



Australian Government

**Australian Government response to the 2013 Senate Finance and Public
Administration References Committee report:**

*Progress in the implementation of the recommendations of the 1999 Joint
Expert Technical Advisory Committee on Antibiotic Resistance*

March 2019

INTRODUCTION

The Australian Government recognises that increasing antimicrobial resistance (AMR) is a significant global health priority, largely driven by the global misuse of antibiotics in human health, animal health, agriculture and animal husbandry.

In response to the global health priority of AMR, *Australia's First National Antimicrobial Resistance Strategy 2015–2019* (the Strategy) was released in June 2015. The overall goal of the Strategy is to minimise development and spread of AMR and to ensure continued availability of effective antimicrobials.

The Strategy takes a 'One Health' approach, meaning it takes action across human health, animal health, agriculture, food, and the environment. The Strategy groups actions to reduce AMR under seven key objectives:

1. Increase awareness and understanding of AMR
2. Promote proper use of antimicrobials through effective stewardship practices
3. Monitor AMR and the use of antibiotics in Australia through nationally coordinated One Health surveillance
4. Prevent infections and the spread of AMR by improving infection prevention and control measures
5. Prevent, detect and contain AMR by agreeing on a national research and development plan
6. Strengthen international partnerships to help the global response to AMR, and
7. Build clear governance arrangements to guide actions to address AMR.

For more information on the Strategy please see www.amr.gov.au.

The Senate Finance and Public Administration References Committee's report *Progress in the implementation of the recommendations of the 1999 Joint Expert Technical Advisory Committee on Antibiotic Resistance* (JETACAR), released in June 2013, makes 10 recommendations relating to enhanced monitoring and reporting of antibiotic usage and resistance in animals and humans, strengthening antibiotic stewardship and infection control measures in both acute and primary care settings, and increasing investments in research.

This response addresses these recommendations and has been prepared by the Department of Health, incorporating input from other Australian Government agencies, including:

- Australian Commission on Safety and Quality in Health Care
- National Health and Medical Research Council
- Department of Agriculture and Water Resources
- Australian Pesticides and Veterinary Medicines Authority, and
- Department of Industry, Innovation and Science.

OVERVIEW

In summary, the Australian Government's position against the JETACAR recommendations is:

- 1. The committee recommends that the Commonwealth establish an independent body or national centre, to develop a strategy, report publicly on resistance data and measures taken to combat antimicrobial resistance and to manage the response to antimicrobial resistance in Australia.**

Partially agreed - The Australian Government does not agree to establish an independent body, however, it does agree there is a need for national coordination of Australia's efforts to prevent and contain AMR. This is being led by the Australian Government.

- 2. The committee recommends that the independent body be resourced to implement a rigorous monitoring and reporting regime of antibiotic use in humans and animals and of multiple drug resistant infections in humans and animals.**

Partially agreed - Monitoring and reporting of antibiotic use in humans and animals and of multiple drug resistant infections in humans and animals is being coordinated by the Australian Government.

- 3. The committee recommends that the voluntary reporting of the quantity of antimicrobials sold by volume be made mandatory for the registrants of antimicrobials.**

Noted - Australia has a mix of voluntary, incentive-based and legislative mechanisms to collect data on the quantity of antibiotics sold in, or imported into, Australia for use in humans and animals.

- 4. The committee recommends that the Australian Pesticides and Veterinary Medicines Authority:**

- a. publish, as a matter of priority, the antibiotic usage report for the period 2005-06 to 2009-10; and**
- b. publish antibiotic usage reports on an annual basis and within 18 months of the end of the relevant financial year**

Agreed in-principle - The report *Quantity of Antimicrobial Products Sold for Veterinary Use in Australia 2005-2010* was released in March 2014, and is available at www.apvma.gov.au/node/11816.

- 5. The committee recommends that the Australian Commission on Safety and Quality in Health Care considers mechanisms to improve coordination and tighten access to antimicrobials in healthcare services, particularly in relation to any new antimicrobials that become available.**

Partially agreed - The Commission does not have the statutory authority to regulate the use of existing and new antibiotics. That function rests with the Therapeutic Goods Administration.

