Electronic Prescribing: Learning from two decades of experience

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Lead Informatics Pharmacist
Learning from 20+ years

- embedding electronic prescribing to change clinical practice
- engaging clinicians in electronic prescribing and administration
- critical success factors and how we would do things differently
- lessons learnt from two decades of experience
- challenges in migrating to a new system

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1993 at Wirral

- Existing EPR
- PAS
- Orders for lab and radiology
- Launch of prescribing and drug administration

AS PER PLAN AND NOTICES, THERE WILL BE FURTHER CHANGES TO PCIS ACCESS AND FUNCTIONALITY TOMORROW, TUES 11TH JUNE.
Current EP position

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Current EP position

• Accounts for majority of in-patient prescribing with some exceptions
  • Chemotherapy
  • A number of ad hoc paper prescribing charts

• Live in all areas except
  • Neonatal unit
  • Maternity wards
  • Out-patients
Embedding EP to change practice

• What does this mean?
  • Clinical staff using the EPR system to prescribe and administer drugs in a safe and timely manner

• Clarity of purpose
  • Priorities of organisation and clinicians
  • Realistic scope

• Learn from the experience of other sites
  • See it for real!

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Embedding EP to change practice

• Get technology and infrastructure right
  • Network including wireless
  • Devices fit for purpose
• Introduce simpler functionality first and move onto complex
• Mandate its use
• Demonstrate benefits
• Respond to problems / issues
  • Make it easy for staff to report problems
Engaging clinicians in EPMA

- Engage early and at all stages of the project
  - Design, implementation and on-going basis
- Don’t rely on one or two enthusiasts only
- Try and get engagement across a range of experiences and roles
  - Junior doctor and ward nurse involvement more of a challenge
- EPMA not seen as a pharmacy project but a Trust one
Engagement in practice

• Wirral Hospital Structures
  • Trust Board level – EHIT group
  • Medical Advisory Team
  • Clinical Advisory Team
• For Cerner EPMA project
  • Medicines Management project group
  • Pharmacy project group
• Ad hoc engagement with clinicians around specific projects or problems
  • Often best done in clinician’s working environment
Critical Success Factors

• System characteristics
  • Easy to log on, fast, reliable
• Strong culture of information governance
  • Robust audit trail available
• Integrated system
  • PAS, Laboratory, Radiology, Prescribing, Drug administration, Discharge Letters, Clinical Documentation
• A stable informatics team with good range of clinical analysts
  • Prescribing team
Critical Success Factors

• Flexible, agile system that is locally customisable
• Organisational leadership and support
• Continuing clinical engagement
• Mandatory training
  • No training - no code for all permanent staff
• Electronic data warehouse
  • For research and audit purposes
Key Learning Points

- Evolution
  - System is not static
  - Need to be able to respond to changes
    - Local e.g. Formulary or risk issues
    - National e.g. CQUIN targets for VTE assessment or discharge letters
EPMA System Maintenance

• A never-ending process
  • System implementation is just the beginning
• Adequate resources in place
  • Currently we have 2.3 FTE for EPMA maintenance and development
• Training
  • Ongoing process to train all new doctors, nurses, pharmacy staff
Key Lessons Learnt

- System must have near perfect identity management
Key Lessons Learnt

• Promotes drug formulary management if have good Drug and Therapeutics committee structure

• The system can fail
  • Downtime procedures need to be in place

• Proactive decision support preferable
  • Too many alerts ignored
  • Promote path of least resistance
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<table>
<thead>
<tr>
<th>Component</th>
<th>Status</th>
<th>Details</th>
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</thead>
<tbody>
<tr>
<td><strong>Paediatric Amoxicillin Oral (Initiated Pending)</strong></td>
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<tr>
<td><strong>Medications</strong></td>
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<tr>
<td>- Up to 1 year of age</td>
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<tr>
<td>- Amoxicillin (Amoxicillin (125mg in 5ml) oral suspension)</td>
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<td>Select an order sentence</td>
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<tr>
<td>- 1 - 16 years of age</td>
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<tr>
<td>- Amoxicillin (Amoxicillin (250mg in 5ml) oral suspension)</td>
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<td>Select an order sentence</td>
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<tr>
<td>- Amoxicillin (Amoxicillin capsules)</td>
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</tr>
<tr>
<td>- <em><strong>In severe infections</strong></em></td>
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<tr>
<td>- Up to 1 year of age</td>
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</table>

