Developing a Multidisciplinary Team Approach to Antimicrobial Stewardship: An Improvement Journey

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Overview

- Antimicrobial Stewardship
- Multidisciplinary Team Benefits
- Current Problems & Solutions?
- Previous QI Work-Developing a Ward Team Approach to Antimicrobial Stewardship
- Understanding The Problem: Barriers & Enablers
- Importance of Medicine Chart Documentation
- Antimicrobial Pharmacy Technician QI Project
- Conclusion & Next Steps
Antimicrobial Stewardship

- Antimicrobial resistance (AMR) is a major public health issue
- Prudent use of antimicrobials is the most important modifiable factor in tackling AMR
- Antimicrobial stewardship aims to ensure we preserve antimicrobials for future generations
- **Right drug, right dose, right route, right duration**
Multidisciplinary Team Benefits

Patient
- Improved outcomes
- Improved service satisfaction

Staff
- Improved outcomes & efficiency
- Improved job satisfaction
Current Problems

- Antibiotic use in acute hospitals
- Patient Risk of HAIs - CDI, SAB
- Healthcare Cost
- Increased Risk of Antimicrobial Resistance
- IV antibiotic use in NHSGGC - higher than any other health board in Scotland
NHS Scotland all hospitals IV antibiotic use (DDD/1000pop/day) 2018

IV - DDD per 1000 population per day by board (2018 totals)
The Solutions?

- Improved Antimicrobial Stewardship (AS)
- Multidisciplinary Team Approach to AS
- Ward culture change around antibiotic prescribing and review
- Sustainable embedded change in ward systems to improve AS
Previous QI Work: Developing a Ward Team Approach to Antimicrobial Stewardship (2017)

- AIM: To Improve Documentation of Oral Abx Stop/Review

**THINK when prescribing ORAL ANTIBIOTICS**

- Refer to the appropriate GG&C Antibiotic Prescribing Policy for antibiotic choice and course length
- **REMEMBER** to document the intended **DURATION** or **STOP DATE** on the additional comments section of the Kardex
- Ensure the Kardex is scored off at the **STOP DATE** to prevent any additional doses being administered
- If the **DURATION** or **STOP DATE** is under review document the next **REVIEW DATE** in the additional comments section of the Kardex
- Documenting the intended **DURATION** or **STOP DATE** of an oral antibiotic:
  - REDUCES PATIENT RISK
  - IMPROVES PATIENT CARE
  - REDUCES HEALTHCARE COSTS
Oral Antibiotic QI Project

- **Tests of Changes**
  - Adaption of current ward round system to enable nurses to flag up patients on oral antibiotics with no duration
  - Oral antibiotic review raised to a consultant ward round issue  **RED PEN SYSTEM**
  - Prospective feedback - pharmacist sticker prompts for notes if oral antibiotic duration not documented
  - Eye catching poster/trolley prompt with specific instructions displayed on the ward

- **Measure**
  - Percentage of oral antibiotics with a stop/review recorded on the medicine chart
Outcome
Oral Abx Stop/Review Documented

Baseline Median 48%  Post Change Median 80%

Medical Ward RAH Oral Antibiotic Duration/Review Documented on Kardex

Test of change
Previous QI Work: Developing a Ward Team Approach to Antimicrobial Stewardship (2018)

- **Aim:** To Improve IVOST Policy Adherence

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**THINK** before you prescribe or administer INTRAVENOUS ANTIBIOTICS

- Can my patient switch from INTRAVENOUS to ORAL antibiotics - IVOST?
- Are all criteria met for IVOST?
  - CLINICAL IMPROVEMENT
  - ORAL ROUTE RELIABLE
  - UNCOMPLICATED INFECTION
- If YES refer to the GG&C IVOST policy and consider the switch from IV to ORAL antibiotics
- Timely and appropriate IVOST
  - REDUCES PATIENT RISK
  - IMPROVES PATIENT CARE
  - REDUCES HEALTHCARE COSTS
- Switch your patient from RED to GREEN!