- 6. The committee recommends that the Department of Health investigate additional mechanisms to improve antibiotic stewardship in general practice.**

Agreed - The Australian Government agrees the Department of Health should investigate additional mechanisms to improve antibiotic stewardship (AMS) in general practice.

- 7. The committee recommends that consideration be given to banning all antibiotics listed as ‘critically important in human medicine’ by the World Health Organization for use in animals in Australia.**

Noted - Australia has adopted one of the most conservative approaches to the use of antimicrobials in agriculture in the world. In the December 2015 United Kingdom report *Antimicrobials in Agriculture and the Environment: Reducing Unnecessary Use and Waste*, Australia was listed as the fifth lowest user (of 29 countries surveyed) of antibiotics in animals.

- 8. The committee recommends that the Australian Commission on Safety and Quality in Health Care coordinate the development of a national system of enhanced infection control including minimum hospital inpatient infection control standards, and standards for community health practices and aged care facilities.**

Partially agreed - The Commission has implemented systems to improve infection control in hospitals. Infection control measures in other settings are the responsibility of other organisations.

- 9. The committee further recommends that the Commonwealth consider further support for research and development in infection control in farmed animals with the goal of reducing the need for the use of antibiotics in agriculture, taking into account the costs and impacts of proposed measures on animal health and farming practices.**

Agreed in-principle - The Australian Government supports measures that would sustainably reduce the need for the use of antibiotics in agriculture.

- 10. The committee recommends that the Commonwealth consider measures to support research into strategies to deal with antimicrobial resistance, including research into new antibiotics and consideration of antimicrobial resistance being designated a National Research Priority Area.**

Agreed - AMR fits within the current National Research Priority Areas. More detail on the Australian Government’s commitment to support research into strategies to deal with AMR is provided in other documents such as the National AMR Strategy.

Recommendation 1

The committee recommends that the Commonwealth establish an independent body or national centre, to develop a strategy, report publicly on resistance data and measures taken to combat antimicrobial resistance and to manage the response to antimicrobial resistance in Australia.

The Australian Government partially agrees with this recommendation.

The Australian Government does not agree to establish an independent body, however, it does agree there is a need for national coordination of Australia's efforts to prevent and contain AMR. This is being led by the Australian Government.

The Australian Government has established the Antimicrobial Resistance Prevention and Containment (AMRPC) Steering Group to undertake the important role of providing leadership, oversight and coordination of Australia's efforts to prevent and contain AMR. This included the development and implementation of *Australia's First National Antimicrobial Resistance Strategy 2015-2019*.

The work of the AMRPC Steering Group is underpinned by a One Health approach, which provides a coordinated, collaborative, multidisciplinary and cross-sectoral approach in the development of health strategies for people, animals and the environment¹. The AMRPC Steering Group is co-chaired by the Australian Government Chief Medical Officer and the Australian Government Chief Veterinary Officer, and includes senior officials from the Department of Health and the Department of Agriculture and Water Resources.

In June 2015, the Australian Government released *Australia's First National Antimicrobial Resistance Strategy 2015-2019* (the Strategy). The Strategy represents the first national, cross-sectoral response to the threat of AMR in Australia. It focuses predominantly on bacterial resistance and the rapid development of resistance to antibiotics as the area of greatest concern.

The Strategy is supported by an Implementation Plan, which identifies activities that are being undertaken by the Australian Government, state and territory governments and non-government organisations to contribute towards the achievement of the Strategy's objectives.

The AMRPC Steering Group will ensure there is accountability for progress and outcomes during the implementation of the Strategy, and will report publicly on progress.

The Australian Strategic and Technical Advisory Group on AMR (ASTAG) provides expert technical advice to the AMRPC Steering Group on current and emerging issues, research priorities and implementation approaches to support the Strategy. ASTAG members include representatives of key stakeholder organisations from across the animal and human health, food and agriculture sectors and state and territory governments. ASTAG is co-chaired by the Australian Government Chief Medical Officer and Chief Veterinary Officer, facilitating the effective feedback of advice to the AMRPC Steering Group to ensure that actions under the Strategy are effectively and efficiently implemented.

