

good hygienic practice is the cause of these incidents. Food workers with infection with Norwalk-like viruses should not be handling food until 48 hours after becoming symptom free. The situation is not so straightforward for hepatitis A infections as individuals are infectious before the onset of symptoms.

At first glance viruses appear to be an uncommon cause of foodborne infection. An analysis of outbreaks of infectious intestinal disease reported to the Communicable Disease Surveillance Centre in 1995-6 showed Norwalk-like viruses to be associated with only 6% of foodborne outbreaks, whereas these viruses caused 60% of outbreaks of gastroenteritis, where the mode of transmission was mainly from person to person.⁹ Pathogenic bacteria and toxins were more commonly associated with foodborne outbreaks, although no agent was identified in 12% of incidents. However, the available data are limited and probably seriously underestimate the importance of foodborne virus infections.

Norwalk-like viruses are difficult to detect.¹⁰ Electron microscopy of faecal specimens has been the mainstay of diagnosis in the United Kingdom, but virus is shed in relatively small numbers and only for a short time after the onset of symptoms. Until very recently it has been impossible to identify Norwalk-like viruses in contaminated food as these viruses do not grow in tissue culture. In addition, reported outbreaks of Norwalk-like virus infections are likely to represent only a small proportion of community acquired Norwalk-like virus infections. Much less is known about the burden of sporadic Norwalk-like virus disease, in particular the proportion due to foodborne transmission. We should soon have an answer to this important question when a government commissioned study of intestinal infectious disease in the community is published. Thus, although Norwalk-like viruses are not likely to be as important as enteropathogenic bacteria as a cause of foodborne illness, the total number of people affected each year is probably high.

The report of the Advisory Committee on the Microbiological Safety of Food clearly lays out the many

problems in assessing and controlling foodborne viral infections and makes 17 recommendations which fall into four broad areas. These are: (a) improved surveillance and diagnosis of foodborne outbreaks; (b) a reduction in environmental contamination with sewage, particularly of shellfish harvesting areas; (c) increased investment into the use of new molecular methods for identifying Norwalk-like viruses in food and for assessing measures for viral inactivation; and (d) an improvement in hygiene in the food industry, an important point which cannot be overstated.¹¹ These measures are to be welcomed as they will improve our understanding of the importance of these agents and, if implemented fully, should lead not only to a reduction in foodborne viral illness but also to an overall reduction in foodborne disease.

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- 1 Advisory Committee on the Microbiological Safety of Food. *Report on foodborne viral infections*. London: Stationery Office, 1998.
- 2 Appleton H. Foodborne viruses. *Lancet* 1990;336:1362-4.
- 3 Lewis D, Ando T, Humphrey CD, Monroe SS, Glass RI. Use of solid-phase immune electron microscopy for classification of Norwalk-like viruses into six antigenic groups from 10 outbreaks of gastroenteritis in the United States. *J Clin Microbiol* 1995;33:501-4.
- 4 Hale AD, Crawford SE, Ciarlet M, Green J, Gallimore CI, Brown DWG, et al. Expression and self-assembly of Grimsby virus: antigenic relationship to Norwalk and Mexico virus. *Clin Diagn Lab Immunol* 1999;6:142-5.
- 5 Johnson PC, Mathewson JJ, DuPont HL, Greenberg HB. Multiple-challenge study of host susceptibility to Norwalk gastroenteritis in US adults. *J Infect Dis* 1990;161:18-21.
- 6 Pebody R, Leino T, Ruutu P, Kinnunen L, Davidkin I, Nohynek H, et al. Foodborne outbreaks of hepatitis A in a low endemic country: An emerging problem? *Epidemiol Infect* 1998;120:55-9.
- 7 Green J, Henshilwood K, Gallimore CI, Brown DWG, Lees DN. A nested reverse transcriptase PCR assay for detection of small round-structured viruses in environmentally contaminated molluscan shellfish. *Appl Environ Microbiol* 1998;64:858-63.
- 8 Schwab K, Neill F, Estes M, Atmar R. Distribution of Norwalk virus within shellfish following bioaccumulation and subsequent depuration by detection using RT-PCR. *J Food Prot* 1998;12:1674-80.
- 9 Evans HS, Madden P, Douglas C, Adak GK, O'Brien SJ, Djuretic T, et al. General outbreaks of infectious intestinal disease in England and Wales: 1995 and 1996. *Commun Dis Pub Health* 1998;1:165-71.
- 10 Hale AD. Recent advances in the diagnosis of small round structured viruses. *Rev Med Microbiol* 1997;8:149-5.
- 11 Grist N. Foodborne infections and intoxications. *BMJ* 1990;300:827-8.

Public health, civil liberties, and tuberculosis

How society encourages compliance reflects society's approach to the vulnerable

Drug resistant tuberculosis is a global health threat. Perhaps because of the size and urgency of the threat and the fact that vulnerable populations are most affected by the disease, some control programmes include coercion. The responses to this threat reflect how society views those on the margins, who are vulnerable—perhaps homeless, stateless, or psychologically disturbed. When treatment compliance is required for public health reasons (to prevent the development of drug resistant strains) how society encourages compliance reflects as much on society itself as it does on the irresponsible, poorly compliant individual.

