

Exploring the international arena of global public health surveillance

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Threats posed by new, emerging or re-emerging communicable diseases are taking a global dimension, to which the World Health Organization (WHO) Secretariat has been responding with determination since 1995. Key to the global strategy for tackling epidemics across borders is the concept of global public health surveillance, which has been expanded and formalized by WHO and its technical partners through a number of recently developed instruments and initiatives. The adoption by the 58th World Health Assembly of the revised (2005) International Health Regulations provides the legal framework for mandating countries to link and coordinate their action through a universal network of surveillance networks. While novel environmental threats and outbreak-prone diseases have been increasingly identified during the past three decades, new processes of influence have appeared more recently, driven by the real or perceived threats of bio-terrorism and disruption of the global economy. Accordingly, the global surveillance agenda is being endorsed, and to some extent seized upon by new actors representing security and economic interests. This paper explores external factors influencing political commitment to comply with international health regulations and it illustrates adverse effects generated by: perceived threats to sovereignty, blurred international health agendas, lack of internationally recognized codes of conduct for outbreak investigations, and erosion of the impartiality and independence of international agencies. A companion paper (published in this issue) addresses the intrinsic difficulties that health systems of low-income countries are facing when submitted to the ever-increasing pressure to upgrade their public health surveillance capacity.

Keywords World Health Organization, public health surveillance, bioterrorism, international health regulations, communicable disease control

KEY MESSAGES

- The core argument over global surveillance has moved from public health concerns toward foreign and security policies, and economic interests.
- The impartiality and independence of the WHO Secretariat are at stake in this process.
- These elements challenge the sovereignty of WHO Member States and their commitment to abide by the revised (2005) International Health Regulations.

Purpose and methodology

The original idea and thematic areas framing this and a companion article (Calain 2007) arose from the author's observation of a significant gap between: (1) the rhetoric and

momentum entertained around the concept of global public health surveillance (introduced in the next three sections), and (2) the difficulties and resistance of national actors toward implementing public health policies prioritized under the (2005) International Health Regulations (IHR).

In an attempt to expose and understand this gap, two complementary perspectives were considered. Firstly, the

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international agencies (individuals, groups, organizations, nations) that have shaped and promoted the concept of global surveillance were explored to analyse influences acting beyond the strict realm of public health. This is the topic of this first article. Secondly, from the 'recipient's' side of international policies, the implementation of a global surveillance agenda is imposing new constraints and programmatic priorities upon developing countries, often relayed through development agencies. This country perspective is further analysed and illustrated in the companion article.

The methodology of both papers is based on an insider's perspective, from which the author could initiate the mapping of thematic categories that encompass different influences revolving around the concept of global surveillance. This mapping has two dimensions: historical and vertical (hierarchical). The author's past experience as a bystander of some key outbreak events pointed to the need for an historical (retrospective) component of the analysis. On the other hand, the vertical dimension of the problem became obvious from personal observations made at three levels of assignments (international, regional and national), mostly but not exclusively under World Health Organization (WHO) mandates. While an insider's access has inspired both the mapping of thematic categories and personal views on how they articulate with each other, supporting data (secondary research) have been exclusively selected from the public domain, essentially peer-reviewed articles or web-based documents.¹

As shown in further sections, data and discourse analysis around global public health surveillance lead to the two key observations, that: (1) WHO's impartiality and independence are strained by domestic political interests of influential Member States or economical forces, and (2) security and public health agendas interfere and create ambiguity over roles and mandates. I hypothesize that these two facts underpin perceived threats to sovereignty occurring in the process of abiding by the revised IHR. Primary research directly addressing individual views of country stakeholders involved in global surveillance networks would add further weight and present another facet to the analysis of the problem presented in this paper. Both approaches would be complementary however, since they would involve different perspectives and suffer from qualitatively different limitations in the retrieval of information.

In the centre of the arena: the WHO Secretariat and the revision of International Health Regulations

In May 2005, the 58th World Health Assembly adopted a much overdue revision of the IHR, referred to as the IHR(2005) (WHO 2005a). Compared with the 1969, 1973 and 1981 versions of the IHR, the revised regulations expand considerably the scope of internationally notifiable epidemic diseases, they accommodate criteria for novel epidemic events and they set out conditions for involvement of the international community in outbreak response. In May 1995, the 48th World Health Assembly had already adopted two resolutions calling, respectively, for a revision of the IHR and for the establishment of a comprehensive programme to tackle new, emerging and re-emerging infectious diseases (WHO 1995a). Accordingly, in October 1995, a new unit

was established at WHO as the Division of Emerging Viral and Bacterial Diseases Surveillance and Control (EMC) (WHO 1995b), to be later renamed successively as the Department of Communicable Diseases Surveillance and Response (CSR) and the Department of Epidemic and Pandemic Alert and Response (EPR). In 2000, under the operational support of CSR team members, a Global Outbreak Alert and Response Network (GOARN) was created to coordinate technical resources involved worldwide in combating outbreak-prone diseases (Enserink 2004). The apparent success of GOARN and collaborating technical partners in limiting the international spread of SARS in 2003 (Heymann and Rodier 2004) has vindicated efforts led by WHO to put the control of emerging or re-emerging diseases high on the global health agenda.