The Australian Commission on Safety and Quality in Health Care (the Commission) established a national AMR and antimicrobial usage surveillance system for human health

¹ One Health Global Network: One Health: a concept that became an approach and then a movement – http://www.onehealthglobal.net/?page_id=131

(referred to as the AURA Surveillance System). The AURA Surveillance System is funded by the Australian Government Department of Health and coordinates data from a range of sources, including:

- the Australian Group on Antimicrobial Resistance
- the National Antimicrobial Utilisation Surveillance Program
- the National Antimicrobial Prescribing Survey, and
- Queensland Health's OrgTrx.

The National Centre for Antimicrobial Stewardship manages the National Antimicrobial Prescribing Survey (NAPS). The survey audits antimicrobial prescribing patterns and identifies where changes can be made to improve prescribing in human health. The survey audits antimicrobial prescribing patterns and identifies where changes can be made to improve prescribing in human health. The survey collects data from hospitals and residential aged care settings, including Hospital NAPS, Aged care NAPS, Surgical NAPS and Quality Improvement NAPS. A pilot is underway to implement NAPS in general practice.

One major output of the AURA Surveillance System is an annual report that provides integrated analysis of all available data on AMR and antimicrobial usage. *AURA 2016: First Australian report on antimicrobial use and resistance in human health* was released by the Commission in June 2016, with the second report, *AURA 2017: Second Australian report on antimicrobial use and resistance in human health* released in August 2017. The reports provide the most comprehensive picture of AMR, antimicrobial use and appropriateness of prescribing in Australia to date. The reports have established benchmarks against which we will be able to measure our performance and adjust focus over time.

Recommendation 2

The committee recommends that the independent body be resourced to implement a rigorous monitoring and reporting regime of antibiotic use in humans and animals and of multiple drug resistant infections in humans and animals.

The Australian Government partially agrees with this recommendation.

Monitoring and reporting of antibiotic use in humans and animals and of multiple drug resistant infections in humans and animals is being coordinated by the Australian Government.

The Australian Government recognises the importance of nationally integrated and coordinated surveillance of antimicrobial resistance and usage. Resistance and usage data are necessary to understand the magnitude, distribution and impact of resistant organisms, identify emerging resistance and trends, and determine associations between antimicrobial usage and resistance.

The AURA Surveillance System monitors and reports AMR and antibiotic usage in human health in Australia. The Commission established the AURA Surveillance System by engaging with a range of existing passive and targeted surveillance systems across hospital, community and aged care settings. Enhancement of these systems was supported by the Commission, where required, to ensure capacity and integration where gaps were identified. The Commission also established a national alert system to inform clinicians and policy-makers and infection control programs about critical AMR trends.

The Department of Agriculture and Water Resources has commissioned an analysis of antimicrobial usage monitoring and AMR surveillance activities in the animal and agriculture sector in Australia and overseas. This work provides options for the establishment of a

nationally coordinated approach to AMR surveillance and monitoring of antimicrobial usage in the animal and agriculture sectors appropriate for the Australian context. AMR surveillance proof-of-concept projects are being undertaken or developed in several food animal sectors. These surveillance projects will provide comparable data on resistance levels in key bacteria within various food animal industries.

These systems are being developed with the future goal of achieving an integrated One Health surveillance system that includes data from human health, animal health and agriculture, to provide a complete picture of AMR and antimicrobial usage in Australia.

The Department of Health is currently exploring options to better engage jurisdictions in the surveillance of AMR and antimicrobial usage to ensure that appropriate actions are taken at the jurisdictional and local levels in response to a threat to patient safety and population health.

Recommendation 3

The committee recommends that the voluntary reporting of the quantity of antimicrobials sold by volume be made mandatory for the registrants of antimicrobials.

The Australian Government notes this recommendation.

