

# Using a Novel Real-Time EP Medication Dashboard to Improve Antibiotic Safety




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## Why focus on medication? Why focus on antibiotics?

- Patient harm from missed and delayed medication doses is a nationally recognised problem\*
- In sepsis management evidence suggests that for every hour that antibiotic administration is delayed mortality increases by 7.6%

\* 1 in every 200 reported missed doses in an acute hospitals results in death or severe harm (NPSA, 2010) In a 3 year period the NPSA reported 27 deaths, 68 severe harms and 21383 patient safety incidents relating to omitted/delayed medicines; Francis report (2013) identified issues relating to omitted/ delayed medication

### QUALITY IMPROVEMENT PROJECT AIMS

**Increasing Antibiotic Safety**

- Administration of Antibiotic Stat Doses within 1 hour – target 80%
  - ~ 75 pts/day are ordered stat antibiotic doses at HEFT
  - on EP (mainly for acute sepsis)
- Recording of Antibiotic Stop Dates – target 80%
  - ~650 in-patients at HEFT in EP wards are on antibiotics daily

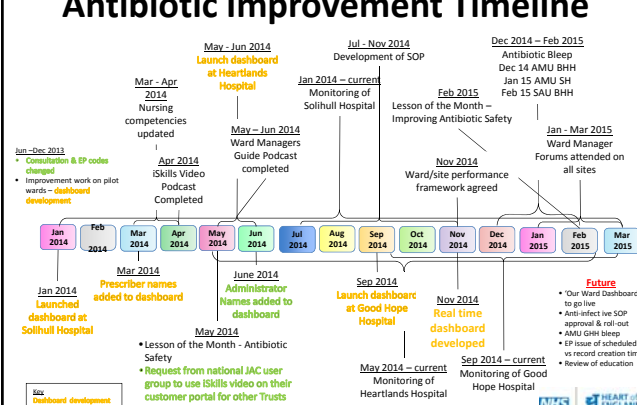
### Antibiotic Safety Improvement Team



- Corporate Nurse
- Microbiologist
- ICT Developer
- Patient Safety Advisor
- Antibiotic pharmacists
- Patient Safety Administrator

NHS HEART OF ENGLAND

### Antibiotic Improvement Timeline



Key milestones include:
 

- Jan-Dec 2013: Consideration & EP codes changed
- Mar-Apr 2014: Nursing competencies updated
- Apr 2014: iSkills Video Podcast Completed
- May-Jun 2014: Ward Managers Guide Podcast completed
- Jan 2014: Launched dashboard at Solihull Hospital
- Mar 2014: Prescriber names added to dashboard
- June 2014: Administrator Names added to dashboard
- May 2014: Lesson of the Month - Antibiotic Safety
- May-Jun 2014: Launch dashboard at Heartlands Hospital
- Jan 2014 - current: Monitoring of Solihull Hospital
- Jul-Nov 2014: Development of SOP
- Feb 2015: Lesson of the Month - Improving Antibiotic Safety
- Nov 2014: Ward/site performance framework agreed
- Dec 2014 - Feb 2015: Antibiotic Bleep Dec 14 AMU BHH, Jan 15 AMU SH, Feb 15 SAU BHH
- Jan-Mar 2015: Ward Manager Forums attended on all sites
- Jan 2014: Launched dashboard at Solihull Hospital
- Mar 2014: Prescriber names added to dashboard
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- Dec 2014 - Feb 2015: Antibiotic Bleep Dec 14 AMU BHH, Jan 15 AMU SH, Feb 15 SAU BHH
- Jan-Mar 2015: Ward Manager Forums attended on all sites
- Future: 'Our Ward Dashboard' to go live, Anti-infective SOP approval & roll-out, AMU GMR Sleep, EP issue of scheduled vs record creation time, Review of education

### Staff engagement



Comms Bulletin, Lesson of the Month, Solely Solihull Article, EP Codes Consultation, Pilot Wards Feedback, Dashboard Launch Follow-up Letter, Medication Dashboard Takes Off at Solihull.

### Educational resources

#### Medication Dashboard

#### Bleep Holders Guide

#### Anti-infective SOP

#### EP Non-administration Codes

#### Standardised Pharmacy Ordering Process

#### Videos

### Our Site

June 2014

#### Our Team Plan

Improvement Plan for the Department of General Practice within the Trust

#### Pressure Ulcers

How many patients on the ward have developed pressure ulcers within in hospital?

Hospital Acquired Pressure Ulcers

#### Workforce

How many patients on the ward had a 0/1 shift in hospital?

Sickness & Absence

#### Recruitment

Recruitment Trajectory (NTE)

#### Falls

How many patients on the ward had a fall within in hospital?

All Inpatient Falls

#### Discharges

SAFER Compliance

#### Medicines Management

% of antibiotic stat doses administered within 1 hour

### Trust – Daily Antibiotic Stat Dose Administered within one hour

This tab shows overall Trust and site compliance with antibiotic stat doses

This screen shows the daily antibiotic stat doses administered by ward for whichever site you select.

By clicking on the blue bar a further page will open which shows the details of the dose administration/ non-administration.

Patient	Drug description	Scheduled	Administered	Delay	Reason
1	FLUCLOXACILLIN 1 g Injection	05/11 11:28			...VCR1 - Drug not required by Pt
2	TEICOPLANIN 200 mg Injection	05/11 15:02	05/11 15:33	00:31:00	

### Trust – Monthly Antibiotic Stat Dose Administered within one hour

This tab shows monthly site performance by site

By hovering over the columns you can see the number of doses administered

By double clicking on a bar a further page will open. This page shows the breakdown for each site

By double clicking on the grey bars a further page will open showing the breakdown of all the antibiotic stat doses for the ward including the patient and drug details.

