Old and new global challenges in infectious diseases

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Unprecedented progress in the prevention and treatment of infectious diseases has been made worldwide, resulting in a major decrease in child and overall mortality and contributing to an epidemiological transition to chronic diseases. However, there is still a huge unfinished agenda: 1) Overall, the poor remain disproportionately affected by infectious diseases and their consequences; 2) The end of HIV/AIDS, TB and malaria is not in sight; 4) Immunisation rates are highly variable, and vaccine refusal is growing in many countries; 5) The historic gap between prevention and treatment continues. In addition, new challenges are emerging: 1) Antimicrobial, antiviral and insecticide resistance are rapidly increasing in a wide range of pathogens, including enteric bacteria, M.tuberculosis, Plasmodium sp, HIV, and anopheles; 2) Co-morbidity with chronic diseases is rising, such as treated chronic HIV infection and cardiovascular and metabolic disorders, or TB and diabetes; 3) New pathogens will continue to emerge; 4) Urbanisation and migration; 5) Climate change, environmental degradation and natural disasters. At the same time numerous opportunities are arising to respond more effectively to infectious diseases: 1) New drugs and vaccines, such as to cure hepatitis C; 2) Simple point of care diagnostics; 3) Genomics and microbiomics; 4) More effective disease surveillance and early warning; 5) New approaches to disease prevention, such as using mobile technology and behaviour economics.

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Horizontal versus vertical infection prevention strategies

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Strategies to decrease healthcare-associated infections (HAIs) can be classified into two different categories: horizontal and vertical. Horizontal strategies are universally-applied, population-based strategies that target all pathogens that are transmitted via the same mechanism. Examples of this strategy include hand hygiene, chlorhexidine bathing and the deployment of care bundles. Vertical strategies target individual pathogens that are deemed to be particularly important and involve high impact, active detection and isolation. Given the finite resources available to many infection control programs, focusing on high-impact strategies is the resource costs associated with these programs; money and time dedicated to these programs comes at a cost to other infection control initiatives that often have greater impact.

Models suggest that horizontal infection control approaches will be more successful (in terms of rates of infections with major pathogens and cost) than vertical strategies. Recently, a large multicenter cluster-randomized study by Huang and colleagues showed that universal decolonization (a horizontal strategy) was more effective at reducing MRSA-positive clinical cultures and bloodstream infections from any pathogen when compared to active detection and isolation. Given the finite resources available to many infection control programs, focusing on high-impact strategies that cut across all organisms with similar mechanisms of transmission is logical.

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Healthcare personnel (HCP) attire in acute-care, non-surgical settings

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Healthcare personnel (HCP) attire is an aspect of the medical profession steeped in culture and tradition. The role of attire in cross-transmission remains poorly established and until more definitive information exists, priority should be placed on evidence-based measures to prevent hospital acquired infections (HAI). This presentation will review the medical literature regarding a) perceptions of HCP attire from the perspective of patient and providers b) evidence for contamination of attire and its potential contribution to cross-transmission. Although the optimal choice of HCP attire for inpatient care remains undefined, recommendations on the use of white coats, neck ties, footwear, the bare-below-the-elbows strategy, and laundering will be covered.

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