Australia has a mix of voluntary, incentive-based and legislative mechanisms to collect data on the quantity of antibiotics sold in, or imported into, Australia for use in humans and animals. For example, the collection of dispensing data for medicines supplied for human use under the Pharmaceutical Benefits Scheme (PBS) or Repatriation Pharmaceutical Benefits Scheme allows the volume of subsidised antibiotics to be determined. Aggregated data are available through the Department of Human Services website and the PBS website. Analyses of these data are also reported from time-to-time by the Drug Utilisation Sub Committee of the Pharmaceutical Benefits Advisory Committee (PBAC).

Hospital antimicrobial usage is captured through the National Antimicrobial Utilisation Surveillance Program (NAUSP), which is an AURA Surveillance System partner. Over 90 percent of principal referral hospitals nationally contribute to the NAUSP. Data are reported nationally from this program every year by the Commission in collaboration with SA Health which manages the NAUSP. Enhancements to the system funded via the AURA Program were activated in early 2017 to enable services to interrogate their own data, identify problem areas, and adjust stewardship approaches in response.

Australia's system for regulating agricultural and veterinary (agvet) chemicals is a shared responsibility between the Australian Government and state and territory governments. Under the National Registration Scheme (NRS) for agricultural and veterinary chemicals, state and territory governments are responsible for control of use issues, including storage, possession, recording and reporting requirements.

The Australian Pesticides and Veterinary Medicines Authority (APVMA) has sales information on all agricultural and veterinary chemical products, which is recorded as part of an annual levy process. The *Agricultural and Veterinary Chemicals Code Act 1994 (Agvet Code)* provides for data collection on all agricultural and veterinary active constituents.

The *Agricultural and Veterinary Chemicals (Administration) Act 1992* requires importers, exporters and Australian manufacturers of agricultural or veterinary products and active constituents to provide the APVMA, on an annual basis, the quantities of active constituents,

including antimicrobials, that are imported, manufactured or exported. The APVMA is required to provide this information to the Department of Agriculture and Water Resources.

The Department of Agriculture and Water Resources is developing improved legislative reporting processes to facilitate compliance by registrants, provide information to support the Australian Government surveillance of antimicrobial resistance and minimise the regulatory burden on industry.

The Department of Agriculture and Water Resources is also working with senior state and territory officials on a number of potential reforms to agvet control-of-use regulation, such as nationally-harmonised minimum training, licensing and record keeping requirements, as well as veterinary prescribing and compounding rights. The Australian Government will continue to encourage national coordination of these matters.

Recommendation 4

The committee recommends that the Australian Pesticides and Veterinary Medicines Authority:

- publish, as a matter of priority, the antibiotic usage report for the period 2005–06 to 2009-10; and
- publish antibiotic usage reports on an annual basis and within 18 months of the end of the relevant financial year.

The Australian Government agrees in-principle with this recommendation.

The report *Quantity of Antimicrobial Products Sold for Veterinary Use in Australia 2005-2010* was released in March 2014, and is available at www.apvma.gov.au/node/11816. This report was prepared by the APVMA based on voluntary collection of relevant data.

Under current legislation, registrants are only required to provide wholesale sales data to the APVMA as part of the annual levy process. Separately, registrants provide details of the quantities of active constituent incorporated into products that are imported, manufactured or exported under the *Agricultural and Veterinary Chemicals (Administration) Act 1992*.

As noted at Recommendation 3, the Australian Government is considering improved reporting processes via the *Agricultural and Veterinary Chemicals (Administration) Act 1992*.

Recommendation 5

The committee recommends that the Australian Commission on Safety and Quality in Health Care considers mechanisms to improve coordination and tighten access to antimicrobials in healthcare services, particularly in relation to any new antimicrobials that become available.

The Australian Government partially agrees with this recommendation.

The Commission does not have the statutory authority to regulate the use of existing and new antibiotics. That function rests with the Therapeutic Goods Administration.

The Australian Government has used the PBS as a mechanism to ensure that the approval for antibiotics subsidised under the PBS encourages judicious and appropriate use. Antibiotics are listed on the PBS based on recommendations by the PBAC. While access to some older antibiotics is unrestricted on the PBS, for newer antibiotics listed on the PBS access is mostly restricted to a small number of indications to encourage the rational use of antibiotics.

