ePrescribing in a Global Digital Exemplar
Salford’s Lessons Learnt and Future Challenges for ePrescribing and Meds Admin (ePMA) within an Integrated Care Organisation

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ePMA Team
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Laurence Josephson – EPR and Clinical Pharmacist
Natalie O’Brien – EPR Pharmacy Technician
What we’ll cover...

• Salford Royal (SRFT) ePMA ‘history’ and ‘where we are at’
• Lessons learnt
  – Basic implementation lessons
  – Ongoing challenges
  – Maintenance
  – Clinical Decision Support
• Future challenges
• Risks / opportunities
SRFT EPR History

- c.800-bedded teaching hospital & Integrated Care Organisation
  - Specialities include: renal; dermatology; nutrition; neurosurgery; also regional trauma unit
  - Many offsite services (e.g. anticoagulation; dermatology)
  - Intermediate Care Centres
- Whole-site EPR since August 2000
- Current, core product: Allscripts Sunrise
- Currently implemented functionality includes:
  - Pathology & radiology ordering for all IP/most OP sites
  - Associated results / Images via CRIS
  - Free text & structured noting (inc. voice recognition)
  - All wards included (Critical Care, ED & Post-Op Theatre)
- Scanned records
- SIR (Salford ‘spine’)
SRFT ePMA History

• ePMA is an embedded function within EPR
  – Locally built & maintained catalogue (still!)
• Discharge summaries with discharge meds rolled out 2002.
• ePMA piloted 2008, rolled out 2010
  – Essentially replacement of standard Kardex
  – Not yet included: Fluids; PN; Complex infusions; CDS alerts.
• Critical care incorporated early 2011
• ED (inc. paediatric ED) incorporated 2014
• OP chemotherapy early 2015
• IP chemotherapy currently rolling out
Basic Implementation Lessons (1)

• Need strong support & engagement from
  – Trust boards
  – Medicines Management and Medicines Safety Groups
  – Consultants (and relevant clinicians) – willing and prepared to commit

• Need permanent, dedicated, Pharmacy staff integrated with IM&T/EPR departments
  – Currently: 1.5 Pharmacists; 1 Technician
  – Still not enough!

• Need clear mechanism for workload priorities
Basic Implementation Lessons (2)

- Prescribers love ‘pre-built’ prescriptions
- Prescribers love ordersets
  - Specialty specific: ED; Paediatric; Anaesthetic & Haematology
  - Indication specific: Antibiotics
- Entering information is easy, following up is less so
  - e.g. Medicines Reconciliation issues
Search for ‘Codeine’...

Dose: 30 To: 60 Unit: mg
Frequency: Every 4 - 6 Hours PRN
PRN Indication: For pain
Route: Oral Form: Tablet
Indication:
Prescribing Info:
Maximum adult dose: 240mg in 24 hours.
Additional Info:
Maximum adult dose: 240mg in 24 hours.
StartDate: 02-12-2016
Course Length:
Basic Implementation Lessons (2)

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### ED Medication Ordersets

<table>
<thead>
<tr>
<th>Order</th>
</tr>
</thead>
<tbody>
<tr>
<td>ED Medications (Adult) Discharge Drugs</td>
</tr>
<tr>
<td>ED Medications Analgesia (Oral)</td>
</tr>
<tr>
<td>ED Medications Analgesia/Sedation (Injections)</td>
</tr>
<tr>
<td>ED Medications Anaphylaxis</td>
</tr>
<tr>
<td>ED Medications Anti-Emetics</td>
</tr>
<tr>
<td>ED Medications Cardiac</td>
</tr>
<tr>
<td>ED Medications Respiratory</td>
</tr>
<tr>
<td>ED Medications Variceal / Upper GI Bleed</td>
</tr>
</tbody>
</table>
Search for ‘CAP’...

