Reducing errors with ePMA

electronic Prescribing and Medicines Administration

Stockport NHS Foundation Trust

December 2013
Introductions

Helen Bennett – Asst Director: IT Programme Management

Sarah Campbell – Lead Specialist Pharmacist ePMA
Aims

- Our story so far
- Our successes
- Reducing prescribing errors
- Reducing medication administration errors
- Improving communication
- Summary & Close
About Us

- Stepping Hill Hospital based in Stockport
- 736 beds
- Income of £275 million per annum
- Look after a population of over 396,000 in Stockport & High Peak
- Over 5,600 staff

Your Health. Our Priority.
Project Scope

- To roll out hospital wide in bite size chunks
ePMA project – progress to date

- 43 wards and areas live
- >650 beds
- ALL medical, general surgical, urology, T&O, gynaecology, daycase & maternity patients
- Includes all theatres
Our successes

- Planning and preparation
- Project governance
- Investment in software & hardware
- Clinical engagement
- Communication
- User support
- Training

Your Health. Our Priority.
How can we reduce errors with ePMA?

- Reducing prescribing errors
- Reducing administration errors
- Improving communication
Reducing prescribing errors

• The basics
  • Clarity
  • Easy to view medication chart
  • Audit trail of activities

• System configuration
  • Most effective way of reducing errors
  • Ensure system is flexible enough to handle your needs
  • Involve staff
  • Robust QA process
  • But...not finished when go-live
### Reducing prescribing errors

## Guiding prescribing

- **Quicklists**
  - Prefilled prescription sentences
  - Common doses
  - Quick & safe

## Chapter 06 - Endocrine

<table>
<thead>
<tr>
<th>Medicine</th>
<th>DOSE</th>
</tr>
</thead>
<tbody>
<tr>
<td>alendronate sodium 70mg Tablet</td>
<td><strong>70 mg</strong> Oral Regularly every 7 days</td>
</tr>
<tr>
<td></td>
<td>Swallow whole with a full glass of water</td>
</tr>
<tr>
<td></td>
<td>30 minutes before food/other medications.</td>
</tr>
<tr>
<td></td>
<td>Remain upright for at least 30 minutes.</td>
</tr>
<tr>
<td>dexamethasone 2mg Tablet</td>
<td><strong>2 mg</strong> Oral In the Morning (09:00)</td>
</tr>
<tr>
<td>dexamethasone 2mg Tablet</td>
<td><strong>4 mg</strong> Oral In the Morning (09:00)</td>
</tr>
<tr>
<td>dexamethasone 2mg Tablet</td>
<td><strong>2 mg</strong> Oral TWICE a day (09:00, 13:00)</td>
</tr>
<tr>
<td>dexamethasone 2mg Tablet</td>
<td><strong>4 mg</strong> Oral TWICE a day (09:00, 13:00)</td>
</tr>
<tr>
<td>finasteride 5mg Tablet</td>
<td><strong>5 mg</strong> Oral In the Morning (09:00)</td>
</tr>
<tr>
<td>fludrocortisone acetate 100microgram Tablet</td>
<td><strong>50 microgram</strong> Oral In the Morning (09:00)</td>
</tr>
<tr>
<td>fludrocortisone acetate 100microgram Tablet</td>
<td><strong>100 microgram</strong> Oral In the Morning (09:00)</td>
</tr>
<tr>
<td>gliclazide 80mg Tablet</td>
<td><strong>40 mg</strong> Oral In the Morning (09:00)</td>
</tr>
</tbody>
</table>

*Your Health. Our Priority.*
Reducing prescribing errors

Guiding prescribing

- Protocols
  - Treatment sets of medications
  - Allows prescribing of multiple medications in one prescription

### H. Pylori Eradication

**Comment:**
These regimens eradicate H. pylori in about 85% of cases. There is usually no need to continue antisecretory treatment (with a proton pump inhibitor or H2-receptor antagonist) unless the ulcer is large, or complicated by haemorrhage or perforation. Treatment failure usually indicates antibacterial resistance or poor compliance. Resistance to amoxicillin is rare. However, resistance to clarithromycin and metronidazole is common and can develop during treatment.