While the Commission does not have the authority to regulate the use of antimicrobials, it has a key role in improving antibiotic usage. In 2013, the Commission introduced the *National Safety and Quality Health Service (NSQHS) Standards* which require every Australian hospital and day procedure service to implement antimicrobial stewardship programs. With the introduction of these Standards, Australia leads the world in mandated requirements for antimicrobial stewardship in hospitals and day procedure services. The Standards have played a significant role in promoting the importance of antimicrobial stewardship in hospitals. The *National Safety and Quality Health Service Standards Second edition* was released publicly in November 2017 (www.safetyandquality.gov.au).

Surveillance is essential to our understanding of what and where the problems are, and how best to respond to avoid the spread of resistance. Data on antibiotic usage will highlight areas where there is inappropriate antimicrobial usage, and will inform the development of effective antimicrobial stewardship initiatives for healthcare services. One recent key initiative which has been significantly enhanced to support the AURA Surveillance System is the National Antimicrobial Prescribing Survey (NAPS). Online audit tools have been developed for hospitals, residential aged care facilities and multi-purpose services. A specialised surgical antimicrobial prophylaxis audit tool has also been developed. The audit tools are used by health facilities to assess antimicrobial prescribing practices and appropriateness of prescribing. Data are reported nationally from this program every year by the Commission, in collaboration with the National Centre for Antimicrobial Stewardship which conducts the NAPS. Services are able to interrogate their own data, identify problem areas, and adjust stewardship approaches in response.

Recommendation 6

The committee recommends that the Department of Health investigate additional mechanisms to improve antibiotic stewardship in general practice.

The Australian Government agrees with this recommendation.

The Australian Government agrees the Department of Health should investigate additional mechanisms to improve antibiotic stewardship (AMS) in general practice. While much has been done to ensure effective AMS arrangements are now standard practice in Australian hospitals, there is a growing need for evidence-based mechanisms to support AMS in general practice settings.

To address this need, the Department of Health funded a consortium led by the University of Queensland to pilot an integrated package of evidence-based interventions in general practice, referred to as the General Practitioners Antimicrobial Stewardship Study (GAPS), which is aimed at improving antibiotic stewardship in general practice. The package targeted the reduction of antibiotic prescribing rates for acute respiratory infections and comprised of a delayed prescribing protocol, shared decision making and patient decision aids, communication training, and a poster on practice prescribing policy for antibiotics. The GAPS included an assessment of the cost-effectiveness of interventions.

The Department of Health has also provided funding to Melbourne Health to conduct a pilot of the National Antimicrobial Prescribing Survey in general practice (gpNAPS). The data obtained through gpNAPS will feed into the national surveillance system (AURA) to inform the overall picture of AMR and antimicrobial usage in Australia. It will also provide immediate insights on prescribing practices in general practice, which will inform future work

to improve antibiotic prescribing in general practice. The pilot is anticipated to be completed by May 2018 and will be made publicly available.

Similarly, accreditation against the Royal College of General Practitioners (RACGP) Standards for General Practices and accreditation standards for aged care facilities also encourage the implementation of antimicrobial stewardship programs in general practice and aged care settings. The Australian Government will look for opportunities to work with learned colleges to review and strengthen accreditation and quality assurance programs to ensure they support and encourage compliance with best practice antimicrobial stewardship approaches.

NPS MedicineWise currently operates a national program called MedicineInsight, which collects longitudinal clinical data from general practices. The data includes use of medicines, switching of medicines, indications for prescribing, adherence to guidelines, and pharmacovigilance to support post-market surveillance of medicine use in primary care, and to support general practices' improvement in quality use of medicines and medical tests.

The Australian Government Chief Medical Officer is working with the profession in an effort to decrease inappropriate antibiotic prescribing in general practice by:

- sending individual letters to the top 30% antibiotic prescribers in general practice warning about antibiotic resistance
- identifying GP prescribing targets for antibiotics
- considering options in relation to the listing of antibiotics on the Pharmaceutical Benefits Scheme, and
- examining potential amendments to general practice prescribing software, including the removal of repeat antibiotic prescriptions as the default.

