A SELECTION OF TEN CURRENT READINGS ON TOPICS RELATED TO ON-LINE NOTIFICATIONS & E-SERVICES PLATFORMS – available as free full-text

Selection of readings made by A/Prof Goh Lee Gan

READING 1 – National childhood immunization programme in Singapore

Liew F, Ang LW, Cutter J, James L, Goh KT. Evaluation on the effectiveness of the national childhood immunisation programme in Singapore, 1982-2007. Ann Acad Med Singapore. 2010 Jul;39(7):532-10. PubMed PMID: 20697671.

URL: http://www.annals.edu.sg/pdf/39VolNo7Jul2010/V39N7p532.pdf (free full text)

Healthcare Finance and Corporate Services Division, Ministry of Health, Singapore.
fereen_liew@moh.gov.sg

SUMMARY
INTRODUCTION: We undertook a study to evaluate the effectiveness of the National Childhood Immunisation Programme (NCIP) over the past 26 years by reviewing the epidemiological trends of the diseases protected, the immunisation coverage and the changing herd immunity of the population during the period of 1982 to 2007.
MATERIALS AND METHODS: The epidemiological data of all cases of diphtheria, pertussis, poliomyelitis, measles, mumps, rubella and acute hepatitis B notified to the Communicable Diseases Division, Ministry of Health (MOH) from 1982 to 2007 were collated and analysed. Data on tuberculosis (TB) cases were obtained from the TB Control Unit, Tan Tock Seng Hospital. Cases of neonatal tetanus and congenital rubella syndrome (CRS) among infants born in Singapore were identified from the Central Claims Processing System. The number of therapeutic abortions performed for rubella infections was retrieved from the national abortion registry. Coverage of the childhood immunisation programme was based on the immunisation data maintained by the National Immunisation Registry, Health Promotion Board. To assess the herd immunity of the population against the various vaccine-preventable diseases protected, the findings of several serological surveys conducted from 1982 to 2005 were reviewed.
RESULTS: The incidence of vaccine-preventable diseases covered under the NCIP had declined over the last 26 years with diphtheria, neonatal tetanus, poliomyelitis and congenital rubella virtually eliminated. The last case of childhood TB meningitis and the last case of acute hepatitis B in children below 15 years were reported in 2002 and 1996, respectively.
CONCLUSION: The NCIP has been successfully implemented as evidenced by the disappearance of most childhood diseases, excellent immunisation coverage rate in infants, preschool and school children, and high level of herd immunity of the childhood population protected. PMID: 20697671 [PubMed - indexed for MEDLINE]

READING 2 – Contact lens-related keratitis

Tu EY, Joslin CE. Recent outbreaks of atypical contact lens-related keratitis: what have we learned? Am J Ophthalmol. 2010 Nov;150(5):602-608.e2. PubMed PMID:21036209.

URL: http://linkinghub.elsevier.com/retrieve/pii/S0002-9394(10)00529-5 (free full text)

Department of Ophthalmology and Visual Sciences, University of Illinois Eye and Ear Infirmary, Chicago, 60612, USA. etu@uic.edu

SUMMARY
PURPOSE: To examine the public health implications of 2 recent outbreaks of atypical contact lens-related infectious keratitis.
DESIGN: Perspective based on the literature and authors' experience.

