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Diagnostic resource development to aid clinical integration of microbiology services in lower-and-middle-income countries



Jemma Mangan-Casbon^{1 2}, Nikki D'Arcy¹, Claire Brandish^{1 5}, Nyambura Moremi³, Kaunda Yamba⁴, Jean O'Driscoll^{1 5}, Maxencia Nabiryo⁶, Victoria Rutter¹

nikki.darcy@commonwealthpharmacy.org

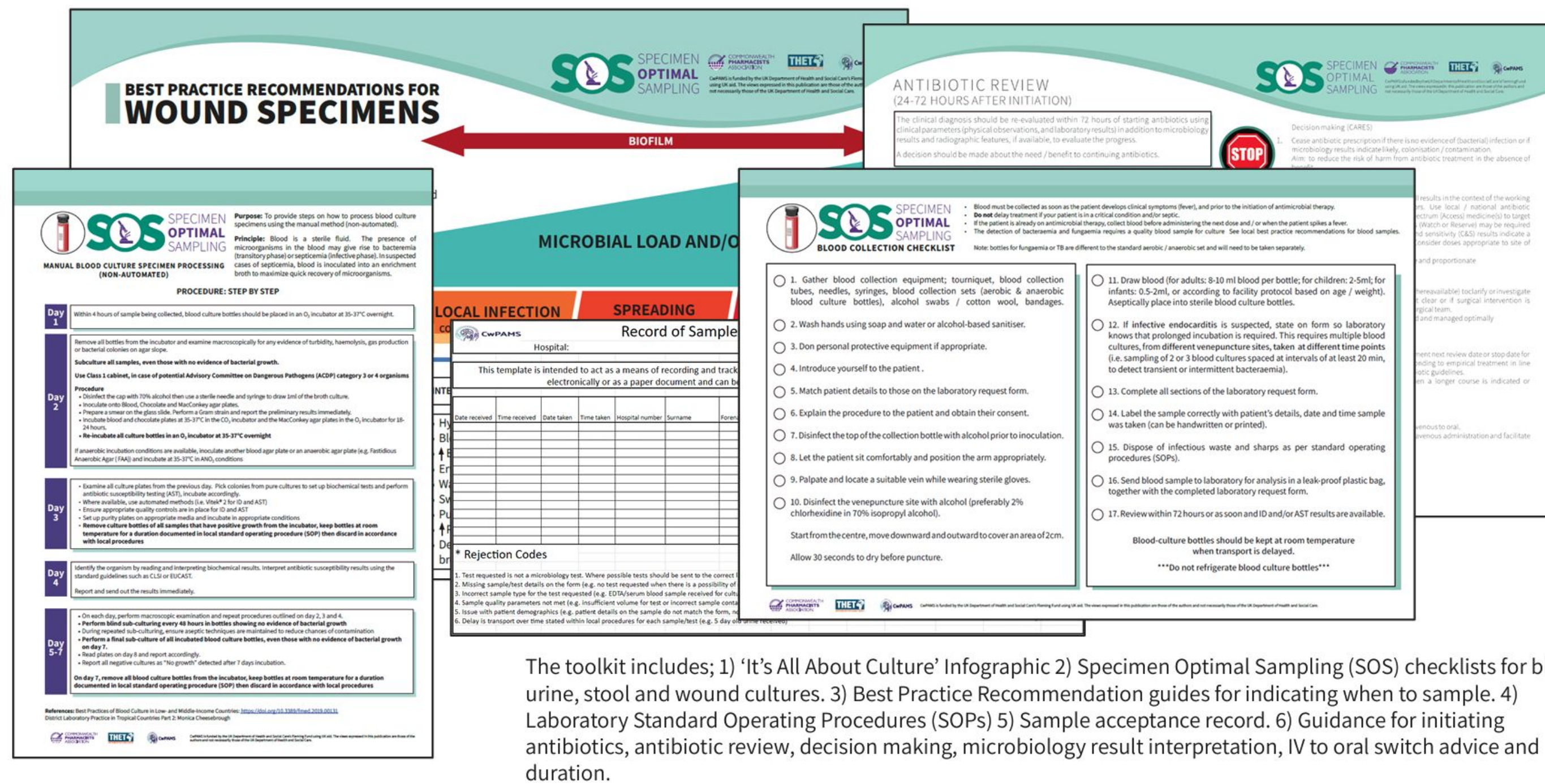
Introduction

Antimicrobial resistance (AMR) is a significant global health threat, causing at least 700,000 deaths each year. By 2050, it is estimated that this will increase to 10 million deaths annually, with 4.1 million deaths occurring in Africa.¹

Global strategies to tackle AMR are less effective in Low- and middle-income countries (LMICs) due in part, to limited access to high-quality and timely clinical microbiology services, crucial to identify, monitor, and control infectious diseases.²

The Commonwealth Partnerships for Antimicrobial Stewardship (CwPAMS) programme aims to utilise expertise of UK health institutions to share knowledge and expertise to strengthen healthcare systems across 8 African LMICs with an emphasis on AMR.³

The Toolkit



The toolkit includes: 1) 'It's All About Culture' Infographic 2) Specimen Optimal Sampling (SOS) checklists for blood, urine, stool and wound cultures. 3) Best Practice Recommendation guides for indicating when to sample. 4) Laboratory Standard Operating Procedures (SOPs) 5) Sample acceptance record. 6) Guidance for initiating antibiotics, antibiotic review, decision making, microbiology result interpretation, IV to oral switch advice and duration.

Project Aims

The CwPAMS programme has worked to understand challenges faced in accessing diagnostics, to propose recommendations to improve the integration and clinical engagement with microbiology services. A questionnaire sent to 16 health partnerships identified insufficient staff capacity/capability, lack of/inconsistencies in; resources, reagents and consumables and communication barriers between lab and clinical teams as the main reasons for poor uptake of microbiology services.

