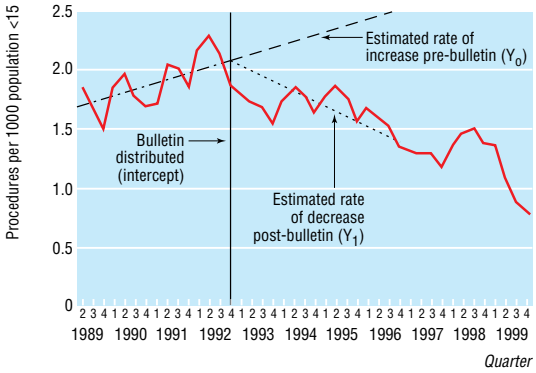
Generalised linear model					
Effect	**Bulletin**	**Estimate**	**Error**	**df**	**95% CI**
Intercept		2.095	0.0830	13	1.915 to 2.274
Y_0	No	0.0257	0.0242	376	-0.0219 to 0.0732
Y_1	Yes	-0.0438	0.0169	376	-0.0770 to -0.0106



Quarterly rate of grommet insertions for glue ear per capita in England before and after distribution of the *Effective Health Care* bulletin on treatment of persistent glue ear

1000 children, with regional rates varying by a factor of two. A small increase in the quarterly rate of procedures per 1000 children during the three years before distribution of the bulletin (0.026 (95% confidence interval −0.022 to 0.073)) became a decrease in the four years after publication (−0.044 (−0.080 to −0.011); $P<0.0001$) (figure). The decrease in quarterly rate from 1992 onwards was seen consistently across the regions.

The changing trend in surgery suggests that 89 800 procedures were avoided nationally in the four years after the bulletin, providing a theoretical saving of £27m at 1992-3 prices.[2] Regional variations in the numbers of surgical procedures undertaken were 30% smaller after distribution of the bulletin than before (SE 0.0169 *v* 0.0242). Our findings were not substantially altered by analysing procedures under the broader code D15 (drainage of the middle ear) or by age range.

Comment

Distributing printed recommendations to decision makers may influence surgery rates, since a trend towards a reduction in the number of grommet operations was seen after distribution of the bulletin. Rates for tonsillectomy—another elective procedure in the same specialty—increased steadily over the same period, suggesting that the change was specific to persistent glue ear and thus was related to the bulletin.

The change cannot be attributed to the bulletin alone, which was commissioned because of pre-existing concerns about appropriate use of the procedure. Its publication received coverage in the medical and academic press,[4] possibly encouraging doctors to examine their own practices and bring about behavioural change.

Surgery rates were reduced, and there was an apparent improvement in the equality of care, but our results do not provide information on quality of care delivered by either general practitioners or surgeons. Adherence to watchful waiting principles may have promoted more appropriate (and reduced) patient selection; alternatively, primary care physicians alerted by media concerns may have reduced referral rates. Establishing the link between health service activity and quality of care remains difficult.

The estimated savings from reduced surgery (£27m) are considerably greater than the approximate production cost of the bulletin (£25 000). Another bulletin addressing the prescribing of selective serotonin reuptake inhibitors demonstrated a similar profile of costs.[5] Although the apparent healthcare savings are impressive, the impact on health outcomes, costs of alternative care received by patients, and costs of other health promoting activities remain unknown.

Contributors: JM had the original idea for the study, helped with data analysis, drafted the paper, and acts as guarantor. NF designed and conducted the data analysis. JM, GB, and NF participated in interpreting the data and revising the paper.

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Competing interests: JM and NF were members of the research team that wrote the *Effective Health Care Bulletin* on the treatment of persistent glue ear in children, and GB was a specialist adviser to the research team. JM and NF were employees of the Universities of York and Leeds, respectively, which received funding for the *Effective Health Care* bulletin project from the Department of Health.

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General outbreaks of infectious intestinal diseases linked with private residences in England and Wales, 1992-9: questionnaire study

Iain A Gillespie, Sarah J O'Brien, Goutam K Adak

The inception of the Food Standards Agency in April 2000 has given food safety issues a high public and political profile. Recently, concerns about food hygiene have focused on the home and, in particular, the possible transmission of infection via household items.[1] To determine the causes of gastrointestinal infection associated with the home, we reviewed general outbreaks (outbreaks affecting more than one household) of infectious intestinal disease in England and Wales reported to the Public Health Laboratory Service