RESULTS: The contact lens-related Fusarium and Acanthamoeba keratitis outbreaks were each detected by dramatic rises seen in tertiary care centers in Singapore and the United States, respectively. Case-control studies of both outbreaks were able to identify a strong association with the use of different contact lens disinfection solutions. Their respective recalls resulted in a steep decline of Fusarium keratitis, but not of Acanthamoeba keratitis. Early investigations into each solution association implicated components not directly related to their primary disinfectant, but the true pathogenesis remains unknown. However, the number of Acanthamoeba cases individually attributed to each of almost all available disinfection systems exceeds the previously understood total United States incidence, suggesting other risk factors. Current standards do not require demonstration of anti-acanthamoebal activity. Yet, despite the inclusion of Fusarium in mandatory testing for solutions, current premarket testing was not predictive of the outbreak.
CONCLUSIONS: The 2 recent outbreaks of atypical contact lens-related keratitis have reinforced the value of tertiary care eye care centers in detecting early rises in rare infections and the power of adaptable, well-designed epidemiologic investigations. Although Fusarium keratitis has declined significantly with the recall of Renu with MoistureLoc (Bausch & Lomb Inc.), the persistence of Acanthamoeba keratitis demands fundamental changes in contact lens hygiene practices, inclusion of Acanthamoeba as a test organism, and contact lens disinfectant test regimens for all contact lens-related pathogens that are verifiably reflective of end user contact lens wear complications.
PMID: 21036209 [PubMed - indexed for MEDLINE]

READING 3 – Hepatitis B seroprevalence

Hong WW, Ang LW, Cutter JL, James L, Chew SK, Goh KT. Changing seroprevalence of hepatitis B virus markers of adults in Singapore. Ann Acad Med Singapore. 2010 Aug;39(8):591-8. PubMed PMID: 20838699.

URL: http://www.annals.edu.sg/pdf/39VolNo8Aug2010/V39N8p591.pdf (free full text)

Communicable Diseases Division, Ministry of Health, Singapore. hongweiwei@gmail.com

SUMMARY
INTRODUCTION: We presented the findings from 2 seroprevalence studies conducted 6 years apart, so as to determine changes in the hepatitis B surface antigen (HBsAg) positivity rate and immunity to hepatitis B virus (HBV) among Singapore residents aged 18 to 69 years, and to assess the impact of a 4-year catch-up hepatitis B immunisation programme for adolescents and young adults launched in 2001.
MATERIALS AND METHODS: Two hepatitis B seroprevalence studies (HBSS) were conducted in 1999 and 2005 based on stored blood samples collected from 4698 participants aged 18 to 69 years during the national health survey (NHS) 1998 and from 3460 participants during the NHS 2004, respectively. Serology for HBsAg, hepatitis B e antigen (HBeAg) and antibody to HBsAg (anti-HBs) were tested by enzyme immunoassay in HBSS 1999 and electrochemiluminescence in HBSS 2005.
RESULTS: The overall age-standardised prevalence of HBsAg among Singapore residents aged 18 to 69 years decreased significantly from 4.0% in HBSS 1999 to 2.8% in HBSS 2005 (P = 0.002). The age-standardised prevalence of HBsAg in males (4.9% in 1999) and Chinese (4.7% in 1999) both decreased significantly to 2.7% and 2.8%, respectively in 2005. The overall age-standardised population immunity to HBV (anti-HBs >10 mIU/ml) increased from 39.7% in 1999 to 42.1% in 2005 (P = 0.019). In particular, the age-specific prevalence of anti-HBs showed a significant increase among those in the age group of 18 to 29 years from 27.9% in 1999 to 41.7% in 2005 (P <0.001) and among those in the age group of 30 to 39 years from 39.9% in 1999 to 44.7% in 2005 (P = 0.021).
CONCLUSION: There was an overall decline in the HBsAg positivity rate as well as an overall increase in population immunity to HBV. Following the 4-year catch-up immunisation programme, there was a significant increase in the immunity to HBV infection in the younger population aged 18 to 29 years. PMID: 20838699 [PubMed - in process]

READING 4 – Dengue virus surveillance

Lee KS, Lai YL, Lo S, Barkham T, Aw P, Ooi PL, Tai JC, Hibberd M, Johansson P, Khoo SP, Ng LC. Dengue virus surveillance for early warning, Singapore. Emerg Infect Dis. 2010 May;16(5):847-9. PubMed PMID: 20409381; PubMed Central PMCID: PMC2953985.

URL: http://www.ncbi.nlm.nih.gov/pmc/articles/pmid/20409381/?tool=pubmed (free full text)

Environmental Health Institute, Singapore.

