

Reducing errors with ePMA

electronic Prescribing and Medicines Administration

Stockport NHS Foundation Trust
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Your Health. Our Priority.



Introductions

Helen Bennett – Asst Director: IT Programme Management

Sarah Campbell – Lead Specialist Pharmacist ePMA

Aims

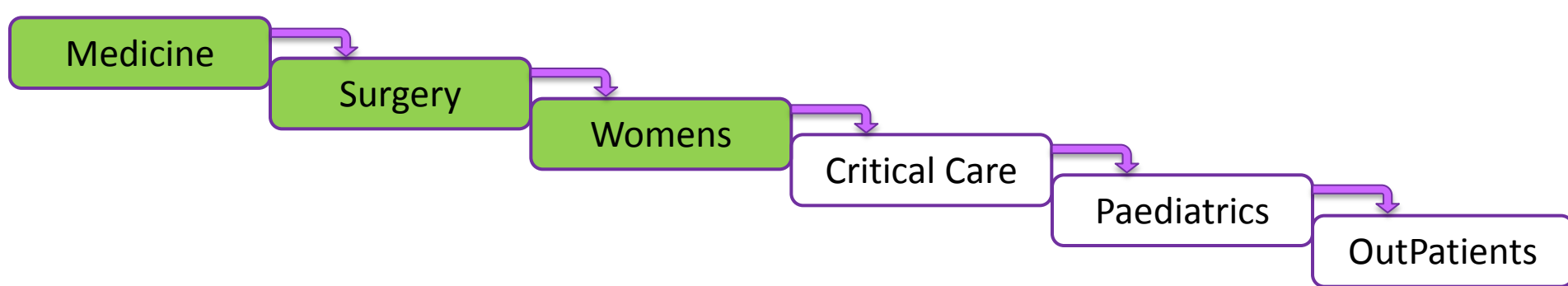
- Our story so far
- Our successes
- Reducing prescribing errors
- Reducing medication administration errors
- Improving communication
- Summary & Close





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



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



Quick Lists

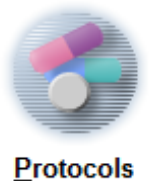
Chapter 06 - Endocrine	
<div> <div>#</div> <div>A</div> <div>B</div> <div>C</div> <div>D</div> <div>E</div> <div>F</div> <div>G</div> <div>H</div> <div>I</div> <div>J</div> <div>K</div> <div>L</div> <div>M</div> <div>N</div> <div>O</div> <div>P</div> <div>Q</div> <div>R</div> <div>S</div> <div>T</div> <div>U</div> <div>V</div> <div>W</div> <div>X</div> <div>Y</div> <div>Z</div> <div>All</div> </div>	
<input type="checkbox"/> alendronate sodium 70mg Tablet	DOSE: 70 mg Oral Regularly every 7 days Swallow whole with a full glass of water 30 minutes before food/other medications. Remain upright for at least 30 minutes.
<input type="checkbox"/> dexamethasone 2mg Tablet	DOSE: 2 mg Oral In the Morning (09:00)
<input type="checkbox"/> dexamethasone 2mg Tablet	DOSE: 4 mg Oral In the Morning (09:00)
<input type="checkbox"/> dexamethasone 2mg Tablet	DOSE: 2 mg Oral TWICE a day (09:00, 13:00)
<input type="checkbox"/> dexamethasone 2mg Tablet	DOSE: 4 mg Oral TWICE a day (09:00, 13:00)
<input type="checkbox"/> finasteride 5mg Tablet	DOSE: 5 mg Oral In the Morning (09:00) crushed/broken tablets not to be handled by women of childbearing potential
<input type="checkbox"/> fludrocortisone acetate 100microgram Tablet	DOSE: 50 microgram Oral In the Morning (09:00)
<input type="checkbox"/> fludrocortisone acetate 100microgram Tablet	DOSE: 100 microgram Oral In the Morning (09:00)
<input type="checkbox"/> gliclazide 80mg Tablet	DOSE: 40 mg Oral In the Morning (09:00)

