

General practitioner notifications of gastroenteritis and food poisoning: cause for concern

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ABSTRACT

Background Under the *Public Health (Infectious Diseases) Regulations 1988*, all doctors are required by law to notify suspected cases of specific infections and food poisoning. Doctors' propensity to notify is known to be low, and we sought to quantify this locally.

Methods From July 2000 to June 2002, we conducted a baseline audit of notifications by Wakefield GPs of cases of suspected gastrointestinal infection or food poisoning. We repeated the audit during 2005–06, following a series of local interventions to improve notification.

Results The baseline audit demonstrated considerable variation in reporting behaviour and timeliness of notification. Following the re-audit, we found that notification rates and timeliness had not improved, indeed they had deteriorated.

Conclusion We suggest that the current notification system is not working in respect of gastroenteritis and food poisoning, and should be either substantially revised or abandoned.

Keywords disease notification, gastroenteritis, food poisoning, sentinel surveillance

Background

Acute gastroenteritis remains an important public health problem, exacerbated by the globalization of the food industry. Under the *Public Health (Infectious Diseases) Regulations 1988*, all doctors are required by law to notify suspected cases of specific infections and food poisoning. The main aim of the notification system is to detect possible outbreaks or epidemics. It also triggers local public health management of individual cases of infectious disease and feeds surveillance at national and local levels to inform policy, planning and research. Doctors should notify promptly on the basis of clinical suspicion and should not wait for laboratory confirmation: an incorrect diagnosis can subsequently be amended or cancelled, and there is a separate system of laboratory notification of micro-organisms.

For historical reasons, these reports are returned to the local Environmental Health Department. Their staff are responsible for responding appropriately to each case, including alerting Health Protection Agency staff, and collating weekly national returns.

The reporting doctor earns a small fee of £3.36 for each notification. Failure to notify in theory carries a fine, but it is doubtful whether this has ever been imposed in practice.

Detection of infectious disease depends on several steps:¹

- patient's propensity to consult doctor;
- doctor's propensity to notify suspected disease;
- doctor's propensity to arrange clinical sample for suspected disease;
- submission of a suitable sample;
- laboratory's ability to detect micro-organism.

Notification is thus a key step in the chain, but too often it is slow and incomplete. Notification rates vary greatly between diseases, being high for exotica, good for tuberculosis and viral hepatitis, but low for gastrointestinal or food-borne conditions. The latter are of obvious public health importance, with an estimated 9.4 million cases in England each year. Notification practice varies considerably between doctors, but may be amenable to local initiatives.^{1,2}

Wakefield District, with a population of 315 000, appears typical of this national picture, with low notification rates and variations that are unlikely to reflect underlying disease

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incidence. Many of the 41 general practices appeared to have low rates of reporting, while a few were surprisingly high. However, these impressions were not quantified, and there was no reliable baseline from which to seek improvement.

We therefore surveyed notifications by Wakefield GPs of cases of suspected gastrointestinal infection or food poisoning. We chose these conditions as an important, relatively homogeneous group that constitute the majority of notifications. We confined the study to general practitioners (GPs) because most cases present in primary care.¹ This was the first step—‘observing practice’—and led into an audit cycle, the overall aims being:

- to describe the extent of local variation at practice level;
- to improve local surveillance of infectious diseases through initiatives such as medical education, followed by repeat survey.

Audit cycle

Standard setting

There is no current standard for notifications of infectious disease. The ideal standard would be that 100% of suspected cases are notified through the formal reporting system (irrespective of whether they are also notified informally). It is not possible to audit against this standard without a method of identifying all suspected cases, which is impractical in practice. There are no numerical minimum standards to audit against. Instead, we chose to observe local practice as a baseline.

Baseline observation of practice

We conducted a baseline survey (F. Day *et al.*, unpublished report) from July 2000 to June 2002 of notifications by Wakefield GPs of cases of suspected gastrointestinal infection or food poisoning.

We reviewed all formal notifications by Wakefield GPs of gastrointestinal infection and food poisoning in residents within Wakefield Metropolitan District Council (WMDC), for the period 1 July 2000 to 30 June 2002 inclusive, the baseline period. These were collated according to general practice, and rates of notification calculated according to the practice list size. As general practice patient lists do not necessarily correspond with local authority boundaries, we obtained list sizes which were specific for WMDC residents from the West Yorkshire Common Services Agency database to ensure a common denominator. We did no sub-analysis by age, sex or time period within the baseline;

although these all influence disease incidence, there is little variation between practices, and we preferred the robustness of a single large sample.

