Mobilising "vulnerability" in the public health response to pandemic influenza

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ABSTRACT

Analysis of public health's growing interest in "vulnerability" has largely focused on health policy, with little interrogation of how vulnerability is being actively appropriated, countered, ignored or reworked by the publics whose health such policy is designed to protect. Once the assemblage of public health is understood as comprised of different forms of expertise and actors, *including* publics, addressing this gap matters. We examine the use of vulnerability in the specific context of pandemic influenza preparedness. Pandemic preparedness raises some familiar dilemmas for public health governance: how to engage with publics without fuelling social divisions and disruption; and whether to invoke publics as passive recipients of public health advice or to recognise publics as collective agents responding to the threat of pandemic influenza. Thus, we ask how the mobilisation of vulnerability connects with these dilemmas. To examine vulnerability in pandemic preparedness, two forms of qualitative data are analysed: 1) interviews and focus groups with "vulnerable" and "healthy" people (conducted 2011—12) discussing seasonal and pandemic influenza and; 2) international, Australian national and state level pandemic plans (1999—2013). Vulnerability is variously used in plans as a way to identify groups at particular risk of infection because of pre-existing clinical conditions, and as a free-floating social category that *could* apply to a broad range of people potentially involved in the social disruption a pandemic might entail. Our interview and focus group data indicate that healthy people rework the free-floating extension of vulnerability, and that people designated vulnerable encounter an absence of any collective responsibility for the threat of pandemic influenza. Our analysis suggests that vulnerability's mobilisation in pandemic preparedness limits the connection between public health governance and its publics: here, the openness and unpredictability of people's collective agency is something to be tightly controlled by a government concerned with protecting people from themselves.

Introduction: growing public health interest in "vulnerability"

Public health interest in "vulnerable populations" is growing. This is indicated by the four-fold increase in the number of articles with "vulnerable" in the abstract in the key public health journal, *The American Journal of Public Health,* in the decade Jan 1993—Dec 2002 (24 articles) as compared with the decade Jan 2003—Dec 2012 (105). Growth is evident in public health's core discipline, epidemiology, where arguments are being advanced in favour of studying "vulnerability" in place of epidemiology's traditional object, "risk". Consider for instance an *American Journal of Public Health* article that outlines how the category of vulnerable populations can address the short-comings of risk groups, i.e. risk groups over-emphasise individual acts and narrow causes of disease at the expense of "shared social characteristics" often "associated with [a vulnerable group's] position in the social structure" (Frohlich & Potvin, 2008, p. 219). This shift in epidemiology is illustrated by tracking UNAIDS reporting of the global HIV epidemic; looking from the 1990s through to 2010 we see the category of risk groups being replaced by risk behaviour and more recently the introduction of vulnerable populations and vulnerable sub-populations (UNAIDS, 2010). While growing interest in vulnerability is patent, it is unclear *how* this interest is actually unfolding in public health.

One explanation of epidemiological deployment of vulnerability could be to see it as the welcome outcome of decades of effort on the part of a Health and Human Rights approach to health (Mann et al., 1994), which works to integrate the advancement of human

rights with public health. Vulnerable populations are one of the Health and Human Rights perspective's main objects of interest; importantly structures are seen to *cause* vulnerabilities that individuals cannot act on unless there is a structural intervention that "protects" them (e.g. Farmer, 1996; Toubia, 1995). This explanation might suggest that public health interest in vulnerability will prompt action on structural causes and social determinants of health and illness, advancing attempts to address health inequities and inequalities.

However, public health interest in vulnerability is fuelled by more than Health and Human Rights work. Vulnerability is central to contemporary efforts to cast health as matter of security (Brown, 2011; Collier, 2011; Cooper, 2008). Consider the World Health Organization (WHO) (2007) annual report, *A Safer Future: Global Public Health Security in the 21st Century*. After detailing an array of threats to human health — most of which emphasise North/South differences in disease patterning and public health means of response — WHO declares "vulnerability is universal" (WHO, 2007, p. vi). Vulnerability's pervasiveness justifies efforts "to build a safer future for humanity" in the form of "global public health security … [defined] as the activities required, both proactive and reactive, to minimise vulnerability to acute public health events that endanger the collective health of populations" (WHO, 2007, p. ix). Health securitisation and a Health and Human Rights approach both connect vulnerability to social inequalities, but the connection is framed differently and appears to invite different responses.

