

Barriers to implementing antimicrobial stewardship programs in three low- and middle-income country settings: findings from a multi-site qualitative study

Robert Rolfe Jr^{1,2}, Charles Kwobah³, Florida Muro⁴, Anushka Ruwanpathirana⁵, Furaha Lyamuya⁴, Champica Bodinayake⁶, Ajith Nagahawatte⁶, Bhagya Piyasiri⁷, Tianchen Sheng², John Bollinger², Chi Zhang², Richard Drew^{1,8}, Peter Kussin², Deverick J. Anderson^{1,9}, Christopher W Woods^{1,2}, Melissa H. Watt¹⁰, Blandina Mmbaga⁴, L Gayani Tillekeratne^{1,2,6}

1 Duke University Department of Medicine, Division of Infectious Diseases, Durham, North Carolina, United States of America, 2 Duke Global Health Institute, 3 Moi University/ Moi Teaching and Referral Hospital, Kenya, 4 Kilimanjaro Christian Medical College, Moshi, Tanzania, 5 Colombo Teaching Hospital North, Sri Lanka, 6 University of Ruhuna, Sri Lanka, 7 Teaching Hospital Karapitiya, Sri Lanka, 8 Campbell University College of Pharmacy & Health Sciences, Buies Creek, NC, 9 Duke Center for Antimicrobial Stewardship and Infection Prevention 10 University of Utah, Department of Population Health Sciences, Salt Lake City, UT

Background

- Antimicrobial resistance is one of the top ten threats to public health in the world.
- Hospital-based antimicrobial stewardship programs can reduce antimicrobial resistance.
- We are working to support the implementation of ASPs in tertiary level hospitals in three LMICs
 - Sri Lanka (1550 beds), Kenya (990 beds), and Tanzania (630 beds).

