
The return of the city-state: urban governance and the New York City H1N1 pandemic

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Abstract This article examines New York City's response to the 2009 H1N1 pandemic in the context of the post-9/11 US security regime. While the federal level 'all-hazards' approach made for greater depth of support, it also generated unrealistic assumptions at odds with an effective local response. The combination of structurally induced opportunity and actor specific strengths (size, expertise) made for effective local governance by the New York City Department of Health and Mental Hygiene. By underlining the importance of locality as a first line of defence and linking defence function to policy initiative in regard to health governance, this study illustrates the continuing relevance of Weber's insight into the institutional structure of the city.

Keywords: health governance, pandemic, H1N1, Weberian city

Introduction

For Weber (1986), a defining institutional feature of the city was as a unit of defence, a function taken over by the modern nation-state with its claims to exclusive jurisdiction within territorial boundaries. Commonly known as the Westphalian system of sovereign states (after the Treaty of Westphalia, 1648), this system of governance marked the weakening of local autonomy and the assignment of Weber's classic definition of the city to the dustbin of history. However, the emergence of supranational organisations, and non-state actors with claims to authority, in an interdependent, globalised world has generated discussion of a *post-Westphalian order*¹ and the re-assessment of governance issues.

Urban theorists have proposed that cities are both facing new demands within a restructuring global economy and experiencing a downward drift of authority from the national level. Global cities theory (Brenner and Keil 2006, Friedmann 1986, Sassen 1991) asserts that cities have taken on (economic) command and control functions within global networks, variously described in terms of nodes, as a space of flows (Castells 1996) and as a porous spatial order (Taylor and Derudder 2004). Studies of new institutional capacity and governance have found that restructuring has given localities more initiative, particularly in regard to economic development (Brenner 2004, Harvey 1989).

Critical of an overemphasis on economic functions, others have revived the Weberian model, with its concern for socio-political as well as economic factors. The rise of supranational organisations, such as the European Union, is seen to have been accompanied by greater self-direction and policy initiative for the enlarged city or metropolitan region (Bagnasco and Le Gales 2000, Kazepov 2004). Haussermann and Haila (2004: 7) suggest the

Weberian city might function as 'a new research paradigm', raising questions about the conditions that create opportunities for cities to become political actors and envisioning a more constructivist model of governance. Borraz and Le Galès (2010: 6) suggest that the city has become a 'locus of risk' (protests, crime, disease) which can 'contribute to a redefinition of boundaries between state and different levels of government'.

The re-emergence of infectious disease, alongside globalisation, has provoked security concerns in the face of heightened vulnerability. Although cities have historically been the unit of planning and response to disease, in the post-Westphalian era, most attention has been directed at the global nature of the threat and the relationship between nation-states and the supranational World Health Organization (WHO). Fidler (2003: 485) identifies a new non-state-centric health governance template. He argues that, during the 2003 outbreak of acute respiratory syndrome (SARS) (the 'first post-Westphalian Pathogen'), the WHO gained a significant degree of technical control over global health.² But Fidler also notes that the recognition of infectious disease as a national security threat raises the possibility of returning to a state-centric model. Critics of the global health governance thesis acknowledge the shift, but note the continuing importance of the nation-state (Ricci 2010).

Working on SARS within the post-Westphalian framework, Ali and Keil link infectious disease to both global cities theory (2006) and the urban governance literature (Keil and Ali 2007). In their study of Toronto during the 2003 SARS epidemic, they describe how city and provincial public health officials became political actors, lobbying the WHO to rescind a travel advisory (Keil and Ali 2007). They also note the relative ineffectiveness of Canadian national health governance and find, in the aftermath, a tendency for more resources and authority to accrue to subnational levels (Ali and Keil 2008). Cities and metropolitan regions are also receiving more attention from health policymakers. In October 2008, for example, the WHO organised a technical consultation on threats to cities from emerging infectious disease in Lyons, France (WHO 2008).

