



2015 Infection Control July Newsletter # 6

What's new in infectious disease and prevention, immunisation & treatment?

I have recently attended my annual microbiology conference and want to share some of the information now available in relevant microbiology as well as updates in Ebola for an upcoming presentation.

From my ASM (Australian Society for Microbiology) conference notes earlier in July

1. 70% of emerging infectious diseases are being transmitted from animals. This is due to clearing of forest which destroys natural habitat of animals which brings them in closer contact with humans e.g. bats, climate change which alters distribution of vectors e.g. mosquitoes and dam building. A proposed expansion of the Ord River project will create its problems in infectious diseases in Northern Australia.
2. MERS, a corona virus (same group as SARS) for which bats are the host, is amplified in camels. Human infection has occurred in 85 countries but extremely high in South Korea. It seems family members spent a lot of time at bedside with their hospitalised contacts i.e. prolonged exposure time (valuable information - not the sort of experiment you would get past the ethics committee)
3. The index case from the recent Ebola outbreak was a 2 year old boy who was playing with a bat. The edge of his village was near a mine which had been established once the forest had been cleared, hence the bats had been displaced and were seeking forested areas closer to town and humans.
4. The risk to public health from influenza is much greater than from Ebola. Even though the mortality rate from Ebola is 40-60%, we can more easily limit its spread than Influenza where mutations occur more frequently, raising the risk of a more readily transmissible highly virulent strain emerging.
5. The bird flu (H5N2) see italics below, is about 10 mutations away from being able to pass human to human. It is transmitted bird to human with a mortality rate of around 50% (Spanish flu mortality rate was probably around 10% and that reportedly killed more people than the first world war and paralysed travel, government and business operation for two years). Chickens infected with this strain do not get sick and therefore pose a huge risk to human. *(From CDC - Doctors and state health officials should be on the lookout for people infected with the H5N2 bird flu virus, which has spread to at least 20 states this year. While no humans have been diagnosed with either H5N2 or H5N8 avian influenza, the virus' expansion across the country has caused more than 200 outbreaks among chickens, turkeys and other birds. It has killed or forced the slaughter of more than 45 million birds. While these recently identified HPAI H5 viruses are not known to have caused disease in humans, their appearance in North American birds may increase the likelihood of human infection in the United States).*
6. Ebola vaccine is in developmental stages and offers promise. Trials are being carried out.
7. Multiresistant genes are being detected for some classes of disinfectants. However, these genes are not plasmid borne (plasmids are extrachromosomal DNA in bacteria - plasmid borne genes can more readily pass this resistance to other bacteria than genes in the nucleus) but this may be indicating that indiscriminate use of disinfectants could lead to the same situation we have with antibiotic resistance.
8. We are familiar with Hospital Acquired MRSA (HA-MRSA), Community Acquired MRSA (CA-MRSA). Now consider Livestock Acquired MRSA (LA-MRSA). where resistance in livestock is now transferring to humans. An example is the emergence of VRE where pigs were given an analogue of vancomycin.
9. To avoid upsetting the microbiologist, MRSA is methicillin resistant *Staph aureus* not multi resistant.
10. It takes energy for the bacteria to code for antibiotic resistance - therefore it sheds these in the absence of antibiotics. Here is the answer to our misuse of antibiotics - keep them for the very sick!