

Food safety surveillance and response

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The food safety community is eagerly awaiting the first results of pilot studies from the World Health Organization's (WHO) *Initiative to Estimate the Global Burden of Foodborne Diseases*, which are due later this year. These studies were conducted in recognition of the growing threat posed by foodborne diseases worldwide to provide precise and comprehensive information on the magnitude of foodborne diseases to guide food safety policy, including the development and implementation of food safety standards in the context of the Codex Alimentarius Commission, and provide a baseline for monitoring and impact assessment of food safety measures. The Initiative operates through its advisory body, the Foodborne Disease Burden Epidemiology Reference Group (FERG) and comprises two main components:

- (1) Track 1 at global level FERG (i) conducts epidemiological and toxicological reviews for mortality, morbidity and disability in each of the major foodborne diseases; (ii) assembles, appraises and reports on existing burden of foodborne disease estimates; (iii) provides models for the estimation of foodborne disease burden where data is lacking; (iv) develops source attribution models to estimate the proportion of disease that is foodborne; and (v) develops user-friendly tools for burden of foodborne diseases studies and policy situation analyses at country level.
- (2) Track 2 focuses on burden of foodborne disease studies at country level which will provide first hand burden estimates and supplement FERG's epidemiological reviews. This will be supported by policy interventions to ensure that the burden data are meaningful to end-users and to foster research-up take.

As more burden of foodborne disease studies become available, the understanding of foodborne disease will transform from a limited diarrhoeal disease

focus to one inclusive of a wide spectrum of foodborne illnesses, including chemical-related illnesses and relevant noncommunicable diseases. These studies also aim to address the problems posed by underreporting.¹ Surveillance systems are a key source of information to inform the burden of foodborne disease estimates.

It is accepted internationally that surveillance systems have a dual purpose; the first is to detect, control and prevent foodborne disease outbreaks. Most countries of the WHO Western Pacific Region have such surveillance and response systems in place, but the effectiveness and coverage of those systems vary widely from country to country. Norton *et al*² and Gunaratnam *et al*³ outline such foodborne disease outbreak investigations, including their detection and control through food safety mechanisms. Johnston⁴ discusses the food safety response to the 2010 and 2011 earthquakes in New Zealand, outlining the importance of developing emergency response plans for food safety and the use of risk analysis (risk assessment, risk management and risk communication) in emergency situations to prevent foodborne disease outbreaks.

The second purpose of surveillance systems is to inform longer-term issues, including: (1) identifying priorities and developing policy for the control and prevention of foodborne diseases; (2) estimating the burden of foodborne diseases and monitoring trends; and (3) evaluating foodborne disease prevention and control strategies.⁵ The impact of using surveillance system data to address longer-term public health issues is successfully outlined by Campbell *et al* for foodborne *Campylobacter* in New Zealand. Here, surveillance data drove the development of interventions to successfully reduce the *Campylobacter* burden in New Zealand. The public health and financial benefits clearly display the power of such information. However, regrettably, across the Western Pacific Region, only a few countries have surveillance systems in place that can meet these objectives, severely impacting the efficiency of their food control systems.

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In 2011, health representatives from the Western Pacific Region endorsed the Western Pacific Regional Food Safety Strategy 2011–2015.⁶ They urged Member States to use the Strategy as a framework for strengthening national food control systems to effectively protect public health, prevent fraud, avoid food adulteration and facilitate the sufficient availability of safe and healthy food.

The Strategy consists of the following seven themes:

- (1) improved food control and coordination throughout the food-chain continuum and adequate funding;
- (2) risk-based regulatory frameworks;
- (3) improved availability of food safety data to better guide policy and risk analysis;
- (4) inspection services;
- (5) food safety training and education;
- (6) capacity to detect, assess and manage food safety incidents and emergencies; and
- (7) enhanced cooperative planning.

In terms of surveillance, theme 3 aims to introduce a systematic effort to collect, analyse and interpret data on food contaminants and food consumption and establish effective links with the public health system to improve the availability of attributable data on foodborne disease. Theme 6 aims to contribute to health security by enhancing capacities to detect, assess and manage food safety incidents and emergencies at national and international levels. This will be achieved by sharing relevant expertise, resources and information globally, regionally and subregionally.

For each of the themes, strategic actions have been developed in consultation with Member States and are currently being implemented. WHO also has several programmes, in addition to the *Initiative to Estimate the Global Burden of Foodborne Diseases*, which assist in the delivery of these strategic actions.

