of low quality. High rates of antimicrobial resistance is in part related to diagnostic uncertainty and resultant inappropriate antimicrobial therapy. There is a need to strengthen microbiology capacity for improved patient care, surveillance and global health security.

Capacity strengthening requires recognition of the importance of microbiology across all levels of health care. Development of skilled scientists is best served by standardised undergraduate training programs, with specialist postgraduate training in microbiology. Mentoring is a successful method for improving knowledge and allows for development of essential relationships that are necessary to effect change. Implementation of contextually appropriate standard operating procedures, international standards for susceptibility testing, quality control and external quality assurance are required. Mass clinician understanding is necessary for pre and postanalytical quality. Systematic collection of quality specimens is essential for development of national and regional surveillance systems. Increased donor support, including provision to purchase and maintain essential equipment and consumables, is required.

PHAGE THERAPY FOR ANTIBIOTIC RESISTANT BACTERIA

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Bacteriophage therapy offers new options in the age of antibiotic resistance. In this session, we discuss both the long history and recent experience of phage therapy and examine the advantages and disadvantages of this therapeutic approach.

Recent experience confirms that it can be used safely, including in high doses intravenously in the critically ill, but also highlight some of the most important unknowns around dosing schedules and combination therapy.

We will outline the questions that remain open after a century of clinical use and discuss the immediate options and priorities for further research and development

THE ART OF DIAGNOSTIC STEWARDSHIP

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The last twenty years have seen a 'flood' of new microbiology assays being adopted by the clinical diagnostic microbiology laboratory; multiplex PCRs, gene probes, FISH, etc. But in general, these assays have been in addition to, as opposed to replacing, more traditional culture-based microbiology tests.

Given that we all have to meet budgets, it is now time to closely look at the clinical value that some of the more traditional microbiology tests are providing to our patients, and what we can do as a profession to maximise clinical value and minimise clinical harm. Do we have to process everything that arrives in the laboratory? What specific sample types provide little clinical value to the patient? Do we have to process samples that have no or insufficient clinical details? How can the microbiology laboratory influence the antimicrobial prescribing habits of clinicians? These questions are discussed in detail, highlighting the increasingly important role that clinical microbiologists and

microbiology scientists play in the implementation of effective diagnostic and antimicrobial stewardship.

ASSURING RESULT QUALITY: EMERGING AND BIOSECURITY MICROBIOLOGICAL AGENTS

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Background: Quality assurance (QA) of testing is important for our ability to be certain results we provide to patients are accurate and definitive. Testing agents of biosecurity concern includes Security Sensitive Biological Agents (SSBA) such as Tier 1 agents (anthrax, Ebolavirus, influenza, HPAI, SARS, smallpox, plague) and Tier 2 agents (swine fever, botulism, Tularemia, yellow fever, etc). Test QA is limited by need for containment at BSL3 and BSL4 level, difficulties accessing reagents due to serious public health consequences of organism release, and increasing regulation.

Methods in providing QA: The Biosecurity Quality Assurance Program (BSQAP) was formed after 2008 when the SSBA Regulatory Scheme for control of select agents was established. The program addresses the unique problems of SSBA by utilising novel methods for QA, including subgenomic non-infectious molecular targets, online e-learning, and recently whole genome sequencing (WGS) programs assessing new technologies.

Discussion: Emerging technologies (multiplex Biofire systems, WGS) and continuing emergence of novel threats (Ebolavirus, HPAI) mean laboratories need rapid, accurate QA support. Tests introduced nationally by reference laboratories in response to emergent threats often lack prior QA, experience, and appropriate reagents. Addressing these systematically through regulatory preparedness (the 'PHLN' module, early governmental engagement), novel methodologies (above), high level engagement (Commonwealth, WHO, AFP) and expertise has assisted successful public health responses.

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SEPSIS AND THE ROLE OF BLOOD CULTURES – HOW ARE LABORATORIES PERFORMING?

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