A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO INFECTIOUS DISEASE –

Some available as free full-text and some requiring payment

Selection of readings made by A/Prof Goh Lee Gan

READING 1 – EMERGING AND RE-EMERGING ARBOVIRAL DISEASES IN SOUTHEAST ASIA

Dash AP, Bhatia R, Sunyoto T, Mourya DT. Emerging and re-emerging arboviral diseases in Southeast Asia. J Vector Borne Dis. 2013 Apr-Jun;50(2):77-84. Review. PubMed PMID: ¬¬23995308.

URL: http://www.mrcindia.org/journal/issues/502077.pdf -- full free text

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ABSTRACT

Arthropod-borne viruses (arboviruses) have become significant public health problems, with the emergence and re-emergence of arboviral diseases nearly worldwide. The most populated Southeast Asia region is particularly vulnerable. The arboviral diseases such as dengue (DEN), Japanese encephalitis (JE), West Nile virus (WNV), chikungunya fever (CHIK), hemorrhagic fevers such as Crimean-Congo hemorrhagic (CCHF) fever, Kyasanur forest disease virus (KFDV), etc. are on the rise and have spread unprecedentedly, causing considerable burden of disease. The emergence/re-emergence of these diseases is associated with complex factors, such as viral recombination and mutation, leading to more virulent and adaptive strains, urbanization and human activities creating more permissive environment for vector-host interaction, and increased air travel and commerce. Climate is a major factor in determining the geographic and temporal distribution of arthropods, the characteristics of arthropod life cycles, the consequent dispersal patterns of associated arboviruses, the evolution of arboviruses; and the efficiency with which they are transmitted from arthropods to vertebrate hosts. The present and future arboviral threats must be mitigated by priority actions such as improving surveillance and outbreak response, establishing collaboration and communication intersectorally, and strengthening the prevention and control programmes along with improving biosafety aspects with regards to highly infectious nature of these arboviral diseases. Evidence from research needs to be generated and priority areas for research defined.

PMID: 23995308 [PubMed - indexed for MEDLINE]

READING 2 – NEGLECTED TROPICAL DISEASES OF OCEANIA

Kline K, McCarthy JS, Pearson M, Loukas A, Hotez PJ. Neglected tropical diseases of Oceania: review of their prevalence, distribution, and opportunities for control. PLoS Negl Trop Dis. 2013;7(1):e1755. doi: 10.1371/journal.pntd.0001755. Epub 2013 Jan 31. Review. PubMed PMID: 23383349; PubMed Central PMCID: PMC3561157.

URL: http://www-ncbi-nlm-nih-gov /pmc/articles/PMC3561157/ -- full free text

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ABSTRACT

Among Oceania's population of 35 million people, the greatest number living in poverty currently live in Papua New Guinea (PNG), Fiji, Vanuatu, and the Solomon Islands. These impoverished populations are at high risk for selected NTDs, including Necator americanus hookworm infection, strongyloidiasis, lymphatic filariasis (LF), balantidiasis, yaws, trachoma, leprosy, and scabies, in addition to outbreaks of dengue and other arboviral infections including Japanese encephalitis virus infection. PNG stands out for having the largest number of cases and highest prevalence for most of these NTDs. However, Australia's Aboriginal population also suffers from a range of significant NTDs. Through the Pacific Programme to Eliminate Lymphatic Filariasis, enormous strides have been made in eliminating

LF in Oceania through programs of mass drug administration (MDA), although LF remains widespread in PNG. There are opportunities to scale up MDA for PNG's major NTDs, which could be accomplished through an integrated package that combines albendazole, ivermectin, diethylcarbamazine, and azithromycin, in a program of national control. Australia's Aboriginal population may benefit from appropriately integrated MDA into primary health care systems. Several emerging viral NTDs remain important threats to the region. PMCID: PMC3561157
PMID: 23383349 [PubMed - indexed for MEDLINE]

READING 3 – INFECTIOUS DISEASE OUTBREAKS THAT PLAGUE THE MODERN WORLD

Mahan MJ, Kubicek-Sutherland JZ, Heithoff DM. Rise of the microbes. Virulence. 2013 Apr 1;4(3):213-22. doi: 10.4161/viru.23380. Epub 2013 Jan 18. Review. PubMed PMID: 23334178; PubMed Central PMCID: PMC3711979.

