Introduction

Antimicrobial resistance (AMR) is a leading worldwide threat to the wellbeing of patients, and the safety and quality of health care. AMR is developing at an alarming pace. Resistance often occurs within months of the release of new antimicrobials, and the resistance incidence rates outstrip drug discovery and the development of new antibiotics. The world is now facing the very real possibility of a return to non-treatable infections, severe limitations on medical procedures and escalating healthcare costs.

Conducted within the auspices of AMR Standing Committee, this study examines the current activities for the surveillance of AMR and antibiotic usage within Australia, to determine the enablers of, and barriers to, establishing a nationally coordinated approach to the surveillance of AMR and antibiotic usage.

Aims

To investigate, with respect to human health:
1. What activities for the reporting and surveillance of AMR and antibiotic usage currently occur globally?
2. What options or models for a nationally coordinated approach to the reporting and surveillance of AMR and antibiotic usage are most applicable to the Australian context?
3. What are the enablers of, and barriers to, the establishment of a nationally coordinated approach to the reporting and surveillance of AMR and antibiotic usage in Australia?

Recommendations: National Coordination

The enhancement of existing Australian systems of data gathering and reporting on patterns of AMR and antibiotic use, and establishing national coordination through a single national coordinating centre to oversee the following activities:
• Reporting on the number and outcomes of patients infected with resistant bacteria, and establishing an alert system to notify clinicians and policy makers of emerging and re-emerging highly resistant bacteria.
• Collecting and collating national data on AMR and antimicrobial use in humans from healthcare facilities and the community to provide information on resistant organisms and illness due to these organisms, and the impact of usage patterns on the development of bacterial resistance that would inform national action.

Without comprehensive and coordinated surveillance systems, efforts to prevent and contain AMR may be misdirected and inefficient, whereby poor practices such as inappropriate therapy result in wasted limited resources, and harm and human suffering through the inability to provide an effective drug to patients in need.

A generic model for antimicrobial surveillance

1. Laboratory testing
A surveillance system for AMR is driven by laboratory data. To ensure that data are comparable, two approaches are taken:
• send isolates to a limited number of reference laboratories for analysis and reporting
• standardise protocols across the participating laboratories, and enforce participation in external quality assurance programs.

2. Pathology database
3. Data extraction, standardisation, entry and validation
4. Aggregated laboratory dataset
5. Data analysis
6. Public reporting
7. Restricted reporting

Important features identified by key Australian stakeholders:
1. recognising AMR containment as a national health priority with a long-term commitment to improving surveillance
2. establishing clear roles and responsibilities for national coordination (including clarifying the role of state and territory organisations)
3. establishing effective national leadership to coordinate decisions and agreement among key sectors
4. confirming availability of dedicated government (public) funding.