Crisis in our schools: survey of sanitation facilities in schools in Bloomsbury health district

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Abstract

Objective—To survey sanitation facilities in schools in Bloomsbury health district.

Design—Postal questionnaire.

Setting—Inner London health district.

Participants—School nurses.

Results—16 Of 17 school nurses responded (37 of 41 schools). Fifteen schools did not have the minimum number of toilets and hand basins established in the Education (School Premises) Regulations 1981. In two schools toilets were kept locked for most of the day. In 10 schools toilet paper was not always available, and three of five secondary schools did not have disposal units for sanitary towels in the girls' toilet areas. In 18 of the schools the toilets were not kept adequately clean.

Conclusions—These conditions raise serious questions about environmental health, with the potential for the spread of infectious diseases, and undermine attempts to teach children basic hygiene. Health professionals have an important role in assessing health and safety standards in schools and ensuring that necessary improvements are made.

Introduction

Our concern about standards of health and safety in schools arose after a visit to a Bloomsbury primary school after an outbreak of viral gastroenteritis that affected a tenth of the pupils. The condition of the sanitary facilities in the school was so poor that they were thought to have exacerbated the outbreak. More importantly, they raised serious questions about environmental health and the potential for the spread of more serious infectious diseases.

Both the environmental health officer and the department of public health medicine of Bloomsbury health district made extensive recommendations to the school and the Inner London Education Authority about improving the sanitary facilities. Thereafter substantial work was undertaken in the toilet areas.

This experience prompted a survey of the sanitary facilities in all Bloomsbury schools to assess the scale of problems and seek improvements by raising the issues with the Inner London Education Authority, the new education departments of Camden and Westminster boroughs, Bloomsbury Health Authority, and other agencies. A survey had not been conducted before. The numbers of sanitary fittings that a school should have are laid down in the Education (School Premises) Regulations,¹ which currently apply to all buildings built after 1981; from 1991 they will also apply to older buildings. These regulations were used to assess whether a school had adequate numbers of facilities.

Methods

The survey was carried out at the end of the summer term and beginning of the autumn term in 1989 (July to September). The object of the survey was to assess the

condition of the sanitary facilities in schools and to use the opportunity presented by management changes in education to seek improvements. There are 48 schools in Bloomsbury, including five private schools and two adolescent centres, which were excluded because their administrative structures meant that improvements would need to be sought through different channels. This left 41 schools in the survey.

A questionnaire was developed, based on problems identified at the first school visited and discussions with a teacher, a school nurse, the environmental health officer, and the National Union of Teachers' health and safety representative for Inner London Education Authority schools. It inquired about the numbers of different sanitary fittings, availability of hot water, outside sanitary fittings, and the availability of everyday toilet items such as soap and toilet paper. The questionnaire was precoded, and responses were the numbers of facilities available, yes/no answers, and responses to questions with several sequenced options as answers. Impressions of the cleanliness of the facilities were asked for, and additional comments were invited.

School nurses in Bloomsbury health district were asked to complete the questionnaires—they did so in the course of their daily work without having to make special visits. Their responses would therefore not be based on artefacts such as the toilet areas being cleaned directly before a visit. The nurses could assess a school from experience gathered over some time, and the more subjective questions about cleanliness could thus be answered with more validity.

As a pilot study two school nurses were asked to complete the questionnaire; it was modified accordingly. At a meeting of the Bloomsbury School Nurses Forum in July the researcher explained about the survey, handed out the questionnaires, and explained how they should be completed. Those nurses who did not return the initial questionnaire within two weeks were sent a reminder with a return envelope. A further reminder and personal letter were sent to those with questionnaires still outstanding at the start of the autumn term.

It was not possible to validate the opinions of school nurses. Three schools were visited by the researcher, however, and the findings correlated closely with the results of the questionnaires for these schools.

The Inner London Education Authority was informed of the intention of conducting the survey. Individual schools were not contacted because experience had suggested that they might be reluctant to cooperate with such a survey. School nurses were encouraged to inform the schools about the questionnaire, and the form from one school was not returned as the deputy head teacher had asked the nurse not to.

