

After the outbreak of severe acute respiratory syndrome (SARS) in Hong Kong in 2003, the *Research Fund for the Control of Infectious Diseases* (RFCID) was established to encourage, facilitate and support research on the prevention, treatment and control of infectious diseases, in particular emerging infectious diseases, so as to formulate policies. Over the course of 5 years, researchers in the Chinese University of Hong Kong completed a portfolio of basic, epidemiological, public health and clinical research on a diverse range of potentially emerging and re-emerging infectious diseases, including SARS, influenza, viral hepatitis, and gastrointestinal pathogens. Evidence-based knowledge generated from these projects has helped in health policy formulation and health care services delivery. In this issue, a representative selection from the portfolio is presented. Three projects are highlighted owing to their contribution to knowledge on emerging and re-emerging pathogens and their impact on patient care.

With any outbreak of a novel pathogen, early identification and isolation of infected individuals is important in the effective control of an epidemic. Following the outbreak of SARS, Lo<sup>1</sup> developed a novel plasma/serum RNA test for SARS-coronavirus (CoV) infection. Using this assay, plasma SARS-CoV RNA concentrations in ribavirin-treated patients who received early hydrocortisone therapy were compared with those who received placebo. SARS-CoV RNA was detected 3 to 4 days after fever onset, and its concentration peaked in the first week and rapidly declined to become undetectable after 20 days. Plasma SARS-CoV RNA concentrations in the second and third weeks of illness were significantly higher in patients who received initial hydrocortisone treatment compared with those who received placebo. Serum SARS-CoV concentration has prognostic implications and serial assessment is useful for the monitoring of patient progress.

The long-term health consequences of infection by novel pathogens are unknown. Hui et al<sup>2</sup> studied the long-term sequelae (ie pulmonary function, exercise capacity and quality of life) of SARS-CoV infection in a prospective longitudinal follow-up study of 123 patients with SARS discharged from a single hospital. About 25% of the survivors had impaired lung diffusion capacity and/or abnormal chest radiographs 12 months after illness onset. In addition, exercise capacity and health status of SARS survivors were significantly lower than in age-matched normal controls. Thus, SARS-CoV infection caused long-lasting physical and psychological impairment in a significant proportion of survivors.

Severe seasonal influenza is responsible for about 15 to 50 hospital admissions per 10 000 of the elderly population in Hong Kong. Those affected may suffer complications including pneumonia, bronchitis, exacerbations of chronic pulmonary diseases, heart attacks and strokes. Mortality among hospitalised patients can approach 30%. Few clinical studies on immunopathogenesis have been performed on patients with severe human influenza infections. Lee<sup>3</sup> examined the role of cytokines and chemokines in severe and complicated influenza H1N1 infection in 39 adult patients. The concentrations of many cytokines (including IL-6, IL-8, IP-10, MIG and MCP-1) were elevated in the acute phase as compared to the convalescent phase. This hypercytokinaemia usually occurred in patients of advanced age, with major co-morbidities, and with cardio/respiratory complications. Early, effective viral suppression may result in attenuation of those harmful cytokine responses giving rise to such complications, and further studies are warranted.

We hope you will enjoy this selection of research dissemination reports. Electronic copies can be downloaded from the Research Fund Secretariat website (<http://www.fhb.gov.hk/grants>). Researchers interested in the funds administered by the Food and Health Bureau may visit the website for detailed information about application procedures.

Supplement co-editors

*Victoria Wong*

Dr Victoria Wong  
Associate Consultant  
(Research Office)  
Food and Health Bureau

*RA Collins*

Dr Richard A Collins  
Scientific Review Director  
(Research Office)  
Food and Health Bureau

*Janice Johnston*

Dr Janice M Johnston  
Consultant  
(Research Office)  
Food and Health Bureau

### References

1. Lo YM. SARS diagnosis, monitoring and prognostication by SARS-coronavirus RNA detection. *Hong Kong Med J* 2009;15(Suppl 8):11-4.
2. Hui DS, Wong KT, Antonio GE, Tong M, Chan DP, Sung JJ. Long-term sequelae of SARS: physical, neuropsychiatric, and quality-of-life assessment. *Hong Kong Med J* 2009;15(Suppl 8):21-3.
3. Lee N. Role of cytokines and chemokines in severe and complicated influenza infections. *Hong Kong Med J* 2009;15(Suppl 8):38-41.