The Commission is currently updating *AMR in Australian Hospitals* to include implementation strategies for AMS programs in settings such as general practice, aged care, Aboriginal and Torres Strait Islander health services, dental practice, and rural and remote settings.

Recommendation 7

The committee recommends that consideration be given to banning all antibiotics listed as 'critically important in human medicine' by the World Health Organization for use in animals in Australia.

The Australian Government notes this recommendation.

Australia has adopted one of the most conservative approaches to the use of antimicrobials in agriculture in the world. In the December 2015 United Kingdom report *Antimicrobials in Agriculture and the Environment: Reducing Unnecessary Use and Waste*, Australia was listed as the fifth lowest user (of 29 countries surveyed) of antibiotics in animals.

The 1st edition of the WHO's *Critically Important Antimicrobials for Human Medicine* was developed in Canberra in 2005, with input from Australian experts. The current (5th) revision was published in 2017 and recommends that the list be used as a reference to help formulate and prioritise risk assessment and risk management strategies for containing AMR, and to inform national policies relating to AMR. It further notes that the list should not be used as the sole source of information for developing risk management strategies, or as the sole source of treatment guidelines for either animals or humans.²

² Critically Important Antimicrobials for Human Medicine, 3rd edition. WHO, 2011.
http://www.who.int/foodborne_disease/resistance/CIA_3.pdf

In addition to the WHO list, it is also important to note the World Organisation for Animal Health (OIE) list of *Antimicrobial Agents of Veterinary Importance*, which was most recently revised and adopted at both May 2013 and 2015 OIE General Sessions. There are clear conflicts between the WHO and OIE lists. For example, critically important antibiotics listed by the WHO including the penicillins, amoxicillin and penicillin G, and the aminoglycoside gentamicin, which are classified as fundamental first line antibiotics, are also included in the OIE list. In Australia, these antibiotics have been used in veterinary medicine for therapeutic purposes since they were first developed, with no significant evidence of resistance development in animals.

The Expert Advisory Group on Antimicrobial Resistance (EAGAR) developed the *Importance Ratings and Summary of Antibacterial Uses in Humans in Australia* ('Antibacterial Importance Ratings'), which was subsequently used as the basis for the first WHO list in 2005. Given the WHO list was developed to provide guidance to a global audience, a separate list specifically tailored to the Australian context was developed (the *Antibacterial Importance Ratings*). The *Antibacterial Importance Ratings* are regularly reviewed and updated by the ASTAG, most recently in February 2015.

The APVMA currently uses the *Antibacterial Importance Ratings* as an important guidance resource in assessing the consequence of AMR development associated with a proposed use of an antimicrobial product in animals. The Department of Agriculture and Water Resources, in consultation with ASTAG and APVMA, is considering other regulatory pathways to mitigate AMR in agriculture. For example, the department is preparing a series of minor and technical amendments to agvet legislation for government consideration, including a measure that requires the APVMA to consider AMR when determining whether safety criteria are met during product registrations. This measure would formalise the APVMA's existing practise. The Department is also exploring options to reserve certain antimicrobial drugs exclusively for human use via agvet legislation, in consultation with ASTAG who are developing a list of potential antimicrobials to reserve. This proposal is still in the early stages of development.

In light of the shared regulatory arrangements for agvet chemicals, the Department of Agriculture and Water Resources will also investigate methods for more effective engagement with state and territory regulators, to ensure regulatory actions at the Commonwealth level achieve the desired result of better management of AMR. The Veterinary Prescribing and Compounding Rights Working Group of the Agvet Chemicals Task Group presents an opportunity to directly address concerns about control-of-use via education, stewardship programs and stronger liaison with the Commonwealth. Furthermore, the Department of Agriculture and Water Resources will explore the requirements for limiting off-label use and access to unregistered veterinary products with the states and territories.

Recommendation 8

The committee recommends that the Australian Commission on Safety and Quality in Health Care coordinate the development of a national system of enhanced infection control including minimum hospital inpatient infection control standards, and standards for community health practices and aged care facilities.