Thirty seven questionnaires were returned, giving a response rate of 90%. The four non-responders were three secondary schools and one primary school. Informal inquiries about the non-responders suggest that these schools had more problems than the main

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group. Two of the secondary schools were known to have very poor facilities.

Results

Of the 17 school nurses working for Bloomsbury District Health Authority asked to complete a questionnaire for each school that they had responsibilities in, 14 returned questionnaires on each of their schools, and two returned them on one of their two schools. Only one nurse did not return a questionnaire. Thus they supplied information on 37 of 41 schools. Not every question was answered for each school.

Table I shows that 15 schools did not meet various criteria in the 1981 regulations. Different schools with different age groups needed to meet different requirements. The problem was the greatest in the secondary schools, but in nursery schools (children under 5 years) almost a third of schools did not meet the regulations. Examples of the problems raised by the survey include a girls' school that did not have a toilet for the boys who study there in the sixth form, and a primary school that, because of the uneven distribution of toilets between school sites, had in one of its buildings only one inside toilet for 60 pupils.

The survey revealed that, though two schools had the correct number of facilities, the toilets were kept locked for most of the day. At one school the teachers reported that this had caused children to use the stairway as a toilet.

Sixteen schools retained their outside toilets as well as providing accommodation inside (table II). This was not seen as a problem, but two outside toilets in primary schools did not have handwashing facilities and six of the others did not have hot water. Nine schools did not have hot water in the indoor basins.

Many essential toilet items were not always available in schools (table III). In 10 schools toilet paper was not always available, often being kept by the school keeper or secretaries. At one school it was reported that there was not enough money to keep the cubicles well stocked with paper. In six schools toilet paper dispensers were not available in every cubicle. In four schools communal toilet paper dispensers were attached to the wall outside the toilet cubicles. One school did not have any form of hand drying equipment in some of its toilet areas. The secondary schools were asked about the availability of disposal units for sanitary towels in the girls' toilet areas. Three of the five schools did not have such units.

The school nurses were asked to give their views of the overall standards of maintenance and cleanliness of the school sanitary facilities. In 16 schools this was said to be good or very good, in 16 it was fair, and in four it was poor or very poor.

TABLE I—Sanitary facilities in schools in Bloomsbury health district

	Minimum sanitary fitting: pupil ratio given in school premises regulations	No of schools responding/total No	No (%) of responders with insufficient facilities
Toilets for children aged under 5	1:10	17/18	5 (29)
Toilets for children aged 5-11	1:20	32/32	6 (19)
Toilets for children aged over 11	1:20	5/8	5 (100)
Urinal to toilet ratio	2:1	36/41	2 (6)
Wash basin to toilet ratio for children aged up to 11	1:1	31/36	1 (3)

TABLE II—Wash room facilities in schools in Bloomsbury health district. Figures in parentheses are percentages

	No of schools with problem/No responding		
	Primary	Secondary	Total
Retaining outside toilets	14/32 (44)	2/5 (40)	16/37 (43)
Without hot and cold water in outside hand basins	4/12 (33)	2/2 (100)	6/14 (43)
Without hand basins in outside toilets	2/16 (13)		2/16 (13)
Without hot and cold water in inside hand basins	6/30 (20)	3/5 (60)	9/35 (26)
Toilets not cleaned often enough	14/31 (45)	4/5 (80)	18/36 (50)

TABLE III—Wash room equipment in schools in Bloomsbury health district. Figures in parentheses are percentages

	No (%) of schools with problem/No responding		
	Primary	Secondary	Total
Soap not always available	8/32 (25)	3/5 (60)	11/37 (30)
Toilet paper not always available	7/32 (22)	3/5 (60)	10/37 (27)
Dispensers of toilet paper not in all cubicles	5/31 (16)*	1/5 (20)	6/36 (17)
Hand towels not changed regularly	1/30 (3)†	3/5 (60)	4/35 (11)
Wastebins not lined with bin liners	22/32 (69)	3/5 (60)	25/37 (68)
No sanitary towel disposal units for staff	13/32 (41)	3/5 (60)	16/37 (43)
No sanitary towel disposal units in all toilet areas for girls		3/5 (60)	3/5 (60)

Discussion

Many schools in Bloomsbury have serious deficiencies in their sanitary facilities. Although the problem is greater in the secondary schools in all the areas examined, it is more serious in the primary schools because during community outbreaks of hepatitis A, viral gastroenteritis, and dysentery the attack rates are higher in the younger age groups.