Methods and map

The case of New York City (NYC) and the 2009 H1N1 pandemic sheds further light on the evolving nature of health governance in relation to contemporary outbreaks of infectious disease. It is particularly interesting because, after the terrorist attacks on September 11 2001 ('9/11'), the USA reframed and institutionalised infectious disease as a national security risk, as hypothesised by Fidler (2003). Although the WHO triggered the alert levels, the key actors were city and national governments. This study examines the outcomes of their interaction.

Did NYC retain control over health governance and if so, what made this possible? Several methods have been used to address these questions.

First, to present the event in its institutional context I have used interviews, online and documentary analysis. Ten semi-structured interviews were conducted with members of local and national public health organisations involved in decision-making. Online and media analysis were used to construct a timeline of events. During the outbreak, the websites of NYC Department of Health and Mental Health (DOHMH), the Centers for Disease Control and Prevention (CDC) and other health organisations were monitored. Scientific, medical and legal literature pertaining to H1N1, the 2009 H1N1 pandemic and pandemic planning was reviewed.

Second, all-hazards pandemic planning and its impact were documented through analysis of federal and state legislation, policy statements, congressional reports and interviews. In Spring 2009 I made an informal survey of internet-disseminated predictions of the H1N1

trajectory in the USA. The impact of the event was also evaluated through a post-hoc examination of 'lessons learned', based on hearings and published reports through Fall 2011.

In the following sections, I first discuss the organisational and ideological context for NYC pandemic planning; then examine how H1N1 actually played out during Spring and Fall 2009. As noted, the post-9/11 national security regime, which includes planning for the emergence of infectious disease, is central to this analysis. What was its impact on NYC's pandemic response? What did it mean in terms of health governance?

The organisational and ideological context for pandemic planning

NYC as a unit of health policy and planning

The US's constitutional division of functions between state and federal government gives legal jurisdiction over citizens' health to the states. This means that all states have health departments, but not all counties and cities. Cities like NYC, with over 8.2 million residents, have large health departments with an expansive range of activities and a complex set of institutional partners. With over 6,000 employees and a budget of \$1.6 billion, the DOHMH is one of the world's largest public health agencies. It interacts with a large public and private health sector which includes a public hospital system, several 'medical empires', one of six national centers for public health preparedness, major corporate headquarters and the United Nations. Finally, the department oversees public health nurses in over 1900 schools and healthcare for 13,000 prisoners.

The public health system is both vertical and horizontal, with localities positioned at one end of a scale that goes through state and national levels to supranational organisations like the WHO. At the national level, jurisdiction is fragmented: eight agencies, including the US Department of Health and Human Services (HHS) and several offices, carry out public health functions as well as the CDC, a branch of HHS. States, which have principal authority over public health, typically delegate some authority to localities; some of which, like NYC, essentially have 'home rule' over public health (Lister 2005: 11).

The post-9/11 environment for pandemic planning: all-hazards and emergency preparedness

Many in the medical community turned to us during the events of September 11, 2001 and their aftermath for up-to-date information on anthrax, air quality, and other challenging problems. (Dr Thomas R. Frieden, former Commissioner, NYC DOHMH 2003)

During the post-cold war threat climate commonly referred to as '9/11', infectious disease was redefined as a national security matter (HSC 2005). In addition to their traditional responsibilities for infectious disease and food-borne illnesses, public health departments found their agenda expanded to encompass preparation for a wide range of other emergencies – an 'all-hazards' approach that included blast injuries, natural disasters and radiological and chemical events, along with bioterrorism (Levi *et al.* 2009: 7, US Government Pandemic and All-Hazards Preparedness Act [PAHPA] 2006). One consequence is that the protocols and rhetoric of emergency preparedness and risk management have permeated all facets of public health: research, training, methods and practice.

Although concern with potential chemical and bioterrorism threats preceded 9/11 with such incidents as the Sarin attack in Japan, anthrax threats and novel viruses such as West Nile, the impetus for integrating emergency management and pandemic planning became

compelling after 9/11 with a sharp increase in funding and research grants.³ The rationale was the concept of *dual-use*: that ‘the strong infrastructure needed to respond to natural disease threats will also improve the response to the threat of terrorism’ (Lister 2005: 1). Public health officials, who faced the re-emergence of infectious disease with declining support for public health, found a strategic alignment with emergency preparedness to be a godsend. In terms of policy, dual-use offered a way to move beyond planning for specific scenarios to a more generic assessment of threats and vulnerabilities and the possibility of establishing priorities (Lister 2005: 2, 21).

