Optimising antibiotic usage along surgical pathways: analysis of strategic, social, and economic contextual drivers

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BACKGROUND & AIM
Addressing behaviour related to antibiotic usage across the surgical pathway (before, during, and after surgery) is key to tackling important drivers of antimicrobial resistance (AMR), and simultaneously decreasing the burden of infection at a global level.

Why the surgical pathway?
- 30-50% of inpatients undergo surgery, and the majority of surgical procedures require effectively delivered antibiotic prophylaxis to prevent infection. This surgical prophylaxis is often administered ineffectively or extended inappropriately.
- Post-operative infections are a major cause of morbidity and antibiotic use. Up to 60% of surgical patients receive antibiotics post-operatively whilst in hospital (much of which may be inappropriate), and up to 50% are discharged with a course of antibiotics.
- Surgical site infection (SSI) is one type of post-operative infection and represents a significant global burden of disease. WHO estimates rates of up to 50% (depending on the type of surgery), with a particular problem in LMICs, accounting for up to a third of all Healthcare Associated Infections (HCAIs).
- SSIs increase antibiotic use seven fold, compared to uneventful post-operative recovery.
- Improving infection prevention (IP) behaviours within and outside of health settings together with optimising antibiotic use before, during and after surgery can reduce total antibiotic use and significantly mitigate against AMR drivers and simultaneously reduce infection rates.
- Currently the responsibility for management of infection across the surgical pathway is not well defined, with post-operative antibiotic usage being a particularly neglected area.
- There are major research and knowledge gaps regarding antimicrobial stewardship (AS) and IP within hospitals, primary care, community and home settings, pre and post-surgery.

In addition, society’s capacity to deliver safe surgery is dependent on effective antibiotics and is greatly threatened by AMR, which also undermines potential advances and innovation in surgical interventions.

AIM: To address key drivers of Antimicrobial resistance (AMR) by developing context-relevant preventive measures to reduce the risk of infection and optimise the use of antibiotics, coupled with tailored implementation strategies, along the entire surgical pathway.

PEOPLE & PARTNERS

REFERENCES

EXPECTED CONTRIBUTION
By addressing AMR across sectors along the surgical pathway this research will contribute globally by:
- Researching a severely unexplored domain where the externalities of AMR are immediately evident;
- Optimising interventions within and beyond healthcare environments characterised by entrenched hierarchies and cultural norms
- Recognising that healthcare professionals associated with surgery have the potential to mobilise and drive organisational, national and global change

EXPECTED IMPACT
- To identify ways of reducing overuse, underuse and misuse of antibiotics, improving quality of care and reducing waste of healthcare resources;
- To promote efficient design of services by finding solutions along the patient pathway for patients undergoing surgery;
- In the long-term, to contribute to a reduction in costs to patients and society;
- To build research capacity in low and middle income countries and the tools to design and evaluate solutions.