Next to giving itself the necessary legal instruments (through the revised IHR) and putting itself in a position to coordinate international response to outbreaks (through the GOARN), the WHO Secretariat has crystallized around the CSR/EPR Department a considerable amount of expertise in capacity building, in preparation for deliberate epidemics and in promoting public health surveillance at all levels. Inspired by a model developed from the early ages of the United States Centers for Disease Control and Prevention (US-CDC), WHO has become the flagship of the concept of global surveillance of communicable diseases (Heymann and Rodier 1998). Since 2003, a limited pandemic of SARS first, soon followed by the fearsome expansion of epizootic avian H5N1 influenza from South-East Asia to the entire Old World, have been putting this concept to the test. The SARS and avian influenza epidemics have certainly helped in facilitating the acceptance of the new IHR, through their combined health and economic impacts. Avian influenza H5N1 is now in the limelight of international health concerns by being seen as a possible precursor of an upcoming human pandemic (WHO 2005b). Since the end of 2005, several high profile meetings in Geneva, Ottawa, Tokyo and Beijing have tried to mobilize the international community to shift health priorities and financial resources toward preparedness against the anticipated influenza pandemic (Health Canada 2005; World Bank 2005; WHO 2005c; WHO Regional Office for the Western Pacific 2005). In May 2006, the 59th World Health Assembly called upon Member States to speed up the implementation of the IHR(2005), or at least of the provisions that are deemed relevant to the hazards posed by avian influenza and pandemic influenza (WHO 2006).

Historical landmarks of public health surveillance

Public health surveillance applied to outbreak detection and monitoring is not a new idea. During the plague of London in 1665, parish clerks compiled weekly bills of mortality detailing about 40 different causes of death (Naphy and Spicer 2001). In a recent era, the most influential character was Alexander Langmuir who established and popularized the modern concepts of disease surveillance, following the footsteps of the 19th century statistician William Farr (Thacker and Gregg 1996).² A public health epidemiologist by training, Langmuir pursued an academic career in parallel with holding high-level positions in committees of the US Department of Defense overseeing

biological warfare programmes during the World War II and the Cold War periods (Fee and Brown 2001). In 1949, he was recruited to the US-CDC, to become its chief epidemiologist. Building upon the US experience of malaria and poliomyelitis eradication programmes, he designed a remarkably successful national system of disease reporting and created the Epidemic Intelligence Service.

The 1990s saw the rise of the 'emerging diseases worldview', a post-colonial concept rooted in new biomedical concerns as much as in perceived threats from a 'de-territorialized' world.³ A landmark 1992 report of the US National Academy of Science (Institute of Medicine 1992) formalized the definitions of 'emerging' and 're-emerging' diseases and explicitly discussed their global implications. The social, humanitarian, economic and political fallout of (re)-emerging diseases became obvious, first in 1991 when cholera reappeared in South America (Sánchez and Taylor 1997) and next in April 1994 when plague broke out in Surat, India (Garrett 2001). The latter circumstance showed how panic and lack of leadership can lead to unnecessary impacts on national economies and on local communities (Cash and Narasimhan 2000). In April 1995, an outbreak of highly fatal cases of haemorrhagic fever in Kikwit in the Bandundu Province of DRC (former Zaire) came to the attention of the international health community through a network of informal and rather delayed channels, before it could be confirmed as the re-emergence of an Ebola virus. It attracted an unusual amount of press coverage and scientific attention worldwide, partly justified by concerns over international spread. Lessons from the outbreak in Kikwit (Heymann *et al.* 1999) led to surveillance being put at the core of CSR activities, and to the revival of interest in the International Health Regulations.⁴

Precursor regimes of international governance on communicable diseases actually date back to the first International Sanitary Conference of 1851. Under their successive formats, they already incorporated mixed concerns over public health as well as related trade and political issues (Fidler 2003). Their impact seems, however, to have been rather limited. In contrast, the widespread interest in international health regulations seen at the present time reveals new dimensions to the global public health debate, as well as far-reaching implications of global surveillance.

