

Closing the loop

EPR-PHARMACY INTERFACE

Bhulesh Vadher
Clinical Director of Pharmacy

Introduction

- Context – Oxford University Hospitals
- What was the plan?
- What did we end up with?
- What we have now?
- Run through process

4 x Hospitals

- Secondary / Tertiary / National
- Adults, Women's and Children
- Elective and Emergency
- John Radcliff – Robotic Labelling and Dispensing
- Churchill – Manual Labelling and Robotic Dispensing
- Nuffield Orthopaedic Centre – Served by Churchill
- Horton Hospital – Manual Labelling and Dispensing
- Electronic Patient Record = Cerner Millennium
 - Plus 4 other systems
- Pharmacy Stock/Labelling System = Bedford

The plan

- Strength based prescribing to make prescribing easier
- Automate as much as possible to increase patient contact time
- Develop flexible system to cope with 3 work flows
- Develop rules based auto assignment of product

What did we develop?

- Risks in auto assignment
 - Who is responsible if it goes wrong?
 - Clinical decision making?
- Interface only for TTO and Outpatient Rx
- 7039 Permanent Matches
- 160227 One off Matches

Foreign System Interface



How Does It Work?

- Patient Name: ZZZXXADULT , ONE
- Patient Location: J-WD 7A
- Consultant: Altmann , Paul
- Order: Simvastatin
- Dose: 40mg
- Route: oral
- Frequency: once a day, at night
- Drug Form: tablet
- Pharmacist Verified: Yes
- Dispense Quantity: 28
- Dispense Quantity Unit: tablet(s)

Bedford Product: DHC054
Bedford Cost Centre: 7A
Bedford Consultant Code: AltP2
Bedford Label Directions:

28 SIMVASTATIN 40mg TABLETS [DHC054]

Take ONE tablet at NIGHT.

One Zzzxxadult

04/07/17

7A ROBOT

Keep out of reach and sight of children.

JR Site

Oxford University Hospitals NHS Trust 01865 221502



EPR

▼ Details for **Simvastatin** ▼ Send To: Do Not Send: called to pharmacy (Rx) ▼

Details Order Comments Diagnoses

*Dose	*Route of Administration	*Frequency	Duration
40 mg	oral	once a day, at night	

*Drug Form:

*GP to Continue:

*Dose Change Reason:

Special Instructions:

*Start Date/Time:

Comments by Pharmacy:

Dispense Quantity:

PRN:

*Admission Med: Yes No

*Days Supply:

Indication:

Pharmacist Verified:

Stop Date/Time:

Patient's Own Meds:

Dispense Quantity Unit:

0 Missing Required Details Dx Table Sign

Review Prescriptions

Selected booked in Patient

I/P Q/P Private Ward Round EPR All
 Not Started Started All Not Verified Dispensed

Waiting Since: Wait Urgency/Surname

Start	Type	nWait	Verified	Urg	In	Date	No Items	No Remain	Patient	Start	Finished	User	Ward
	Auto	0			15:35	03/07/17	1	1				EPR	CDTO
	EPR	0			16:45	03/07/17	1	1				EPR	CDTO
	VWait	2			13:11	04/07/17	8	8				EPR	CHW
	EPR	0			13:38	04/07/17	8	8				EPR	JAC
	EPR	0			13:44	04/07/17	14	14				EPR	UW
	EPR	0			13:46	04/07/17	1	1				EPR	OPO
	EPR	0			13:46	04/07/17	5	5	ZZZXXADULT, ONE			EPR	ZZMAY

label17.w

EPR Connections running OK

Automatic Matching

Match Patient

Patient: ZZZXXADULT, ONE Ward: NOC-Mayfair Mayfair Consultant: Luqmani, Raashid

NHS No: UNK Pharmacist: Wright, Matthew Verified Waiting Pharmacist

PAS No: 10413544 DofB: 01/01/1980 Age: 37 Sex: Female Date: 24/06/2017

Match	Store	EPR Drug	EPR Dose Details	Pharmacy Drug Name	PSize
Permanent	HDI	Paracetamol	1000mg - oral - four times a day - tablet - PRN pain -	PARACETAMOL 500mg TABLETS	32 Take TWO tablets FOUR times a
Permanent	HDI	Omeprazole	20mg - oral - once a day - capsule. gastro-resistant -	OMEPRAZOLE 20mg CAPSULES	28 Take ONE capsule ONCE a day.
Permanent	HDI	Atenolol	50mg - oral - once a day. in the morning - tablet - 1 x	ATENOLOL 50mg TABLETS	28 Take ONE tablet in the MORNING
None	CHDI	Latanoprost 50microg	1 drops - right eye - once a day. at night - drops - 1	UN-MATCHED	1
None	CHDI	** Co-amoxiclav 500mg/1	1 tablets - oral - three times a day - tablet - 9 x tab	UN-MATCHED	1