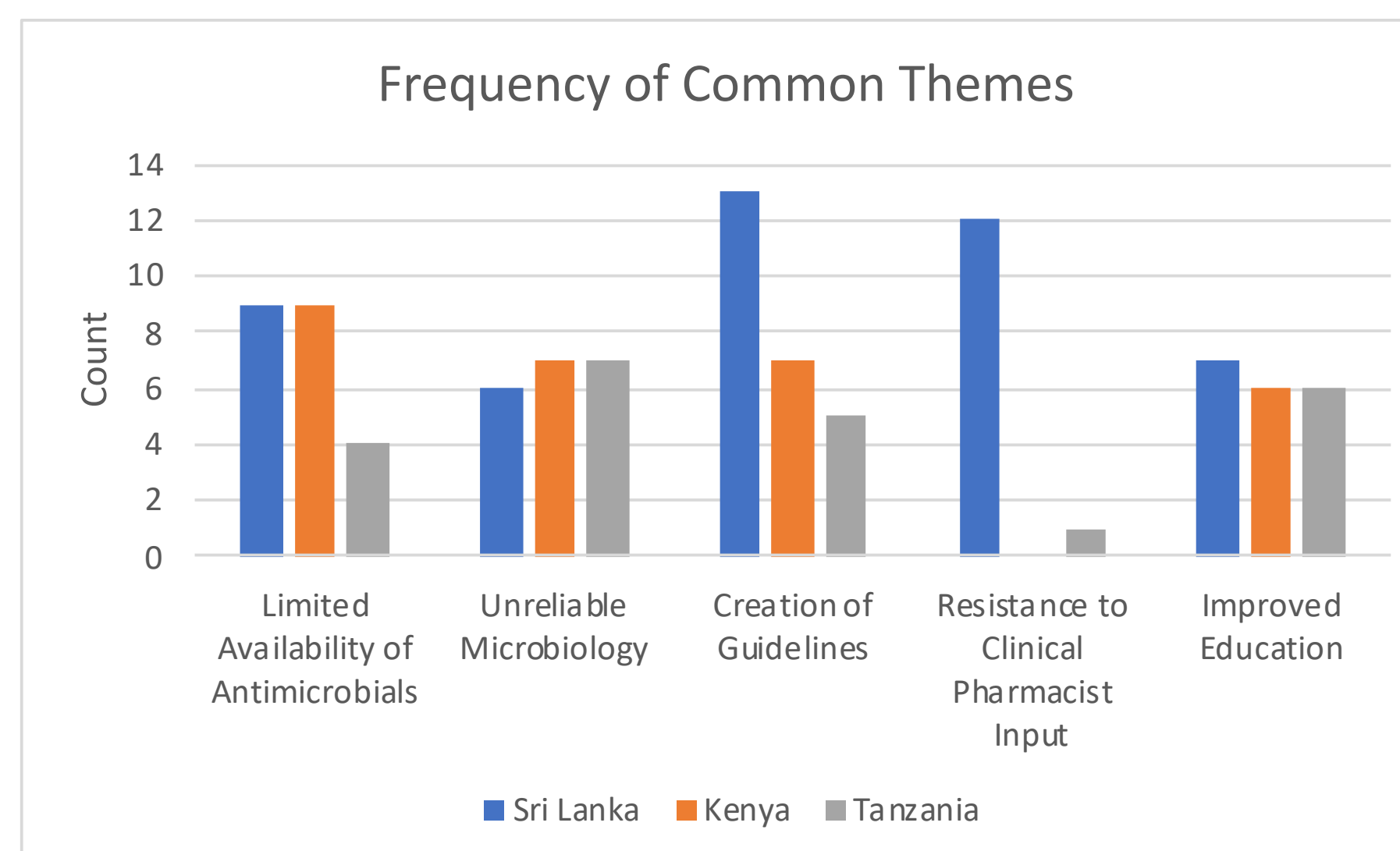
Methods

- Interview guide was developed to explore local antimicrobial practices, knowledge, barriers and receptiveness to ASPs.
- Physicians working in adult medical wards were interviewed for about 30 minutes. Interviews were audio recorded.
- Two physician researchers coded the interviews based on a codebook created from the interview questionnaire.
- Themes were identified that were either shared or differed between sites.

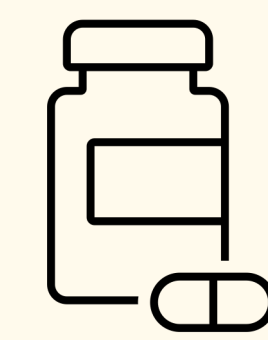
Results

45 physician interviews conducted

- 22 in Sri Lanka
- 12 in Kenya
- 11 in Tanzania

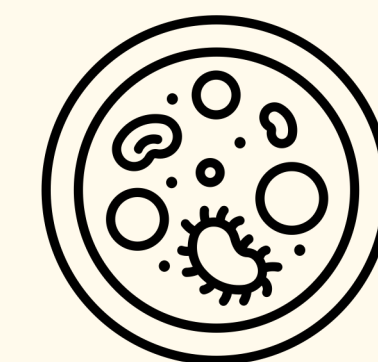


Five common themes emerged from the interviews



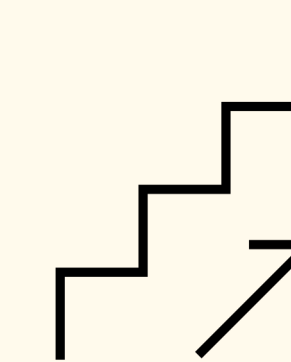
Current discrepancies between desired and actual antimicrobial treatment

"I would have loved to actually choose a better or broader [antimicrobial], but they are unavailable, they are expensive for the patients to buy. So you choose what is available and of course it does not eradicate the infection, patients get worse, get septic, go into shock and then they just have mortality."



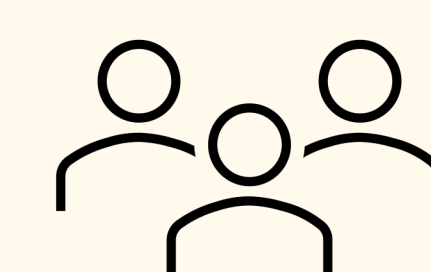
Lack of trust in diagnostics or microbiology

"Although there's been a very recent improvement, part of the challenge again lies in the lab and part of it lies in all these other places. The fact that we don't have reliable cultures, phlebotomist taught how to do proper blood collection, enough nursing staff to collect samples within a reasonable period of time. There are lots of things that contribute to it, but I think the lab certainly historically has not been a very reliable source of information."



Need for creation of guidelines

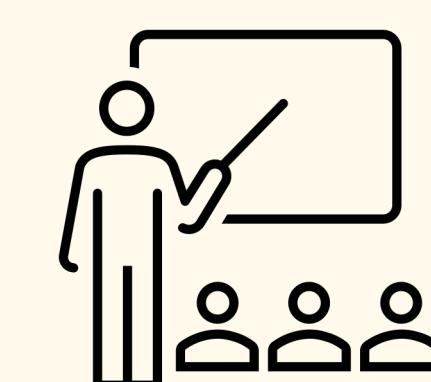
"It will help us come up with a guideline on what antibiotics to use at what point instead of just people dispensing antibiotics freely without really waiting for lab results to come back. In that way we will reduce occurrence of antimicrobial resistance."



Mixed views of multi-disciplinary ASP teams

"I absolutely agree that pharmacists have a major role to play in antibiotic stewardship again because they can serve as some of the link between the lab and the available formulary. And help advise the formulary actually and to help limit broad-spectrum antibiotic use, one that's not necessary."

"No they can't, pharmacists will not decide which antibiotic to use. But they will provide information regarding which antibiotic available here and the drug doses and other things."



Improved education

"I think all prescribers at whatever level should undergo antibiotic stewardship training to enhance their knowledge on antimicrobials and to make sure that there is rational use of antibiotics."

Next steps for antimicrobial stewardship program implementation

- Improved access to antimicrobials is a need shared across sites
- Strengthening of laboratory capabilities and creation of local antibiograms
- Creation of hospital specific guidelines for appropriate antimicrobial use
- Development of multidisciplinary ASP teams
- Widespread educational programs for physicians and staff

Robert Rolfe
robert.rolfe@duke.edu
Phone: (803) 260-1934