As institutionalised in federal legislation and directives, the all-hazards approach to emergency preparedness has the following organisational and methodological characteristics:

- All-hazards preparedness introduced a new layer of bureaucracy with public health responsibilities. The Homeland Security Act (2002) established the Department of Homeland Security (DHS) and its local branch, the Office of Emergency Management (OEM). The 2006 Pandemic and All-Hazards Preparedness Act (PAPHA) brought emergency preparedness planning directly into the HHS (US Government PAHPA 2006). Since 2002, a series of laws and operational directives have sought, somewhat unsuccessfully, to clarify organisational structures and define relations between the DHS and the HHS.
- The all-hazards approach represents a concerted effort to create standardised models for detection and response and to bring states and localities into compliance with these standards. An example is the National Incident Management System (NIMS), a prerequisite for receiving federal emergency preparedness grants, developed by DHS in 2004. The NIMS requires the establishment of a Citywide Incident Management System (CIMS), which identifies and coordinates leadership and support for emergencies through a Citywide Incident Command Structure. Similar templates include the CDC-sponsored Model State Public Health Act (Centers for Law and the Public’s Health 2003).
- Emergency preparedness has promoted medical surveillance technology or medical informatics by applying traditional tools of public health (syndromic surveillance, case tracking) to detect bioterrorism and other events and by relabelling epidemiologists as ‘disease detectives’ (HSS 2002).
- Public health has turned to statistical analysis and computer modelling to deal with unpredictability. The CDC created a Preparedness Modeling Unit in 2008, to apply probabilistic statistics to both spread and response issues, making infectious disease management a ‘predictive science’ (Rosenfeld 2008: 4). The ultimate goal is to develop software models, train local health departments to plug in data and make decisions on the basis of the models. Respondents in a CDC-sponsored survey of health departments (including NYC) raised concerns about the use of models, noting that their utility depended on their assumptions. They also raised questions of scalability, reliability and competent staffing. Interestingly, computer modelling was valued as a political tool, such as in convincing local officials to close schools (Rosenfeld 2008: 13–14). Adopting this approach, the WHO convened an informal network in 2009 to apply mathematical modelling to the H1N1 pandemic (Van Kerkhove *et al.* 2010).
- Worst-case scenarios have been widely adopted: Alessandro Vespignani, an expert in computer based epidemic modelling, observed ‘we are always working in a worst-case scenario setting’ (Indiana University 2009). My Spring 2009 survey of Internet disseminated predictions, found that the most common computer simulations – with video and podcast – were ‘worst-case’.

- Another strategy associated with unpredictable events is the preparedness exercise. A well-known example is Atlantic Storm (2005), a bioterrorism exercise that convened a summit of transatlantic leaders for eight hours to respond to a smallpox attack. NYC's 2006 Pandemic Preparedness Plan noted that DOHMH had 'engaged in extensive preparedness efforts – over 50 tabletop and full-scale exercises in the past five years' (New York City Department of Health and Mental Hygiene [NYC DOHMH] 2006: 3).
- The all-hazards approach has colonised public health with a law-enforcement perspective. A 2008 White Paper by the American Civil Liberties Union (ACLU) argued that, after 9/11, the Bush Administration's all-hazards approach encouraged 'overreaction', leading to the use of coercive strategies such as forced examinations, containment and criminal sanctions (Annas *et al.* 2008). One example is the CDC's Model State Public Health Act, drafted at the request of the Bush administration (Centers for Law and the Public's Health 2003). The act 'provided state officials with extensive, unchecked powers to curtail individual autonomy in the face of an emergency, including the power to compel vaccination, testing, treatment, and isolation' (Simoncelli 2009: 7). Described as a 'mini-Patriot Act', it became the model for federal and state emergency preparedness planning including New York State (Annas *et al.* 2008). The ACLU also noted that the law enforcement model shifted attention from community measures such as education, treatment and prevention to individuals (Annas *et al.* 2008). Critics have distinguished this 'neoliberal' focus from traditional public health activities (Petersen and Lupton 1996).

