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Responding to global infectious disease outbreaks: Lessons from SARS on the role of risk perception, communication and management

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Abstract

With increased globalisation comes the likelihood that infectious disease appearing in one country will spread rapidly to another, severe acute respiratory syndrome (SARS) being a recent example. However, although SARS infected some 10,000 individuals, killing around 1000, it did not lead to the devastating health impact that many feared, but a rather disproportionate economic impact. The disproportionate scale and nature of this impact has caused concern that outbreaks of more serious disease could cause catastrophic impacts on the global economy. Understanding factors that led to the impact of SARS might help to deal with the possible impact and management of such other infectious disease outbreaks. In this respect, the role of risk—its perception, communication and management—is critical.

This paper looks at the role that risk, and especially the perception of risk, its communication and management, played in driving the economic impact of SARS. It considers the public and public health response to SARS, the role of the media and official organisations, and proposes policy and research priorities for establishing a system to better deal with the next global infectious disease outbreak. It is concluded that the potential for the rapid spread of infectious disease is not necessarily a greater threat than it has always been, but the effect that an outbreak can have on the economy is, which requires further research and policy development.

Keywords: Risk perception; Risk communication; Infectious disease; SARS; Economy

Introduction

Globalisation increases the likelihood that an infectious disease appearing in one country will spread rapidly to another. Although not unique in this respect, severe acute respiratory syndrome (SARS) is a recent example. Within a matter of weeks in early 2003, SARS spread from the Guangdong province of China to rapidly infect individuals in some 37 countries around the world (Wang & Jolly, 2004). The first case of SARS outside China was reported on 26 February 2003. By 31 May the number of probable cases reached 8359, with the mortality rate outside China climbing to around 14%. However, from June this increase slowed sharply, and by July the number of probable cases had climbed by just 89 cases, to 8448, with a total of 774 deaths (http://sarsreference.com).

During the outbreak there was great concern, from medical as well as lay and political

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communities, that high mortality and morbidity rates mimicked—possibly rivalled—the 1918 influenza pandemic, which killed around 40 million people (Brown & Tetro, 2003). However, although SARS eventually infected some 10,000 individuals, killing around 1000, it did not lead to the devastating health impact that many feared. Rather, what was unique about SARS was the disproportionate economic impact.

A number of studies place the global macroeconomic impact of SARS at US$30–100 billion, or around US$3–10 million per case (Chou, Kuo, & Peng, 2004; Fan, 2003; Hanna & Huang, 2004; Lee & McKibbin, 2004; Smith & Sommers, 2003; Wen, Zhao, Wang, & Hou, 2004). These costs were distributed across a wide range of sectors—although principally travel and tourism—and countries, leading to a far higher economic shock than expected given the health impact (Barreto, 2003; Blendon & Benson, 2004). The rather disproportionate scale and nature of this economic shock has caused concern that outbreaks of more serious disease—such as a flu pandemic—could have a catastrophic effect on the global economy (Nesmith, 2003). Understanding the factors that led to this impact of SARS might help deal with the possible repercussions and management of other infectious disease outbreaks.

Perhaps most significant of these factors is the perception, communication and management of the risk presented by SARS, which is the subject of this paper. In considering this, it is important to locate the analysis with respect to the two broad models of risk used in the social sciences. The first is the 'realist' approach, where risk is seen as an objective threat or danger that can be measured independently of the social context within which it occurs (Kahneman, Slovic, & Tversky, 1982). The second is the 'social constructionist' approach, which sees risk as a threat or danger that is constructed through social and cultural processes, and cannot be demonstrated to be independent of such processes (Joffe, 2003; Lupton, 1999; Washer, 2006). The latter is increasingly seen as a key conceptualisation; indeed, the term 'risk society' has been coined to describe the apparent perception of the post-industrial post-modern society as being at constant 'risk' of something, from credit-card fraud to terrorist attack (Beck, 1992). Although this has been challenged in some cases (e.g. Kitzinger & Reilly, 1997), what is important in this conceptualisation is not necessarily that populations are in permanently heightened states of anxiety, but how populations develop defence mechanisms to control their anxiety (Joffe, 1999). In this paper a more 'material-discursive' position is adopted that views both conceptualisations as having some validity; that a 'risk' contains both a materially measurable element of the probability of an event, and a socially constructed element of how that probability/event is perceived by the individual and society (Yardley, 1997). In this way a contrast can be seen through the examination of the impact of SARS between what is understood from a realist perspective (the materially measurable probability of, for instance, infection with SARS, various outcomes of infection and the effectiveness of different strategies to prevent infection) versus the social constructed perception of those probabilities as 'risk'.

Following this introduction, the paper looks at the role that risk, and especially the perception of risk, played in driving the economic impact of SARS. The paper then moves on to consider the public health response to SARS, and the response to the perceived risks presented by SARS. This is followed by an exploration of the importance of communication in risk perception, looking at the role of the mass media, and a summary of lessons for responding to future SARS-like situations. The paper concludes with a future research agenda in the area of risk and infectious disease.

The role of the perception of risk in driving the

Economic impact of sars

Although the direct costs of an epidemic on the health service can be substantial, the indirect costs on other sectors of the economy may be more significant (Smith, Yago, Millar, & Coast, 2005). SARS certainly demonstrated this (Chou et al., 2004; Fan, 2003; Hanna & Huang, 2004; Lee & McKibbin, 2004; Smith & Sommers, 2003; Wen et al., 2004). The indirect costs of an epidemic are driven almost solely by the public's perception of the risk of becoming infected, and the risks associated with the different consequences of that infection. A disease that is thought to be spread by direct contact with infectious cases is likely to lead to reductions in unnecessary contact (Lau et al., 2005). Where individuals feel some 'control' over their exposure to infection, such as HIV, this reduction may be more limited (Blendon & Benson, 2004). However, in cases where perceived control is