



Infectious diseases: far from a problem solved

A false sense of security has been generated by the great successes obtained with the deployment of antibiotics in the 20th century. It is crucial that the policymakers who drive large-scale research directions do not succumb to over-optimism and do not consider the "infectious disease problem" as solved. The facts are that infectious diseases caused by a wide variety of pathogens continue to be a grave threat to human health and still contribute to millions of deaths each year, and that the respite brought about by anti-infective drugs and vaccines is becoming increasingly compromised by antibiotic resistance. Morbidity and mortality associated with bacterial, viral and parasitic infections have recently increased as a consequence of clinical health practices and antibiotic usage, resulting in the emergence of new and more virulent strains that have caused devastating disease in the last decade. The potential for new pathogens to emerge, or for old pathogens to re-emerge, is very real, particularly in the context of populations with increased overall susceptibility such as the ageing population in Australia. Furthermore, a very serious and increasing public health problem on a global scale is that of drug-resistant nosocomial infections, which include (but are not limited to) those inflicted by MRSA (Methicillin-resistant *Staphylococcus aureus*), *Clostridium difficile*, and *Acinetobacter spp.*

In addition to the emergence of antibiotic resistance, the last few decades have witnessed a number of emergent novel infectious diseases, the most impact-bearing undoubtedly being the AIDS pandemic that began in the mid-80's following the transfer of an ape virus to humans. Several similar stories, often resulting from increased contact with wild ecosystems because of geographical expansion of human populations, have been documented, such as the terrifying disease outbreaks caused by infections with the filoviruses Ebola and Marburg. The SARS and Chikungunya episodes are still fresh in our collective memory. More recently, a new infectious livestock disease caused by the hitherto unknown Schmallenberg virus has just emerged in Western Europe (fortunately currently a problem of veterinary rather than medical importance), a dire warning that highly developed countries are not immune from the emergence of new pathogen-related threats. In this respect, the relatively low impact of the "avian flu" and "swine flu" episodes in recent years must not fool us into thinking a large-scale flu pandemic will forever be avoidable.

It is essential that our research community maintains a major component dedicated to pathogenic micro-organisms and to translational research aimed at developing novel control agents. This is further compounded by the current disengagement of the pharmaceutical industry from anti-infective drug and vaccine discovery. We urge the Review panel to continue to give infectious diseases research the highest priority level, which would be entirely commensurate with the threat that pathogens still represent for human communities throughout Australia, our close neighbours in the Asia/Pacific rim and indeed throughout the world.

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