Dose: 250 mg, oral, three times a day

1 - 5 years
Key Learning Points

• Reduces risk in many areas
  • Eliminates many basic prescribing errors

• Errors will still happen
  • Need systems to capture these problems
  • Do not always blame the users, try and design errors out of the system e.g. Methotrexate prescribing
  • Evaluate changes to ensure they have desired outcome
### Methotrexate Prescribing

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<th>Order Name</th>
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<tr>
<td>C-M2; Bay 05; 38 Fin#:1053545 Admit: 17/09/2014 11:34</td>
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</table>

#### Medications

- **Methotrexate (Methotrexate tablets)**
  - **Order**: 24/03/2015 9:00
  - **Dose**: 2.5 mg, oral, weekly, **Start**: 24/03/2015 09:00

#### Details for Methotrexate (Methotrexate tablets)

- **Strength dose**: 2.5
- **Strength dose unit**: mg
- **Drug Form**: Tablet
- **Route of administration**: oral
- **Frequency**: weekly
- **Pharmacy order priority**:  
- **Requested start date and time**: 24/03/2015 09:00
- **Duration**:  

Remaining Administrations: 0  Stop: (Unknown)
<table>
<thead>
<tr>
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<th>12 months before Pathway Introduced</th>
<th>12 months after Pathway Introduced</th>
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</thead>
<tbody>
<tr>
<td>Number of Prescriptions</td>
<td>758*</td>
<td>878</td>
</tr>
<tr>
<td>Number of Errors (%)</td>
<td>30 (3.9)</td>
<td>1 (0.1)</td>
</tr>
</tbody>
</table>

*All prescriptions free-typed

93.5% adherence to prescribing pathway
What to do differently

• Promote early and good relationship with supplier to optimise system for local environment
• Make prescribing system more comprehensive
  • Reduce the number of paper drug charts still in use
  • Implement in A&E, maternity and out-patients
• Missed dose management
  • Timely identification of missed doses
• Simplify some of the pathways in the system
  • Overcomplicated in places and not user friendly
• Better involvement of end users and not just senior clinicians
Challenges in migrating to new system

• Wirral’s most significant new enhancement has been the migration from the existing PCIS system to the Cerner system
  • EPMA migration completed 2014
  • Very large trust wide project
  • Managing the change between systems was a major challenge
  • Required significant investment in infrastructure and devices to facilitate the transition
  • Large resource commitment to build, configure, test and train the new functionality
Go Live - EPMA

• Majority of medical, nursing and all pharmacy staff required hands on training
• Manual transcription of all in-patients prescriptions and allergies for all patients in the Trust performed on go live day (750 patients)
  • This was done by 25 teams comprising a prescriber and a pharmacist
  • Transcription process completed in 10 hours
• Intensive round the clock support for first two weeks post go live
• System now up and running since November 15th 2014
Follow-on Projects

• Introduced EPMA into the Emergency Department in October 2015

• Phase 3 November 2016
  • Built and roll out the electronic prescribing and administration of maintenance and continuous infusions
  • Roll out medicines management functionality to Critical Care and Theatres
  • Rolled out electronic clinical noting for medical staff
Future Projects

• Electronic prescribing of chemotherapy going live at the end of January 2017

• Now a Global Digital Exemplar Site
  • Range of medicines management related objectives
  • Eliminate paper prescribing in those areas where it still occurs and for those remaining ad-hoc paper charts
  • Care pathway development
  • Closed loop medicines process
  • Better integration between primary and secondary care