Rescaling up or down?

The all-hazards approach reflects the standardisation and centralisation of public health emergency preparedness activities under a national governance rubric. Some felt that 9/11 made the case for a stronger national role. Faced with a decentralised public health system, whose basic authority resided at the state level and a fragmented healthcare system, predominately in private hands (Lister and Gottran 2007: 1), Congress made public health an issue of national security, establishing federal leadership roles and channelling federal funds to states and localities.

At the same time, 9/11 also underlined the essentially local nature of threat and the need to prepare first responders. No-one looked back to the 1976 Swine Flu Program – a national vaccination campaign – as a model; it was considered a disaster (Neustadt *et al.* 1978). Moreover, it was recognised that localities differed in needs and resources: while public health had to be strengthened at state and local level, one size did not fit all. 9/11 thus foregrounded existing tensions between federal initiatives and state and locality control.

The event: H1N1 in NYC – Spring and Fall 2009

H1N1, a new variant of influenza A and the first global pandemic since the 1968 Hong Kong flu, had its first major US outbreak in NYC in late April 2009. Traced to students returning from a spring break in Mexico City, where a widespread outbreak had occurred, the onset was dramatic, with the school acting as a transmission point. Within a few days, hundreds of children were sick and public concern became frenzied (Lessler *et al.* 2009).

Given the lack of information about the new influenza strain, the reported severity of the Mexico City outbreak and the rising WHO alert (level 5 of 6 on 29 April), DOHMH launched a pandemic response. This activated the agency-wide incident command system (ICS), which assigned all employees to on-call teams, shifting from a 'routine' to an

'enhanced' surveillance system. During the Spring, the ICS was activated twice for enhanced surveillance, operating seven days a week from 9 A.M. to 9 P.M. to monitor the pandemic and use the results to guide response (Balter *et al.* 2010). During the first ICS activation (25 April–8 May), there were few severe cases (only 15 hospitalisations). Most were linked to the school influenza outbreak. By the end of the second ICS activation (19 May–7 July) there were over 900 hospitalised cases. An estimated 750,000 to one million people – about 10 per cent of NYC's population – had H1N1 during Spring 2009 and there were 930 hospitalisations with 54 deaths (Chan and Foderaro 2009).

The DOHMH initially used school closings as a mitigation tactic. This followed NYC's pandemic preparedness plan, as well as CDC guidance, which initially recommended that schools with at least one confirmed case immediately close for up to two weeks (Klaiman *et al.* 2011). Between April and mid-June 60 schools were closed for no more than five days, at first to limit transmission and, later, to protect those more vulnerable (Department of Education 2009). By early July the outbreak had died down. Public health officials, thinking historically of the trajectory of flu epidemics – their affinity for cooler weather and the virus's propensity to mutate – expected a return in the Fall, probably in a more severe form.

The outbreak raised questions about NYC's response and provoked a policy review. In early June a City Council committee met key actors to review the spring experience and assess preparations for the Fall. The lead NYC agencies – DOHMH and OEM – were questioned by Council members. There was little praise for NYC's handling of the outbreak from the media, other city agencies or the public. Questions were raised regarding school policy – the lack of a clear set of criteria, the availability of medical services, the adequacy of communications and the lack of transparency regarding mortality, morbidity and school statistics (NYC City Council Committee on Health, Governmental Operations and Public Safety 2009). One general criticism was an overemphasis on maintaining public order.

Fall 2009

Having decided that the second H1N1 wave would be more moderate and with a better idea of the groups at risk, Health Commissioner Dr Thomas Farley and Mayor Bloomberg announced a Fall plan that was 'equal parts infection control and panic control' (Chan and Foderaro 2009). In three pages, DOHMH laid out its strategy: first and foremost, an 'open school' policy. Schools would close only as a last resort and would stress basic prevention. School children would receive free vaccinations (once available); health clinics would relieve hospitals; daily statistics would be posted on the web; NYC would establish a call centre and a volunteer corps, and would maintain emergency stockpiles of antivirals (NYC DOHMH 2009).