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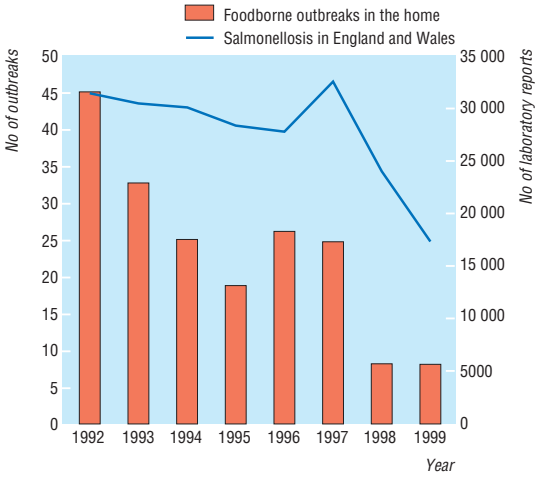

Foodborne outbreaks of infectious intestinal disease linked with the domestic setting and laboratory reports of salmonellosis in England and Wales. Source: PHLS salmonella dataset

(PHLS) Communicable Disease Surveillance Centre from 1992 to 1999.

Methods and results

After initial outbreaks of infectious intestinal disease in England and Wales the centre obtained data via a standard, structured questionnaire (response rate >80%)[2] and stored it in a dynamic database derived from EpiInfo version 5. We selected outbreaks linked with private households and analysed them with Microsoft Excel and Stata version 6. Relative proportions of outbreak settings and types were compared using the χ^2 test.

General outbreaks in the home (figure) accounted for 226 (5%) of the 4604 outbreaks reported during the surveillance period; of 4602 people affected, 205 (4.5%) were admitted to hospital. The risk of hospitalisation from outbreaks linked to the home was higher than that linked with outbreaks related to other premises (0.045 *v* 0.016; risk ratio 2.66; 95% confidence interval 2.31 to 3.06).

Food was the predominant transmitter of infectious intestinal disease (192/226; 85%); person to person transmission (13; 6%) and waterborne transmission (3; 1%) accounted for some of the remainder. The mode of transmission was unknown in 9 (4%) outbreaks. Foodborne transmission was linked to social functions—for example, barbecues and dinner parties—more frequently than other modes of transmission were (169/192 (88%) *v* 17/34 (50%); $\chi^2 = 28.5$, df = 1, $P < 0.001$). The mean size of group affected was 20 people (range 2 to 224, median 12, mode 8). The most frequently reported pathogen was salmonella (147/192; 77%); *Clostridium perfringens* (9; 5%), Norwalk-like virus (8; 4%), and Vero cytotoxin producing *Escherichia coli* O157 (3; 2%) featured less often. Poultry (59/207; 29%), desserts (37; 18%)—which often contained raw egg—and egg dishes (35; 17%) were commonly implicated; the link between these food vehicles and salmonella is well understood.[3] The most common faults in food hygiene were inappropriate storage, inadequate cooking, and cross contamination (99/251, 39%; 78, 31%; and 51, 20%, respectively); in each case salmonella was reported more frequently than any other pathogen (84/99, 85%; 67/78, 86%; and 43/51, 84%, respectively). Inappropriate storage was more commonly reported as a food hygiene fault in homes than in other premises (99/251 (39%) *v* 343/1309 (26%); $\chi^2 = 18.2$, df = 1, $P < 0.001$).

Comment

The downward trend in general outbreaks of infectious intestinal disease linked with the home reflects the national fall in outbreaks of salmonellosis. Foodborne outbreaks in the home seemed to occur when individuals catered for larger groups than usual. However, the surveillance system favours the inclusion of these outbreaks as large outbreaks are more likely to be identified and reported. Our analysis found much evidence that the outbreaks are related to cross contamination in the kitchen and this is supported by experiments that show how easy it is for the environment to be contaminated.[4]

The downward trend in general outbreaks linked with the home is encouraging and mirrors the national decrease in salmonella infection, which is probably due, at least in part, to the vaccination of poultry flocks. Lowering the risk of introducing salmonella into the home seems to benefit the consumer. Thus, it seems that the food industry can also make a positive contribution to reducing foodborne outbreaks.

We thank the consultants in communicable disease control, public health physicians, microbiologists, environmental health officers, infection control nurses, and all the staff at the PHLS and NHS laboratories who contribute to this surveillance system, and Mrs S Le Baigue and Miss S Long who maintain the database at CDSC. We also thank Dr R T Mitchell for his helpful comments on the manuscript and Catriona Graham for statistical advice.

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Endpiece

Beaten

I was running a race with the Reaper.
I hastened; he lingered; I won.
Now strike, Death! You sluggard, you sleeper.
You cannot undo what I've done.

Arnold Toynee (1899-1975), English historian and educator. From "Janus at 75" in *Experiences*, 1969.

Submitted by Fred Charatan,
retired geriatric physician, Florida