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.
Medications	
amoxicillin 500mg Capsule DOSE: 1000 mg Oral TWICE a day (09:00, 22:00) for 7 days	Day: 0
AND	
clarithromycin 500mg Tablet DOSE: 500 mg Oral TWICE a day (09:00, 22:00) for 7 days	Day: 0
AND	
lansoprazole 30mg EC Capsule DOSE: 30 mg Oral TWICE a day (09:00, 22:00) for 7 days	Day: 0

Reducing prescribing errors

Guiding prescribing

• Rules

- Flexible to allow tailored prescribing
- Varying levels of enforcement



Rules

immunoglobulin normal human Infusion	
Rules	
immunoglobulin form	
At Stockport NHS Foundation Trust we use GAMMAPLEX	
DOH summary guidelines for immunoglobulin use: http://www.ivig.nhs.uk/documents/DemandManagementPoster_v4.pdf	
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	
Action <input type="radio"/> Override <input type="radio"/> Remove	Comment

Reducing prescribing errors

Guiding prescribing

- Rules

- Flexible to allow tailored prescribing
- Varying levels of enforcement



Rules

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

Rules

Antibiotics and PPIs

This patient is currently prescribed a PPI (proton pump inhibitor)

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

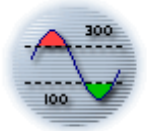
Don't forget to consider the patients other risk factors for C-diff

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



Dose Ranges

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

☐ Remove

**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.**

Reducing prescribing errors

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

methotrexate 2.5 mg Tablet	
Drug to Drug Interactions	
trimethoprim 200mg Tablet ⓘ (Severity: 4)	
INCREASED RISK OF ANTIFOLATE EFFECT AND BONE MARROW SUPPRESSION	
Recommended Actions	
Risk is high and outweighs possible benefit. Do not combine.	
Action <input type="radio"/> Override	Comment

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:

The image shows two pages of handwritten medical prescription charts. The left page is titled 'Regular prescriptions - (All routes except parenteral)' and contains entries for AZITHROMYCIN, ENOXAPARIN, CHLORAMPHENICOL, and METOCLOPRAMIDE. The right page contains entries for DOMEPANOLONE, PICLONE, ESTERINE, CHLORAMPHENICOL, and METOCLOPRAMIDE. Both pages are filled with handwritten notes, dates, and signatures, indicating a complex and potentially error-prone administrative process.

To this:

Fictitious Patient

Close
View
Print
Reference
Viewer

Help
Lock
Logout

ATKINSON, Mark , CN No: Unrecorded ⓘ, NHS No: 100 742 059 ⓘ, DOB:14-Jan-1926, Age:86 years, Weight:58 kg (05-Oct-2012)

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

Update
Cancel
Cease
Prescribe
Quick List
Protocol
Discharge
Edit Administer Time
Resupply
Review
Assign Source
Comment
Select All
Clear All

All - 6		Scheduled - 5		Variable Dose		PRN - 1		Stat - 0		Discharge		Summary					
		Medication		Times		Oct 2012						Details					
						28 29 30 01 02 03 04 05 06 07 08 09 10 11											
<input type="checkbox"/>	gliclazide 80mg Tablet DOSE: 40 mg Oral TWICE a day (09:00, 17:00)	09:00								✓	NM	✓	✓	○	○	○	✓ Reviewed (Caroline Wheeler, 08/10/2012 21:50) Pharmacy (Caroline Wheeler, 08/10/2012 21:50) ET
		17:00								✓	NM	✓	○	○	○	○	
	05/10/2012 Sarah Campbell																
<input type="checkbox"/>	lansoprazole 15mg EC Capsule DOSE: 15 mg Oral TWICE a day (09:00, 17:00)	09:00								✓	NM	✓	✓	○	○	○	✓ Reviewed (Caroline Wheeler, 08/10/2012 21:50) Available On Ward (Caroline Wheeler, 08/10/2012 21:50)
		17:00								✓	NM	✓	UN	○	○	○	
	05/10/2012 Sarah Campbell																
<input type="checkbox"/>	latanoprost 0.005% Eye Drop DOSE: 1 Eye Drop Both Eyes At Night (22:00)	22:00								✓	✓	✓	●	○	○	○	✓ Reviewed (Caroline Wheeler, 08/10/2012 21:50) Available On Ward (Caroline Wheeler, 08/10/2012 21:50) ET Patient prefers to self-administer
	05/10/2012 Sarah Campbell																
<input type="checkbox"/>	piperacillin 4g + tazobactam 500mg Injection DOSE: 4.5 g Intravenous THREE times a day (06:00, 13:00, 22:00)	06:00								✓	✓	✓	○	○	○	○	✓ Reviewed (Caroline Wheeler, 08/10/2012 21:50) Aseptics (Caroline Wheeler, 08/10/2012 21:50) New - from micro - to be reviewed on 10/10/12
		13:00								✓	✓	✓	○	○	○	○	
	05/10/2012 Sarah Campbell	22:00								✓	✓	✓	●	○	○	○	