<table>
<thead>
<tr>
<th>Medications</th>
<th>Day: 0</th>
</tr>
</thead>
<tbody>
<tr>
<td>amoxicillin 500mg Capsule</td>
<td></td>
</tr>
<tr>
<td>DOSE: 1000 mg Oral TWICE a day (09:00, 22:00) for 7 days</td>
<td></td>
</tr>
<tr>
<td>AND</td>
<td></td>
</tr>
<tr>
<td>clarithromycin 500mg Tablet</td>
<td></td>
</tr>
<tr>
<td>DOSE: 500 mg Oral TWICE a day (09:00, 22:00) for 7 days</td>
<td></td>
</tr>
<tr>
<td>AND</td>
<td></td>
</tr>
<tr>
<td>lansoprazole 30mg EC Capsule</td>
<td></td>
</tr>
<tr>
<td>DOSE: 30 mg Oral TWICE a day (09:00, 22:00) for 7 days</td>
<td></td>
</tr>
</tbody>
</table>
Reducing prescribing errors

Guiding prescribing
• Rules
  • Flexible to allow tailored prescribing
  • Varying levels of enforcement

immunoglobulin normal human Infusion

Rules

immunoglobulin form
At Stockport NHS Foundation Trust we use GAMMAPLEX


The request form must be completed before prescribing

Contact pharmacy for a request form.

Visit injectable medicines microsite for infusion guidelines.

See Also: DOH summary of immunoglobulin use

<table>
<thead>
<tr>
<th>Action</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Override</td>
<td></td>
</tr>
<tr>
<td>Remove</td>
<td></td>
</tr>
</tbody>
</table>
Reducing prescribing errors

Guiding prescribing

• Rules
  • Flexible to allow tailored prescribing
  • Varying levels of enforcement

**Rules**

**Dietician Prescribing Restriction**
Prescribing for dieticians is restricted to products located in the Nutrition formulary.

See ‘Quicklists’ and ‘Nutrition’ for more details.

(don’t forget, should you require a different dose of a medication, this can be changed on the update screen before updating to the chart)

Contact Sarah Campbell, Lead Specialist Pharmacist ePMA for more information (tel: 07778296859)

You may not prescribe this medication.
Reducing prescribing errors

Guiding prescribing

- Rules
  - Flexible to allow tailored prescribing
  - Varying levels of enforcement

**Rules**

**ciprofloxacin 500 mg Tablet**

<table>
<thead>
<tr>
<th>Antibiotics and PPIs</th>
</tr>
</thead>
<tbody>
<tr>
<td>This patient is currently prescribed a PPI (proton pump inhibitor)</td>
</tr>
</tbody>
</table>

**PPIs SIGNIFICANTLY INCREASE RISK OF C DIFF**

Please review indication for the PPI NOW.

If there is not a good indication please CEASE the PPI.

DO NOT cease the PPI if it is prescribed for a good reason e.g. recent GI bleed. Please see attached link for guidance on when it is safe to discontinue PPIs

Don’t forget to consider the patients other risk factors for C-diff

**See Also:** CLICK HERE FOR FLOW CHART WITH RECOMMENDED ACTIONS

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Reducing prescribing errors

• Dose ranges
  • Difficult to set
  • Effective but often inflexible
  • Target high risk medications

Cumulative Dose
The dosage of paracetamol (5000 mg being prescribed) in the 24 hour period from 14:00 on 25–Oct–2012 exceeds the recommended maximum cumulative dose of 4000 mg per 24 hours.

This patient has been prescribed above the maximum daily dose of Paracetamol

Please review and amend chart accordingly

Action

A rule has blocked the prescribing of this medication. To prescribe the medication you will need to edit the medication so that the rule is not triggered.

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Reducing prescribing errors

• Interaction checking
  • Essential element for safety
  • Deciding level of severity to include
  • Is this information overload? *Alert fatigue?*

![Interaction checking example](image-url)
Reducing prescribing errors

- Prescribing for discharge
  - Safer, quicker & more timely discharge prescribing
  - Pharmacy expectations

- Clinical engagement
  - Get involved in system build
  - Attend appropriate committees
  - Communication to all grades of staff
Reducing administration errors

• Clarity of prescription chart

From this:
### Patient Information

**Name:** ATKINSON, Mark  
**NHS No:** 100 742 059  
**DOB:** 14–Jan–1926  
**Age:** 86 years  
**Weight:** 58 kg  
**Date:** 05–Oct–2012

