Title	Disease burden of influenza in three tropic and sub-tropic cities in Asia
Author(s)	Wong, CM; Yang, L; Chan, KP; Ma, S; He, JF; Chen, P; Chan, KH; Peiris, JSM
Citation	The MISMS Oceania Regional Meeting & Workshop, Melbourne, Australia, 15-16 March 2010.
Issued Date	2010
URL	http://hdl.handle.net/10722/129632
Rights	Creative Commons: Attribution 3.0 Hong Kong License

Participant: Chit-Ming Wong, PhD, University of Hong Kong, Hong Kong
Title: Disease burden of influenza in three tropic and sub-tropic cities in Asia
Authors: Wong CM, Yang L, Chan KP, Ma S, He JF, Chen PY, Chan KH, and Peiris JSM.

Abstract:
The impact of influenza on mortality in sub-tropical and tropical countries is poorly quantified. The obstacle is mainly from assessing the disease burden among irregular seasonality of influenza activities in the warm climates. In this study we applied statistical modeling methods to three metropolitan cities in East and Southeast Asia: Guangzhou, Hong Kong, and Singapore, all of which have standardized influenza surveillance networks for years 2004-2006. We applied the method of Generalized Additive Modeling (GAM) to evaluate the effect of influenza circulation in the community on all-cause mortality and on mortality with an underlying cause of cardio-respiratory diseases. The strength of GAM lies on its capability in adjusting for the seasonality of health outcomes in the investigation for their association with influenza activity, particularly in the subtropics and tropics. Our findings indicated that influenza was associated with 12.4 (95% confidence interval (CI): 1.2, 23.0), 13.9 (95% CI: 6.4, 20.9) and 8.7 (95% CI: 3.0, 13.9) deaths for all causes per 100,000 population in Guangzhou, Hong Kong, and Singapore, respectively. For the cardio-respiratory mortality, influenza was associated with 11.2 (95% CI: 2.4, 19.6), 9.1 (95% CI: 4.3, 13.6) and 5.5 (95% CI: 1.6, 9.4) deaths per 100,000 population in the three cites. These results showed that the disease burdens in the two subtropical cities Guangzhou and Hong Kong were similar and slightly higher than those in the tropical city, Singapore. In the future, a cross region study involving temperate, subtropical, and tropical climates could provide more information about the health effects of influenza in Asia.