URL: http://www-ncbi-nlm-nih-gov.libproxy1.nus.edu.sg/pmc/articles/PMC3711979/ -- full free text

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ABSTRACT
Infectious diseases continue to plague the modern world. In the evolutionary arms race of pathogen emergence, the rules of engagement appear to have suddenly changed. Human activities have collided with nature to hasten the emergence of more potent pathogens from natural microbial populations. This is evident in recent infectious disease outbreaks, the events that led to their origin, and lessons learned: influenza (2009), meningitis (Africa, 2009), cholera (Haiti, 2010), E. coli (Germany, 2011) and Salmonella (USA, 2012). Developing a comprehensive control plan requires an understanding of the genetics, epidemiology and evolution of emergent pathogens for which humans have little or no pre-existing immunity. As we plot our next move, nature's genetic lottery continues, providing the fuel to transform the most unlikely infectious disease scenarios into reality.
PMCID: PMC3711979 PMID: 23334178 [PubMed - indexed for MEDLINE]

READING 4 – TUBERCULOSIS TODAY

Norbis L, Miotto P, Alagna R, Cirillo DM. Tuberculosis: lights and shadows in the current diagnostic landscape. New Microbiol. 2013 Apr;36(2):111-20. Epub 2013 Mar 31. Review. PubMed PMID: 23686117.

URL: http://www.newmicrobiologica.org/PUB/allegati_pdf/2013/2/111.pdf -- free full text

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ABSTRACT
Despite the improvements in the global fight against tuberculosis (TB), critical points still remain and fuel the epidemic. Even today, only 30% of the estimate number of people suffering from TB worldwide are correctly diagnosed, and lower proportions of cases are diagnosed in high-TB-burden, low-resource settings. Current TB diagnostics are still suboptimal in their performance for childhood TB, smear-negative TB, extrapulmonary TB, HIV-TB and drug-resistant TB. Furthermore, there is no gold standard test for the identification of latent TB infection status. Improving diagnosis is therefore a strategic goal in TB research, and the pipeline of diagnostic tools is rapidly growing: new ways of performing "old" tests (e.g. sputum smear microscopy) and completely innovative tools (e.g. new technologies for molecular diagnosis) are under investigation or have already been endorsed by WHO. Some of the structural limits of current TB diagnostics are likely to be overcome by such new tools, but research is still needed. Finally, the roll-out of new technologies and the development of newer ones will necessarily have to take into account the diagnostic needs of each context they are directed to (point-of-need testing approach), together with the logistic, economic and technical constraints present in the majority of high-TB-burden settings.
PMID: 23686117 [PubMed - indexed for MEDLINE]

READING 5 – ANTIBIOTIC RESISTANCE OF EMERGING FOODBORNE PATHOGENS

Koluman A, Dikici A. Antimicrobial resistance of emerging foodborne pathogens: status quo and global trends. Crit Rev Microbiol. 2013 Feb;39(1):57-69. doi: 10.3109/1040841X.2012.691458. Epub 2012 May 29. Review. PubMed PMID: 22639875.

URL: http://informahealthcare.com /doi/abs/10.3109/1040841X.2012.691458 – payment required

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ABSTRACT
Emerging foodborne pathogens are challenging subjects of food microbiology with their antibiotic resistance and their impact on public health. Campylobacter jejuni, Salmonella spp. and Verotoxigenic Escherichia coli (VTEC) are significant emerging food pathogens, globally. The decrease in supply and increase in demand lead developed countries to produce animal products with a higher efficiency. The massive production has caused the increase of the significant foodborne diseases. The strict control of food starting from farm to fork has been held by different regulations. Official measures have been applied to combat these pathogens. In 2005 EU declared that, an EU-wide ban on the use of antibiotics as growth promoters in animal feed would be applied on 1 January 2006. The ban is the final step in the phasing out of antibiotics used for non-medical purposes. It is a part of the Commission's strategy to tackle the emergence of bacteria and other microbes resistant to antibiotics, due to their overexploitation or misuse. As the awareness raises more countries banned application of antibiotics as growth promoter, but the resistance of the emerging foodborne pathogens do not represent decrease. Currently, the main concern of food safety is counter measures against resistant bugs.
PMID: 22639875 [PubMed - indexed for MEDLINE]