The improvements required do not all involve capital allocations. Soap, toilet paper, clean towels, sanitary towel disposal units, and more frequent cleaning are needed and would substantially improve conditions for children.

Koopman investigated the relation between unhygienic toilet conditions and the transmission of diarrhoeal diseases in schools and found that the provision of soap, toilet paper, and clean towels had a greater influence on the number of cases of diarrhoea than did the number of toilets per school. He concluded that the relation between toilet hygiene and diarrhoea or vomiting was causal.²

It was not possible in our study to link the condition of the sanitary facilities directly with the health of schoolchildren in Bloomsbury health district. The notification rate of gastroenteritis to the Camden department of environmental health is very low in children and the cause of absence from school cannot be obtained from school registers. The resources were not available to study this prospectively. It must be assumed from work elsewhere that the toilet conditions existing in Bloomsbury would be likely to encourage the spread of infectious agents, particularly gastrointestinal pathogens. Furthermore, attempts to teach children good basic hygiene including regular hand washing would be undermined by such facilities.

Outbreaks of hepatitis A in schools are common. In 1988 nearly a tenth of cases in England and Wales were part of school outbreaks,³ and over two thirds of these were in ordinary primary and secondary schools. Full reports of these cases are not available, but in the recent outbreak in a primary school in Omagh (V K Tohani, personal communication) and in a secondary school in greater London (R Leyton, personal communication) conditions similar to those in Bloomsbury had been found. In Omagh only cold water was provided in the hand basins and paper towels were available only on request from the teacher. In the London school there was one bar of soap for 10 hand basins, no toilet paper in many cubicles, and the roller towels had fallen off the walls in the week before the investigation and had not been replaced. In both outbreaks the notification rate of cases was very low, suggesting that the true incidence of hepatitis in schools may be much higher. *Shigella sonnei* has also been shown to spread in such poor conditions.⁴

There is little legislation to protect schoolchildren from these health risks in schools: legislation on health and safety is weak. The Health and Safety at Work Act (1974) is rarely enforced because the responsible agency, the Health and Safety Executive, is over-

stretched and has other priorities. Other areas of protective legislation that are inadequate include the Health and Safety (First Aid) Regulations 1981, which do not apply to schools, and the Fire Precautions Act (1971), which has not been extended to schools.

Education services throughout Britain are in a stage of transition and there have been great changes in inner London. In April 1990 the Inner London Education Authority ceased to exist, and responsibility for education passed to newly established local authority education departments, which in Bloomsbury are those of Camden and Westminster. In many areas responsibility falls directly on the schools themselves under the local management initiative. The funding for education services comes in part from government grants and in part from the community charge. It has been calculated that, at least in London, there will be substantial cuts in funding of education services over the next few years.⁵

Even where local education departments are aware of the scale of the problem few resources will be available to rapidly upgrade facilities, and most schools will not be brought up to the standard of the 1981 regulations before these become legally enforceable in 1991. The commitment of the government to enforcing its own regulations is also doubtful: the Bloomsbury school that was found to have the most severe problems had recently had an application for a grant for minor work to upgrade its toilets rejected by the Department of Education and Science. This school had no toilets indoors for use by boys below the sixth form.

School nurses and doctors and public health

physicians have an important role with respect to health and safety in schools. They should be much more active in drawing attention to health and safety problems in schools and ensuring that standards are raised and maintained. Our survey led to the Department of Education and Science finding £89 000 for Camden voluntary aided schools (in which capital work is funded in part by direct departmental grants), and it put forward health, hygiene, and sanitation facilities as important issues for the new education departments of Camden and Westminster and the public health committee of Camden.

