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## The International Health Regulations and beyond

The international community has joined together to form a world trade system based on the rule of law. Although imperfect, the world trade system contains enforceable norms designed to facilitate international economic activity. Infectious diseases pose as great a threat to the well being of nations. Yet, global health governance remains weak or nonexistent.

As *The Lancet Infectious Diseases* has noted,<sup>1</sup> global health governance is burdened by antiquated international law assumptions. First, countries often insist on maintaining their sovereignty in matters of health. As a result, governments may fail to adhere to international health norms or cooperate with international agencies such as WHO. Second, most international public-health law is concerned with horizontal governance—ie, the regulation of travel and trade among sovereign nations.<sup>2</sup> Consequently, international law often entails border controls rather than globally established health rules that require, for example, strong national public-health capacities. Finally, the powerful high-income countries have inordinate influence on the global health agenda. Their concern is primarily to prevent movement of infections from the developing to the developed world rather than to alleviate endemic diseases in poorer regions such as HIV, malaria, and tuberculosis. Powerful countries also have failed to provide the technical assistance and resources necessary to improve health in developing countries.

To overcome the problems of rigid sovereignty, horizontal governance, and entrenched power the inter-

national community should consider a new conception for global health based on the rule of international law.<sup>3</sup> WHO's proposed revision of the International Health Regulations (IHRs), if expanded according to six principles (panel), could serve as a model for effective public-health governance.<sup>4</sup>

The stated goal of the revised IHRs is to "provide security against the international spread of disease while avoiding unnecessary interference with international traffic". The IHRs should stress the salience of global health and WHO's essential functions to achieve that purpose. WHO should dedicate itself to the protection and promotion of global health. Wherever possible, health rules should respect travel and trade, but assuring global health remains WHO's primary function.

The current IHRs are limited to three infectious diseases: cholera, plague, and yellow fever. This narrow scope impedes WHO in effectively dealing with modern health threats ranging from HIV/AIDS to bioterrorism. The revised IHRs cover "all events potentially constituting a public health emergency of international concern". This new approach is preferable because it is flexible, future-oriented, and covers all hazards (radiological, chemical, and biological), whether naturally occurring, accidental, or intentional. WHO should continually specify the kinds of health conditions encompassed within this broad definition. Failure to do so could give member states an excuse not to report specific infectious diseases.

Rapid and comprehensive data collection is crucial to global health.

Yet, surveillance is hindered by the reluctance of countries to fully cooperate. Indeed, countries have built-in disincentives to openly monitor and report infectious diseases. Public notification of health threats can adversely affect a country's economy and prestige. It can trigger media coverage or travel advisories affecting trade and tourism, and adversely affect the reputation and electoral prospects of political leaders. Global surveillance can be substantially improved by effective vertical governance. First, WHO could establish criteria for uniform data sets, core informational requirements, and timely monitoring and reporting. These norms would help set a standard for national and global surveillance. Second, WHO should expand its data sources beyond official government channels. "Small-world networks" consisting of scientists, health professionals, membership associations, and non-governmental organisations could considerably broaden the sources of health information. Finally, WHO should use modern technology for surveillance including electronic health records and the internet to gather and analyse surveillance data. WHO is already beginning this process, which could be enhanced through the revised IHRs.

Uniformly strong public-health capacities at the national level offer the best prospect for global health. As the recent severe acute respiratory syndrome outbreaks demonstrated, prompt and efficient monitoring and response at the national level is critically important to prevent the proliferation of disease.<sup>5</sup> To improve national competencies, WHO should set minimum standards for laboratories, data systems, and response. By setting performance standards and measuring outcomes, WHO could continually help member states evaluate their public-health preparedness. Compliance with international health norms has been a serious problem. It is therefore important for WHO to adopt measures to enhance conformance

### Principles of global health governance

- Salience of health over trade
- Broad jurisdiction over conditions of international public-health importance
- Global surveillance through core data requirements and "small-world networks"
- National public-health preparedness by enforcing standards, creating incentives, and cultivating developmental and technical assistance
- Human rights protection by incorporating the Siracusa principles
- Good public-health governance by adopting the principles of transparency, objectivity, and fairness.

with global health norms. This could be accomplished through a combination of hard and soft law: mediation, adjudication, and incentives. A related problem is that poor countries cannot, without help, meet minimum standards for public-health preparedness. The international community, therefore, should substantially increase technical and financial assistance for health-system improvement in developing countries.