There is debate over the kinds of public health actions prompted by health securitisation. Some research on recent US national emergency preparedness policies identifies a new focus on strengthening the governance of "vital systems" (e.g. water, electricity, communication between levels and sectors of government and between government and business) at the expense of a direct focus on population health and welfare — and explains the shift by identifying the emergence of a distinct political rationality of collective security, "vital systems security" (e.g. Collier & Lakoff, 2008). Informed by this rationality, US emergency plans do "not seek to intervene in the conditions of existence of members of the population … [as] the conditions of existence of members of the population are not a political problem" (Lakoff, 2007, p. 271). Others, examining differences between some European nations' policies, question whether contemporary attempts to govern insecurity necessarily lead to the mobilisation of new rationalities of collective security; e.g. rather than "reformulate governmental strategies in the name of a new logic of securitization", France has intensified longstanding contingency planning efforts (Lentzos & Rose, 2009, p. 239). Acknowledging such variation serves to usefully question any assumption of

'a common and consensual epistemic community' (Bigo, 2006, p. 20) [when] the reality is that [governing insecurity involves] …a heterogeneous complex that requires a continual, and potentially fragile, labour of coordination among diverse agencies, … not so much a single programme, but the attempt to shape networks that will bring together a whole variety of diverse entities upon what is perceived as a common threat (Bigo, 2006).

Lentzos & Rose, 2009, p. 246

This debate over how securitisation unfolds in policy serves as an important reminder about the heterogeneous nature not only of attempts to govern insecurity, but of the assemblage that constitutes public health. Thus, we cannot answer questions about how public health interest in vulnerable populations is being mobilised in the abstract, but only by identifying vulnerability's trajectories through the particular networks being formed around specific public health challenges in specific contexts. Moreover, as we will discuss below, analysing the mobilisation of vulnerability in public health also involves consideration of public health's capacity to engage publics — the people who are affected or not, attuned or not, actively experimenting or not — as actors involved in constituting public health, not mere recipients of public health wisdom (Kippax, Stephenson, Aggleton, & Parker, 2013).

Thus the concern of this paper is to examine how public health interest in vulnerability unfolds in the domain of the Australian public health response to pandemic influenza (a domain that includes public health policy and action, as well as the publics' experiences).

Responding to the threat of pandemic influenza

Seasonal influenza is a long-standing interest for public health globally, involving WHO's largest and longest running network of international expertise. However public health preparedness for an influenza *pandemic* of potentially catastrophic proportions is largely a 21st century phenomenon (WHO, 1999). Devoting huge resources to the unpredictable possibility of a severe pandemic is not only justified on the grounds that it should mean public health can better respond in the event of an influenza pandemic, but this preparedness should translate into better responses to any respiratory emerging infectious disease or pathogen, including bioterrorism threats (Lakoff, 2007). Thus pandemic influenza planning can be viewed as one part of a growing apparatus designed to turn the threat of disease manifesting as an unpredictable catastrophe into a manageable threat (Collier, Lakoff, & Rabinow, 2004).

Influenza has some properties that lend it to its role as model catastrophic threat. Its transmission is relatively difficult to prevent, being air- and fomite-borne (WHO, 2009a). Influenza viruses shift and mutate relatively rapidly and while there is a vast public health machinery developed to anticipate these changes (starting with WHO's biannual recommendation of virus strains to include in Northern and Southern hemisphere vaccinations for the coming flu season), these changes are commonly understood as fundamentally unpredictable. Because prior exposure to a particular virus or related virus differs with age across a population, it is also impossible to predict who will be most affected. Finally, influenza transmission is swift, a challenge that is pushing public health to devise new modes of surveillance and rapid reporting (Kelly et al., 2011; Schindleler et al., 2009).

WHO efforts to guide regional and national plans began in the late 1990s, and intensified following the outbreak of SARS in 2002 and the 2003 identification of a highly pathogenic virus, H5N1 (avian influenza) infecting people via birds. WHO published its first full pandemic plan in 2005, the same year that the revised International Health Regulations (IHR) were published. IHR (WHO, 2005) aim to augment WHO's powers to govern the international response to diseases that challenge "public health security" by "prevent[ing], protect[ing] against, control[ling] and provid[ing] a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade" (WHO, 2005, p. 10). When WHO declared an actual pandemic, on 11 June 2009, on the basis of the transcontinental circulation of the H1N1 (swine flu) virus, this was recognised and evaluated as the first test-case for WHO's IHR (WHO, 2011).

The Australian Department of Health and Ageing (DoHA) developed its first influenza pandemic planning document in 1999 (DoHA, 1999), established the National Influenza Pandemic Action Committee in 2005, and published the first Australian Health

Management Plan for Pandemic Influenza in 2006 (DoHA, 2006). The national plan was rewritten following exercises Cumpston in 2006 (DoHA, 2007) and Sustain in 2008 (Council of Australian Governments (COAG), 2009) to test the nation's response capacity in the event of a catastrophic pandemic event. While ordinarily Australian States and Territories have responsibility for health within their jurisdictions, under the National Health Security Act (2007) (enacting Australia's responsibilities under the IHR) the Australian Commonwealth takes control in the event of a pandemic, as happened in 2009. However, each State and Territory has developed plans to align their objectives with and to implement the national response – or in the case of a less severe outbreak, a State or Territory response. During the H1N1 (2009) outbreak, Australia moved from its "delay" to "contain" pandemic phase on 22 May 2009, effectively acknowledging widespread community transmission (DoHA, 2011).

