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EDITORIAL

Antibiotic prophylaxis in a global surgical context

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Surgical site infection (SSI) is a global problem, and has been highlighted as the foremost research priority for perioperative researchers across high-, middle- and low-income settings.[1] Depending on the degree of intraoperative contamination, baseline patient risk and other infection control measures, as many as 50% of patients can suffer surgical wound infections within the 30-days after an operation.[2] As a result, SSI has been the focus of several recent global initiatives including randomised controlled trials of health technologies,[3] quality improvement bundle studies,[4-6] and prospective cohort studies.[2,7]

Regimens of antibiotic prophylaxis are a key component in the SSI prevention pathway. The administration of targeted and timely antimicrobial agents has been demonstrated to reduce the risk of SSI following clean-contaminated, contaminated and dirty operations and is recommended in guidelines from the World Health Organization, including their Surgical Safety Checklist.[6,8-10] This month's edition of the Southern African Journal of Anaesthesia and Analgesia features a focussed clinical audit of prophylactic antibiotic prescriptions at a single large tertiary teaching hospital in Cape Town, South Africa.[11] The authors from Groote Schuur Hospital examined data on drugs, dosing, timing and duration or antimicrobials across surgical departments over a one-week period. Whilst the overall rate of appropriate administration or withholding of antibiotic prophylaxis was reasonable (almost 90%), absolute compliance was low (less than 50%) with a majority of errors around timing and duration. Targeted interventions to improve stewardship should be applauded and the authorships suggest several strategies including personalised kits, staff training and electronic prescribing. The global rate of drug resistance is increasing, particularly in many low- and middle-income countries (LMICs), and responsible treatment of SSI has a part to play in protecting our patients.[2] I would strongly encourage the authors to consider this publication as just the first step in the quality improvement pathway, and to borrow concepts from implementation science to conduct a robust evaluation of relevant measures.[5,12] Whilst specific antimicrobial agents may vary across hospitals, the authors have the opportunity to collaborate with other hospitals across southern Africa in order to increase the generalisability and impact of their work.[13] Community engagement and involvement also provide an opportunity to learn from 'patient-partners' and select measures that are most likely to be supported by patients and their families.[14]

A broader point remains about the importance of research led from within LMICs to inform local patient care. The majority of included evidence within Cochrane meta-analyses is from trials including patients from Western Europe or North America only.[10,15] The global generalisability of trials from highly-controlled, high-income settings is sometimes questionable, with notable examples where differences in the effectiveness of interventions has been seen across settings.[16] In the case of SSI, disparate pathogenic organisms, differences in case-mix and resourcing available for allied infection control measures could all contribute to heterogeneity in the direction and magnitude of existing effect estimates.

Large and impactful LMIC-led collaborative networks have demonstrated the ability to deliver high-quality observational and randomised research to inform local practice.[17-19] Major funders must now realign their agendas to support LMIC research leaders to develop sustainable research infrastructure. Implementation of findings into 'Essential Global Surgical Guidelines' will help clinicians to influence care providers and hospital managers and deliver impactful SSI prevention measures across borders.[20] This will be *the* key step in reducing the volume of antimicrobial agents used in the perioperative setting, and mitigating against the rise of multi-drug resistance in years to come.

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