Prescriber-Centered Approach to Improve Choice of Restricted Antibiotic at Armidale Rural Referral Hospital

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Aim Statement

To improve appropriateness of antibiotic use in the medical, surgical and close observation unit of Armidale Hospital by supporting prescribers to improve choice of antibiotic focusing on four commonly used restricted intravenous antibiotics: augmentin, ceftriaxone, tazocin and vancomycin.

Background to problem worth solving

- Antimicrobial resistance is recognised by WHO as a global health emergency.
- Antimicrobial Stewardship programmes containing review, feedback and restriction components are associated with reduced harm from antibiotic use. The Australian government has mandated that each Australian hospital has an AMS programme in place.
- Rural hospitals perform poorly compared with their metropolitan counterparts but have limited resources to implement models adapted from better resourced centres. Ceftriaxone prescribing is problematic.[1]
- Armidale Rural Referral Hospital is an 86 bed hospital with 6 general physicians but no infectious disease physician nor microbiologist, 2x FTE pharmacist but no dedicated AMS pharmacist.
- There is currently no effective AMS programme at ARRH and there are no dedicated resources to implement appropriate models.
- Baseline data indicated that while comparable to peer hospitals in some aspects of AMS rates of appropriate choice of restricted intravenous antibiotics is low at ARRH at 37%.

Link to National Standard and LHD strategy

Standard 3:
Preventing and Controlling Healthcare-Associated Infection
3.15 and 3.16

District Antimicrobial Stewardship Policy HNELHD Pol 20_02

Literature review

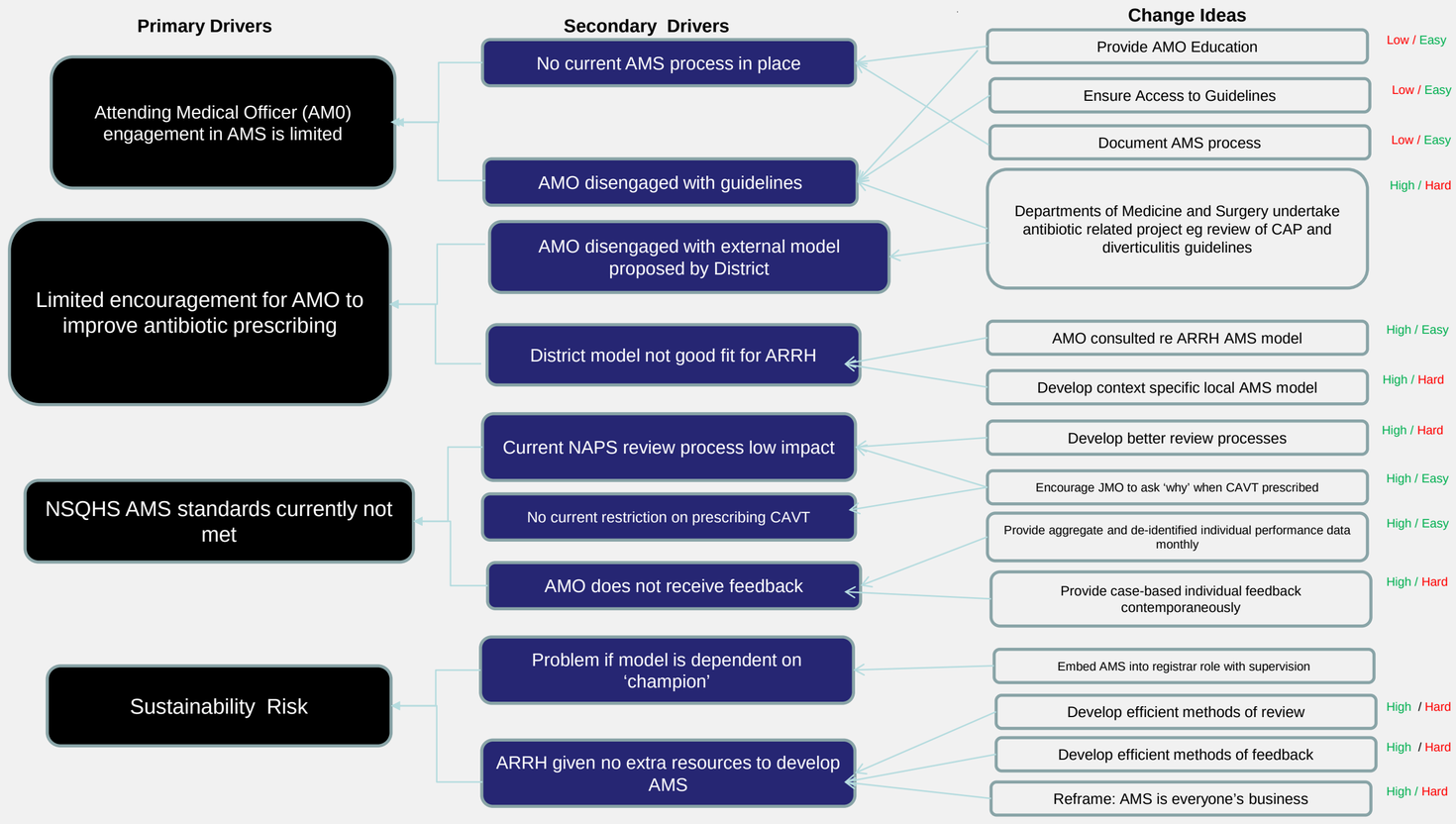
1. Bishop Int J Antimicrob Agents 2019 Feb;53(2):171-176
2. Sikkens JAMA Internal Medicine online May, 2017
3. Chau Vascular Medicine 2020;25(1): 41-46