Patient	Drug description	Scheduled	Administered	Delay	Reason
1	CIPROFLOXACIN 500 mg Tablets	02/08 11:18			Administered in another area
2	FLUCLOXACILLIN 1 g Injection	23/08 10:33			...VCR1 - Drug not required by Pt
3	FLUCLOXACILLIN 1 g Injection	23/08 10:40	23/08 12:15	01:35:00	
4	FLUCLOXACILLIN 1 g Injection	28/08 11:26	28/08 12:39	01:13:00	
5	FLUCLOXACILLIN 250 mg Capsules	23/08 18:36	23/08 18:03	01:27:00	
6	FLUCLOXACILLIN 1 g Injection	28/08 14:48	28/08 15:43	00:55:00	
7	TEICOPLANIN 400 mg Suspension	02/08 14:38	02/08 15:18	00:40:00	

### Bleep introduced to drive improvement in acute admission areas

**Before bleep**  
(22.12.2014 to 16.01.2015)

**68%**

**1 month with antibiotic bleep**  
(22.01.2015 to 16.02.2015)

**90%**

**55%**

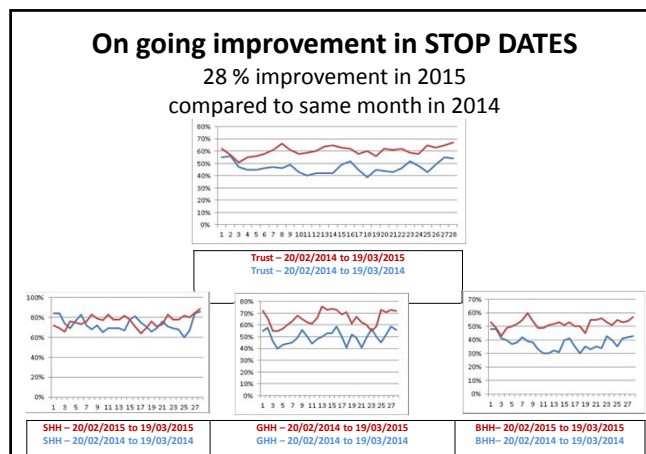
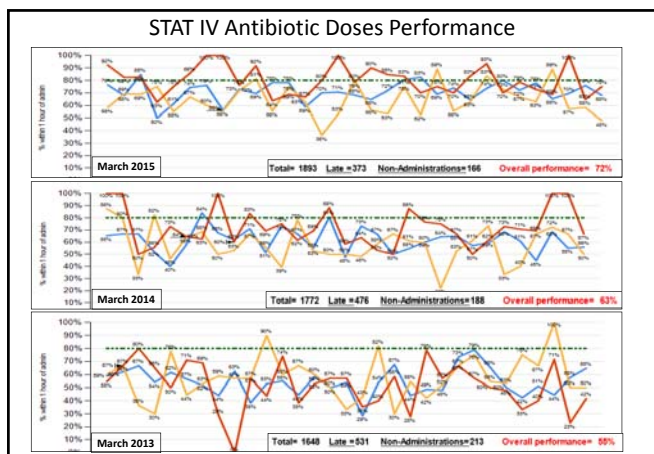
**76%**

### Sustained reduction in late/non-administrations of IV STAT antibiotics

Date	Late	Non-Administrations	Total	%
19/02/2013 to 18/03/2013	479	198	1538	56%
19/02/2014 to 18/03/2014	418	174	1583	63%
19/02/2015 to 18/03/2015	358	141	1704	71%

Non-Administrations

Total



### Live antibiotic STAT dose dashboard on Concerto

Patient	Antibiotics	Delay	WCC
SHAMU	METRONIDAZOLE 500 mg in 100ml Infusion	26/04 12:33 - 26/04 14:43 <b>02:10</b>	6.36 (26/04 13:45)
SHB	PIPERACILLIN/TAZOBACTAM 4.5 g Injection	26/04 08:27 - 26/04 08:59 <b>01:09</b>	9.81 (25/04 19:28)
G18 (AMU)	BENZYLPENICILLIN 1.2 g Injection	26/04 13:30 - 26/04 13:52 <b>00:46</b>	26.83 (25/04 18:31)
G18 (AMU)	FLUCLOXACILLIN 1 g Injection	26/04 13:30 - 26/04 13:47 <b>00:42</b>	26.83 (25/04 18:31)
H7	CO-AMOXICLAV 1.2 g (1000/200) Injection	26/04 00:09 - 26/04 00:48 <b>00:39</b>	17.43 (25/04 21:17)
H12	AMOXICILLIN 500 mg Injection	26/04 14:59 - 26/04 15:15 <b>00:37</b>	15.63 (25/04 18:41)
H20AMU	CO-AMOXICLAV 1.2 g (1000/200) Injection	26/04 05:28 - 26/04 05:06 <b>00:31</b>	11.04 (25/04 19:23)
SHAMU	AMOXICILLIN 500 mg Injection	26/04 12:34 - 26/04 13:04 <b>00:31</b>	6.36 (26/04 13:45)
H20AMU	PIPERACILLIN/TAZOBACTAM 4.5 g Injection	26/04 13:20 - 26/04 13:41 <b>00:28</b>	17.77 (26/04 14:32)

### Barriers & Breakthroughs

BARRIERS	BREAKTHROUGHS
Delays due to non communication of STAT doses by prescribers	'LIVE' dashboard development Change of focus to preventing delays in acute admission areas- Automated antibiotic bleep development
Delays due to IV competence/ cannulation skills	Junior Doctor IV refresher training; Review of IV therapy / V&C provision
Omissions due to prescription queries - anxiety re double dosing	Clarity for prescription queries - Antibiotic SOP
EP anomalies - scheduled vs activated	IT solution underway to resolve EP anomalies