The H1N1 (2009) influenza virus was not the virus anticipated in pandemic plans. While some groups were badly affected and hospital capacity was severely tested, seen from a population perspective it was a relatively mild virus. Epidemiological evidence suggests that influenza mortality was lower in the 2009 flu season than in previous years (Kelly, 2011). Australian research undertaken during the 2009 pandemic (Seale et al., 2009) indicated that the public were not overly concerned about what was unfolding, and when the Commonwealth launched a H1N1 vaccine campaign on 30 September 2009 the uptake was deemed disappointingly low by some (DoHA, 2011). These indications of the Australian public's relative disengagement are alternately lamented as a failure on the part of public health, or understood as a sensible response to a mild virus.

Returning to the prospect of a severe pandemic, the challenges faced by public health planners trying to anticipate and forge a good connection between public health and its publics are familiar. As articulated in the Australian Review (DoHA, 2011) of the H1N1 (2009) response, public health needs to walk a line between informing publics to gain compliance with public health measures and provoking anxiety and social disruption (Davis, Stephenson, & Flowers, 2011; DoHA, 2011, p. 22). Public anxiety can undermine the public health response to infectious disease. On this, the 1994 outbreak of pneumonic plague in Surat (Gujarat, India) is often cited; public fear manifested as a mass exodus from the city, hampering containment (Shah, 1997). As infectious diseases trigger fear of contagion, public health needs to attend to the emergence of social divisions and to the role that public health itself can play in this. For instance, in 1983 the US Centers for Disease Control and Prevention (CDC) started to newly employ the concept of risk groups to grasp the epidemiology of HIV. Focussing on risk groups meant that a virus was conflated with identity, fuelling homophobic, misogynist and racist stigma (Patton, 2002; Waldby, 1996). More broadly, public health is continually challenged with whether to try to engage people as passive recipients of expert information that they will compliantly act on, or as actively appropriating and generating ideas and practices. That is, can public health respond to people as collective agents who not only participate in meaningful (to them) social practice, but who may strive to develop and experiment with social practices in response to the challenges that present in their lives? This kind of creativity and experimentation can be fundamental to social change. This latter approach complicates the value of randomised control trials in the domain of health promotion. Yet there is evidence that effective public engagement in the response to infectious disease is underpinned by public health willingness to understand and work with its publics' efforts to experiment with devising responses to the threat of disease (e.g. Baum, 2008; Kippax, 1998; Race, 2012; Stephenson & Kippax, 2006). Is vulnerability being used in ways that align with

connections between public health and publics premised on such collective agency? Our research asks how vulnerability discourse is appropriated in public health policy and by publics in the specific domain of pandemic influenza, and whether it opens, closes or reworks possibilities for public health to connect to publics as collective agents.

The study design

The data analysed in this paper were collected as part of an Australian Research Council funded project (DP110101081) on public understandings of pandemic influenza. After institutional ethics approval, interviews and focus group triggers were piloted and participants were recruited from two cities – Sydney and Melbourne (the two largest cities in Australia) both of which had outbreaks of H1N1 (2009) influenza virus (data was also collected in Scotland, but as this paper focuses on the Australian response to pandemic influenza, its analysis is not included here). Purposive criteria, guided by Australian influenza policy documents, were used in recruitment, allowing comparison of "healthy" and "vulnerable" members of the public. The latter were: women who were pregnant in 2009; older members of the community (71 years of age and older); people with compromised immune systems or chronic respiratory illness (e.g. chronic obstructive pulmonary disease, cystic fibrosis, asthma). The former were people under 71 who self-identified as being healthy and who gave no biographical details that aligned them with vulnerable groups as described above. Participants completed a brief socio-demographic questionnaire giving details of their age, health status, health of people they cared for, recent pregnancies, experiences of influenza, vaccination, and use of medication – information used to enable the segmentation of participants into groups. While not specifically targeted, two participants identified themselves as Indigenous Australians. In addition, recruitment was conducted to ensure: a balance of male and female participants; a range of ages; and a mix of places of residence. Recruitment was done via posters placed in community centres, direct contact with relevant organisations (e.g. community groups) and some snowball sampling.