Driver Diagram

The Problem:

37% of commonly used restricted intravenous antibiotics (Ceftriaxone, Augmentin, Vancomycin Tazosin - CAVT) prescribed are chosen appropriately at ARRH

SMART Aim: Within 12 months, 80% of restricted IV antibiotic choice will be appropriate

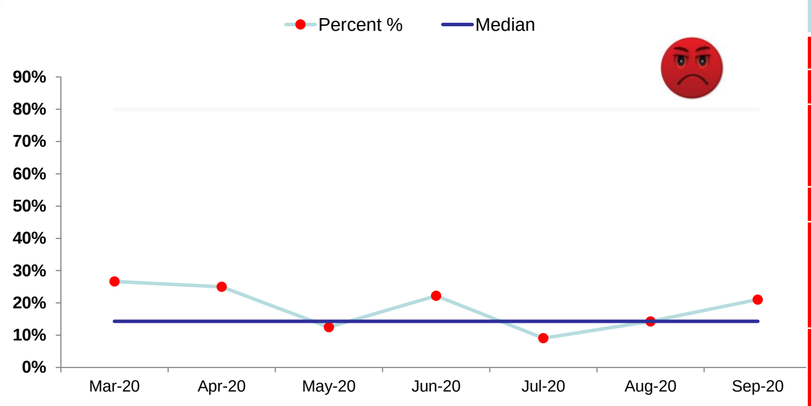


Team Members:

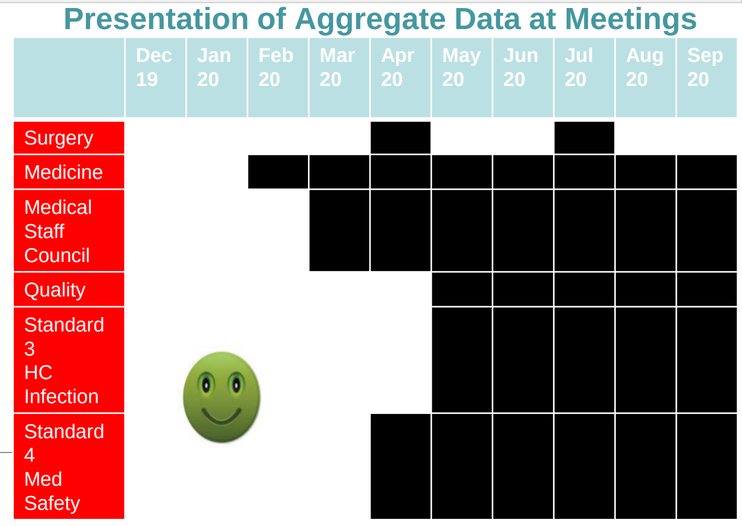
- Project Sponsor/s
  - Ms S Heyman
  - Dr Peter Finlayson
- Team Leader -
  - Dr Mark Kelly
- Lead Pharmacist
  - Mr George Papadopoulos
- QI Advisor –
  - Ms Annette Bell
  - Ms Trudy Locke
- Rotating medical registrar

Change Idea Priority	Name of Change Idea to test via a PDSA Cycle	Outcome Measure	Process measure
Priority 1	Document AMS process	% appropriate choice	Process documented and distributed
Priority 2	Antibiotic related project	% appropriate choice	Project undertaken and consensus reached
Priority 3	Feedback and Review 1. Individual 2. Aggregate	% appropriate choice	1. Individual feedback given 2. Aggregate feedback given
Priority 4	JMO 'why ceftriaxone'	% appropriate choice	Rate of documented discussions