A tension has always existed between the protection of individual civil liberties and the protection of public health. In the liberal era of the

1960s and 1970s somewhat draconian approaches to the mentally ill, for example, were questioned. Legislation was amended to put individual patients at the centre, to emphasise their rights, and to provide them with greater legal protection. Detention of the mentally ill became dependent on a determination of the threat they posed to themselves or others. Historically a similar approach has been taken to isolating those with communicable diseases, so that detention of individuals with notifiable diseases has depended on an assessment of the threat they pose to public health. People with tuberculosis who do not adhere to treatment are at risk of both relapse and developing drug resistant tuberculosis, but the risks are unpredictable.¹

In London tuberculosis notification rates have increased over the past decade, and so have rates of

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drug resistant tuberculosis.^{2,3} Many in London are looking to New York to draw lessons from the success of the tuberculosis programme there.⁴ The New York City epidemic of the late 1980s and early 1990s was halted and reversed through substantial investment, improvements in surveillance and infection control, and the expansion of systems to encourage treatment compliance.⁵ Coercion was also used. In 1993 a New York City health code was amended to authorise the city's commissioner of health to detain any non-infectious individual "where there is substantial likelihood ... that he or she cannot be relied upon to participate in and/or to complete an appropriate prescribed course of medication for tuberculosis." The authority to detain individuals was shifted from depending on an assessment of threat posed to an assessment of treatment compliance. This represented a significant shift in the balance between civil liberties and state authority. Since the amendments were adopted in New York more than 200 non-infectious patients have been detained, many for long periods, some for over two years.

In England and Wales section 37 of the Public Health (Control of Disease) Act 1984, which allows a local authority to apply to a magistrate to have a person suffering from a notifiable disease detained, has only rarely been used in recent years and almost always for tuberculosis.⁶ For a person to be detained they must pose a serious risk of infection to others. The Public Health (Infectious Diseases) Regulations 1988 stipulates that when the act is applied to individuals with tuberculosis their disease must be "of the respiratory tract in an infectious state." Nevertheless, the act allows a magistrate to extend the period of detention in hospital "as often as it appears to him to be necessary." It is unclear, therefore, whether the act simply covers detention of infectious individuals or can be used to also detain non-infectious individuals who may potentially pose a public health threat in the future (because of poor compliance with treatment, for example). This raises the question of whether prolonged detention of non-infectious individuals is legally sound. One recent case of a detention order for six months, highlighted by the media,⁷ illustrates the tensions between public health protection and civil liberties, but it should also draw attention to the inadequacy of support available for some patients in the community and the lack of appropriate residential facilities for persistently non-compliant patients.

London has an inadequate tuberculosis control programme. Methods to enhance treatment compliance are underused, underfunded, mired in bureaucracy, and lacking in coordination. There are too few community based programmes offering compliance incentives such as food or travel tokens or community based treatment supervision. Before detention is resorted to, practical (and cheaper) alternatives should be available. If an order for detention is sought then details of attempts at less restrictive alternatives should be presented to the magistrate. Moreover, an explicit objective examination of the potential threat posed by each non-compliant individual should be made and legal representation made available for those at whom the order is directed. When prolonged detention is envisaged an automatic, formal process of review should be instituted analogous to that under mental health legislation, and appropriate facilities with multi-disciplinary support made available.

If public anxiety rises, and this is allied to physicians' and public health officials' frustration over failures to ensure and monitor compliance, calls for detention of non-compliant individuals will be heard loudly, just as they were in New York. These calls for coercive measures, where individuals fail to recognise their social obligations, need to be tempered with a coordinated approach which supports individuals with tuberculosis. Both civil rights and public health can be protected, but the emphasis should be on resource and organisational requirements, rather than coercion.

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- 1 Coker R. Carrots, sticks, and tuberculosis. *Thorax* (in press).
- 2 Ormerod LP, Charlett A, Gilham C, Darbyshire JH, Watson JM. Geographical distribution of tuberculosis in national surveys of England and Wales in 1998 and 1993. *Thorax* 1998;53:176-81.
- 3 Hayward AC, Bennett DE, Herbert J, Watson JM. Risk factors for drug resistance in patients with tuberculosis in England and Wales 1993-4. *Thorax* 1996;51(suppl 3):532.
- 4 *Tuberculosis control in London: the need for change. A report for the Thames regional directors of public health.* London: NHS Executive, 1998.
- 5 Frieden TR, Fujiwara PI, Washko RM, Hamburg MA. Tuberculosis in New York City: turning the tide. *N Engl J Med* 1995;333:229-331
- 6 Kaur B, Bingham P. Compulsory removal to and detention in hospital in the case of notifiable disease: a survey of public health doctors. *Public Health* 1993;107:199-204.
- 7 Gordon A. TB refugee "must be held in hospital." *Mail on Sunday* 1998;30 Aug:15.

Better blood transfusion

We must use donated blood better and consider alternatives

Allogeneic blood transfusion (transfusion of blood from another individual) in the United Kingdom has never been safer from the risk of transmission of infection.¹ Nevertheless, the cost of the blood transfusion service is set to rise substantially owing to the introduction of measures aimed at further increasing the safety of donated blood. A recent inquiry into errors during the process of transfusion has highlighted the need for measures to ensure safety

when blood is used. Moreover, the demand for blood is outstripping supply. For all these reasons, therefore, it is time for the United Kingdom to re-examine the way blood is provided and used, reducing allogeneic transfusion where possible and seriously considering alternatives.

The measures to increase the safety of donated blood have arisen mostly in relation to recent concerns about the theoretical risk of transmission of new