Approved by Greater Glasgow & Clyde Antimicrobial Management Team November 2018
IVOST QI Project

- Tests of Change
- Promotion of IVOST using “red to green” posters & sticker tool

- Ward daily safety brief used as a platform for nurses and pharmacists to highlight patients for IVOST review

- Measures
  - Oral antibiotics no review/stop date on kardex
  - IV antibiotics > 48 hrs no review/stop date on kardex
  - Median IV duration prior to IVOST
Outcome: Improved IVOST Indicators

**Ward 24 RAH Oral Antibiotic Duration/Review Documented on Kardex**

- Median
- Goal
- 0.0 days
- 1.0 days
- 2.0 days
- 3.0 days
- 4.0 days
- 5.0 days
- 6.0 days
- 7.0 days

**Ward 24 RAH IV Antibiotic Duration/Review Documented**

- Median
- Goal
- 0.0%
- 10.0%
- 20.0%
- 30.0%
- 40.0%
- 50.0%
- 60.0%
- 70.0%
- 80.0%
- 90.0%
- 100.0%

**Ward 24 RAH Median Days on IV Abx Prior to IVOST**

- Median
- Goal
- 0.0 days
- 1.0 days
- 2.0 days
- 3.0 days
- 4.0 days
- 5.0 days
- 6.0 days
- 7.0 days

**Improved recording of ORAL Abx STOP/REVIEW**

**Improved recording of IV Abx STOP/REVIEW**

**Reduced duration on IV Abx prior to IVOST**
Quality Improvement Reflections

What went well?

- Working and engaging with nurses & junior medical staff
- Low impact change easily embedded in current ward system
- Sharing success & building relationships

Challenges

- Maintaining data collection
- Effecting change without adding extra work/effort
- Engaging with senior medical/surgical staff
- Sustainability
- Scale and spread
Next Step?
Scottish Quality & Safety Fellowship Project
First Understand The Problem: Barriers & Enablers

- Staff Interviews & Questionnaires
  - Nurses
  - Junior Medical Staff
  - Pharmacists
- Patient Questionnaires
- Identify further change ideas

“If I had an hour to solve a problem, I’d spend 55 minutes thinking about the problem and 5 minutes thinking about solutions.”

– Albert Einstein
Nurse Barriers & Enablers to IVOST (n = 71)

- **Barriers**
- **Enablers**
FY1 Barriers & Enablers to IVOST
(n = 16)

- Barriers

- Enablers
Pharmacist Barriers & Enablers to IVOST (n = 11)

- **Barriers**
  - Poor Kardex Doc
  - No Doc Abx Plan
  - Time
  - Doctor Not Av
  - Knowledge
  - Other

- **Enablers**
  - Good Kard Doc
  - Ward Rounds
  - White Board
  - Training
  - Abx RV Meeting
  - Other
# Top Barriers & Enablers

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<thead>
<tr>
<th>IVOST BARRIERS</th>
<th>IVOST ENABLERS</th>
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<td><strong>TOP 3</strong></td>
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## Junior Doctors
- Need Senior Approval
- CRP ↑
- No IV Abx stop/review on Kardex

- IV Abx stop/review & Indication on Kardex
- Abx Plan in med notes
- Training

## Nurses
- No IV Abx stop/review on Kardex
- Medical staff not available
- Don’t have time

- IV Abx stop/review & Indication on Kardex
- White Board to highlight pts for review
- Daily IV Abx review meeting

## Pharmacists
- No IV Abx stop/review on Kardex
- No IV Abx review plan in med notes
- Don’t have time/ Med staff not available

- IV Abx stop/review & Indication on Kardex
- Pharmacist on daily ward round
- White board to highlight pts for review
Inclusion Criteria
- Abx treatment
  - Oral > 24 hrs
  - IV > 48 hrs
- Clear indication for Abx treatment in medical notes- e.g. not “? Infection” or “Infection source unknown"
- Named nurse approval

Exclusion Criteria
- A documented reason in Pt Hx or medical notes that would affect understanding/ability to participate
Patient Survey results

**Oral Antibiotics**

- 52% (15/29) patients eligible for survey
- 80% aware they were on antibiotics
- 47% knew correct Abx indication
- 33% aware of planned Abx stop/review date

**IV Antibiotics**

- 48% (13/27) patients eligible for survey
- 85% aware they were on antibiotics
- 46% knew correct Abx indication
- 38% aware of planned Abx stop/review date

Room for improvement!
Why is Antimicrobial Medicine Chart Documentation Important?

