Improving Antimicrobial Prescribing Practice
Using Unique Technology System to Provide Real-Time Feedback to Prescribers

Papworth Hospital **NHS** — NHS Foundation Trust

Netta Tyler, Antimicrobial Pharmacist assisted by Olly Allen, Consultant Microbiologist, Helen Swarbrick, Clinical Audit Supervisor and Ann Higgins, Director of Medical Audits Healthcare Technology.

Abstract

- Antimicrobial resistance has been described by scientists as one of the greatest global threats of the 21st Century[1] with at least 700,000 people dying from drug-resistant infections every year.
- The misuse/overuse of antibiotics allows bacteria to develop mechanisms to resist the effects of antibiotics in order to prolong their own cell life.
- In hospitals, it is claimed that up to 50% of antimicrobial use is inappropriate.[2]
- Prospective audit with intervention and timely feedback is one of the antimicrobial stewardship strategies with the strongest evidence of effectiveness.[2]

Background: Antimicrobial Stewardship (AMS)

- **Aims:** To improve patient outcomes, improve patient safety, reduce resistance and reduce healthcare costs.
- The AMS Team consists of 1 Full Time Equivalent (FTE) Antimicrobial Pharmacist and 1 FTE Microbiology Consultant who are responsible for implementing the Trust agreed AMS Programme (AMSP).
- One key component of the AMSP is to undertake prospective audit with intervention and feedback in a timely manner.
- However, in practice this is difficult to achieve and the average time taken to design, undertake, analyse, produce audit and feedback results is 3 to 6 months and prescribers on rotation to the Trust have often left before results are available for feedback.

Objectives

- To evaluate a digital solution that provides real-time feed back to prescribers about their antimicrobial prescribing behaviour.
- To ensure that all prescribers comply with Trust antimicrobial prescribing documentation standards guidelines.
- To ensure the Trust meets national CQUIN target (that all antibiotic prescriptions are reviewed within 72hrs with appropriate documentation of on-going antibiotic plan). CQUIN value = £80,000.
- To determine whether Antimicrobial Pharmacist time can be saved utilising a digital solution to collect audit data versus a traditional manual data collection method with formic forms.

Methods

- A six month free trial was provided by Medical Audits Healthcare Technology to enable evaluation of their TS+ mobile auditing and QA system.
- Three different types of antibiotic audits based on national "Start Smart-then Focus" AS guidelines[3] were carried out using the audit system (Start Smart Audit, Focus Audit and Point Prevalence Audit) on all* in-patients at Papworth Hospital.
- Photographs of inappropriate prescriptions and poorly documented antibiotic prescriptions were taken using the system and auto e-mailed to prescribers for remedial action (see picture below).
- Once the audits were complete, the data was accessed and reports generated and feedback to prescribers.
- *** Due to personal circumstances not all wards could be audited in September**
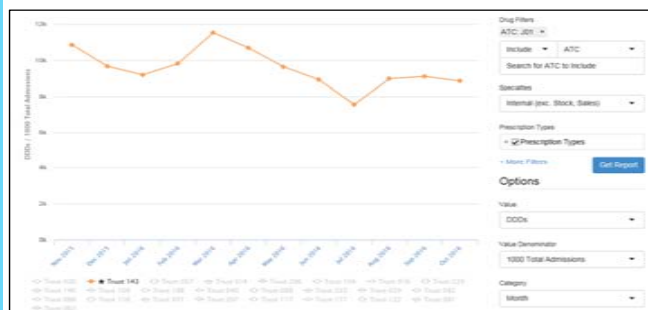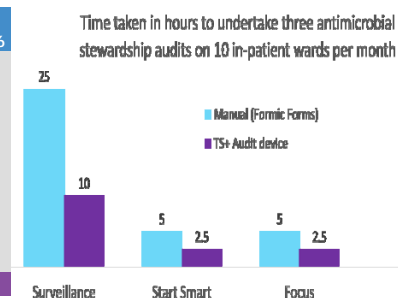
Results: Engagement with Prescribers

> "Thanks for the feedback – you're right I should have documented the antibiotic indication on the prescription chart" - FY2

> "Great work (about the report sent) Keep it up". - Consultant

Chart 1 Monthly Systemic Antibacterial Use/ DDD 1000 bed admissions

Results:

Monthly Trend Analysis				
	Aug-16	Sep-16	Oct-16	Nov-16
CF Ward	84.20%	0%	94.40%	100%
CMUD	60.00%	N/A	100%	100%
CMUP	100%	N/A	100%	100%
Hemingford HDU	N/A	N/A	N/A	100%
Hemingford Ward	100%	20.00%	62.50%	100%
Hugh Fleming Ward	33.30%	0%	80.00%	100%
Mallard PCU	0%	N/A	N/A	100%
Mallard Ward	33.30%	60.00%	85.00%	100%
RSSC	80.00%	N/A	80.00%	100%
Varrier Jones Ward	20.00%	87.50%	90.90%	100%
Total	61.80%	55.00%	88.80%	100%

Time taken in hours to undertake three antimicrobial stewardship audits on 10 in-patient wards per month

Chart 2 Example of an Audit Trend Report -Antibiotic Review Within 72 Hours ("Focus")

Conclusions

- Audit reports were generated in a timely manner and real-time feedback of antibiotic prescribing was well accepted by prescribers (direct feedback to AS Pharmacist).
- Papworth Hospital NHS Foundation Trust is currently meeting its national CQUIN target for the % of antibiotic prescriptions reviewed within 72 hours (Q1=25%, Q2=50%, Q3=75%,Q4=90%).
- The TS+ audit system is a bespoke designed QA system which is simple, fast and effective to use.
- Using TS+ has released an average of 20 hours of Antimicrobial Pharmacist time per month with a realisation benefit of:-
  - ✓ **Time now spent on 3 ward rounds per week (approx. 12 hours per month),**
  - ✓ **Providing antimicrobial stewardship educational talks to registered nursing staff, (1.5 hours per month),**
  - ✓ **Reviewing and updating guidelines and providing financial reports to the Trust Board.**
- General trend for antibacterial use at Papworth Hospital is falling.
- This ready-to-go, auditing & reporting system requires no Trust IT support and does not need to be compatible with other electronic support systems although data can be exported from the system quickly and easily. (A business case is being submitted for purchase of the auditing device and unlimited access to the web based management and QA reporting system).

References:
1. O'Neill J. Tackling Drug-Resistant Infections Globally. Final Report and Recommendations, Wellcome Trust and HM Government . May 2016. https://amr-review.org/sites/default/files/160525_Final%20paper_with%20cover.pdf
2. Nathwani D and Sneddon J. http://bsac.org.uk/wp-content/uploads/2013/07/Stewardship-Booklet-Practical-Guide-to-Antimicrobial-Stewardship-in-Hospitals.pdf
3. Department of Health and Public Health England. Start Smart – Then Focus. Antimicrobial Stewardship Toolkit for English Hospitals. London: Department of Health. Updated March 2015

Care | Valued | Excellence | Innovation

Papworth Hospital **NHS** — NHS Foundation Trust