Individual patient notifications were matched to laboratory reports of *Salmonella*, *Shigella*, *Campylobacter* and *Escherichia coli* to derive the proportion of notifications that were laboratory confirmed. Although local practices use several laboratories, copies of laboratory reports on all Wakefield residents are returned to the local Environmental Health Department and can therefore be included in this survey.

Results of baseline observation of practice

We found that in general, GPs notify too little, too late. During the 2-year period, 1142 gastrointestinal infections were notified, an average rate of 1.8 notifications per 1000 residents per year. The rate from individual practices ranged from 0 to 12.4 per 1000 patients per year.

An average of 88% of notifications were laboratory confirmed, a surprisingly high proportion. Figure 1 shows that the distribution is skewed: 12 practices had 100% of notifications confirmed by the laboratory. Investigation of the process of notification revealed that many notifications only occurred once a positive result had been received, the opposite of how the system is meant to work.

Intervention

We fed individualized results back to each practice and brought them to the attention of the District Infection Control Committee, Clinical Governance Committee and similar fora. We also simplified the notification form. We then analysed notifications made in 2005/06.

Re-observation

The methods were the same as that for the baseline study. We counted all formal notifications by Wakefield GPs of gastrointestinal infection and food poisoning in residents of WMDC, for the period 1 July 2005 to 30 June 2006.

A limited analysis was also made of late notification. For those practices notifying at a rate of over 1.0 per 1000 per year, the first five notifications alphabetically were checked to see if there was also a laboratory report and whether that was dated before or the same day as the formal notification.

Results of re-observation

There were only 249 notifications during the 12 months, a rate of 0.8 per 1000 residents per year. This substantial fall of over 50% from the baseline of 571 per year (rate 1.8/1000 residents) does not correspond with national trends in

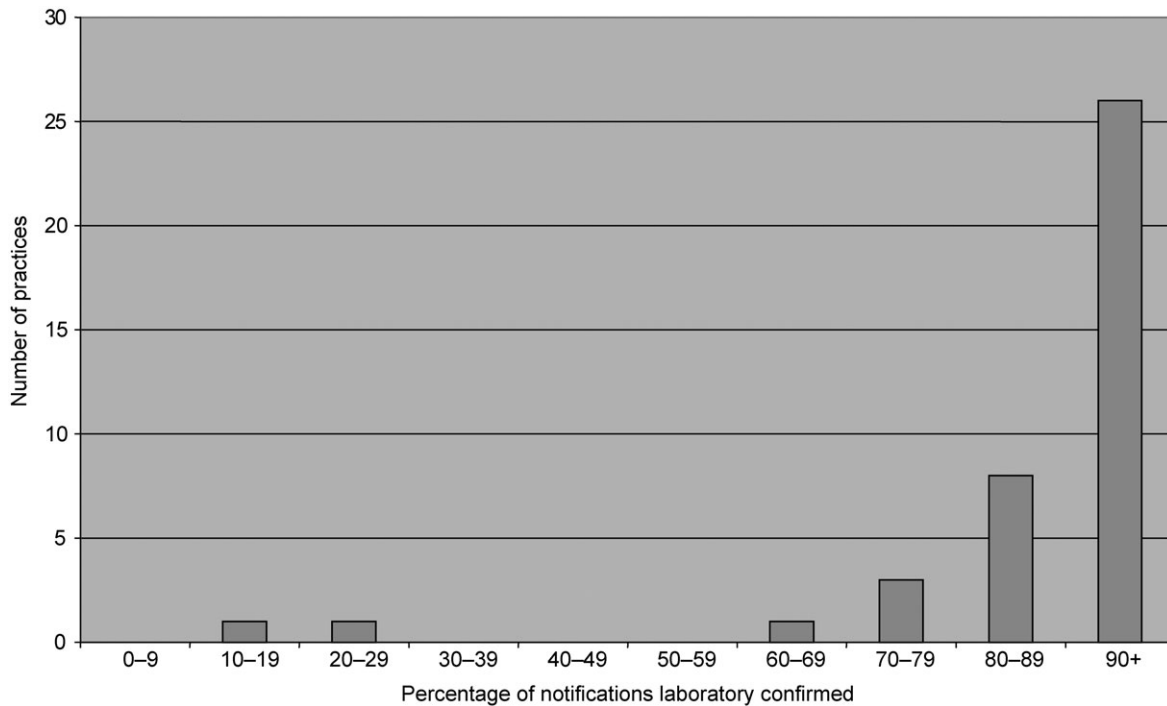


Fig. 1 Baseline audit: percentage of notifications laboratory confirmed 2000-02.

disease incidence (the total *Campylobacter* and *Salmonella enteritidis* faecal isolates in England and Wales fell by less than 20% during 2001-06, from 65 409 in 2001 to 53 168 in 2006^{3,4}). It is therefore unlikely to correspond with any genuine marked reduction in suspected disease, so we are

confident that it is due to reporting behaviour and not true decline in incidence.