As discussed by Verger *et al*,⁷ this includes the identification of chemicals in the food-chain and evaluation

of their impact on human health through *Total Diet Studies* and the *Global Environment Monitoring System – Food Contamination Monitoring and Assessment Programme* (GEMS/Food). On the response side, institutes involved in GEMS/Food are increasingly assisting developing countries in the detection of hazards causing food safety emergencies. Such efforts are applauded by WHO and the international community.

The Global Foodborne Infections Network (GFN) aims to build capacity to detect, control and prevent foodborne and other enteric infections from farm to table by promoting integrated, laboratory-based surveillance and fostering intersectoral collaboration among human health, veterinary and food-related disciplines through training courses and activities around the world.

For both day-to-day food safety information sharing as well as food safety response activities, the International Food Safety Authorities Network (INFOSAN), a joint initiative between WHO and the Food and Agriculture Organization of the United Nations (FAO), was established in 2004. The network aims to: (1) promote the rapid exchange of information during food safety-related events; (2) share information on important food safety-related issues of global interest; (3) promote partnership and collaboration among countries; and (4) help countries strengthen their capacity to manage food safety risks. At present, a regionally-based strategy for enhancing participation in INFOSAN in Asia is under development and will be discussed later this year. Additionally, as part of efforts to strengthen INFOSAN and assist countries to detect, assess and manage food safety incidents and emergencies, and to assist in the building of core capacities defined by Annex 1 of the International Health Regulations (2005),⁸ a series of guidance documents have been developed by FAO and WHO. Those documents provide a guidance on developing national food safety response systems, application of risk analysis principles and procedures during food safety emergencies, developing and improving national food recall systems (yet to be published) and investigation of foodborne disease outbreaks.

Foodborne disease continues to represent a serious threat to the health of millions of people in the world, global trade of food continues to increase and developing countries continue to struggle to find resources to address food safety challenges in a coordinated and long-term manner. It is imperative that we improve collaboration

and partnerships to address surveillance and response challenges. This will help to ensure that the public health and financial impact of foodborne disease is limited in incidents and emergencies. It will also ensure that we are using our limited resources in the most effective manner to address public health concerns for the good of each country and for the good of global health security.

References:

1. *Initiative to Estimate the Global Burden of Foodborne Diseases*. Geneva, World Health Organization, 2012 (http://www.who.int/foodsafety/foodborne_disease/ferg/en/index.html, accessed 6 June 2012).
2. Norton S et al. A large point-source outbreak of *Salmonella* Typhimurium linked to chicken, pork and salad rolls from a Vietnamese bakery in Sydney. *Western Pacific Surveillance and Response Journal*, 2012, 3(2):16–23. doi:10.5365/wpsar.2012.3.1.001
3. Gunaratnam P et al. Use of a prohibition order after a large outbreak of gastroenteritis caused by norovirus among function attendees. *Western Pacific Surveillance and Response*, 2012, 3(2):10–15. doi:10.5365/wpsar.2012.3.1.008
4. Johnston S. “Shake, Rattle and Roll”: risk assessment and management for food safety during two Christchurch earthquakes. *Western Pacific Surveillance and Response*, 2012, 3(2):24–29. doi:10.5365/wpsar.2012.3.2.011
5. *Global surveillance of foodborne disease: developing a strategy and its interaction with risk analysis – a report of a WHO consultation*. Geneva, World Health Organization, 2002 (http://www.who.int/foodsafety/publications/foodborne_disease/en/surveillance_strategy.pdf, accessed 6 June 2012).
6. *Western Pacific Regional Food Safety Strategy 2011–2015*. Manila, World Health Organization Western Pacific Regional Office, 2012 (http://www.wpro.who.int/foodsafety/documents/docs/regional_food_safety_strategy2011_2015.pdf, accessed 6 June 2012).
7. Verger B and Bishop J. Strengthening collaboration on chemical hazards in food among food safety authorities and the World Health Organization in the Western Pacific Region. *Western Pacific Surveillance and Response Journal*, 2012, 3(2):4–6. doi:10.5365/wpsar.2012.3.1.005
8. *International Health Regulations (2005) Second edition*. Geneva, World Health Organization, 2008 (<http://www.who.int/ihr/9789241596664/en/index.html>, accessed 7 June 2012).