Disentangling the complexity of Black Swans

Black Swans – for example Chemical, Biological, Radiological, Nuclear (CBRN) attacks, Weapon of Mass Destruction events, natural disasters or major epidemics – are high consequence crises that have historically been thought to occur rarely and are largely unpredictable. In contrast, Black Swans are happening now, are occurring frequently, and are disproportionately potent agents of systemic change. Taleb asserted that individual Black Swan events may not always be amenable to warning, prognosis or prediction prior to an event. However, the rise of complexity science and recent changes in the approach to modelling and simulation offer methods to significantly improve understanding of the nature and behaviour of adaptive socio-technical systems, the identification of system states capable of generating Black Swans in feasible contexts, and the factors that promote systems preparedness, resilience, responsiveness and which support sound operational decision making. Hybrid modelling approaches utilising large scale agent based systems, coupled with rapidly decreasing costs of high performance computing, are supporting initiatives to understand critical system performance, but more importantly investigating performance of novel and ad-hoc configurations of multiple responses systems operating together in crises – such as understanding joint civilian and military responses to various Black Swans. Current research initiatives at UNSW in support of understanding epidemic response systems, integrated policy and health systems linking to Integrated Systems for Epidemic Response NHMRC CRE, and Whole of Government responses to crises (including the military and other organisations) will be outlined.

About Associate Professor David Heslop

Dr David Heslop (FRACGP MBBS PhD (Medicine) MPH BSc (Adv) Hons I) is an Associate Professor at the School of Public Health and Community Medicine at UNSW, and retains significant military responsibilities as Senior Medical Adviser for CBRNE to Special Operations Headquarters Australia and to Australian Defence Force (ADF) joint senior leadership. He was appointed as Senior Medical Officer for Special Operations Command for 2014, and was the Officer Commanding and Senior Medical Officer to the ADF CBRN medical incident response element at Special Operations Engineer Regiment from 2012-2015. Dr Heslop is a practicing vocationally registered General Practitioner, an advanced trainee in Occupational and Environmental Medicine with RACP, and a fellowship candidate for the Academy of Wilderness Medicine. Dr Heslop's doctoral research focussed on the central autonomic anatomy and integrative neurophysiology relating to the cardiovascular response to noxious inescapable physiological stimuli such as severe haemorrhage and visceral pain. He is an international expert in Chemical, Biological, Radiological, Nuclear and Explosive (CBRNE) and general military medicine, and regularly is consulted and participates in the development and review of national and international clinical and operational CBRNE policy and doctrine.

Light refreshment is provided
Venue: Room 305, Level 3, Samuels Building, UNSW Upper Campus, Randwick
Enquiries: Ravit Danieli-Vlandis ravit@unsw.edu.au
Parking: Available on L5 of the parking station; enter via Gate 11 Botany St, Randwick
Map: www.facilities.unsw.edu.au/getting-uni/campus-maps

The School of Public Health and Community Medicine

Seminar Invitation

Wednesday 16th March
12:00 - 1:00 pm
Room 305 Samuels Building

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