This is an example of what can be achieved. The government has an urgent task in reviewing legislation covering health and safety and fire prevention in schools and strengthening it. The Department of Education and Science and Department of Health have been approached about this. Far greater sums of money must be found if a serious attempt is to be made to tackle these widespread problems.

We thank the school nurses of Bloomsbury health district for their help in collecting data.

- 1 *The Education (School Premises) Regulations, 1981*. London: HMSO, 1982. (SI 909.)
- 2 Koopman J. Diarrhoea and school toilet hygiene in Cali, Colombia. *Am J Epidemiol* 1978;107:412-20.
- 3 Polakoff S. *Clinical hepatitis A*. London: Public Health Laboratory Service Communicable Disease Surveillance Centre, 1989. (Unpublished.)
- 4 Thomas MEM, Tillett HJE. Sonnei dysentery in day schools and nurseries: an eighteen-year study in Edmonton. *Journal of Hygiene* 1973;71:593-602.
- 5 Pyke N. Destined to have a very lean and hungry look. *Times Educational Supplement* 1990 February 23:13.

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Royal Brompton Grand Rounds

Adult respiratory distress syndrome

Advances in diagnosis and ventilatory management

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Case presented by:
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The adult respiratory distress syndrome is characterised by refractory hypoxaemia and decreased lung compliance secondary to high permeability pulmonary oedema.¹ Between 10 000 and 15 000 cases occur annually in Britain alone,² and although understanding of the mechanisms leading to the syndrome has improved considerably since it was first described, the associated mortality remains high.³ Conventionally, the syndrome is diagnosed on clinical grounds,⁴ and treatment is almost entirely supportive. The presented case illustrates some of the advances made in the diagnosis and ventilatory management of patients.

Case history

A 36 year old West Indian woman presented to another hospital in December 1989 with a three day history of increasing shortness of breath, right sided pleuritic chest pain, a cough with scanty rusty sputum, and fever. She was 32 weeks pregnant and had had no proteinuria or hypertension. In 1984 she had had pulmonary emboli for which she had been treated with warfarin for six months.

On examination she had clinical and radiological evidence of right lower lobe pneumonia. She had a leucocytosis (white cell count $18.3 \times 10^9/l$) and an arterial oxygen pressure of 8 kPa and arterial carbon dioxide pressure of 2.7 kPa when breathing room air. Bacteriological examination of sputum gave negative results. She was treated with intravenous erythromycin and cefuroxime and oxygen through a facemask.

She went into spontaneous labour and delivered a live infant vaginally, but she required a transfusion of four units of packed cells because of blood loss.

The next day radiography showed bilateral diffuse pulmonary infiltrates, but her pulmonary artery occlusion pressure was normal. She became hypoxaemic and mechanical ventilation was started. Pulmonary angiography showed no evidence of recurrent emboli, and dilatation and curettage of the uterus found no retained products of conception. Her gas exchange deteriorated further, she had a tracheostomy, and 12 days after admission she was transferred to the Brompton Hospital. Initial clinical assessment suggested that she had the adult respiratory distress syndrome induced by pneumonia, reaction to a blood transfusion,⁵ or gynaecological sepsis.

With an inspired oxygen concentration of 0.6 and 10 cm of positive end expiratory pressure her arterial oxygen pressure was 6.9 kPa. She was hypertensive, with a cardiac output of 11.8 l/min and a pulmonary artery occlusion pressure of 14 mm Hg. A full bacteriological screen gave negative results, and she was treated with piperacillin and gentamicin. Her renal function was normal, but there was biochemical evidence of mild hepatic dysfunction. The radiological findings and the confirmation of the diagnosis will be discussed later.

During the 24 hours after her transfer, her gas exchange deteriorated further despite the use of 10 cm of positive end expiratory pressure and her peak inflation pressure rose to 55 cm H₂O. She was there-