GS1 Conference 2019

Closed Loop Medicines Administration

The journey begins.....

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Chair, NHS Digital, Medicines Data Programme Board
Back to the Future

MEDITROL

- Ward based dispensing system for individual patient medicine administration piloted on 11 wards in L&D in early 1990’s
- Unit dose packaging – packed down in pharmacy, transported to wards in carts
- Pharmacist verification of medication orders required before administration
- Fair to say was not a success!
- But pre-introduction observational audit had shown ~ 8% administration errors
# Fast Forward to 2018

<table>
<thead>
<tr>
<th>STAGE</th>
<th>EMR Adoption Model Cumulative Capabilities</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>Complete EMR; External HIE; Data Analytics, Governance, Disaster Recovery, Privacy and Security</td>
</tr>
<tr>
<td>6</td>
<td>Technology Enabled Medication, Blood Products, and Human Milk Administration; Risk Reporting; Full CDS</td>
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<td>5</td>
<td>Physician documentation using structured templates; Intrusion/Device Protection</td>
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<tr>
<td>4</td>
<td>CPOE with CDS; Nursing and Allied Health Documentation; Basic Business Continuity</td>
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<td>3</td>
<td>Nursing and Allied Health Documentation; eMAR; Role-Based Security</td>
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<td>2</td>
<td>CDR; Internal Interoperability; Basic Security</td>
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<td>1</td>
<td>Ancillaries - Laboratory, Pharmacy, and Radiology/Cardiology information systems; PACS; Digital non-DICOM Image management</td>
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</tbody>
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**CLINICAL EXCELLENCE, QUALITY & SAFETY**
Where can we learn from?

- **Stage 7 Hospitals**
  - **Netherlands**
    - Radboudumc, Nijmegen, Netherlands
    - Ziekenhuis St Jansdal - Harderwijk
  - **Portugal**
    - Hospital de Cascais – Cascais
  - **Turkey**
    - Izmir Tire Devlet Hastanesi - Izmir
    - Yozgat Şehir Hastanesi - Yozgat
Hospital de Cascais - Portugal
Flashback! — unit dose dispensing
Closed Loop Medicines Administration

- Right patient
- Dispensed medicine
- Ward stock
- Right drug
- Right route
- Right dose
- Right time
- Administered by...

Clinical Decision Support

Prescription on ePMA

Pharmacist verification

Prescription processing
GS1 enables healthcare's digital thread

https://xchange.gs1.org/sites/hc/hdt#
Linking interoperability standards

- Ties in data from supply chain to clinical uses
- FMD UI - GS1 GTIN
- dm+d AMPP in FMD MDF

UI also ISO-compliant (ISO 15418; ISO 15434).

<table>
<thead>
<tr>
<th>Product code</th>
<th>Serial number</th>
<th>Batch number</th>
<th>Expiry date</th>
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</table>
*How difficult can it be?....*

**Clinical Engagement**

**People**
- Culture change
- Barcode scanning
- Training
- Alert fatigue
- Workarounds

**Governance**
- Standardisation
- No GTIN
- Exclusions
- Auto-verification

**IT/Data**
- Hardware
- Software limitations
- GTIN data pool
Harvesting GTIN codes

- Weekly updates contain:
  - dm+d TRUD* release schedule - a description of TRUD release ID, extraction date, distribution date and week number
  - dm+d in XML format - this also includes a mapping file between AMPP and GTIN
  - Up to 95% coverage of GTIN codes

*Technology Reference data Update Distribution website
Coming soon....

Delivering GS1 compliance.

Delivering Closed Loop Prescribing and Administration