We conducted semi-structured interviews and focus groups (lasting 40–90 min). Interview and focus group schedules both covered: 1) questions about participants' own health and close family (including experiences of infectious diseases if any, broad and specific cold and influenza related medications use); 2) ideas about and experiences of pandemic influenza (including knowledge and experiences of having – or caring for someone with – flu, ideas and practices pertaining to prevention and their experiences of and actions during the H1N1 2009 pandemic, and in the imagined future); and 3) discussion about media, science and public health roles and responses. Eleven media clips, sourced from Australian newspapers and TV news items (TV news items were accessed via the Australian Health News Collaboration archive) were used to prompt consideration of the public health role and challenges in relation to protective masks, "swine flu parties", vaccination, drug stockpiling and public health powers. Interviewers selected clips as means of inviting discussion about topics that participants were not spontaneously volunteering.

Data collection took place between May 2011 and June 2012. In total, 90 people participated (53 in Sydney, 37 in Melbourne), including 58 women and 32 men. Forty-four people participated in interviews and 46 people participated in eight separate focus groups. On the basis of the socio-demographic questionaries, researchers assigned roughly 52% ($n = 47$) of participants to the categories pertaining to vulnerability (including the transitory experience of pregnancy during 2009) and 43% ($n = 39$) were self-identified as healthy. An additional four participants reported

health issues that are not included in the categories pertaining to influenza vulnerability (e.g. diabetes and having a disability) (See Table 1). Data from these four participants are not included in the analysis below. Healthy women participants who had been pregnant during the Southern hemisphere 2009 pandemic were assigned to a vulnerable category. Further distribution of participants included by place of residence and age can be see in Table 1.

Audio-recordings were transcribed and de-identified. Inductive data coding using NVivo software started with a pilot coding schedule designed to capture emerging themes across the data. Four researchers trialled and developed the thematic coding schedule by double-coding 25% of the data set prior to finalising the coding schedule. Further double-coding was undertaken and discussed as coding proceeded. The descriptive themes coded included, though not exhaustively: participants' and close others' current health; child care; gendering; drugs and antivirals; vaccines; media; people's strategies for managing flu; knowledge and facts about flu; creative associations between pandemic influenza and other aspects of life or possible threats; future pandemics; government and public health responses; primary health care and GPs; trust/uncertainty about public health/science/biomedicine; vulnerable populations and vulnerability to influenza; and work and economy. The themes essentially offered descriptive handles on the multiple issues and tensions that arose in the data.

While these themes reflect features of public experiences as conveyed in the interviews and focus groups, importantly, they do not explain why influenza is experienced or understood in particular ways. Our approach to data analysis involves casting experience as evoked by participants as a problem to be explained by examining the specific social and historical processes entailed in its production (Scott, 1991). This analytic approach is informed by discussions of Foucauldian scholarship on subjectivity and experience, discussions which problematise notions of a self who has privileged knowledge of his or her interiority and who represents that interiority to others in situations such as interviews. Hence, the mode of analysis we undertook involved asking how common sense meanings that arise *in the data* (meanings about an object such as H5N1) are constructed through social practices and discourses – in this case discourses pertaining to health (Haug, 1987; Stephenson & Papadopoulos, 2006). Our analysis further entails considering some of the potential implications of this questioning of common sense meanings for pandemic planning. As indicated above, one of the themes that arose in the data was vulnerability to pandemic influenza. Our analysis began with all the data coded under the vulnerability theme, examining the ways in which it appeared to be deployed in people's accounts, as well as absences, and proceeded by asking *how* notions of vulnerability are deployed in participants' accounts.

In what follows we examine divergent accounts of vulnerability as conveyed by healthy and vulnerable people that – seen together – indicate an absence of collective responsibility for responding to pandemic influenza threats. We further identify two distinct uses of vulnerability evident in pandemic plans – as an indication of either clinical predisposition or of free-floating potential catastrophe. Analysing people's experience and policy together enables us to ask: how does the deployment of vulnerability shape the familiar challenge public health faces of including its publics as collective agents rather than passive recipients; and whether these specific uses of vulnerability appear to support public health efforts to address the "shared social characteristics" often "associated with [a vulnerable group's] position in the social structure" (Frohlich & Potvin, 2008, p. 219)?.

Vulnerability as seen by the vulnerable

How are notions of vulnerability being actively appropriated, countered, ignored or reworked by the publics whose health is supposed to be protected by the public health response to pandemic influenza? Not unsurprisingly, vulnerability was often raised by people who could be designated vulnerable themselves but rarely discussed by participants who did not belong to one of the vulnerable groups recognised by public health. Rather than accept this division between vulnerable and healthy people as self-evident, how does this predictable split unfold?

Vulnerability to pandemic influenza is not experienced in a uniform way by people designated as vulnerable. Women we interviewed who were pregnant during H1N1 (2009) voiced a range of retrospective assessments about how they understood their situation at the time, from "'it's not gonna happen to me'… it wasn't close enough" (Marilyn, 30s, pregnant) through to socially isolating themselves for weeks. However, speaking about pandemic influenza retrospectively, the vulnerability associated with pregnancy had passed.