**Warning Message**

**NOT** to be used for patients taking tacrolimus or ciclosporin. Refer to the Antibiotic policy for these patients.

Calculation of CURB-65 score - Score ONE point for each of the following risk factors present:
- New confusion
- Blood Urea > 7mmol/L
- Respiratory Rate ≥ 30
- BP < 90 Systolic or < 60 Diastolic
- Age ≥ 65

Consult the Antibiotic Guidelines on Synapse for further information (including dosing advice in renal impairment). For complex cases discuss with a senior doctor.
### Antibiotics

<table>
<thead>
<tr>
<th>Order</th>
<th>Dose</th>
<th>Unit</th>
<th>Form</th>
<th>Route</th>
<th>Frequency</th>
<th>STAT</th>
<th>Stop After</th>
<th>Indication</th>
<th>Prescribing Info</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pt &gt;65 &amp; Indicated (See Policy) - 1 item(s)</td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>1. VSL#3 (One Sachet Daily)</td>
<td>1</td>
<td>Sachet</td>
<td>Powder</td>
<td>Oral</td>
<td>Daily (6pm)</td>
<td>7 Days</td>
<td></td>
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<tr>
<td>CURB-65 2-3 - 5 item(s)</td>
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</tr>
<tr>
<td>1. Benzylpenicillin Injection (Single Dose)</td>
<td>1.2</td>
<td>g</td>
<td>IV Infusion</td>
<td>ONCE ONLY (ONE DOSE)</td>
<td>STAT</td>
<td>1 Doses</td>
<td>Pneumonia - community...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Benzylpenicillin Injection (1.2g Every Six...</td>
<td>1.2</td>
<td>g</td>
<td>IV Infusion</td>
<td>Every 6 Hours</td>
<td>STAT</td>
<td>7 Days</td>
<td>Pneumonia - community...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Doxycycline (200mg Single Dose)</td>
<td>200</td>
<td>mg</td>
<td>Tablet...</td>
<td>Oral</td>
<td>ONCE ONLY (ONE DOSE)</td>
<td>STAT</td>
<td>1 Doses</td>
<td>Pneumonia - community...</td>
<td></td>
</tr>
<tr>
<td>4. Doxycycline (100mg Morning)</td>
<td>100</td>
<td>mg</td>
<td>Tablet...</td>
<td>Oral</td>
<td>Morning</td>
<td>6 Days</td>
<td></td>
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</tr>
<tr>
<td>CURB-65 2-3 - IF NEM - 5 item(s)</td>
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<tr>
<td>1. Medication Reminder: (-)</td>
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<td></td>
<td></td>
<td>IV to oral switch</td>
<td></td>
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</tr>
<tr>
<td>2. Benzylpenicillin Injection (Single Dose)</td>
<td>1.2</td>
<td>g</td>
<td>IV Infusion</td>
<td>ONCE ONLY (ONE DOSE)</td>
<td>STAT</td>
<td>1 Doses</td>
<td>Pneumonia - community...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Benzylpenicillin Injection (1.2g Every Six...</td>
<td>1.2</td>
<td>g</td>
<td>IV Infusion</td>
<td>Every 6 Hours</td>
<td>STAT</td>
<td>7 Days</td>
<td>Pneumonia - community...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Clarithromycin Injection (500mg Single...</td>
<td>500</td>
<td>mg</td>
<td>IV Infusion</td>
<td>Every 12 Hours</td>
<td>STAT</td>
<td>7 Days</td>
<td>Pneumonia - community...</td>
<td></td>
<td></td>
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<tr>
<td>5. Clarithromycin Injection (500mg Every 12...</td>
<td>500</td>
<td>mg</td>
<td>IV Infusion</td>
<td>Once Only (One Dose)</td>
<td>STAT</td>
<td>1 Doses</td>
<td>Pneumonia - community...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CURB-65 2-3 Pen. Allergy - 2 item(s)</td>
<td></td>
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</tr>
<tr>
<td>1. Doxycycline (200mg Single Dose)</td>
<td>200</td>
<td>mg</td>
<td>Tablet...</td>
<td>Oral</td>
<td>ONCE ONLY (ONE DOSE)</td>
<td>STAT</td>
<td>1 Doses</td>
<td>Pneumonia - community...</td>
<td></td>
</tr>
<tr>
<td>2. Doxycycline (100mg Morning)</td>
<td>100</td>
<td>mg</td>
<td>Tablet...</td>
<td>Oral</td>
<td>Morning</td>
<td>6 Days</td>
<td></td>
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<tr>
<td>CURB-65 2-3 Oral Step-down - 2 item(s)</td>
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<tr>
<td>1. Amoxicillin (500mg Three Times a Day)</td>
<td>500</td>
<td>mg</td>
<td>Capsule</td>
<td>Oral</td>
<td>Three Times a Day</td>
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<tr>
<td>2. Doxycycline (100mg Morning)</td>
<td>100</td>
<td>mg</td>
<td>Tablet...</td>
<td>Oral</td>
<td>Morning</td>
<td>6 Days</td>
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</tbody>
</table>