The original IHRs were promulgated before the development of international human-rights law. As a result the IHRs do not protect individual rights under international law. Many aspects of global health regulation affect human rights including surveillance (privacy), vaccination and treatment (bodily integrity), travel restrictions (movement), and isolation and quarantine (liberty). Health measures may also be applied inequitably leading to discrimination against unpopular groups such as migrants and ethnic minorities. The IHRs could demonstrate respect for human rights by incorporating the internationally accepted norms contained in the Siracusa principles, which require health measures to be necessary,

proportionate, and fair.<sup>6</sup> Health measures should be based on the rule of law and provide natural justice for persons whose liberty is placed in jeopardy.

WHO member states have not always followed basic principles of good public-health governance. They have sometimes acted in ways that are insular and discriminatory, without adequate regard to science. WHO could set an example of good public-health governance by complying with the principles of transparency, objectivity, and fairness. The agency's policies and recommendations should be established in an open manner, based on scientific evidence, and exercised equitably. The agency gains credibility by its adherence to science, the truthfulness of its disclosures, and its fair-dealings with countries, rich and poor alike. By following these principles, the agency would encourage member states to adopt an open, equitable, and scientifically based decision-making process.

For far too long, global health has been impeded by antiquated assertions of inflexible sovereignty, horizontal governance, and entrenched power. Instead, by adhering to the rule of law, the international

community can take a vital step toward better protection against biological, chemical, and radiological hazards posed in the modern age.

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#### References

- 1 The Lancet Infectious Diseases. A new public health world order. *Lancet Infect Dis* 2004; **4**: 475.
- 2 Fidler D. International law and infectious diseases. Oxford: Clarendon Press, 1999.
- 3 Gostin LO. International infectious disease law: revision of the World Health Organization's International Health Regulations. *JAMA* 2004; **291**: 2623–27.
- 4 WHO Secretariat. Revision of the International Health Regulations. Geneva, Switzerland: WHO, January 15, 2004. Publication EB111/34.
- 5 Gostin LO, Bayer R, Fairchild AL. Ethical and legal challenges posed by severe acute respiratory syndrome: implications for the control of severe infectious disease threats. *JAMA* 2003; **290**: 3229–37.
- 6 The Siracusa Principles on the limitation and derogation provisions in the International Covenant on Civil and Political rights. *Hum Rights Q* 1985; **7**: 3–14.

## Fluoroquinolone-resistant *Shigella dysenteriae* type 1 in northeastern Bangladesh

In December, 2003, in this journal, S K Bhattacharya and colleagues reported multidrug-resistant strains of *Shigella dysenteriae* type 1 in south Asia.<sup>1</sup> The low infectious dose of *S dysenteriae* type 1 places people living in densely populated areas, with poor hygiene, water, and sanitation conditions at particular risk for illness.<sup>2</sup> Bangladesh has experienced large epidemics of *S dysenteriae* type 1 in 1973, 1984, and 1993.<sup>3</sup> Given the occurrence of epidemics approximately every 10 years and the emergence of fluoroquinolone-resistant *S dysenteriae* type 1 infections in India and Bangladesh in 2002, it is anticipated that Bangladesh will experience a

*S dysenteriae* type 1 epidemic in the near future.<sup>1,4</sup>

In late November, 2003, a 3-year-old boy, a resident of a tea plantation estate in northeastern Bangladesh, was admitted to the diarrhoea treatment centre of the ICDDR, B: Centre for Health and Population Research with bloody diarrhoea and rectal prolapse. His symptoms had begun with high-grade fever during the 3rd week of November followed by bloody diarrhoea, leg swelling, rectal prolapse, and decreased urine output. The child was treated as an outpatient by a local health-care provider with several doses each of co-trimoxazole, nalidixic acid, amoxicillin, and

pivmecillinam. Due to a progressive worsening in his clinical status, he was brought to ICDDR, B in Dhaka. Stool culture done at the ICDDR, B laboratory yielded *S dysenteriae* type 1, resistant to multiple antimicrobial agents, including ampicillin, co-trimoxazole, nalidixic acid, tetracycline, ciprofloxacin, norfloxacin, and ofloxacin. Because the patient's family reported dysenteric illness among other residents of the tea plantation estate, we conducted a field investigation in early December, 2003, to confirm the cluster of dysentery cases, determine the extent of the outbreak, and examine patterns of antimicrobial use by local health providers.