SUMMARY
In Singapore, after a major outbreak of dengue in 2005, another outbreak occurred in 2007. Laboratory-based surveillance detected a switch from dengue virus serotype 1 (DENV-1) to DENV-2. Phylogenetic analysis showed a clade replacement within DENV-2 cosmopolitan genotype, which accompanied the predominant serotype switch, and co-circulation of multiple genotypes of DENV-3. PMCID: PMC2953985 PMID: 20409381 [PubMed - indexed for MEDLINE]

READING 5 – Outbreak of pandemic influenza A

Ang LW, Lai FY, Subramony H, Ma S, James L. Outbreak of pandemic influenza A (H1N1-2009) in Singapore, May to September 2009. Ann Acad Med Singapore. 2010 Apr;39(4):273-10. PubMed PMID: 20473451.

URL: http://www.ncbi.nlm.nih.gov/pubmed?term=%3A%2020473451%5Buid%5D

Communicable Diseases Division, Ministry of Health, Singapore.

SUMMARY
INTRODUCTION: The first case of pandemic influenza A(H1N1) was detected in Singapore on 26 May 2009, 1 month after the first cases of novel influenza A(H1N1) was reported in California and Texas in the United States. The World Health Organization declared the first influenza pandemic of the 21st century on 11 June 2009.
MATERIALS AND METHODS: Confirmed cases notified to the Ministry of Health between 27 May and 9 July 2009 were analysed. Various indicators of influenza activity were monitored throughout the study period. Estimates of the number of cases of H1N1-2009 were made using the number of polyclinic attendances for acute respiratory infection and influenza-like illness and the weekly prevalence of H1N1-2009.
RESULTS: Cases in Singapore affected mainly young adults, youths and children. By the end of September 2009, it was estimated that at least 270,000 persons had been infected by pandemic influenza A (H1N1) in Singapore. The peak number of cases occurred during E-week 30 (26 July-1 August) when an estimated 45,000 cases were seen in polyclinics and GP clinics. The hospitalisation, severe illness and mortality rates were estimated at 6 per 1000 cases, 0.3 per 1000 cases and 6.7 per 100,000 cases, respectively. The most common risk factors among hospitalised adult cases were asthma and diabetes. For hospitalised children, the most common risk factors were being under 5 years of age and asthma. The most common risk factors among persons with severe illness were diabetes in adults and epilepsy and being under 5 years of age in children. About half of cases with severe illness required mechanical ventilation. In addition, one-fifth of cases with severe illness had acute respiratory distress syndrome.
CONCLUSIONS: The first wave of the influenza pandemic lasted about 10 weeks. Morbidity and mortality resulting from pandemic influenza were low. PMID: 20473451 [PubMed - indexed for MEDLINE]

READING 6 – H1N1 pandemic – lessons learnt

Tay J, Ng YF, Cutter JL, James L. Influenza A (H1N1-2009) pandemic in Singapore--public health control measures implemented and lessons learnt. Ann Acad Med Singapore. 2010 Apr;39(4):313-12. PubMed PMID: 20473458.

URL: http://www.annals.edu.sg/pdf/39VolNo4Apr2010/V39N4p313.pdf (free full text)

Communicable Diseases Division, Ministry of Health, Singapore. joanne_tay@moh.gov.sg