Central to NYC's Fall pandemic plan was the assessment of the virus. By Fall 2009 DOHMH had enough data to re-evaluate the risk to individuals and found it to be much lower than originally expected. H1N1 was milder than seasonal flu and vaccines would soon be available. With severity downgraded, DOHMH retreated from disruptive measures such as school closings and called for less resource-intensive surveillance. The emphasis was placed on preventative measures at school, the workplace and the home (Farley 2009). The plan also emphasised public communication of up-to-the minute information about the virus.

NYC garnered praise for its moderate approach to H1N1 in Fall 2009, as being more evidence based than the response in Mexico City. Events also conspired for a happy ending: the Fall recurrence was very mild. Although highly transmissible in children, the virus was rarely lethal, did not mutate and was susceptible to drugs.

All-hazards emergency preparedness and pandemic response

Our observations about the fit between all-hazards and DOHMH'S efforts during the 2009 pandemic follow.

Bureaucratic interface citywide

Despite overlapping functions between competing agencies, CIMS worked as planned to divide responsibilities, identify a leadership structure and, on the whole, prevent jurisdictional infighting. In a public health emergency, CIMS identifies the lead agency as the Department of Health, which then activates its own ICS and receives support from the OEM, the police, fire and other city entities. During the crisis, the DOHMH and OEM held daily conference calls with City Hall, the Department of Education, the Department of Corrections, the Health and Hospitals Corporation and other agencies. Despite the potential competition over leadership, OEM took a secondary role, providing logistical support and coordination and enabling DOHMH to concentrate on the outbreak. However, given that the H1N1 pandemic was a clear-cut public health issue, unlike, for example, bioterrorism, the organisational outcome would likely have been the same in this case without the CIMS protocol.

Resources and capacity

Because all-hazards includes a variety of dangers alongside pandemic flu, it provided greater support to the public health department. Extra funding for emergencies enabled DOHMH to activate enhanced surveillance and epidemiology, improved public health laboratories and supported a Bureau of Emergency Management within DOHMH. DOHMH was also included in emergency preparation and training exercises. Additionally, all-hazards included funding for each NYC hospital to create its own ICS which enhanced DOHMH's overall surveillance capacity. According to members of the NYC 2009 H1N1 flu investigation team, 'surveillance data were critical in guiding the DOHMH response' (Balter *et al.* 2010: 1259).

One could argue that, if emergency preparedness funding only went to those agencies we typically think of as first responders, such as the police, fire or the OEM, the public health component of planning might be overlooked. As it is, the renewed importance of large-scale emergencies and their inclusion within public health has made the health department an increasingly important function in urban policy and planning.

Models, projections, worst-case scenarios

At the same time, the reframing and institutionalisation of infectious disease within all-hazards emergency preparedness has given rise to assumptions and strategies that may be unrealistic and potentially at odds with effective pandemic response.

During the Spring/Fall H1N1 outbreak, NYC's pandemic preparedness plan did not provide accurate guidance to decision-makers. Relying on models based upon a number of assumptions about incidence and severity and about vaccines and antiviral drugs, DOHMH officials found their plan overestimated the severity of the threat: it assumed 30 per cent of the population would become infected; 11 per cent of those infected would be hospitalised and 2.1 per cent of the infected would die (NYC DOHMH 2006). In reality this was a mild pandemic and NYC estimated that only 10–12 per cent of New Yorkers were infected during the Spring, only 0.1 per cent of those infected were hospitalised and deaths accounted for only 0.007 per cent of those hospitalised (Chan and Foderaro 2009). A response based on guidelines that differ widely from reality can lead to overreaction, an issue raised in regard to

the spring school closings as well as to the New York State Department of Health's decision to vaccinate all state health workers.

School closing policy

In the initial stage, when so little was known about the virus, DOHMH closed schools in which there were either confirmed cases of H1N1 or unusually high levels of flu-like symptoms. By the end of May, with surveillance data showing that spread occurred outside the schools, it had become clear that closing schools was ineffective in containing the virus. The NYC Fall 2009 plans were more moderate than in Spring 2009: significantly more so than other forecasts, including the 'plausible' baseline scenario for H1N1's return from the President's Council of Advisors on Science and Technology (PCAST), which posited that 30–50 per cent of the US population could become infected (in NYC that would have been 2–4 million people), with 30,000 to 90,000 deaths (PCAST 2009). It was primarily the reduction of uncertainty through greater scientific knowledge that led to NYC's updated school closing policy.