### Non-Medication Requests

<table>
<thead>
<tr>
<th>Order</th>
<th></th>
</tr>
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</table>
Basic Implementation Lessons (2)

• Prescribers love ‘pre-built’ prescriptions
• Prescribers love ordersets
  – Specialty specific: ED; Paediatric; Anaesthetic & Haematology
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• Entering information is easy, following up is less so
  – e.g. Medicines Reconciliation issues
<table>
<thead>
<tr>
<th>Stage</th>
<th>Status</th>
<th>1: Date reconciled/resolved</th>
<th>2: Date reconciled/resolved</th>
<th>3: Date reconciled/resolved</th>
<th>4: Date reconciled/resolved</th>
<th>5: Date reconciled/resolved</th>
<th>6: Date reconciled/resolved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Admission</td>
<td>OUTSTANDING ITEMS</td>
<td>Date reconciled/resolved</td>
<td>Date reconciled/resolved</td>
<td>Date reconciled/resolved</td>
<td>Date reconciled/resolved</td>
<td>Date reconciled/resolved</td>
<td>Date reconciled/resolved</td>
</tr>
<tr>
<td>1</td>
<td>Omeprazole 20 mg OM [pre-admit meds]</td>
<td>29-11-2016</td>
<td>29-11-2016</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>Loperamide 2 mg PRN [pre-admit meds]</td>
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<tr>
<td>3</td>
<td>Review when diuretics to restart</td>
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<tr>
<td>4</td>
<td>Apixaban 2.5 mg BD - review when to restart</td>
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<td>5</td>
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<tr>
<td>Comments</td>
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</tbody>
</table>
Ongoing Challenges (Lessons Being Learned!)

- Emergency department (NB now “live”)
  - Whole department project
  - Workflow is critical
  - Admission issues (not uncommon)
- IV chemotherapy
  - National pressures vs. local priorities
  - Integrated EPR solution vs commercial products
- Fluid prescribing
  - Association with fluid balance
- Dialysis
  - Multiple inpatient visits
- Intermediate care
  - Transfer vs. Discharge
- Cont’d…
Maintenance

• Basic medication catalogue
  – New medicines
  – New ordersets
  – Updated default dose information, frequency, routes of administration etc.

• MHRA / NICE / BNF guidance & warnings

• Local policies / updates
  – via Medinces Safety or Medicines Management Groups
  – Local adverse events
Clinical Decision Support

- Requires full, committed, resource for management, maintenance and review
- UK compliance
  - dm+d
  - UK references; data & warnings
- Update frequency
- Major issues regarding prescribers interaction with alerts (e.g. ‘alert fatigue’)
- May lose subtleties of local messages and warnings with commercial product
Future Challenges

• ePMA is not an end in itself. It is part of the larger system
  – Helps with standardisation of treatment protocols
  – Build into electronic treatment pathways
• Automation and integration
• GS1 compliance
• Closed-loop prescribing
Risks / Opportunities

• How can we meet these challenges?
  – Increase in skilled, pharmacy EPR workforce
  – Better networking for EPR Pharmacy staff
• EPR Pharmacist as a career role?
• Impact of
  – hospital mergers
  – increased joint working
  – Integration of acute and community services
Many thanks