SUMMARY

We describe the public health control measures implemented in Singapore to limit the spread of influenza A (H1N1-2009) and mitigate its social effects. We also discuss the key learning points from this experience. Singapore's public health control measures were broadly divided into 2 phases: containment and mitigation. Containment strategies included the triage of febrile patients at frontline healthcare settings, admission and isolation of confirmed cases, mandatory Quarantine Orders (QO) for close contacts, and temperature screening at border entry points. After sustained community transmission became established, containment shifted to mitigation. Hospitals only admitted H1N1-2009 cases based on clinical indications, not for isolation. Mild cases were managed in the community. Contact tracing and QOs tapered off, and border temperature screening ended. The 5 key lessons learnt were: (1) Be prepared, but retain flexibility in implementing control measures; (2) Surveillance, good scientific information and operational research can increase a system's ability to manage risk during a public health crisis; (3) Integrated systems-level responses are essential for a coherent public health response; (4) Effective handling of manpower surges requires creative strategies; and (5) Communication must be strategic, timely, concise and clear. Singapore's effective response to the H1N1-2009 pandemic, founded on experience in managing the 2003 SARS epidemic, was a whole-of-government approach towards pandemic preparedness planning. Documenting the measures taken and lessons learnt provides a learning opportunity for both doctors and policy makers, and can help fortify Singapore's ability to respond to future major disease outbreaks. PMID: 20473458 [PubMed - indexed for MEDLINE]

READING 7 – H1N1 – duties of healthcare professionals

Voo TC, Capps B. Influenza pandemic and the duties of healthcare professionals. Singapore Med J. 2010 Apr;51(4):275-81. Review. PubMed PMID: 20505904.

URL: http://smj.sma.org.sg/5104/5104ra1.pdf (free full text)

Centre for Biomedical Ethics, National University of Singapore, Yong Loo Lin School of Medicine, 10 Medical Drive, Singapore 117597. medvtc@nus.edu.sg

Comment in:
Singapore Med J. 2010 Dec;51(12):973

SUMMARY

Preparing for an influenza pandemic presents significant scientific and administrative challenges. Governments can learn from measures implemented during past infectious disease epidemics and pandemics, and organise the nation's infrastructure and resources, particularly human resources, for efficient and effective mobilisation for such future events. This should include both the biomedical and ethical dimensions. In this paper, we discuss a critical ethical issue that will arise in preparation for and in response to an influenza pandemic, namely, the role and duties of healthcare workers. It is the aim of this paper to highlight the basis and scope of healthcare workers' duty of care during a pandemic. PMID: 20505904 [PubMed - indexed for MEDLINE]

READING 8 – H1N1 seroconversion rates

Chen MI, Lee VJ, Lim WY, Barr IG, Lin RT, Koh GC, Yap J, Cui L, Cook AR, Laurie K, Tan LW, Tan BH, Loh J, Shaw R, Durrant C, Chow VT, Kelso A, Chia KS, Leo YS. 2009 influenza A(H1N1) seroconversion rates and risk factors among distinct adult cohorts in Singapore. JAMA. 2010 Apr 14;303(14):1383-91. PubMed PMID: 20388894.

URL: http://jama.ama-assn.org/content/303/14/1383.long

Tan Tock Seng Hospital, Department of Clinical Epidemiology, 11 Jalan Tan Tock Seng, Singapore, 308433. mark_chen@ttsh.com.sg

SUMMARY

CONTEXT: Singapore experienced a single epidemic wave of 2009 influenza A(H1N1) with epidemic activity starting in late June 2009 and peaking in early August before subsiding within a month.

OBJECTIVE: To compare the risk and factors associated with H1N1 seroconversion in different adult cohorts.

DESIGN, SETTING, AND PARTICIPANTS: A study with serial serological samples from 4 distinct cohorts: general population (n = 838), military personnel (n = 1213), staff from an acute care hospital (n = 558), and staff as well as residents from long-term care facilities (n = 300) from June 22, 2009, to October 15, 2009. Hemagglutination inhibition results of serum samples taken before, during, and after the epidemic and data from symptom questionnaires are presented.

MAIN OUTCOME MEASURES: A 4-fold or greater increase in titer between any of the 3 serological samples was defined as evidence of H1N1 seroconversion.

