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Accidents from glass

Glass in houses has been responsible for serious injuries since it came into widespread use. In 1875 Edward Holme Bulcock walked through a sheet of plate glass which he mistook for a doorway receiving fatal injuries.¹ One hundred and ten years later there is no legislation on the installation of glazing in dwellings. Around 50 000 people a year, many of them children and adolescents, are injured by glass in accidents in the home,² with many more serious injuries than those caused by other materials.³ These injuries could largely be prevented or made less serious if the right type of glass was used in domestic buildings. About 20 000 accidents involving glass doors and windows are reported to accident and emergency departments in England and Wales each year,⁴ not including those injuries which arise while glass doors and windows are undergoing repair or replacement. Injuries caused by ordinary glass used in buildings tend to be serious, and these dangers are likely to increase, since about 100 000 patio doors are being sold each year.⁵

Jackson's study of glass injuries in children showed that 30 out of 62 injuries serious enough to warrant admission to hospital were due to architectural glass in doors or windows; 26 of these had occurred in houses.⁶ Bell reviewed 200 injuries by glass in children and found almost half to be domestic, accounting also for seven out of nine most serious injuries.⁷

Current building practice is governed by the British Standards Institution code and the British Standard Code for Glazing for Buildings. These have recently been revised as BS6262 (1982)⁸ but remain unsatisfactory. The new standard covers a range of matters related to glass, including durability, sound insulation, fire protection, and thermal expansion and contraction. It recognises that glass may be used in some potentially dangerous sites but does not make any reference to types of safety glass. Furthermore, the standard is not statutory, and at present it is left to the building industry to regulate itself.

Most serious injuries from glass in the home could be prevented if at least the vulnerable areas, such as fully glazed doors, sliding doors and windows, and lower half of glass doors, were constructed with safety glass. Safety glazing could be included among those features of homes receiving aid from improvement grants. A scheme for safety glazing could, indeed, be financed in a similar way to the scheme for loft insulation. The most effective protection, however, would come from legislation requiring safety glazing in all new dwellings and in repairs to existing buildings.

The public should also be made aware of the dangers of the existing non-safety glass and of ways of making existing glass safe. This may be done by applying specifically produced and commercially available adhesive plastic sheets. The applications of such products costs little (about £60 in a three bedrooomed semidetached house) and offers a very effective and safe alternative—and one that also protects against thieves attempting to gain entry. Some local authorities have used this sheeting to make their educational establishments safe. Before long it may become a legal requirement since one authority has been sued successfully when one of its tenants accidentally put his hand through a glass panel (*Rimmer v Liverpool Council*; Public Relations Ltd, London, personal communication).

Road traffic accidents are seen by the community to be traumatic and expensive, and they receive a lot of attention by the press. The spotlight should be moved—at least some of the time—to accidents in the home and their prevention. The cost to the National Health Service of the treatment of glass injuries in England and Wales was estimated at about £7.5m in 1982.⁹ Yet these injuries are relatively easy to prevent.

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Better health statistics

Routine statistical data from the health service are sometimes inadequately exploited. In particular, opportunities for routine age and sex adjustment are not always taken, and little effort has been made to evolve reliable indices by which the public health may be assessed. A new publication from the Hospital In-Patient Enquiry (HIPE) of England (one in 10 random sample of hospital records) is a step in the right direction. The first Office of Population Censuses and Surveys *Monitor—Trends 1979-1983* appeared in October 1985 and will appear with each annual HIPE summary table. These tabulations present trends over a five year period in the population rates of National Health Service discharges and deaths by age and sex, by classification of disease, and by surgical operation.

These same statistics appear in the much fuller annual HIPE tables, but the reader who wants trends over time has to work with several books and microfiches. The new

publication gives at a glance all the unstandardised rates of discharge over five years. What we can learn is a function of what we know to be plausible determinants of particular hospital discharge rates. Broadly, these come under four headings: artefact of coding, supply of medical services, demand for hospital care, and morbidity. To take the last first, if artefacts, supply, and demand did not influence changing discharge rates then these changes would have to be a reflection of changing morbidity. Then we would have what every epidemiologist seeks: temporal trends in population morbidity rates—which are the final outcome of the provision of health services.

In reality the interpretation of these trends is not as simple. The data do show, however, that discharge rates for indications for which admission to hospital is mandatory seem to have been constant over the five year period. At least in this interval coding artefacts do not seem to play a discernible part in changing rates. Supply and demand must contribute, however, for several discharge types, and herein lies the real problem of interpretation.

The first thing that strikes the eye is that almost all rates categorised by diagnostic group increased between 1979 and 1983—despite the exclusion of the expanding private sector. Of the 200 or so categories, only 16 appeared to be decreasing. In aggregate, the discharge rate had increased by about 10% in the period. In other words, the number of episodes of hospital admission per 1000 population was 10% higher than in 1979. That does not mean that people were 10% more likely to be ill because reasons for referral change (demand), and reasons for admission change (supply), and perhaps some people get admitted more often.

So how can we sensibly use these data? Like most routine statistical publications their main utility lies in suggesting interesting epidemiological hypotheses. Sometimes such data may fairly conclusively refute a particular hypothesis, but this is rare. Simple accounts of hospital activity, including basic data such as age, sex, diagnosis, and operation, are worth while because they provide the basis for more specific investigation. There is no point in mounting large studies to investigate epidemiological phenomena for which the initial hypothesis was based on intuition or hunch when such ideas cannot be validated or investigated even crudely from routine sources. Moreover, these tabulations can always be complemented with a local hospital activity analysis database, which is more detailed and presumably more useful because we tend to know more about the nature of local data.

For instance, both appendicitis and operations for it (as recorded) seem to be going down. Is this because the population is aging or because the incidence is decreasing? Discharges for asthma are increasing quite appreciably. Is this because of an increasing incidence or severity or a greater propensity to admit to hospital? Incision of the eardrum is also increasing—presumably for insertions of grommets. And so on. . . . Such questions suggest the need for further ad hoc studies. The main problem with the interpretation of these data, however, is that they are based on episodes and not on persons, and until there is a clear yardstick with which to validate their quality, lingering doubts will inevitably remain. The new tables go some way towards that by facilitating the study of temporal trends.

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