**Allergies:** Class Allergy to PENICILLINS, Anaphylaxis, Substance Intolerance to aspirin - GI upset

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### Medication Schedule

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
<th>Route</th>
<th>Timing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gliclazide 60mg Tablet</td>
<td>40mg Oral</td>
<td>Twice a day (09:00, 17:00)</td>
<td></td>
</tr>
<tr>
<td>Lansoprazole 15mg EC Capsule</td>
<td>15mg Oral</td>
<td>Twice a day (09:00, 17:00)</td>
<td></td>
</tr>
<tr>
<td>Latanoprost 0.005% Eye Drop</td>
<td>1 Eye Drop Both Eyes At Night (22:00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Piperacillin 4g + tazobactam 500mg Injection</td>
<td>4.5g Intravenous</td>
<td>Three times a day (06:00, 13:00, 22:00)</td>
<td></td>
</tr>
</tbody>
</table>

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**Details:**
- Reviewed (Caroline Wheeler, 08/10/2012 21:50)
- Available On Ward (Caroline Wheeler, 08/10/2012 21:50)
- Patient prefers self-administer
Reducing administration errors

• Process of administration
  • Broken down to standardise practice
  • Confirming preparation of each drug
  • Confirming patient details
Reducing administration errors

- Process of administration

Fictitious Patient

**ATKINSON, Mark**, CN No: Unrecorded, NHS No: 100 742 056-9, DOB: 14-Jan-1926, Age: 86 years

Allergies: Class Allergy to PENICILLINS - Anaphylaxis, Substance Intolerance to aspirin - GI upset

**Patient Details**

- Name: ATKINSON, Mark
- Location: E2 BRABYN'S WARD, Bed 1
- HRN: 00188880
- Age: 86 years (14-Jan-1926)
- Gender: Male

**You may now give**

<table>
<thead>
<tr>
<th>Medication</th>
<th>Dose</th>
</tr>
</thead>
<tbody>
<tr>
<td>piperacillin 4g + tazobactam 500mg</td>
<td>4.5 g (Intravenous)</td>
</tr>
</tbody>
</table>

Your Health. Our Priority.
Reducing administration errors

• Standardising approach to medication rounds

  • Start of round, start together
  • Critical medications administered first

  ✓ *Get done on time and with support*
Reducing administration errors

• Be realistic
  • Nurses need to be aware that they still need to use their head
  • Over-reliance on system
  • It will take longer to start with, but improves with time
Improving communication

• Reviews
  • Reviews are used as a method of communication
  • Clinical Reviews
    • Raised against specific medications e.g. “please indicate course length”
  • Pharmacy Reviews
    • Created each time a medication is prescribed, changed or stopped
    • Transparent work lists for pharmacists
    • Nurses and doctors can ask for specific reviews
    • Clear log of sign off or queries between professions
Improving communication

• Ordering medications
  • Easier transmission to pharmacy
  • Pressure on to reduce number of missed doses (NPSA rapid response alert)

• Withholding & Delaying
  • Proactively withholding doses
    • Relies on clinical staff deciding when to restart
  • Withholding/Delaying individual doses
    • Clear reasoning why to withhold or delay
So...... has ePMA reduced medication errors?
Allergy recording

Trust standards:

- Must be positively recorded
- Document clearly the drug and nature of reaction if known
- Entry must be dated and signed

Internal audit spot checks:

- Pre ePMA (Aug 11) 97.4% compliance
- Post medicine rollout (March 13) 98.5% compliance
- Post medicine & surgery rollout (Sept 13) 99.5% compliance

- Could be improved further with a mechanism for recording ‘unable to confirm’
- May be more appropriate to leave as ‘allergy status unknown’
User opinion

• **Tapan Chattopadhyay – Consultant**
  “E-Prescribing represents a potentially fool proof & error free prescribing system. It enhances quality and safety. This is certainly the way forwards to minimise risk and error”

• **Chipo Mandeya – Nurse**
  “Using ePMA is minimising our risk of drug errors, I can easily read what is prescribed which is a huge improvement from paper charts. It is great that all the record is in 1 place rather than having multiple charts, which were often messy and falling apart.”
Have we introduced different types of error?

- Overreliance on system
  - Reinforced during training
  - Alert overload
  - Are we deskilling junior doctors?

- System expectations
  - “Why didn’t ePMA warn me?”

- Downtime
  - Detailed plan in place
  - Transition to paper and back to ePMA
Thank you
Any Questions?