Drug Name from EPR : Co-amoxiclav 500mg/125mg tablets

Dose from EPR : 1 tablets - oral - three times a day - tablet - 9 x tablet

Pharmacy Drug Product : UN-MATCHED

Label Directions :

Comments for Pharmacy :

Special Instructions : to complete 7 day course

Days Supply: 0

Supply Qty: 9 tablet

Legal Status:

POD Status:

Match Type: None

Tot Qty:

Qty: 9 x: 1 GP To Continue

 epr\match_patient.w

Manual Matching 1

Match Pharmacy to EPR Drug Request

Drug Name from EPR :
Latanoprost 50micrograms/ml eye drops

Dose from EPR :
1 drops - right eye - once a day, at night - drops - 1 x bottle

Label Directions :
Put ONE drop into the RIGHT EYE at NIGHT.

Comments for Pharmacy :

Special Instructions :
 GP To Continue Supply Qty: 1 **bottle**
Days Supply: 14 Duration: 28D POD:

Approved Name	Qty	Disp_Pack_Size	Stock_Pack_Size	Instructions

Latanoprost 50micrograms/ml eye drops

Appr Name	Size	Pack Desc	Formulary
LATANOPROST 0.005% (50micrograms/ml) EYE DROPS 2.5ml	1	EYE	Y
LATANOPROST 0.005% (50micrograms/ml) UNIT DOSE EYE DROPS PRES FREE	30	EYE	R

Store	Packs	Units	Bin Loc	ROL Calc	ROL Fixed	Issue Date
CHDI	3	3	CR1C	4	0	25/06/17
DISP	0	0	CR10	0	0	03/01/14
DISPJR	33	33	CR10	19	0	03/07/17
HGPH	16	16	DIFR2	4	0	04/07/17
HHOLD	0	0		0	0	27/06/17
HOLD	0	0		0	0	04/07/17

Reason: Pack Size: 1

Pharm Qty: 1 x 1

Permanent One Off Cancel OK Help Cancel Order epr\drug_match.w

Manual Matching 2

Match Pharmacy to EPR Drug Request

Drug Name from EPR : Co-amoxiclav 500mg/125mg tablets

Dose from EPR : 1 tablets - oral - three times a day - tablet - 9 x tablet

Label Directions : Take ONE tablet THREE times a day for 3 days to complete the 7 day course.

Comments for Pharmacy :

Special Instructions : to complete 7 day course

GP To Continue

Supply Qty: 9 tablet

Days Supply: 0 Duration: 3D POD:

Approved Name	Qty	Disp_Pack_Size	Stock_Pack_Size	Instructions

Co-amoxiclav 500

Appr Name	Size	Pack Desc	Formulary
CO-AMOXICLAV 500/125mg TABLETS	21	TAB	Y
CO-AMOXICLAV 500/100 (600mg) INJECTION amoxicillin 500mg & clavulanic	10	INJ	Y

Store	Packs	Units	Bin Loc	ROL Calc	ROL Fixed	Issue Date
CANS	12	242	TAB5	170	0	04/07/17
CHDI	2	62	HIGH	299	0	04/07/17
CHROBOT	41	862		626	0	04/07/17
CRHOLD	-1	-21		-4	0	27/06/17
DISP	0	0	E1	-8	0	06/06/17
DISPJR	1	20	A2	231	0	04/07/17

Reason:

Pack Size: 21

Pharm Qty: 9 x: 1

Permanent One Off Cancel OK Help Cancel Order

epr\drug_match.w

TTO Complete

Order Name	Status	Details	Last Updated By
Paracetamol	Prescribed	Dose: 1,000 mg - oral - tablet, dispersible - four times a day PRN for pain - GP to Continue: Yes - Dose Change Reason: N/A - Days Supply: 14 - ... TTO Ready PARACETAMOL SOLUBLE 500mg TABLETS - Qty: 1 x 60 TAB - Ins: Take TWO tablets FOUR times a day if required for PAIN relief.	Contributor_system, OXON_TIE_PHARM

- Message sent back to EPR from Bedford
- Automatically added to the order comments
- Message format:

TTO Status | Bedford Product Name | Quantity Supplied | Label Directions

Next steps

- Improve % of auto matches through training
- Introduce inpatient supply
- Review the manual matches and see how many could be automated
- Rules vs AI for matching?
- What are others doing?



John Radcliffe Hospital



Nuffield Orthopaedic Centre



Churchill Hospital



Horton General Hospital

FOUR HOSPITALS, ONE TRUST, ONE VISION