Semantic ambiguities

When Alexander Langmuir (1963, 1971) redefined surveillance to fit his own public health purposes, he departed from a former meaning which restricted the term to *individuals*, i.e. typically contacts who had to be followed up for signs of disease without restricting their movements by isolation or quarantine.⁵ Instead of individuals, Langmuir's (1963) modern view of surveillance applies to *diseases*, as defined by:

'the continued watchfulness over the distribution and trends of incidence through the systematic collection, consolidation and evaluation of morbidity and mortality reports and other relevant data. Intrinsic in the concept is the regular dissemination of the basic data and interpretations to all who have contributed and to all others who need to know.'

With some prophecy, Langmuir anticipated future problems and cautioned that: 'the actual performance of the research study should be recognized as a function separate from surveillance'. The blurred boundary between research and surveillance is a critical issue that was later emphasized by Stephen Thacker, a succeeding senior epidemiologist at the US-CDC.⁶ Thacker noted the ambiguities carried under 'disease surveillance' and 'epidemiologic surveillance', and he advocated the term 'public health surveillance' to avoid confusion with epidemiologic research (Thacker and Gregg 1996). Directly inspired by Thacker's definition, the WHO definition of public health surveillance proposed under resolution WHA58.3 (WHO 2005a) is clear enough to avoid confusion with research activities:

'Surveillance means the systematic ongoing collection, collation and analysis of data for public health purposes and the timely dissemination of public health information for assessment and public health response as necessary.'

Despite its clear merits, however, the latter definition carries two sources of ambiguity, which were further reflected during the international consultation process and in the drafting of advanced versions of the revised IHR(2005). These ambiguities relate to (1) the scope of health events targeted by surveillance, and (2) the sort of 'public health action' in which the international community – through WHO experts – will find itself involved by virtue of the IHR(2005) mandate. Shared concerns by some experts and policy makers over the scope of the new IHR appear in successive versions of a decision instrument annexed to the IHR(2005) (WHO 2004a). Initially designed exclusively as a criteria-based algorithm, the final version of the annex ultimately includes as well a number of specific diseases, leaving it open to frequent updates as new pathogenic agents become identified. In the same line, it is not explicit whether the IHR(2005) have regulatory authority over programme evaluation as well as detection of epidemics, both being classical components of communicable diseases surveillance.⁷ In a conceptual framework endorsed by members of the CSR team (McNabb *et al.* 2002), the two related components of 'public health action' (acute 'epidemic-type' response and planned 'management-type' response) are explicitly considered as complementary outputs of 'public health surveillance'. What will be missing in some cases of new epidemic threats, especially when the risk assessment is inconclusive, is a gauge of the degree of urgency from which international action is legitimate. These issues have some relevance obviously in terms of national sovereignty.

More recently, WHO has been promoting, developing and implementing in several countries the relatively new concept of Early Warning Systems (EWARS) for outbreak surveillance (WHO 2005d). Direct reference to EWARS would perhaps have lifted some ambiguities carried by too loose a definition of surveillance and would have better clarified the scope of the IHR(2005) and their derived requirements for Member States.

Of equal relevance to the scope of the IHR(2005) is the lack of conceptual clarity over the term 'global health security' (Aginam 2005; McInnes and Lee 2006). 'Global health security' features prominently in WHO policy documents (for an example see WHO 2001) to summarize the overall strategy

covered by epidemic alert and response activities. Other international alliances (Global Health Security Initiative 2006) use the term with a clear orientation toward the public health response to the specific threats of international biological, chemical and radio-nuclear terrorism.

Sovereignty and ethical standards

How and if Member States of WHO will abide by the IHR (2005) (which are to become legally binding in June 2007) will obviously depend on a delicate balance between perception of threats from specific health events (public health effects *per se*, or political or economical consequences), incentives set up by interested parties and any consideration of national sovereignty.

Sovereignty has been one of the main matters of discussion during successive consultations leading to resolution WHA58.3 (WHO 2004a). The issue has an additional level of complexity for countries with federal governments, where authority over public health is generally devolved to regional jurisdictions (Wilson *et al.* 2006). The IHR(2005) do not include a sanctions regime for States that fail to comply with their provisions (WHO 2005e). Several jurists (Plotkin and Kimball 1997; Fidler 2003) have stressed the marginal role of former versions of the IHR compared with other international regimes, notably the World Trade Organization⁸ and its related multilateral agreements dealing in a more direct way with factors causing the emergence of communicable diseases. It is, however, likely that the new IHR will become more influential than their precursor versions of 1969, 1973 and 1981, for several reasons: (1) the broader scope of health events under consideration, (2) a more active and better defined role for WHO in the response phase, and (3) more flexible mechanisms for WHO to circulate information critical to control public health threats (including information from non-official sources or about non-compliant state parties). Despite the latter opportunity embedded in the new IHR, it will remain as difficult as ever for WHO to exercise its handling of sensitive information, especially in a world where the press and the public are the driving forces behind increased transparency.