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

piperacillin 4g + tazobactam 500mg Injection ⌵

DOSE: 4.5 g Intravenous **THREE times a day** (06:00, 13:00, 22:00)

Dose	Requests
<p>Dose 4.5 g</p> <p>Form Injection</p> <p>Route Intravenous</p> <p>Date 08/10/2012 Time 22:00</p> <p>Reason (required)</p> <p>Comment</p>	

Medication Source: Aseptics

Co-signature required:

User Name **spk** Password *********

ATKINSON, Mark , CN No: Unrecorded ⓘ, NHS No: 100 742 059 ⓘ, 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 BRABYNS WARD, Bed 1
HRN: 00188880
Age: 86 years (14-Jan-1926)
Gender: Male
☒ Confirm Patient

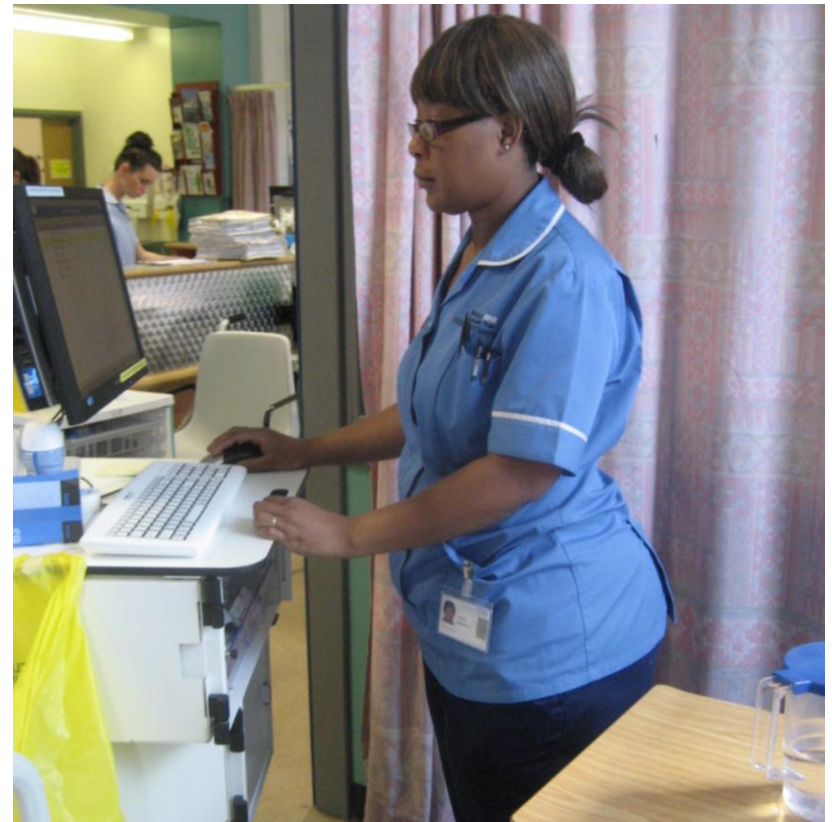
You may now give

Medication	Dose
piperacillin 4g + tazobactam 500mg	4.5 g (Intravenous)

Confirm Cancel

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

aspirin 75mg Dispersible Tablet

● New Medication Order (Sarah Campbell - 26-Oct-2012)

clopidogrel 75mg Tablet

● Ceased Medication Order (Sarah Campbell - 26-Oct-2012)

clotrimazole 2% Cream

● New Medication Order (Sarah Campbell - 26-Oct-2012)

■ Clinical Review (Sarah Campbell - 26-Oct-2012) : [Infection resolved - please review with aim of stopping](#)

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?