Mandatory vaccination and civil rights

The NY State Department of Health's decision to impose mandatory vaccination on all state health workers sharply contrasts with NYC's Fall plan. Drawing on powers conferred by the state's emergency health powers legislation, New York was the *only* state to require mandatory vaccinations and did so when it was already known that H1N1 was much less dangerous than had originally been thought. The state quickly found itself up against strong criticism from labour unions and the New York Civil Liberties Union on the grounds that the rule 'could result in the punishment and even dismissal of workers who refuse, whether for religious, cultural or other reasons, to be vaccinated' (Hartocollis 2009). A lawsuit led to a restraining order and State Governor Patterson suspended the law in October (Simoncelli 2009).

The media were also captive to a worst-case scenario. Rather than explaining that plans were based on an extreme projection and that much about the virus was unknown, the media tended to present a dramatic, albeit simplified, story. The public health establishment was similarly criticised for failing to clarify whether their recommendations were based on models or real data and for failing to explain how they balanced control of infection with the need to maintain daily life (Wenzel 2010). In the aftermath, most criticism for overreaction has been directed at the WHO for raising the threat level even though it was evident that the virus was milder than seasonal flu. The WHO – and global governance in general – have also been criticised by an international review panel on H1N1 influenza for its '“needlessly complex” definition of pandemic, with six levels of alert, based on the virus's geographical spread, not its severity' (McNeil 2011). The danger of rote use of plans based on worst-case scenarios is the loss of credibility. Commenting on New York State's attempt to impose mandatory vaccination, CDC Director and former head of NYC's DOHMH, Dr Thomas Frieden stated, 'this is just not the right flu season to take this on' (Hartocollis and Chan 2009).

The problem of initial response

We have noted that NYC's pandemic preparedness plan was based on unrealistic assumptions about severity. Although DOHMH went on to use its epidemiological and surveillance capacity to gather its own data and revised its Fall policy accordingly, this does not solve the problem of what to do at the start. Despite attempts to reduce uncertainty by calculating the probability of a given risk, some decisions may remain stubbornly elusive. Discussing the management of uncertainty related to the H1N1 virus, an article in the *New*

England Journal of Medicine argues that the key issue at the start is how to predict ‘severity’ with any degree of confidence. Estimates suffer from two sources of uncertainty: overestimation of severe cases (because mild cases are not counted) and a downward bias because there is a delay between onset and death (Lipsitch *et al.* 2009). Given the idiosyncratic nature of viruses, the authors are not optimistic about reducing such uncertainty. One might also note that, despite advanced technology-based surveillance systems such as Bio Watch and Biosurveillance, the first notice of the NYC outbreak came from an ‘alert clinician’, a school nurse (Bell *et al.* 2009: 311).

Within the medical community, some have argued that public health officials need to be more transparent about what *they do not know* about a given virus (Wenzel 2010). Similar concerns have been raised in regard to specific policies. Reviewing national school closures during the 2009 H1N1 pandemic, Klaiman *et al.* (2011) argue that too little is known about the effect of containment strategies, such as school closings, on the spread, morbidity and mortality of flu.

In answer to the question of the impact of the federally mandated all-hazards approach on NYC’s response to the 2009 H1N1 pandemic, the results are mixed. Additional funding and preparatory exercises added resources and skills and put the issue of emergency preparation at the top of DOHMH’s agenda. The federally mandated protocols reaffirmed the department’s centrality and decision-making authority in the pandemic, although this probably would have been the case in their absence. At the same time, the standardised, federally mandated, model-driven approach did not translate well into an appropriate local response; the basic assumptions of ‘all-hazards’ planning did not match the reality of a mild pandemic. Modelling may have its limitations, particularly in the initial stages and it remains to be seen how far it fits with an evidence-based approach.

