The Australian Society for Microbiology
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Australian Society for Microbiology

Submission to the Senate Inquiry into the Joint Expert Technical Advisory Committee on Antibiotic Resistance (JETACAR)

February 2013

The Australian Society for Microbiology is a long-established leading scientific society in Australia whose members deal with all aspects of microbiology and infection. Its members, who number nearly 2000, are actively involved in research into these subjects, ranging from basic science and the pathogenesis of infectious diseases, to their prevention and control. Our members are also actively engaged in applied research aimed at the development of improved diagnosis and treatment. The great majority of current research and development in Australia into antimicrobial resistance is conducted by ASM members, many of whom have significant international collaborations.

This submission from ASM addresses Terms of Reference (b) and (d) of the Senate Inquiry

'Progress' since JETACAR in the Research Arena

Recommendation 18 of the JETACAR report (box below) recognised that there is much work to be done to reduce the antibiotic 'burden' and manage antibiotic resistance in Australia. The major themes of this recommendation are summarised in 9 dot points. It is a belief of many that Australia has squandered 'Florey's legacy', creating an environment of high antimicrobial use in all sectors (human and agricultural) with high risk for the emergence and spread of resistance. Howard Florey was a native Australian who did the basic and then applied research in Oxford to make the first truly valuable antibiotic, penicillin, available to the world. It is only through encouraging and enhancing this same type of research that Australia will be able to control resistance and prolong the life of 'Florey's legacy'.

Recommendation 18

That all relevant research funding agencies be asked to give priority to research into antibiotic resistance, including:

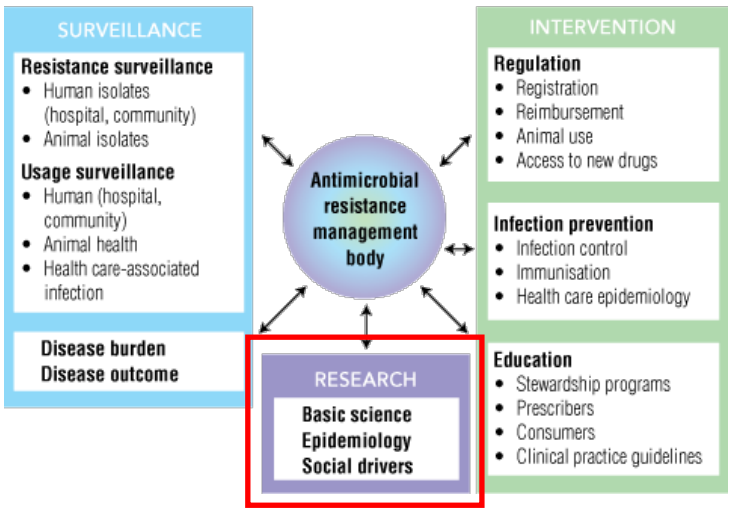
- alternatives to antibiotics for growth promotion;
- alternatives to antibiotics for prevention and treatment of infections (including vaccines);
- molecular epidemiology and mechanisms of gene transfer;
- population dynamics of antibiotic resistance;
- resistance epidemiology;
- pharmacoepidemiology;
- efficacy of interventions to reduce antibiotic prescribing and use;
- clinical efficacy studies; and
- rapid diagnostic tests.

Following the release of the JETACAR report, there was an initial flurry of activity in the research sphere. The Rural Industries Research and Development Corporation took the first steps and supported a number of research projects in a variety of agricultural pursuits. The search for alternatives to antibiotics in the food animal industries was strongly encouraged by some of the industry peak bodies (poultry and pork in particular). The National Health and Medical Research Council, which had a history of funding world-class basic research into antibiotic resistance mechanisms, continued their level of support through their project grant scheme. In addition, through their Expert Advisory Committee on Antimicrobial Resistance, the NHMRC conducted a 2-day workshop to develop a strategic research plan for antimicrobial resistance management in 2003. Subsequently, this strategic plan failed to receive any priority for funding from the NHMRC's Strategic Research Development Committee and interest lapsed. In an attempt to keep the research agenda alive, a bid for a Cooperative Research Centre into Antimicrobial Resistance Management was mounted soon after that, and although it made it to the last round, was in the end not supported. The enthusiasm for re-application soon waned; the required effort to overcome obvious barriers to antimicrobial resistance as an issue were thought insurmountable at that time.

Ultimately, despite the great inter-sector collaboration at the time of JETACAR, a comprehensive co-ordinated research plan for Australia has not been developed. After a few years the 'relevant research funding agencies' referred to in Recommendation 18 appeared to turn their attention to other issues, while continuing to fund some projects from individual investigators. This apparent disinterest may have had its genesis in the Commonwealth Response to JETACAR's Recommendation 18, which could be read to imply that Australia could just adopt the outcomes of research that was conducted overseas, and therefore wasn't obliged to foster local innovation. This response totally ignored the unique conditions present in Australia in both human health and agriculture. The intervening years has also not delivered the hoped for advances from overseas.

What Should Happen Now

Australia needs to get 'back in the saddle' on research into antimicrobial resistance management and the development of new antimicrobials. It is encouraging to know that the NHMRC has been included as an integral member of the newly-formed Antimicrobial Resistance Subcommittee of the Australian Health Principal Committee. The next step should be to re-establish an inter-sectorial group comprising members from all areas on antimicrobial use in Australia: community, hospitals, pharmacies (OTC), small and large animal veterinarians, food animal producers and peak funding agencies, to re-formulate a strategic research plan for antimicrobial resistance management in Australia. Such a group arises naturally from the outcomes of the Antimicrobial Summit held in 2011 (diagram).



In addition to strategies that enhance the nation's ability to more effectively manage the use of existing antimicrobials such that growing resistance is minimized into the future, we also need to commit resources to research and development that leads to new antimicrobial approaches in the short-term. Multi-drug resistant bacterial strains are a current and rising threat in our health care landscape and new antimicrobials are urgently required to combat them. The global pharmaceutical industry has dropped the ball with regards ongoing antibiotic and antimicrobial R&D and so small biotechnology companies and academic researchers are addressing this gap. Members of ASM are key players in driving innovative drug development on both the national and international stage, however only limited resources are currently being allocated through standard competitive granting schemes. Our peak funding agencies need to target more strategic and priority funding into this research area over the short to long term if we are to see significant translation of this excellent research into the clinical arena. We recommend the formation of an Innovation in Antimicrobials Research Steering Committee comprising members of the relevant antimicrobials research community, peak funding agencies, small biotech industry and clinical researchers to formulate strategic funding initiatives to drive research leading to antimicrobials development and implementation.

We believe that members of the Australian Society of Microbiology are among the best placed to deliver on key parts of the future resistance management research agenda for the country. With world-class skills in the basic science aspects of bacteriology, especially its molecular aspects, honed over decades, and its ever expanding skills in resistance epidemiology and ecology, ASM members are keen to provide the necessary tools to start tackling antimicrobial resistance at its source. As a learned society, ASM believes that it is only with a strong and stable research base that it will be possible for Australia to reduce the burdens of antimicrobial use and resistance that have put the country at risk of entering the post-antibiotic era.

John Turnidge, Immediate Past President

Paul Young, President

on behalf of the Council of the ASM