READING 6 – EMERGING DRUGS ON METHICILLIN-RESISTANT STAPHYLOCCUS AUREUS

3: Liapikou A, Torres A. Emerging drugs on methicillin-resistant Staphylococcus aureus. Expert Opin Emerg Drugs. 2013 Sep;18(3):291-305. doi: 10.1517/14728214.2013.813480. Epub 2013 Jul 13. Review. PubMed PMID: 23848400.

URL: http://informahealthcare.com /doi/abs/10.1517/14728214.2013.813480 -- Payment required

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ABSTRACT
INTRODUCTION: Methicillin-resistant Staphylococcus aureus (MRSA) has proven to be a prominent pathogen in hospitals and in the community, which is capable of causing a variety of severe infections. Until now, there has been a limited antimicrobial armamentarium for use against MRSA, of which glycopeptides and linezolid are the main agents used. AREAS COVERED: This review assesses current treatment and the agents being developed for MRSA infections. A search was conducted in PubMed for English-language references published from 2000 to 2013, using combinations of the following terms: 'MRSA', 'MRSA therapy', 'gram (+) infections therapy', 'new antibiotics', 'vancomycin', 'staphylococcus resistance', 'oritavancin', 'ceftaroline', 'linezolid' and 'tigecycline'. The clinicalTrials website was also searched with keywords regarding the new antibiotic agents against MRSA infections. EXPERT OPINION: There are a number of new agents, the place of which in therapeutic regimens is yet to emerge. New glycopeptides, such as dalbavancin and oritavancin, with long half-lives, enabling once-weekly dosing, and oral agents, such as iclaprim, may provide a treatment approach for outpatient therapy. A decision must be made regarding the most suitable agent for an individual patient, the site of infection and the place of therapy.
PMID: 23848400 [PubMed - indexed for MEDLINE]

READING 7 – MERS: EMERGENCE OF A NOVEL HUMAN CORONAVIRUS

Raj VS, Osterhaus AD, Fouchier RA, Haagmans BL. MERS: emergence of a novel human coronavirus. Curr Opin Virol. 2014 Feb 27;5C:58-62. doi: 10.1016/j.coviro.2014.01.010. [Epub ahead of print] Review. PubMed PMID: 24584035.

URL: http://www.sciencedirect.com /science/article/pii/S187962571400011X -- Payment required

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ABSTRACT
A novel coronavirus (CoV) that causes a severe lower respiratory tract infection in humans, emerged in the Middle East region in 2012. This virus, named Middle East respiratory syndrome (MERS)-CoV, is phylogenetically related to bat CoVs, but other animal species like dromedary camels may potentially act as intermediate hosts by spreading the virus to humans. Although human to human transmission has been demonstrated, analysis of human MERS clusters indicated that chains of transmission were not self-sustaining, especially when infection control was implemented. Thus, timely identification of new MERS cases followed by their quarantine, combined with measures to limit spread of the virus from the (intermediate) host to humans, may be crucial in controlling the outbreak of this emerging CoV.
PMID: 24584035 [PubMed - as supplied by publisher]

READING 8 – PROGRESS IN GLOBAL SURVEILLANCE AND RESPONSE CAPACITY

Braden CR, Dowell SF, Jernigan DB, Hughes JM. Progress in global surveillance and response capacity 10 years after severe acute respiratory syndrome. Emerg Infect Dis. 2013 Jun;19(6):864-9. doi: 10.3201/eid1906.130192. Review. PubMed PMID: 23731871; PubMed Central PMCID: PMC3713843.

