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**ENHANCING SURVEILLANCE OF FOODBORNE DISEASES IN AUSTRALIA TO
CONTROL DISEASE AND IMPROVE FOOD SAFETY**

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Background

1. The World Health Organization and many countries around the world have recognised the importance of food borne disease and the necessity of improving surveillance.^{1,2} This paper provides information on initiatives to improve food borne disease surveillance in Australia and the implications for the development of national food policy and setting of standards.

Surveillance In Australia

2. Routine surveillance of food borne disease relies on reports from doctors or clinical laboratories regarding people diagnosed with gastrointestinal or food borne infections. In Australia, there are several infections that are specifically notifiable to State and Territory health departments, including: *Salmonella*, *Campylobacter*, Shiga toxin producing *E. coli*, and listeriosis.⁴ These departments maintain organised collections of data on human infections, which are used to determine trends and identifying outbreaks, particularly at the state and territory level—and more recently at the national level.^{5,6}

3. The Australian Government Department of Health & Ageing established OzFoodNet to enhance surveillance and control of food borne diseases in 2000.⁶ OzFoodNet is a national program of work where epidemiologists are employed in each State and Territory. The program is coordinated centrally by the Department of Health and Ageing and has collaborative links with Food Standards Australia New Zealand (FSANZ) and the Department of Agriculture Fisheries and Forestry. OzFoodNet is a member of the Communicable Diseases Network of Australia, which is the peak body for infectious disease control in Australia. OzFoodNet has three main work areas: (1) determining the burden of food borne disease, (2) identifying the causes of food borne disease, and (3) coordinating outbreak investigations.

4. OzFoodNet has conducted several different studies on food borne disease in Australia. An example is an assessment of the incidence of food borne disease, which necessitated the assimilation of data from community surveys, laboratories, physicians and case control studies.⁹ To conduct the Australian assessment, OzFoodNet collaborated with the National Centre for Epidemiology & Population Health (NCEPH). The results of the assessment showed that there were an estimated 5.4 million cases (95% Credible Interval 4–6.9 million) of food borne gastroenteritis in Australia each year. Contaminated food was estimated to cause 32% of all

infectious gastroenteritis. . Further work to determine associated costs, and refine methods of estimation is currently being considered.

5. OzFoodNet and NCEPH have compared the results of this assessment of the burden of food borne disease with similar studies conducted by the Centres for Disease Control and Prevention (CDC) in the United States, Health Canada, and the Food Safety Authority of Ireland. This has led to a collaborative group that has developed several studies to compare the incidence of enteric diseases, such as *Campylobacter* infection. This group—The International Collaboration on Food borne Diseases Network—is hosted by the CDC and was recently expanded to include a further 26 other countries following a meeting at the International Conference on Emerging Infectious Diseases in 2004.

6. The nature of food borne disease investigations has changed significantly, with more complicated and wide-ranging investigations becoming normal.² Contemporary outbreaks are more geographically widespread than they were in the past, and may be solved with smaller numbers of cases.^{7,8} Increasingly, Australia has investigated outbreaks that have involved contaminated products originating from overseas. In the last three years, Australian authorities have investigated several large outbreaks involving internationally distributed products.⁹ In each of these outbreaks, OzFoodNet has communicated the nature of the outbreak to international investigators, although there is no systematic way of communicating regionally. This has had implications for tracing the source of, and obtaining further information on, overseas products. This could be improved by promoting the regular and timely sharing of information on food contamination and food borne illness issues.

7. OzFoodNet communicates the results of epidemiological studies and outbreak investigations into food borne disease to food safety regulatory agencies and industry. One particularly important collaborator is FSANZ, which makes use of data arising from OzFoodNet to monitor trends in food borne infections and identify areas for managing food safety risks. One example of this was a risk assessment that FSANZ conducted for *Listeria* in seafood. OzFoodNet reviewed the epidemiology of these infections in Australia for the hazard assessment. FSANZ, in consultation with the Australian Quarantine and Inspection Service, is also responsible for implementing regulatory measures for food products at the border. OzFoodNet investigations have contributed to developing advice on the level of risk that products pose and appropriate testing advice at the border.

Issues

8. There are several key issues that countries need to consider when enhancing food borne disease surveillance, which were outlined in a World Health Organization Consultation in Leipzig Germany in 2002.¹⁰ The key tasks for countries wishing to establish these systems include:

- obtaining government support and approval from local authorities;
- identifying potential partners, including international networks for food borne disease surveillance, such as WHO Global SalmSurv;
- analysis of the population breakdown and public health infrastructure in the country; and
- systematic evaluation of existing data for surveillance of diseases that may be transmitted by food.

9. Australia has learnt several important lessons in the process of enhancing surveillance of food borne illness, including the:

- benefits of improving communication between agencies conducting surveillance for food borne illness, laboratory diagnosis, food safety and other sectors;
- importance of rapid investigation and control of outbreaks;
- desirability of international collaboration both for the design of epidemiological studies, and during outbreak investigations, including rapid trace back of overseas-sourced products; and

- difficulty of obtaining reliable data for rare or emerging pathogens causing food borne illness, that often requires assessment of novel data sources.

Conclusions

10. Food safety agencies may benefit from participating as core partners in epidemiological studies to assess the burden and causes of food borne illness within individual countries. Countries can share information on methods of investigation and learn from other country's experiences. There is a vast difference in capacity and experience. Some of the epidemiological studies are complex and require considerable support. One means of increasing collaboration is the participation in international networks, such as WHO Global SalmSurv and the International Collaboration on Food borne Diseases Network.

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