Antimicrobial stewardship across the surgical pathways in low and middle income countries

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Overview

• Antibiotic decision making in surgery
• The LMIC perspective
• Research gaps in AMS in surgical pathway
• Current/future interdisciplinary approaches to address these gaps
Why focus on the surgical pathway?
The Lancet Commission on Global Surgery

- High burden of surgical conditions
  - 30 – 50% of inpatients undergo surgery
  - WHO estimates up to 50% surgical site infection rate (depending on surgery)
- Post-operative infections are a major cause of morbidity and antibiotic use
- Access to effective healthcare e.g. maternal health
- Need to improve global priority for surgery
Antibiotic stewardship in surgery is should not be only about surgical site infections and antibiotic prophylaxis.
There is a **lack of clarity around decision** making for treating infections in surgical patients. Antibiotic decision making is a **secondary task** commonly **delegated** to others.
Surgical patients are not only on cefotaxime and metronidazole.
Why focus on LMIC?
Cultural and contextual determinants of the implementation of antimicrobial stewardship in low, middle and high income countries
Charani E, Smith I, Skodvin B, Prozzolo A, Lucet JC, Luxsure FX, Birgand G, Poda A, Singh S, and Holmes AH

Introduction
We report an international study investigating the challenges facing healthcare providers in the implementation of antimicrobial stewardship programmes (ASP), and the contextual determinants that shape and shape ASP interventions.

Methods
Healthcare professionals responsible for implementing ASP in hospitals in England, France, Norway, India, and Brazil were invited to participate as key informants. IMI at least two face-to-face interviews. A piloted interview guide was used to conduct the interviews. Field notes, observations, and interview transcripts were analyzed using grounded theory approach. Analysis and data collection were iterative and recursive, using constant comparison. The final sampling was applied until categories were saturated. The categories and relationships within these were explored to develop the theoretical statement.

Results
63 IMI from 42 hospitals were invited to participate. 32 IMI from 24 hospitals (England 31 IMI, 4 hospitals), Norway 13 IMI, 4 hospitals, France 3 IMI, 7 hospitals; India 10 IMI, 7 hospitals; Dorline Asia 8 IMI, 2 hospitals participated in the study. The countries in this study represent different contexts. Across the countries, this study found that country-level contextual factors play a significant role in the implementation of ASP. The value of policies and guidelines varied across countries, with a strong emphasis on guideline adherence in countries with high ASP uptake. Culture and leadership were found to be important factors in the implementation of ASP.

Figure 1. The estimated levels of healthcare associated infections (HCAI) against the presence of healthcare and hospital beds per 1,000 (represented by bubble size).

Leadership and Governance
The key determinants of ASP implementation were found to be leadership and governance. The role of the hospital leadership and the involvement of healthcare professionals were found to be crucial in the implementation of ASP. The presence of a strong leadership and the involvement of healthcare professionals were found to be crucial in the implementation of ASP.

Table 1. The key determinants of ASP implementation.

<table>
<thead>
<tr>
<th>Country</th>
<th>Leadership</th>
<th>Governance</th>
<th>Environment</th>
<th>Resources</th>
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<tbody>
<tr>
<td>Norway</td>
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Conclusions
Worldwide ASP initiatives are affected by numerous limitations and obstacles. The institutionalization of ASP is often hindered by leadership and governance challenges. Despite this, dedicated professional and interprofessional collaboration can overcome the gaps in state-level leadership to drive ASP.
The estimated burden of HCAI prevalence against the investment in healthcare and hospital beds per 1000 (represented by bubble size) in each of the countries in this study.

The World Bank

http://data.worldbank.org/indicator/SH.MED.BEDS.ZS
Key finding:
Across all the countries, the surgical specialties were found to be most difficult to engage with on antibiotic stewardship
Perioperative care
Lack of clarity on **responsibility** for choice/dose/timing of prophylaxis
Ineffective **environmental precautions** to prevent HCAI
Lack of understanding on influence of **culture and team dynamics** on adoption of interventions e.g. WHO checklist

Post-operative care
Gaps in diagnosis and management of healthcare acquired infections
Lack of **access to antibiotics**

Follow-up care
Lack of consistency in methods of **surveillance** for antibiotic use, HCAI, SSI, AMR
Knowledge gaps: what we still need to know to inform behaviour change interventions targeting antibiotic prescribing in surgery
Cochrane included studies n=221

North America 43%

Europe 39%

South Central America 4%

Rest of World 14%

Cochrane Systematic Review, 2017
We need more evidence from LMIC
Deaths attributable to AMR every year by 2050
ASPIRES Study

Aim: To address key drivers of Antimicrobial resistance by developing context-relevant preventative measures to reduce the risk of infection and optimise the use of antibiotics, coupled with tailored implementation strategies, along the entire surgical pathway.
Multi-disciplinary

Imperial College London

King’s College London

University of Hertfordshire

University of Leicester

Amrita Vishwa Vidyapeetham University

University of Cape Town

Royal College of Anaesthetists/
University College London Hospitals

Butare University Teaching Hospital
Multi-level influences

- Macro level
  - Economy
  - Regulation
  - Epidemiology
  - Culture

- Organisational level
  - Internal policies
  - Organisational culture

- Individual level
  - Professional norms
  - Intrinsic motivation

Ahmad: Optimising knowledge mobilisation surrounding antibiotic utilisation in the community setting
Approach to inquiry

Validation of theoretical approaches

Health System Level Factors: strategic, social, and economic contextual drivers

Existing & new roles and context: Ethnographic research

Design & implementation of interventions

Operational and economic evaluation: System Dynamics
Capacity Building and Strengthening in LMICs

- Training a **new generation of health leaders** in LMIC
  - Context aware and challenge led e.g. 1-2-1, e-learning, workshops
- Investigating pathways in LMIC
  - Ensures **country level healthcare needs are met**
- Strong support and mentorship structure
  - Allows for communication and **sharing knowledge** and experience
  - **Ownership** and flexibility in long-term planning
- Establish **validated governance** structures
Thank you

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