The law enforcement approach also gave rise to concerns about civil liberties as in the attempt to mandate vaccination for New York State health workers or in the debate about school closings. As noted above, NYC’s more moderate approach in Fall 2009 shifted the focus from ‘social’ to ‘individual’ responsibility. Although criticised by some as a neoliberal revision of public health, this means something different in the USA than in Canada or the UK. Countries with some form of universal health service seem more accepting of social approaches. In the USA, social strategies such as school closings, disease testing or mandated vaccination tend to be more negatively viewed as forms of social control.

Implications for health governance

In the USA, the resurgence of infectious disease has been met by the assertion of state authority. Reframed and institutionalised as a matter of national security, pandemic planning and response operates within an all-hazards emergency preparedness framework. What did this mean in terms of actual health governance? During the NYC H1N1 pandemic, the reality was local control with DOHMH the effective unit of decision-making and action.

One can explain this outcome through a reading of the agency/structure debate that sees the two as mutually constitutive (Giddens 1984). As institutionalised, the rhetoric and protocols of all-hazards emergency preparedness propelled NYC into action as a prepared first responder. The lack of fit between the federally mandated framework with its worst-case scenarios and the mild H1N1 outbreak provided the opportunity for NYC to seize the initiative by developing its own plans for the return of H1N1 in Fall 2009, based on its own reading of the evidence.

At the same time, agent-specific characteristics – the size, resource level and experience of DOHMH, its surveillance capacity, the expertise of local public health officials, as well as their close working relationship with CDC, were all crucially important. This meant that with minimal back-up, DOHMH was able to follow their plan as warranted and improvise more realistic solutions as needed. Thus a combination of structurally induced opportunity and actor specific strengths facilitated effective local governance. Not all local public health departments would have been able to seize the policy initiative and act as effectively; however several other large US cities and metropolitan areas have health departments similar to New York's.

Looking at 'lessons learned' from the 2009 NYC H1N1 pandemic gives us additional insight into the governance issue. A review of reports and studies published up to Fall 2011 finds that they emphasise the importance of on-the-scene surveillance and evaluation, flexibility and adaptability, deference to local knowledge and authority and evidence-based policy.⁴ Although revised models may solve some of the specific problems encountered in NYC, they will not necessarily change the overall conclusion, which emphasises local initiative and decision-making and the need for adequate resources for first responders. Moreover, because it is not clear that a technical fix can eliminate uncertainty, response may remain dependent on the locality and thus on actor-specific characteristics – the mix of local expertise and resource capacity – and therefore remain unevenly distributed spatially.

In underlining the importance of the locality as a first line of defence for threats of infectious disease and linking this function to policy initiative in regard to health governance, this study illustrates the continuing relevance of Weber's insight into the institutional structure of the city. Although NYC may be particularly qualified to exhibit autonomy regarding security functions and although various political, economic and cultural factors may affect the ability of other localities to act in a similar fashion, to the extent that localities face threats to their security, they will need to defend themselves. To do so effectively, they need *more* rather than less autonomy. Along these lines, health policy should pay more attention to cities and metropolitan areas as agents of health governance; urbanists should note that the rescaling of governance can be a function of defence or security as well as economic needs.

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Notes

- 1 Supra-state organizations (such as the European Union) and non-state actors (such as Human Rights Watch, the Organization of the Petroleum Exporting Countries, Al Qaida) are among the challenges that have contributed to this reformulation of international relations.

- 2 The WHO has become increasingly influential over the past 30 years, setting global standards including criteria for pandemics and monitoring surveillance (Swendiman and Jones 2009: 7).
- 3 From 2002 to 2010 Congress gave \$11.4 billion in grants to states to build public health and medical capacity in preparation for health-related threats (Lister 2011, Figures 1 and 2: 6, 8).
- 4 Among others: Balter *et al.* (2010), Bell *et al.* (2009), Farley (2009), Klaiman *et al.* (2011), Levi *et al.* (2009), Lister (2011), McKenna (2009), Schnirring (2011), Schuchat *et al.* (2011), Simoncelli (2009), PCAST (2009), Steinhardt (2009), Swendiman and Jones (2009), US Department of Education (2009).

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