The Australian Government partially agrees with this recommendation.

The Commission has implemented systems to improve infection control in hospitals. Infection control measures in other settings are the responsibility of other organisations.

The Commission plays an important role in providing national coordination and support for jurisdictions in meeting hospital infection prevention and control standards. In relation to community health practices and aged care facilities, there is also a range of other stakeholder groups that have a lead role in supporting these sectors.

From 1 January 2013, the NSQHS Standards were mandated in all Australian public and private hospitals and health service organisations' day procedure services. NSQHS Standard 3 provides significant impetus for continued improvement in infection, prevention and control (IPC) systems and compliance rates in hospitals, including through auditing and reporting of data. To ensure these efforts are sustained and have maximum impact, hospital IPC programs will continue to be refined as further experience of effective strategies is gained and shared. A formal review of the NSQHS Standards, including broad stakeholder consultation to identify any gaps and areas for improvement to better support the implementation of good IPC practices concluded in mid-2017. The *National Safety and Quality Health Service Standards Second edition* was released publicly in November 2017 (www.safetyandquality.gov.au).

In 2014, the Commission released the AMS Clinical Care Standard which describes best practice for managing and prescribing antibiotics regardless of setting. The nine quality statements are applicable for patients, for clinicians and for health services.

The *Australian Guidelines for the Prevention and Control of Infection in Healthcare* (the Guidelines) were published in 2010 and established a nationally accepted approach to IPC for health care settings, including for the management of resistant organisms. This approach can be applied to a wide range of healthcare settings, including office-based practice, long-term care facilities, remote area health services, home and community nursing and emergency services. These guidelines are currently being reviewed to identify gaps against the evidence base and any necessary revisions. In addition, a range of aged care resource materials have been developed as companion documents to the Guidelines, to further support their implementation in aged care.

The Commission is finalising a Guide and associated resources to assist healthcare organisations in the management of Carbapenemase-producing Enterobacteriaceae (CPE). *Enterobacteriaceae* is the name given to a family of bacteria or germs that normally live in our bowel (e.g. *Escherichia coli* or *E. coli*). *Carbapenems* are a group of antibiotics (for example, meropenem) that usually work against these bacteria. Some bacteria have become hard to treat because these antibiotics no longer work – the bacteria have become resistant to the antibiotics. These resistant bacteria are called Carbapenemase-producing Enterobacteriaceae (CPE).

The RACGP *Standards for General Practice* and *Infection Prevention and Control Standards for General Practices and other Office Based and Community Practices* support the implementation of IPC measures in general practice. The RACGP is currently developing the 5th edition of the *Standards for General Practice* to ensure they remain current and reflect contemporary general practice. The *Standards for General Practice* and *Infection Prevention and Control Standards for General Practices and other Office Based and Community Practices* were updated in 2014 and now include a greater focus on the role of the practice in the prevention of infection, in addition to the control of the spread of infection.

The *Aged Care Act 1997* requires approved providers of aged care homes to meet the Accreditation Standards (the Standards) to ensure that high quality care and services are provided to all residents. Standard 4: Physical environment and safe systems, requires that residents live in a safe and comfortable environment that ensures the quality of life and welfare

of residents, staff and visitors. Expected outcome 4.7 specifically requires an approved provider to ensure they have an effective infection control program in place.

Recommendation 9

The committee further recommends that the Commonwealth consider further support for research and development in infection control in farmed animals with the goal of reducing the need for the use of antibiotics in agriculture, taking into account the costs and impacts of proposed measures on animal health and farming practices.

The Australian Government agrees in-principle with this recommendation.

The Australian Government supports measures that would sustainably reduce the need for the use of antibiotics in agriculture. Support for research and development in infection control in farmed animals has been considered through both the ‘National research agenda’ and ‘Infection prevention and control’ objectives of the National AMR Strategy.

Consistent with agricultural research principles, the costs and benefits of introducing any novel infection prevention and control measure must be carefully considered in food animal antimicrobial resistance prevention strategies. The cost of impaired animal welfare must be considered in addition to production losses if antimicrobial use is reduced without effective infection prevention measures in place.