Participants whose vulnerability arose from chronic medical conditions also diverged in their engagement with pandemic influenza. One man invoked a sense of *invulnerability*, saying, "I normally avoid the flu" (Rob, 40s, chronic illness). However, the vast majority talked at length about their ordinary day to day management of domestic and social lives, and how the threat of pandemic influenza played into this complicated task. Sometimes family were the most likely source of understanding and support for this work:

My mum and dad… stay away with stuff like that [colds and flus]. … Like we talk on the phone every day … but, when I'm particularly sick or when there's something going around … my family doesn't come to visit. [Kora, 30s, chronic lung condition]

However, talk of the struggle of gaining the full practical cooperation of close family was also common. Here, Fleur casts this struggle in terms of an incommensurability of experiences:

People do think you're a little bit paranoid and strange. I remember actually asking my husband if he would take some hand sanitiser to work and keep it on his desk. And, you know, like washing hands and sanitising hands a bit more frequently to try to avoid getting sick. And this is before, before we had the [pandemic influenza] vaccination. He was like, "Whoa! Work and business and people will think I'm strange, and you can't wash your hands after you shake hands with someone!" And he'd come home and I'd say, "How did you go?" And he'd say,

Table 1
Comparison of "vulnerable" people and "healthy" people.

Category	Total	Gender		Place of residence		Age					
		Female	Male	Inner suburbs	Outer suburbs/semi-rural	18−30	31−40	41−50	51−60	61−70	71+
"Vulnerable" people	47	32	15	16	31	4	11	1	3	14	14
"Healthy" people	39	24	15	24	15	10	2	10	9	8	0
Other health issues	4	2	2	2	2	0	1	0	2	1	0
TOTAL	90	58	32	42	48	14	14	11	14	23	14

"Oh, I washed my hands four times today." I'm like, "Okay … four times? What, when you went to the bathroom?" "Yeah." Oh gosh … so …Even someone that close to me it's still really difficult to explain to someone. Yeah. *He did care* − that's for sure − *but I just don't think that he could possibly understand*. [Fleur, 30s, chronic lung condition, emphasis added]

Other participants described family members as resisting engaging with the complexity of organising daily life around chronic conditions, for instance:

Boris: [talking about his family] Yeah, they get offended. You know, when you first come down with this disease [COPD], a lot of people don't know how to look after you or even approach you − not even family … You say 'If you've got a cold, you know, stay away until you get rid of it' and they take offence to it. They think you're offending them, you know. …

Kate: No, your boys [sons]. Would they get the vaccine?

Boris: No, I don't think they do. I think that's part of the trouble. I don't know what they're gonna carry. I mean I've had my brother turn up at the door with a cold… You'd think he'd learn. [Focus Group, 61–70s, chronic lung condition]

The challenges of daily life get more complicated still when people discuss their lives beyond family and close friends. The invisibility of vulnerability (again, with the exception of pregnant women) was repeatedly described. Disclosure was an issue for some, saying for instance, "I was so embarrassed when I found out I had emphysema. I couldn't tell anybody." (Glenda, 60s, focus group member, chronic lung condition). More often such fear was cast as a phase to be navigated, but disclosure is not a single act. Hence, influenza and pandemic influenza were described as exacerbating the problem of invisibility, as vulnerability is often not immediately recognisable through observation:

… you don't look sick. Like I'm not walking around with a walking frame or a limp, or, you know, people can't understand what they can't see. [Mitzi, 30s, chronic lung condition]

I don't think people take it seriously because I do appear healthy … but I'm not, and I could be really unhealthy if I got this flu. … It's really hard to explain to people that just because I look healthy doesn't mean I am. [Fleur, 30s, chronic lung condition]

Beyond people's close social circles, vulnerability was experienced as imperceptible, and healthy people were cast as doing little to prevent the transmission of influenza. This inaction was expressed in specific terms (e.g. sick colleagues coming to work) and also general terms alluding to more than influenza (e.g. in discussing the irresponsibility of parents who do not immunise their children).