The 2003 SARS epidemic illustrates better than anything else how early disclosure of public health events can be felt as a threat to sovereignty by national authorities. The first known case of SARS was identified retrospectively in Guangdong province, China, as early as 16 November 2002 (Zhong *et al.* 2003). Although rumours of a worrying epidemic had obviously been circulating earlier (Rosling and Rosling 2003), it took until 11 February 2003 for Chinese authorities to acknowledge the gravity of the problem and to notify officially the international community and WHO of severe cases of respiratory diseases in Guangdong.⁹ Later, in April, China's health minister made official statements grossly understating the extent of the epidemic, which had by then reached the capital Beijing.¹⁰ The ultimate but delayed disclosure of accurate public health information by Chinese officials had in this case an obviously positive impact, but also a high political price (BBC News, 5 April 2003). Had the IHR(2005) already entered into force by that time, it is not clear how WHO could have exercised more intrusive powers toward a sovereign state in this affair.

Two months later, on 23 April, WHO issued a travel advisory based on sound and definite epidemiological criteria (Rodier 2003). Accordingly, travellers were advised to consider postponing all but essential travel to Beijing and Shanxi Province in China, and to Toronto, Canada. This resulted in an outcry by Canadian politicians and local health experts who assumed that the outbreak in Toronto was well under control (Gray 2003). The issue here was not a lack of transparency, but conflicting opinions between national and international experts about appropriate public health measures. Again, it is a matter of speculation if enactment of the IHR(2005) would have eased tensions in this second example of perceived national interference through WHO authorities. Such political contretemps might appear superficially as the misguided exercise of sovereignty, but reasons can be more complex than a mere display of power, political achievements or national pride by jealous community leaders. The revised IHR(2005) directly or indirectly cover issues of national sovereignty arising during a 'health emergency of international concern', notably through articles 9–13 and 47–49 (WHO 2005a). However, they do not address problems of national sovereignty when there are legitimate concerns from Member States about the misuse of the multilateral privileges granted to WHO experts under the regulations. Issues at stake here are confidentiality of information, conflicts of interest and intellectual property.

Confidentiality of patients' personal information from the mass media has been an issue during outbreak investigations involving international teams of experts who worked in the same environment as members of the press.¹¹ Beside such cases of external intrusions, insiders of international outbreak response teams can themselves be involved in breaches of codes of conduct when global surveillance points its beam toward a novel health event of international importance. In fact, Langmuir's view that public health surveillance and scientific investigations must be kept distinct is no longer tenable. Nowadays, especially when unspecified micro-organisms are suspected to be causing emerging diseases, field scientific research is a necessary ally to the public health response. Prompt collection and analysis of both epidemiological data and laboratory specimens by research institutions have been critical to the understanding of recent outbreaks such as SARS and H5N1 avian influenza. In similar contexts, foreign scientific experts seconded to the field are often working in a legal and ethical limbo, or in ignorance of local regulations. They should thus find it difficult to face the essential questions of confidentiality of information, conflicts of interest and intellectual property arising as they proceed in their investigations on foreign territory. Some of them see, rightly or not, the advance of their research agenda as a legitimate compensation for their voluntary participation in an international emergency. Regardless, the emergency of some situations is no excuse for misconduct, which could sometimes amount to looting of national data or scientific assets.

One paper (Heymann *et al.* 2001) indicates that: 'WHO has also revised its guidelines for the behaviour of foreign nationals during and after field operations in the host country'. A WHO website lists a series of 'Guiding principles for international outbreak alert and response', quoting among them a commitment that: 'All network responses will proceed with full respect

for ethical standards, human rights, national and local laws, cultural sensitivities and traditions' (WHO 2005f). This is a timely and most useful initiative. It is unfortunate though that those guiding principles have not had a wider public audience for debate, and are not explicitly included among the binding obligations attached to the IHR(2005). Through their article 45, the IHR(2005) cover only one ethical issue relevant to surveillance, namely the treatment of personal data. A much broader range of ethical questions to be addressed by surveillance practitioners have been reviewed by Snider and Stroup (2000). Given past conflicting experiences, and the regular involvement of partners with different cultural and national backgrounds, there should be more elaboration on what ethical standards should apply internationally in the process of collecting 'outbreak intelligence', ideally with consultation with professionally trained ethicists.

Impartiality and independence

One of the strengths of the IHR(2005) is the fact that they were initiated, developed and endorsed under the authority of an international organization acting through its Secretariat as an impartial and independent body.¹² Compliance with the operational requirements of the IHR(2005), and acceptance by Member States of a necessary trade-off from their national sovereignty, will depend on how impartial and independent the WHO Secretariat is seen by technical and political players in countries affected by any 'public health emergency of international concern'.