RESULTS: Baseline titers of 40 or more were observed in 22 members (2.6%; 95% confidence interval [CI], 1.7%-3.9%) of the community, 114 military personnel (9.4%; 95% CI, 7.9%-11.2%), 37 hospital staff (6.6%; 95% CI, 4.8%-9.0%), and 20 participants from long-term care facilities (6.7%; 95% CI, 4.4%-10.1%). In participants with 1 or more follow-up serum samples, 312 military personnel (29.4%; 95% CI, 26.8%-32.2%) seroconverted compared with 98 community members (13.5%; 95% CI, 11.2%-16.2%), 35 hospital staff (6.5%; 95% CI, 4.7%-8.9%), and only 3 long-term care participants (1.2%; 95% CI, 0.4%-3.5%). Increased frequency of seroconversion was observed for community participants from households in which 1 other member seroconverted (adjusted odds ratio [OR], 3.32; 95% CI, 1.50-7.33), whereas older age was associated with reduced odds of seroconversion (adjusted OR, 0.77 per 10 years; 95% CI, 0.64-0.93). Higher baseline titers were associated with decreased frequency of seroconversion in community (adjusted OR for every doubling of baseline titer, 0.48; 95% CI, 0.27-0.85), military (adjusted OR, 0.71; 95% CI, 0.61-0.81), and hospital staff cohorts (adjusted OR, 0.50; 95% CI, 0.26-0.93). CONCLUSION: Following the June-September 2009 wave of 2009 influenza A(H1N1), 13% of the community participants seroconverted, and most of the adult population likely remained susceptible.

PMID: 20388894 [PubMed - indexed for MEDLINE]

READING 9 – Real-time epidemic monitoring and forecasting

Ong JB, Chen MI, Cook AR, Lee HC, Lee VJ, Lin RT, Tambyah PA, Goh LG. Real-time epidemic monitoring and forecasting of H1N1-2009 using influenza-like illness from general practice and family doctor clinics in Singapore. PLoS One. 2010 Apr 14;5(4):e10036. PubMed PMID: 20418945; PubMed Central PMCID: PMC2854682.

URL: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2854682/?tool=pubmed (free full text)

Department of Clinical Epidemiology, Tan Tock Seng Hospital, Singapore, Singapore.

SUMMARY
OBJECTIVES: This study evaluated attitudes toward elder mistreatment from the perspective of older care recipients; their foreign home care workers, and their family members.
METHODS: Overall, 88 older care recipients, 142 family members, and 127 foreign home care workers responded to a hypothetical case vignette querying about the appropriate care of an older woman who suffers from neuropsychiatric symptoms in dementia.
RESULTS: Foreign home care workers tended to be more lenient toward elder mistreatment relative to older adults and their family members and to view as effective techniques that would non-equivocally be considered abusive and ineffective by current standards.
CONCLUSIONS: Interventions should inform these stakeholders about what constitutes elder mistreatment and should be particularly geared toward addressing cultural differences in the perception of elder mistreatment.
PMID: 20455116 [PubMed - indexed for MEDLINE]

READING 10 – SARS – Lessons learnt

Koh D, Sng J. Lessons from the past: perspectives on severe acute respiratory syndrome. Asia Pac J Public Health. 2010 Jul;22(3 Suppl):132S-136S. PubMed PMID: 20566545.

URL: http://aph.sagepub.com/content/22/3_suppl/132S.long (free full text)

Department of Epidemiology and Public Health, Yong Loo Lin School of Medicine, National University of Singapore, Singapore, Republic of Singapore. ephkohd@nus.edu.sg

SUMMARY
On March 12, 2003, the World Health Organization issued a global health alert stating that a new, unrecognizable, flulike disease may spread to health care workers (HCWs). We now know this illness as severe acute respiratory syndrome (SARS). By August 2003, there were 8422 SARS cases and 916 deaths reported from 29 countries. SARS galvanized the world to the threat of emerging infectious diseases and provided a dress rehearsal for subsequent challenges such as H5N1 and H1N1 influenza. Among the insights gained were the following: SARS reminded us that health care work can be hazardous; the effects of SARS extended beyond the infection; general principles for prevention and control were effective against SARS; and SARS posed both a public health and an occupational health threat. Given these perspectives gained, we should be better prepared when faced with similar scenarios in the future. PMID: 20566545 [PubMed - indexed for MEDLINE]