Practices' propensity to notify remained highly skewed as shown in Fig. 2. One practice notified 77 cases, a rate of 12.7 per 1000 registered patients per year (identical to their

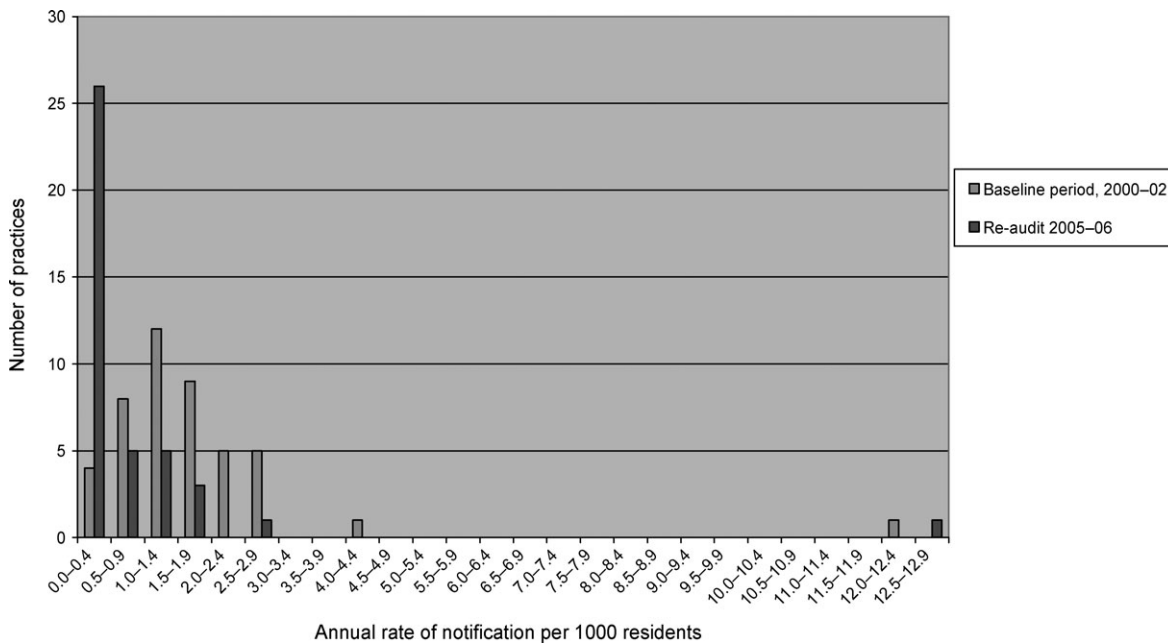


Fig. 2 Annual rates of notification by general practice (n = 41).

baseline rate), accounting for 31% of the district total. Six practices notified between 12 and 29 (rates of 1.2–2.9); the remaining 34 practices notified seldom or never.

For the 12 practices with five or more notifications in the year, the percentage of notifications where a laboratory report preceded or was the same date as the clinical notification was calculated, and this was 52%. There were few laboratory confirmations in the highest notifying practice (7/77).

Discussion

Both the audit and re-audit shared the same main limitation: they excluded informal notifications such as phone messages. Clearly, it is helpful to be alerted informally, but that is not a substitute for the formal system.

Wheeler *et al.*¹ demonstrated that for every 1000 registered patients in England, about 200 experience a gastrointestinal infection in any given year. One in six—about 33 of them—will attend their GP, but only a single case will be reported to national surveillance. Other studies have found differing rates depending on case definitions.⁵ It is thought that the average rate for English GPs is 1.0 per 1000, close to the rates seen in Wakefield and far from the 33.0 that underlying disease incidence suggests. Timeliness of notification remained an issue with at least half of all notifications occurring after a laboratory confirmation.

To say that the national notification system for notifications of gastroenteritis and food poisoning is badly broken would wrongly imply that it has ever worked. It is clearly unfit for purpose and the situation may be even worse than Wheeler *et al.* supposed, if national rates are mainly propped up by a few very active practices. There is no reason to suppose that Wakefield GPs are atypical in their distribution of reporting behaviour for this condition. And while the present study was confined to gastrointestinal illness, this is by far the most common notifiable condition: how great

might be the variability for less common conditions, let alone the exotic?

Local initiatives in response to the 2000/02 baseline study have not improved the situation, indeed it has worsened. While we intend to persevere with local initiatives, there can be little grounds for optimism. A national review of notifications is needed, possibly to raise its profile by including it in a Primary Care Contract or Quality Assurance system, or alternatively to scrap the clinical arm of the notification system altogether.

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