As far as global surveillance and international assistance are concerned, real or perceived imbalances in WHO's impartiality and independence arise from the influence of hidden agendas (e.g. scientific or political) and of funding sources, respectively. These two points are developed below.

WHO field operations authorized under the IHR(2005) have been a contentious topic where some states perceived draft provisions as violations of their national sovereignty (Tucker 2005). Articles 47–49 of the IHR(2005) put under the authority of the Director-General the appointment of an 'IHR roster of experts' and of an 'Emergency committee'. The latter is mandated with advising on 'whether an event constitutes a public health emergency of international concern; the termination of a public health emergency of international concern; and the proposed issuance, modification, extension or termination of temporary recommendations' (WHO 2005a). The text is explicit about a fair nomination process 'with due regard to the principles of equitable geographical representation'. But as far as the public health response is concerned, the relevant section (Article 13) is less explicit about selection criteria. It simply tasks WHO with '...the mobilization of international teams of experts for on-site assistance'. Here again, GOARN's 'Guiding principles for international outbreak alert and response' should be taken as more than a declaration of intention when the claim is made that: 'There is fair and equitable process for the participation of Network partners in international responses'.

For Member States enjoying the position of providing experts for assistance through WHO, there might be a genuinely altruistic motivation to join and help in international public health responses. There is no doubt, however, that national

interests are at play as well: international visibility, opportunities for training and experience, access to publishable data, control over the response process, and of course concerns over disease spread to their own territory. Through the US-CDC's technical supremacy over all components of outbreak investigation, the US has gained a most privileged access to WHO's surveillance and response networks. This privileged partnership is reflected in the Global Pathogen Surveillance Act (GPSA), a bill that has been introduced during each of successive sessions of the US Congress since 2002 (United States Senate 2002; Congressional Record: US Senate 2002, 2003 and 2005). Through the provision of assistance in the form of fellowships, in-country training and laboratory rehabilitation, the GPSA includes strong incentives for developing nations to link up with WHO's global surveillance network. It also sets out a number of important conditions attached to eligibility. Section 4 of the GPSA stipulates that:

'In General...assistance may be provided to an eligible developing country under any provision of this Act only if the government of the eligible developing country (1) permits personnel from the World Health Organization and the Centers for Disease Control and Prevention to investigate outbreaks of infectious diseases within the borders of such country; and (2) provides pathogen surveillance data to the appropriate agencies and departments of the United States and to international health organizations.'

The US-CDC's key relationship toward WHO is further defined in a 2002 Strategy Paper:

'As an international entity, WHO is a critical partner in opening doors to U.S. scientists, facilitating U.S. participation in international efforts to identify new threats and contain potential pandemics.'

(Centers for Disease Control and Prevention 2002, cited under 'WHO and CDC: Collaboration on International Outbreak Assistance')

In the same document, the US-CDC's ambitious 'Vision for the Future' is described as:

'Regional and disease-specific surveillance and response networks will increase in number and geographical area until they cover all parts of the world and monitor all infectious diseases of regional or global importance. The networks will link up with each other and evolve into a global 'network of networks' that provides early warning of new health threats...and increased capacity to monitor the effectiveness of public health control measures.'

Similar intentions, although perhaps less explicit, are certainly on the agenda of other governmental GOARN partners.¹³

Beside above-mentioned national interests, economic forces are equally at work to promote global public health surveillance. Development agencies, such as the World Bank, have been gaining in influence over global and regional health policies since the 1980s (Walt 2001). Recently, they have felt the urge to strengthen regional programmes addressing surveillance and

response to emerging diseases. This pattern of influence has been boosted by the combined effects of the SARS epidemic in 2003 and the recent re-emergence of H5N1 avian influenza, both threatening global markets in general and Asian economies in particular. As a major development agency in countries affected by those events, the Asian Development Bank (ADB) has recently launched a new funding initiative for communicable disease control in the Greater Mekong Subregion, granting a combined total of US\$30 millions to governments of Vietnam, Cambodia and Laos (Asian Development Bank 2005a). In July 2005, the ADB and the Heads of States of Greater Mekong Subregion nations officially endorsed this programme as part of broader resolutions on common economic and social development expressed in the 'Kunming Declaration' (Asian Development Bank 2005b).

This illustrates how a development agency has taken the initiative in setting up a new health agenda at sub-regional level, building upon the pervasive discourse on global surveillance. This further illustrates just one among several parallel donor-driven initiatives on regional surveillance, where the WHO Secretariat has entered into partnership as an implementing agency, essentially under terms of technical assistance (Asian Development Bank 2004, 2005a), and regardless of the disruptive effects that such initiatives might have on health systems (Calain 2007). As pointed out by Smith (2005),

'the argument [for overseas funding] has subtly shifted from one of the recipient countries well-being to the donor countries well-being, under the argument of the global public good. In this regard, infectious disease... has been the primary driver of health-related global public good arguments.'

