued Integrated Application
The Electronic Discharge Summary

Still a long way from the Holy Grail, moved eHealth communication into the future with improved stakeholder understanding of where the future eHealth superhighway was likely to take them.
Over the Horizon?

Capacity!

Faster!

• What of the future?
• What issues will emerge as the Digital Hospital and the Digital Community emerge?
• Integration with hospital electronic medical records
• The ongoing development of the national shared electronic record(s) (My EHR or PCEHR)
• Greater granularity in content
• Integration with GP systems
Over the Horizon?

- Specialist and Outpatient letters,
- Death Notifications,
- Event Summaries,
- Reports and e-referrals,
- Interactive clinical pathways,
- Multisite synchronised Telehealth clinical records

Seamless communication between clinicians, patients and providers?

Document Creation Options?
Ubiquitous Communication

Too much of a good thing??
The Human Factor

- The difference between a high and a poor quality summary lies often with the author not the application.
- The timeliness of a human moderated summary can be disappointing when instant transmission is possible but completion may be days following discharge.
- The selection of what is to be included or excluded, its relevance, currency and accuracy remains in human hands - the senders not the receivers.
The Human Factor

- The value of the communication requires understanding of the patient’s and receiver’s needs, the criticality of the message, privacy and on-going relevance.
- A quality dialogue is required between the author and the reader.
- Feedback and evaluation of the Discharge Summary’s value and content will help the author to improve.
- Role of auditing and application enhancement

Enthusiasm for the new must be tempered by ongoing cognitive skills development and understanding by the authors.
Challenges

• One-way message
• Redundancy & 24x7
• Bandwidth
• NBN Rollout
• Dependencies on distribution channels and third party suppliers
• Secure messaging (HIPS)
• Integration with perpetual storage solutions, suitable middleware & emerging application harmony.
Challenges
Challenges

- National and International Standards
- Ensuring semantic interoperability
- Gaining professional agreement on document structure, templates, format, metadata
- Use of Reference Terminologies
- Meeting the long term governance issues and costs.
What is the next Holy Grail?

• Need to be more responsive to receivers requirements
• Challenging to achieve a degree of consistency from customer (GP) side
• What elements are *must have, nice to have, waste of time*?
The Future

Continuum of care is a concept involving an integrated system of care that guides and tracks patient over time through a comprehensive array of health services spanning all levels of intensity of care.


The Continuum of care EHR will be an **integrated system** of care records that guides and tracks patient over **a life time** through a comprehensive array of health services application spanning **all levels** of intensity of care.

EDS creates the historical summative care statements

The Viewer is a portal into those records
The Human - Machine Factor

Integration with EHR Codification, Inclusion & Definition of Metadata

e.g.:
• Author / role – example a cardiology intern
• Procedure
• Medication
• Health conditions

• Provide a menu of information options
• Improved final message
• Targeted
• Critical information included

• Online guidance
• Automated Care Paths
• Pre-populated Content
• Primary Care provider preferences
The Future …
Do we need an EDS?

The development of ubiquitous eHealth portals for access by clinicians, patients and carers may make transmission of documents or even messages redundant.

- Push – Pull
- Ubiquitous access to whole medical record
- Integrated with genomic profile, work and social history
- Integrated chronic care plans and automated interventions by care providers
- The whole nature of clinical partnerships and patient consent needs resolution.
- Video and social network connections with providers
- Real time automated messages to care team with shared records
Mr Jones admitted today (20/11/2014) via Emergency Department contact 0733234561 Dr Thomas – use webconference link.

Mr Jones has been discharged home today (26/11/2014)


Appointment arranged at 3.30pm on 1/12/2014 at Dr Edwards for follow up

Medication summary (including ceased and newly prescribed)
The Future ...
Do we need an EDS?

The EDS must eventually integrate into a single, shared secure eHealth system.

The construct known as the Discharge Summary is difficult to produce and takes considerable time:

One option – Take info from other systems (and send it direct as a message) versus current select from store and drop in to a container or template (The Summary)

Minimal training
The Future …
Do we need an EDS?

Such freedom comes with:
• Onerous security demands,
• Prodigious and ongoing costs
• Complex consent and governance issues
• Perplexing identity issues for both consumers and providers.
• Storage challenges
• Information and Knowledge Management Issues

No matter our roadmap, the aim must always be to provide appropriate and timely information to enhance the handover of care.
The End

THERE IS ALWAYS
THE PHONE