As described above, responding to the threat of pandemic influenza demands that public health engages attentive publics without unintentionally unleashing public fear. Participants understood this dilemma, but at times conveyed concern over the lack of understanding in the wider community about the potential seriousness of influenza to some groups in particular. For instance Mitzi and Lilly said:

I don't think people realise you can die from that either. I mean they think every sniffle and … little cough is the same thing. But you don't want them to be panicked and over-prepared, and over-kill. [Mitzi, 30s, chronic lung condition]

I liken it to snakes and spiders. People don't realise that [spiders] or red-bellied black snakes, they do kill but they don't kill a fit, healthy adult. … And it's the same kind of parallel with … with

influenza. And I don't think that was really expressed [in media coverage and public health information]. [Lilly, 30s, chronic lung condition]

However, in contrast to the idea that lack of knowledge *per se* explains the wider public's disinterest, others thought that healthy people's knowledge was overridden by their own bodily experiences of influenza:

There's more of an awareness … or within my circles, how the flu can affect those in the more fragile groups … But … because most of my circles actually had swine flu or suspected they had swine flu, I think it actually brought *down* the fear because people experienced it themselves and … they got over it in a few weeks and were really scratching their head going, 'What was all the fuss over?'. [Pippa, 30s, chronic lung condition]

What healthy people appeared to lack, from the perspective of vulnerable people, was a sense of a shared problem that could be acted on collectively. This is a notable absence given the evidence that effective prevention of infectious disease hinges on countering divisions within communities so as to enable collective responses (Kippax & Race, 2003).

Healthy people's relative disinterest in vulnerability

Most healthy people were familiar with the idea that some groups of people are more vulnerable to influenza than others and their ideas of who these groups were concurred with public health designations. Many healthy people also mentioned general protective practices of staying away from small babies or elderly people if they or their children had flu symptoms. However, it was notable that people had very little to say about these protective practices, rather they were mentioned as habitual ways of acting and people did not discuss in any depth occasions when they might have had to think about or change these general protective habits. Vulnerability was not problematised by healthy Australians. Given that airborne or fomite transmission of influenza viruses is relatively difficult to avoid in comparison to many other infectious diseases, healthy people's disinterest in vulnerability is noteworthy. Although the ever-present possibility of vulnerability in the sense of infection was commonly acknowledged it was reworked as "immunity". When asked about preventing influenza transmission, healthy participants repeatedly qualified their endorsement of public health strategies (e.g. cough etiquette and hand hygiene), referring to the likely limitations of such strategies; participants then changed the topic and described what they do to cultivate their individual immune systems. The shift from prevention to immunity in the event of exposure is illustrated in Linda's account:

Interviewer: So did you do anything else around that time [2009 pandemic] to sort of try and avoid catching anything?

Linda: Oh well we looked after ourselves… We took our preparations … Like our immune-boosting things. We take Echinacea and vitamin C powder. So … we usually take that if we've got the slightest signs [of a cold or flu] … But because this was so prevalent in the community we decided that we'd take the Echinacea daily. [Linda, 60s, healthy]

Participants' constant spontaneous elaboration (interviewers did not ask about it) of immunity building practices conveyed a distinct notion of immunity − what we call "choice immunity" (Davis, 2012). People described diverse immunity practices,

variously informed by medical knowledge, media and, in particular, advertising. Importantly, building immunity was spoken of as a realm of individual *volition and choice*. This individualistic notion of choice immunity appeared to inform decision-making about influenza vaccination — with the exception of some older (70s plus) participants, the potential importance of herd immunity in protecting not only oneself but others from influenza was not raised.

Where is collective responsibility for pandemic influenza?

Together, people's investment in individualistic choice immunity and the social isolation described by vulnerable people signal the absence of collective responsibility for responding to the threat of pandemic influenza. The experiences of isolation described by those designated vulnerable could be read as familiar expressions of the everyday difficulties that chronic health conditions often entail; social isolation is not the direct outcome of public health interest in vulnerability, but mediated by it. Equally, the elision in healthy people's accounts — between knowledge of pandemic influenza as a *common p*roblem and the solution as a matter of *individualistically* cast, choice immunity — is not new. For instance, within public health there are some efforts to counter individualistic approaches to disease transmission. Consider efforts to promote vaccination (influenza and childhood) as an "altruistic" practice to protect others, health services, as well as oneself (Editorial, 2009, p. 698). Yet, we have seen decades of addressing publics as individually responsible for their health and health outcomes (Rose, 2001). This mode of address aligns with, and arguably mediates, people's reworking of vulnerability via notions of choice immunity.

We are not trying to establish that the apparent absence of forging a response to pandemic influenza as a collective is the direct outcome of particular public health messages. As part of a concerted effort to engage publics as collectively facing a common problem, the Australian Federal and State governments' plans (and public communications in 2009) involved uniform messages directed at *all* about preventing the transmission of influenza. Yet, people's ideas about disease and their appropriation of vulnerability do not begin and end with the content of government messages, but are continually mediated by contexts and specific concerns. Our analysis of people's accounts suggests that government efforts to engage publics as sharing responsibility for prevention are challenged by familiar social divisions and imagined individual solutions. It appears that people's appropriations of vulnerability do not ameliorate these predictable problems.

Rather than conclude that any misunderstandings circulating in people's everyday experiences need correction via better information about vulnerability, we now examine people's appropriations alongside the distinct uses of vulnerability evident in pandemic planning. Expanding the terrain of analysis in this way will suggest that the individualistic discourse of choice immunity is an understandable, albeit deeply problematic, response to notions that "vulnerability [to pandemic influenza] is universal" (WHO, 2007, p. vi).