- Central document used by doctors, nurses & pharmacists to communicate antibiotic prescription
- Helps promote multidisciplinary ward approach to antibiotic review
- Promotes nurse communication with patient about their antibiotics during administration
- Good indicator measure of antimicrobial stewardship
- Easier to access, standardise and monitor than medical notes
- Need for improvement recognised
Medicine Chart Allergy Recorded

Antibiotics: % allergy recorded on Kardex
(all directorates)

2019 NHSGGC Average 93%

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<td>129</td>
<td>926</td>
<td>834</td>
<td>791</td>
<td>950</td>
<td>1,018</td>
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<td>145</td>
<td>1,030</td>
<td>934</td>
<td>904</td>
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<td>1,145</td>
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<td>%</td>
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<td>88.0%</td>
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<td>92.6%</td>
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Oral Abx Stop/Review Recorded

% duration of oral antibiotic therapy recorded (all directorates)

2019 NHSGGC Average 49%

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<tr>
<td>On Oral</td>
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<td>653</td>
<td>638</td>
<td>766</td>
<td>786</td>
<td>788</td>
<td>750</td>
<td>742</td>
<td>737</td>
<td>765</td>
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<td>37.0%</td>
<td>34.5%</td>
<td>38.3%</td>
<td>37.8%</td>
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<td>43.8%</td>
<td>41.1%</td>
<td>46.7%</td>
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% duration of IV antibiotic therapy recorded (all directorates)

2019 NHSGGC Average 11%
Test of Change?

Pharmacy technician prospective audit and feedback of medicine chart antimicrobial stewardship issues

Can this improve medicine chart documentation & antimicrobial stewardship?
Antimicrobial Pharmacy Technician QI Project (2019)

- **Tests of Changes**
  - Regular Medicine Chart Screening in Medical, Surgical and COE wards at RAH
  - Real time feedback of antimicrobial stewardship issues to the multidisciplinary team

- **Measures**
  - Allergy documented on medicine chart
  - Percentage of oral and IV antibiotics with a stop/review
  - Incidence of IV antibiotics > 48 hrs with no stop/review
  - Combined medicine chart documentation issues
  - Adherence to the Protected Antimicrobial Policy
Outcome Measures so far...

- Improved recording of Allergy Status
  - ALL WARDS

- Improved recording of ORAL Abx
  - STOP/REVIEW
  - ALL WARDS

- Improved recording of IV Abx
  - STOP/REVIEW
  - ALL DOWNSTREAM WARDS
Outcome Measures so far...

- Reduced Incidence of IV Abx >48 hrs with no documented review
  - ALL WARDS

- Reduction in combined Abx documentation issues
  - ALL WARDS

- Improved adherence to local Protected Antimicrobial Policy
Service User Feedback

JUNIOR DOCTOR
The technician role has developed to be much more useful than simply paper signing. I look forward to see where the service can go.

PHARMACIST
This is a proactive, impressive service which not only captures useful audit data but can also highlight issues to the ward pharmacist who may not be actively aware.
Conclusion so far...

- Introducing an Antimicrobial Pharmacy Technician to the ward multidisciplinary team can improve:
  - Antibiotic Medicine Chart Documentation
  - Antimicrobial Stewardship
  - Patient Care

- Whether this approach can produce a sustainable ward culture change remains to be seen
Next Steps

- Co-design further individual ward system changes to drive further improvement
- Promotion of antimicrobial INDICATION prescribing
- Metronidazole “Can we use the oral route?”- project
- Recognise staff involvement & achievement WAAW 2020
- Scale and spread of current pharmacy technician service
Acknowledgements

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