Blurred boundaries between global security and global public health surveillance

Whether the threat posed by the deliberate release of biological agents has actually been increasing during the last few years, compared with the Cold War era, is still a matter of debate (Fee and Brown 2001), which will only be settled by history. The fact is that the intentional dissemination of anthrax spores in the US in 2001 (a minor event from a pure public health perspective) has had a major psychological impact, and has nurtured the ground for an international consensus over the importance and the acuity of the problem. It has also somewhat shifted the focus from state-sponsored activities (a legacy of the Cold War) to the dystopian, fear-appealing concept of global, ubiquitous and sustained terrorist threats. At first glance, it would seem logical that the mechanisms set up for outbreak surveillance and response by WHO through its GOARN resources would be used irrespective of the origin of the initial contamination—natural or deliberate. Actually, the issue of WHO being involved in 'bioterror investigations' has been a heated one during debates surrounding the 2005 revision of the IHR (Anonymous 2005a,b; Tucker 2005; Woodall 2005; Fidler and Gostin 2006), to the point that the final version of the document eliminates any mention of deliberate epidemics.

The origin of the difficulties is probably to be found in recent developments surrounding the implementation of the (1972) Biological Weapons Convention (BWC), which is still lacking an effective mechanism to monitor compliance by Member States and to punish violators (Tucker 2004). This gap in international enforcement regimes is an anomaly that contrasts with the existence of two related conventions pertaining to the deliberate release of chemical agents or radio-nuclear materials, and whose watchdog agencies are, respectively, the Organisation for the Prohibition of Chemical Weapons and the International Atomic Energy Agency. Similar efforts to create a multilateral enforcement mechanism to the BWC derailed in July 2001 during its Fifth Review Conference (Tucker 2004). Through a new interim process pending on the next (6th) Review Conference scheduled in 2006, Member States have convened a number of technical meetings, to which WHO, the Food and Agriculture Organization (FAO) and the Office International des Epizooties (OIE) were granted observer status. Topics of the preparatory 'Meeting of Experts' in July 2004 (United Nations 2004) and of the ensuing 'Meeting of States Parties' in December 2004 were directly relevant to WHO's surveillance and capacity building activities. Through remarkably non-committing language, the States Parties' final report simply commends WHO's efforts to strengthen global surveillance (United Nations 2006), although some country representatives were more vocal during the debates. Brazil, for example, expressed the view that:

'The WHO or other specialized international bodies should not be used as substitutes for a proper multilaterally negotiated and legitimate verification regime within the scope of the BWC',

adding further that:

'Security issues and the investigation of possible violations of the BWC are not included in the mandate of these organizations, and it should so remain.'

(quoted in Department of Peace Studies, University of Bradford 2004)

At about the same time, higher pressure was put on WHO by the submission to the UN General Assembly of a 'report of the UN Secretary General's High-Level Panel on Threats, Challenges and Changes' (Tucker 2005), recommending that the Security Council's authority be engaged to 'support the work of WHO investigators or to deploy experts reporting directly to the Council...' and to 'mandate greater compliance...if existing International Health Regulations do not provide adequate access for WHO investigations and response coordination'.

In any case, bio-security issues are clearly tainting WHO's efforts to implement global surveillance, and might to some extent jeopardize compliance by WHO Member States to the IHR(2005) regime. As put forward by an analyst of the BWC (Woodall 2005):

'If countries should perceive WHO staff or consultants as intelligence agents with a dual responsibility to investigate

treaty violations as well as health matters, the result could be unwillingness to report outbreaks at their onset and reluctance to request the help of WHO or permit its entry. These reactions would seriously impede efforts to control the global spread of disease.'

To some extent, WHO is resisting any involvement in monitoring activities that fall outside its health mandate. In a programme of work for 2004–05 (WHO 2004b), WHO kept a distance from the BWC, with the statement that:

'The disarmament and non-proliferation dimensions of the BWC are clearly outside the public health mandate of WHO. This explains why the primary emphasis of WHO's work on deliberately caused diseases is on the public health preparedness and response to the deliberate use of biological agents that affect health.'

Further illustrating the ambiguity of WHO's position on global health security, Aginam (2005) has pointed out the contrast between recognized mandates of the Organization, with respect to the proliferation of biological and chemical weapons on the one hand and the legality of nuclear weapons on the other.