URL: http://www-ncbi-nlm-nih-gov.libproxy1.nus.edu.sg/pmc/articles/PMC3713843/ -- full free text

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ABSTRACT
Ten years have elapsed since the World Health Organization issued its first global alert for an unexplained illness named severe acute respiratory syndrome (SARS). The anniversary provides an opportunity to reflect on the international response to this new global microbial threat. While global surveillance and response capacity for public health threats have been strengthened, critical gaps remain. Of 194 World Health Organization member states that signed on to the International Health Regulations (2005), <20% had achieved compliance with the core capacities required by the deadline in June 2012. Lessons learned from the global SARS outbreak highlight the need to avoid complacency, strengthen efforts to improve global capacity to address the next pandemic using all available 21st century tools, and support research to develop new treatment options, countermeasures, and insights while striving to address the global inequities that are the root cause of many of these challenges.
PMCID: PMC3713843 PMID: 23731871 [PubMed - indexed for MEDLINE]

READING 9 – HEPATITIS E VIRUS INFECTIONS

Song YJ, Park WJ, Park BJ, Lee JB, Park SY, Song CS, Lee NH, Seo KH, Kang YS, Choi IS. Hepatitis E virus infections in humans and animals. Clin Exp Vaccine Res. 2014 Jan;3(1):29-36. Epub 2013 Dec 18. Review. PubMed PMID: 24427760; PubMed Central PMCID: PMC3890447.

URL: http://www-ncbi-nlm-nih-gov /pmc/articles/PMC3890447/ -- full free text

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ABSTRACT
Hepatitis E has traditionally been considered an endemic disease of developing countries. It generally spreads through contaminated water. However, seroprevalence studies have shown that hepatitis E virus (HEV) infections are not uncommon in industrialized countries. In addition, the number of autochthonous hepatitis E cases in these countries is increasing. Most HEV infections in developed countries can be traced to the ingestion of contaminated raw or undercooked pork meat or sausages. Several animal species, including pigs, are known reservoirs of HEV that transmit the virus to humans. HEVs are now recognized as an emerging zoonotic agent. In this review, we describe the general characteristics of HEVs isolated from humans and animals, the risk factors for human HEV infection, and the current status of human vaccine development.
PMCID: PMC3890447
PMID: 24427760 [PubMed - as supplied by publisher]

READING 10 – THE CHANGING EPIDEMIOLOGY OF HIV

Beyrer C, Abdool Karim Q. The changing epidemiology of HIV in 2013. Curr Opin HIV AIDS. 2013 Jul;8(4):306-10. doi: 10.1097/COH.0b013e328361f53a. Review. PubMed PMID: 23743721

URL: ovidsp.tx.ovid.com – Payment required

Author information: Center for Public Health and Human Rights and Center for AIDS Research, Johns Hopkins Bloomberg School of Public Health, Baltimore, MD 21205, USA.

ABSTRACT
PURPOSE OF REVIEW: We sought to review the recent epidemiology of HIV-1 and to identify emerging challenges in HIV surveillance and epidemic control. RECENT FINDINGS: There is increasing evidence that HIV epidemics are in decline among general populations worldwide. Critical exceptions to these trends are HIV epidemics among key populations globally; the HIV epidemics in Eastern Europe and Central Asia in injecting drug using populations; the continued high burden epidemics of sexually transmitted HIV among young women and girls in southern sub-Saharan Africa, and young men who have sex in men (MSM) in the America, Asia, and Africa. In the new era of ART access, prevalence measures over time are less reliable and new approaches to the measurement of incident infection will be critical to assess trends. The implementation of expanded options for HIV prevention, reducing vertical transmission, and treatment as prevention, will shift focus from individuals to population-level impact. Strong surveillance and information systems will be necessary to meet these expanded surveillance needs. SUMMARY: The epidemiology of HIV infection is changing, dynamic, complex, and progress in epidemic control remains markedly uneven. Without addressing the components of global HIV, in which disease rates continue to expand, current efforts are unlikely to succeed.
PMID: 23743721 [PubMed - indexed for MEDLINE]