Process measure: individual feedback to AMO

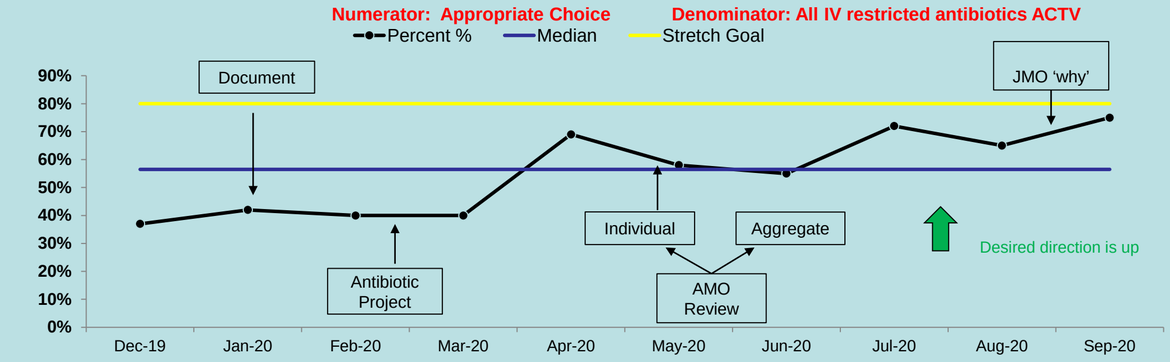


Presentation of Aggregate Data at Meetings

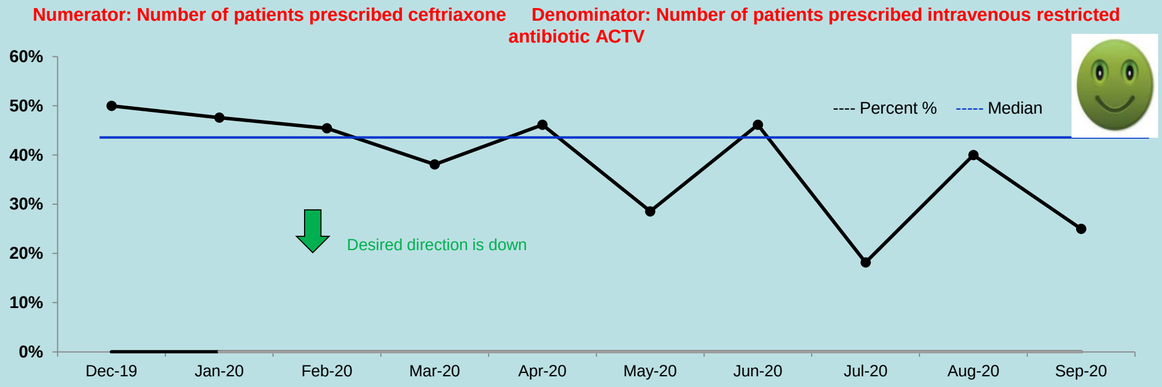


Results

Outcome measures – improvement in appropriate choice of antibiotic



Outcome measures – decrease in proportion of ceftriaxone



Overall Outcome of Project:

1.Choice of restricted intravenous antibiotics improved:

Baseline 37% increased to 75% in September 2020

2.There was a reduction in use of ceftriaxone:

Baseline 50% of restricted IV antibiotic was ceftriaxone decreased to 25% in Sep 2020. This decrease was also demonstrated in independently collected national data (NAPS) and was not observed in comparable rural hospitals (data not shown)

3. Engagement of attending medical officers was achieved;

4. No additional resources were required;

Plans to sustain change

1. **Annual antibiotic prescription project for Departments of Medicine and Surgery**
2. **Automatic electronic identification of patients prescribed restricted antibiotics**
3. **Embed AMS activities in medical registrar role supervised by AMO champion**
4. **Provide quarterly aggregate and de-identified data to AMOs and executive**
5. **Provide contemporaneous review of inappropriate choice by emailing AMO**

Plans to spread /share change

Submit:

- Poster to ACI innovation exchange
- Abstract to Internal Medicine Society of Australia and New Zealand Meeting
- Abstract to Australasian Society of Infection Diseases Meeting
- Publication to Australian Journal of Rural Health
- Present project at District Workshop / Meeting
- Extend project to smaller sector hospitals when electronic prescribing is in place