Vulnerability in pandemic plans: from clinical condition to free-floating catastrophic potential

Vulnerability is used more frequently over time in pandemic influenza policy documents, but also for different purposes. It is rarely mentioned in early planning, e.g. WHO's (1999) first preparedness document makes only one mention. Here, vulnerable populations serve as a familiar clinical index of the severity of a pandemic virus. Similarly, the first Federal *Framework for an Australian Influenza Pandemic Plan* (DoHA, 1999) invokes

vulnerability as a clinical indicator, outlining pre-existing medical conditions that are likely to render some people vulnerable to influenza. However, this changes as vulnerability travels through over-arching international guidance documents, national and state level plans and implementation guidelines: the importance of addressing vulnerability in the public health *response* becomes foregrounded. A decade after its single clinical index mention in WHO's 1999 plan, WHO's updated (2009b) plan casts vulnerable populations as an important priority for pandemic communication, a move that is justified as part of trust building communication with the wider public (p. 37). Similarly, the Australian 2011 Review (DoHA, 2011) of the national response to H1N1 continuously mentions vulnerable groups (33 times) emphasising their particular need for public health protection measures and targeted communication. Communicating with vulnerable populations is also emphasised in Australian State policies and service documents (e.g. see NSW Health, 2005, 2010).

Crucially, as we move from over-arching plans towards documents designed to inform the implementation of plans, vulnerability starts to expand beyond something arising from a medical condition into an ever-present, *possible* condition that could affect almost anyone in the event of a pandemic. For instance the State-level 2008 *Community Support and Recovery Sub Plan* of the *Victorian Human Influenza Pandemic Plan* sees the identification of vulnerable groups as one of the main modes of scoping the community support required (State Government of Victoria, 2008). Now the category "vulnerable groups" includes people with specific medical conditions alongside young and single parent families, older people, the socially isolated, the unemployed, people with low incomes, people with disabilities, Indigenous communities, the homeless and substance dependant. In addition the sub plan identifies likely "emerging vulnerable groups", including people who are sick, quarantined, orphaned, bereaved, those with sick caregivers or who have lost their jobs, *the worried well*, overseas students, tourists, families, farmers, small business owners and health care workers. Vulnerability denotes the ever present potential that could affect anyone either in the form of infection or following the disruption that a pandemic might unleash. It might be argued that the apparent elasticity of vulnerability could render it useless to either pandemic planners or those involved in the containment and mitigation efforts. Yet, this elasticity of vulnerability echoes WHO's securitised claim that "vulnerability is universal" (2007, p. vi), and could also be a means through which public health interests and expertise are extended into broader and broader realms of governance, i.e. the widespread use of vulnerability appears to support efforts to medicalise governance (Elbe, 2010).

Thus vulnerability is put to work in distinct ways in pandemic plans. Firstly, vulnerability is a means of identifying disease severity and attuning the public health response to clinical conditions involved in the patterning of disease in the population. Secondly, it is a means of bringing potential social chaos more firmly within the purview of public health, a use of vulnerability that could — like WHO's turn to vulnerability alongside the publishing of the revised IHR — serve to justify the solidification of public health powers and the expansion of its remit.

Mobilising vulnerability: constraining public health engagement with collective agency

Pandemic preparedness raises some familiar dilemmas for public health governance: how to engage with publics without fuelling social divisions and disruption; and whether to invoke publics as passive recipients of public health advice or to recognise them as collectively and actively responding to the threat of

pandemic influenza. Our research has examined *how* vulnerability discourse is experienced and appropriated by publics; and we now turn to further consider the possibilities being opened or closed for public health to connect with publics as active agents.

Examining the use of vulnerability in pandemic plans and people's accounts suggests it follows divergent trajectories not simply between policy and lived experience, but across the complex terrain making up the public health response to the threat of pandemic influenza. Publics appear to do more than accept or reject notions of vulnerability, but to be actively appropriating and reworking them. One use of vulnerability is as a means of categorising segments of the population whose health is most likely to be affected by infection. Those designated vulnerable to pandemic influenza evoke an incommensurability of experience with and their invisibility to healthy people. Healthy people appear to know what this kind of clinically indicated vulnerability is, and describe familiar, ingrained, habitual practices cultivated to protect *known* vulnerable others rather than unknown, invisible strangers. Taken together, these diverse appropriations of vulnerability foreground the absence of people's efforts to devise social practices that support the development of collective responsibility for responding to the threat of pandemic influenza.