The development of novel vaccines and improving the efficacy of existing vaccines is an infection prevention and control measure strongly supported in the Strategy. Vaccinations are an essential component of effective livestock health programs, reducing rates of infection and negating the need for therapeutic and even prophylactic antimicrobials use. Given the vast differences in infection risks, systems and environments between different agricultural sectors, the Strategy reflects that further species specific support is required to assist farmers, aquaculture producers and livestock workers to implement effective infection prevention and control measures, minimise disease introduction and spread and thus reduce the need for antibiotic treatments. Industry sectors have developed biosecurity plans and some have incorporated biosecurity into their quality assurance programs.

The Australian Veterinary Association produces guidelines for veterinary personnel that set a minimum standard for infection control in animal hospitals and in the field.

Recommendation 10

The committee recommends that the Commonwealth consider measures to support research into strategies to deal with antimicrobial resistance, including research into new antibiotics and consideration of antimicrobial resistance being designated a National Research Priority Area.

The Australian Government agrees with this recommendation.

AMR fits within the current National Research Priority Areas. More detail on the Australian Government’s commitment to support research into strategies to deal with AMR is provided in other documents such as the National AMR Strategy.

The Medical Research Future Fund (MRFF), announced by the Australian Government in the 2014-15 Budget, is a dedicated vehicle for priority investment in health and medical research. The first MRFF disbursements address identified priorities under six key investment platforms. AMR was identified as a priority for 2016-18. \$5.9 million will be invested to support research

on antimicrobial usage and resistance in Australia. Research will be consistent with the achievement of the objectives of National AMR Strategy.

The agreement of a national research agenda and promotion of investment in the discovery and development of new products and approaches to prevent, detect and contain AMR is a major objective of the Strategy. The priority areas for action are:

- identify current gaps and agree national research and development priorities
- coordinate national research activities and the sharing of information
- explore opportunities to increase support for research and development, including incentives for greater private sector investment, and
- explore opportunities to support the translation of promising research findings into new products, policies and approaches.

Some critical gaps in our understanding of AMR are being examined through national research projects. The National Health and Medical Research Council (NHMRC) has invested over \$107 million in funding for research relating to AMR over the last 10 years. Since 2006, the funding awarded each year for research involving AMR has increased four-fold, from approximately \$5.2 million (across 12 grants), to approximately \$21.3 million (across 30 grants) in 2015. NHMRC currently funds two Centres of Research Excellence (CREs) examining various aspects of AMR. CREs focus on accelerating knowledge translation into changes in practice and policy and it is anticipated that these centres will make significant contributions to future research and research translation activities in Australia.

NHMRC's Corporate Plan for 2016-2017 identifies *preparing for rapid and unpredictable change* as a major health issue relevant to the next four years. It is anticipated that this will encourage more submissions of investigator-initiated applications relevant to emerging infectious diseases (including AMR).

The National Science and Research Priorities were established by the Australian Government in May 2015. The identification of the priorities and associated practical challenges was led by the then Chief Scientist, Professor Ian Chubb AC, and utilised expert working groups and consultation with researchers, industry leaders and government representatives. One of the nine priority areas is health, which supports research in the following challenge areas:

- Better models of health care and services that improve outcomes, reduce disparities for disadvantaged and vulnerable groups, increase efficiency and provide greater value for a given expenditure.
- Improved prediction, identification, tracking, prevention and management of emerging local and regional health threats.
- Better health outcomes for Indigenous people, with strategies for both urban and regional communities.
- Effective technologies for individuals to manage their own health care, for example, using mobile apps, remote monitoring and online access to therapies.

Research in antimicrobial resistance would be supported by this priority if it fits one of these areas. In setting the priorities, the Government committed to a two yearly review process. Any consideration of new or revised practical challenges or priorities would need to be considered during this process and in the context of the broader priority setting exercise. However, prioritising such a specific area is most appropriately done through targeted plans and strategies, such as the National AMR Strategy in this case.