Misperceptions of blurred mandates between security and public health issues have been further entertained on the occasion of public-private partnerships or of privileged relationships with Member States. This can be illustrated by two examples. In December 2002, WHO welcomed the establishment of a much-needed contingency fund for the prompt response to public health emergencies. Funding was obtained through a partnership between WHO and the Nuclear Threat Initiative (NTI), a prominent and authoritative US charitable organization 'working to reduce the threats from nuclear, biological and chemical weapons'. Former Senator Sam Nunn, co-chair of NTI, was unequivocal in justifying the partnership by dual objectives, and declared:

'...The fight against infectious diseases has always been a moral imperative. Today, it is also a security imperative.'
(WHO 2002)

The US Global Pathogen Surveillance Act mentioned in the previous section offers further illustration of an ambivalent instrument under which WHO finds itself committed. Although when enacted the GPSA will definitely benefit countries in need of technical assistance and help broaden public health surveillance networks, its purpose is clearly dual, as summarized by Senator Helms, one of its proponents:

'While we are supportive of the public health benefits of this Act, we should not lose sight of the intent of this legislation—to combat bioterrorism and enhance U.S. national security.'

(Congressional Record: US Senate 2002)

The latest version of the GPSA (Congressional Record: US Senate 2005) incorporates a new section (number 13) requesting the President to 'establish the Office of Foreign Biological Threat Detection and Warning within either the Department

of Defense, the Central Intelligence Agency, or the Centers for Disease Control and Prevention with the technical ability to conduct event detection and rapid threat assessment related to biological threats in foreign countries'.

The links between health, foreign policy and security policy are increasingly recognized and they relate to the blurring of boundaries between domestic and foreign agendas, an outcome of globalization (Owen and Roberts 2005). As demonstrated by McInnes and Lee (2006), the relationship between global public health on one hand, and foreign and security policies on the other is currently set on unequal terms. The agenda is dominated by the interests of the foreign and security communities, and it is skewed in favour of national interests instead of global public health. Moreover, this imbalance of influences leads to prioritizing those epidemic hazards perceived as significant risks for the West, at the expense of the far more prevalent diseases affecting the developing world. The two examples given above – the Nuclear Threat Initiative and the US Global Pathogen Surveillance Act – are perfect illustrations of this policy shift from health concerns to foreign and security agendas, centred on national interests.¹⁴ More importantly, they indicate that the WHO Secretariat, willingly or not, provides some legitimacy to such a trend. Fidler and Gostin (2006) have shown how the revised IHR(2005) contain 'an international legal regime unprecedented in the history of the relationship between international law and public health' and how they establish important new powers for WHO. Fidler (2004) also asserts that WHO had already exercised extra-legal and extra-ordinary authority over states during the SARS outbreak, well before the new IHR would become binding for Member States. Such an increase in power granted by the international community to an international organization, linked with some intrusive authority, should call for stricter adherence to independence and impartiality.

Conclusions

The understanding that epidemic diseases spread without boundaries is no longer a matter of interest restricted to public health specialists and epidemiologists. Recent events of international dimensions like the SARS pandemic, the ongoing avian influenza epizootic and the alleged threats of deliberate epidemics have brought together in the same arena public health, economy and security communities to forge a comprehensive surveillance agenda. Although the trade and political dimensions of epidemic diseases were already reflected in former legal regimes of international collaboration, the revised IHR(2005) broaden the scope of interference by UN bodies and open the door to intrusive interventions where public health would not necessarily be the main incentive.

In this respect, it is significant that some of the most heated debates around the revision of the IHR were ignited by issues such as national sovereignty and investigations of bio-terrorism events. Despite official endorsement of the new document by all WHO Member States, it is likely that the same issues and related misperceptions will come back on the agenda and affect future compliance with the regulations.

One could argue that—to a large extent—there is enough convergence between public health, economy and security interests in the control of communicable diseases to allow for a global surveillance agenda to encompass a broader range of activities and actors. Such a view carries the risk of seeing public health priorities being hijacked as Trojan Horses for other international agendas, leading to further decline in trust about international institutions, their impartiality and their independence.

As illustrated in this article, WHO has occasionally been engaged in ambiguous partnerships with new actors in the surveillance arena, representing security interests (e.g. non-proliferation lobbies) and economic interests (e.g. regional development banks). Misperceptions about the rationale for global surveillance generated by such conflicts of interest or blurred agendas will probably fuel further concerns about their sovereignty among Member States when it comes to enacting the revised IHR. If WHO wants to act as an influential and independent institution, it should reclaim authority and initiative in setting an independent agenda for public health surveillance, emphasizing the precedence of health issues over economic or security interests. By demonstrating more political independence toward influential Member States and by exercising caution over the boundaries of ‘public health surveillance’ and ‘global health security’, WHO would make gains in credibility and efficiency over the control of communicable diseases affecting the majority of the world’s population. Endorsement or participation in regional or global surveillance initiatives should not be systematic, or entertained for the sake of funding or political opportunities. If the way forward is through ‘integrated surveillance’ (discussed in Calain 2007), this is an additional reason for an international institution to exercise independent authority and to assert the flaws of any supranational surveillance initiative that would be redundant or overlapping with existing national systems or priority programmes.