This apparent absence of a collective response is crucial. Certainly there are public health efforts to engage people in acting on influenza as a common problem and a shared responsibility, for example through campaigns on hand hygiene and cough etiquette targeted widely. There is a difference, however, between such broad-based public health communications about shared responsibility and public health governance connecting with its publics as collective agents who are or might be involved in creatively responding to the threat of pandemic influenza as they see it. The second use of vulnerability in pandemic planning, i.e. casting populations as vulnerable to the ever present potential of infection and social chaos, seems to counter the possibility of connecting to publics as creative collectives who strive to address common problems, and to confuse communication efforts that invoke influenza transmission as a shared responsibility. Here, public health's efforts to cultivate and work with collective action on the part of people are delimited by the spectre of Surat, of uncontrolled social chaos that destabilises societies and contributes to disease transmission.

Thus, the mobilisation of vulnerability in pandemic influenza preparedness appears to limit how public health governance connects with publics. To "new public health" proponents of community strengths-based rather than deficit-based approaches to health promotion (e.g. Baum, 2008) this is likely to be unsurprising; when vulnerability engages populations via their supposed deficits it renders agency invisible or threatening. One response could be to replace the discourse of vulnerability with a strengths-based notion of resilience, and indeed the concept of resilience abounds in emergency planning. Targeting and augmenting *community* resilience is a core element of UK emergency planning (Lentzos & Rose, 2009); approaching communities this way is arguably an extension of the interest in resilient systems (e.g. as described in US plans by Lakoff, 2007). And resilience surfaces in Australian pandemic influenza preparedness. "Resilient communities" were invoked without being elaborated in the 2009 version of the *National Action Plan* (COAG, 2009) – although their mention disappeared in revised, shorter versions (COAG, 2010, 2011). Pandemic influenza comes under the rubric of disaster planning, and resilience features in some broader government emergency planning. For instance, the State-level NSW Disaster Plan (Government of New South Wales, 2009) elaborates on what resilient communities might entail (notably, via case studies of rural communities facing fire and flood, rather than urban communities facing disease transmission).

Perhaps the limitations of vulnerability are already being addressed?

While resilience does usefully invoke a strengths-based mode of connecting to communities, we suggest it simultaneously delimits what those strengths, or collective agency, might entail. Resilience invokes communities as active in the face of the threat of emergency – more than this, as responsible for effecting solutions – but any collective action is framed as a response to the problem of societal disarray caused by the absence of security (Neocleous, 2013). This suggests that community resilience is aligned with government preparedness efforts whose aims and modes of working have been pre-defined as matter of augmenting security. Seen through this lens, people's actions such as the perceived low uptake of pandemic influenza vaccination (Mak, Daly, Armstrong, & Effler, 2010) can *only* be interpreted as people's misunderstanding or lack of engagement with the reality of the threat – and not as a possible expression of community resilience to the spectacle of disaster pervading pandemic influenza policies. Vulnerability and resilience are indeed two sides of the same coin, they promise avenues to identify (vulnerability) and address (resilience) a pre-defined problem: the absence of security. Thus, we are not suggesting resilience as an alternative to vulnerability – each curtails public health engagement with people's collective agency that manifests as questioning the problem of insecurity. In this way the concept of resilience repeats without fundamentally reworking some of the constraints of addressing publics as vulnerable.

What might that questioning look like? Given that the potence of collective agency is its experimental *openness* (Papadopoulos, Stephenson, & Tsianos, 2008; Race, 2012) there can be no definitive answer to such questions. Yet, we can begin to consider answers by returning to what appears to be excluded in vulnerability's use in pandemic preparedness. At the outset we suggested that some public health framing of vulnerability foregrounds health inequities, a framing that promises to trigger or support public health action on the social and political drivers which produce health inequities. On this, those involved in identifying and responding to disease emergence, including that of pandemic influenza, habitually clearly outline the social, political and historical forces involved in disease emergence and patterning (e.g. Lederberg, 1996). In one of the early papers published in the CDC journal, *Emerging Infectious Disease*, Farmer (1996) challenges the newly developing field to translate this understanding of disease into the kinds of *responses* devised, such as action on the social determinants of disease patterning. Yet currently, any collective action that manifests as foregrounding the need to address the social and political drivers of health inequities broadly, or inequities which affect the patterning of influenza (Pasco et al., 2012), lies beyond the remit of response to vulnerability approached via the lens of insecurity, as in Australian public health. Thus, vulnerability is unfurling in pandemic planning as a means of: attuning the public health response to clinical conditions that affect the patterning of disease and; of extending public health's role in wider realms of governance (Elbe, 2010) by bringing social chaos more firmly within the purview of public health. This is happening at the expense of limiting public health governance's engagement with the creative potential of collective responses to the threat of pandemic threats. In the absence of this relation people are indeed actively engaging with vulnerability, but often by cultivating a highly individualistic strategy informed by notions of individual choice immunity.

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