A multi-disciplinary, microbiology team was established (academic and clinical microbiologists from the UK, Tanzania and Zambia, a Pharmacist and a Biomedical Scientist) to create a toolkit of resources to support pre-analytical, quality sampling with a focus on diagnostic stewardship and clinical engagement.

“Generally, we are not doing very well in sample referrals from wards. So, our data collection is still low. Perhaps one important issue is working out on modalities of how to increase sample referrals, but still, with limited access to lab reagents, clinicians are not able to do it.”

References

1. O'Neill J. Review on Antimicrobial Resistance. Tackling Drug-Resistant Infections Globally (2016).
2. Rupasinghe, N., et al. 2024. Stopping the Grand Pandemic: A framework for Action – Addressing Antimicrobial Resistance through World Bank Operations. Washington, DC: World Bank.
3. Commonwealth Pharmacists Association. CwPAMS – Commonwealth Partnerships for Antimicrobial Stewardship.



Impact and Future Scope

- The “It’s all about Culture” infographic links optimal practices, highlighting different communication methodology and its importance in Supporting AMS.
- Best Practice Recommendations to guide when to sample (e.g. colonisation vs infection).
- Specimen checklists to encourage best practice for optimal sampling and transport to the laboratory to improve pre-analytical parameters that may adversely affect diagnostic results and lead to inappropriate and unnecessary treatment.
- SOPs to optimise and improve laboratory diagnostic processes including reporting in a timely manner and developing quality control measures to ensure accuracy of results.
- Sample acceptance record for data collection to improve communication between teams, improve the quality of samples received and facilitate sample audits.
- Resources launched via online webinar and supported by the team via Pulse platform.
- Data from sample acceptance record will be analysed to evaluate quantity and quality of samples received in the laboratory as a measure of service improvement.
- Four additional SOS kits currently in development for CSF, Sputum, throat swabs and genital samples.
- Pre and post toolkit resource implementation will be collected in the form of questionnaires to assess the impact.

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