In addition to a clear stance on its independence and impartiality, there are three more processes in which WHO should engage more actively to avoid perceived threats to national sovereignty being generated by the recourse to the IHR(2005). First, the concept of Early Warning Systems should be clarified as the sole component of public health surveillance covered by the IHR(2005) and their binding articles. Secondly, the issue of scientific investigations bound to international outbreak responses should be formally addressed in terms of intellectual property, ownership and direct benefits for countries receiving technical support. Finally, there is a need to establish and formalize an internationally accepted code of conduct for public health surveillance and outbreak investigations.

Such conditions would serve better the cause of low-income nations, and give credibility to the IHR(2005), an otherwise remarkable document which represents more than 10 years of achievements by WHO and its technical partners.

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Endnotes

- ¹ Three key primary sources of information were identified from medical datasets and retrieved systematically: MEDLINE (key word: ‘International health regulations’ and ‘Outbreak surveillance’), the entire collection of the journal ‘Emerging Infectious Diseases’ and all documents published on the EPR (former CSR) website of WHO. Additional references and links quoted in these primary sources were further explored and retrieved as needed. Key public statements identified in this way were submitted to further analysis and selected when they shed light on stakeholders’ intentions.
- ² In the 19th Century, William Farr, superintendent of the Statistical Department of the Registrar General’s Office in England and Wales, routinely collected mortality data to describe the impact of epidemic influenza in 1847 (Langmuir 1976) and set new public health surveillance standards on the occasion of a cholera epidemic in 1848–49 (Langmuir 1963).
- ³ For a comprehensive historical and political review of the emergence of this concept, see King (2002).
- ⁴ Earlier, essential elements of global public health surveillance (including the role of WHO as a coordinating body) were reviewed at the ‘Technical Discussions’ forum of the 21st World Health Assembly in 1968 (WHO 1968).
- ⁵ This outdated meaning of ‘surveillance’ is now officially captured under the definition of ‘public health observation’ (WHO 2005a: Part I, Article 1 Definitions).
- ⁶ Thacker broadened the use of public health surveillance beyond the restricted field of communicable diseases, he conceptualized the three classical goals of surveillance data analysis (estimation of morbidity and mortality, detection of epidemics and programme evaluation) (Thacker *et al.* 1989), and he defined classical indicators used for the evaluation of surveillance systems (Thacker *et al.* 1988).
- ⁷ In the historical context in which the idea of revising the IHR had taken place, their earlier promoters obviously had in mind the control of rapidly evolving emergencies such as outbreaks of haemorrhagic fevers or cholera. But given the broad ‘Purpose and scope’ stated in the IHR(2005) (‘... a public health response to the international spread of diseases’), one wonders how, for instance, the new regulations would have applied in the late 1980s to HIV/AIDS when its spread, albeit slow, became already a matter of urgent international concern.
- ⁸ The World Trade Organization (created in 1995) administers 29 multilateral agreements, two of which are particularly relevant to preventing the spread of communicable diseases across borders: the General Agreement on Tariffs and Trade (GATT) and the Agreement on the Application of Sanitary and Phytosanitary Measures (SPS agreement). For an analysis of their mechanisms, see Plotkin and Kimball (1997).
- ⁹ For detailed accounts of the initial events of the SARS epidemic in China, see Heymann (2006) and Annex B in Bartlett *et al.* (2006).
- ¹⁰ What now appears as a cover-up operation by high-level Chinese authorities was quickly revealed publicly by Dr Jiang Yanyong, a prominent military surgeon and party member. Dr Jiang’s

- courageous posture is now acknowledged as an important contribution to halt the spread of SARS (Kahn 2004; Ramon Magsaysay Award Foundation 2004).
- ¹¹ A typical example has been well documented during the outbreak of Ebola haemorrhagic fever in Kikwit in 1995 (Heymann *et al.* 1999; Garrett 2001: 77).
- ¹² Article 37 of the Constitution of the World Health Organization, 1946 (WHO 1994).
- ¹³ Building around the evolving concept of territoriality, King (2002) has proposed an outstanding historical perspective on global disease information networks.
- ¹⁴ Fidler (2005) also sees this policy shift as pertaining to the particular issue of surveillance: ‘...the United States’ interest in improving global infectious disease surveillance views improved global surveillance as a means to increase national and homeland security against bioterrorism, not as a vehicle for improving global health. Any constructive health consequences for other countries that spill over from improved global surveillance represent a positive externality but are not the primary foreign policy objective.’
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