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Contamination of skin and clothing of accident and emergency personnel

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There is a striking contrast between clothing worn by medical staff working in resuscitation rooms of British accident and emergency departments—traditionally white coats over personal clothing—and the theatre-style suits and gowns worn by resuscitation teams in North American centres.¹ We do not know how often personal clothing or uniforms worn by accident and emergency personnel are spattered by blood and other body fluids and the protection afforded. There is, however, a definite risk of infection with various transmissible agents during patient contact. A case report of HIV infection in an accident and emergency health care worker after skin contamination with blood from a seropositive patient having cardiopulmonary resuscitation emphasised the need for suitable protective clothing.² We attempted to assess the risk of clothing soiling and skin contamination during the daily work of accident and emergency staff in a busy teaching hospital accident and emergency department.

Methods and results

During 1-30 November 1991, 7402 patient attendances were recorded. Medical and nursing staff were asked to check their clothing and exposed skin after each patient contact and if there was definite soiling to

clothing to check for visible evidence of underlying skin contamination. Two hundred forms were completed on 212 splash incidents.

Although 2.2% of patients (n=169) presenting to the department were treated within the resuscitation room, 36.3% of splash incidents (77) occurred there. Altogether 16.5% of splashes (35) occurred in the examination room mainly as a result of wound management (22.6% of splashes (48)). A total of 28.8% of splashes (61) occurred during venous or arterial puncture, but contamination was recorded during 20 other procedures ranging from undressing the patient to last offices. Some 47.6% of splashes (101) resulted in skin contamination, and 28.7% of these (29) occurred despite the area being covered by personal clothing or a uniform. Personal clothing was soiled in 41.0% of incidents (87) and uniforms in 62.3% (132). A total of 71.2% of splashes (151) were with patients' blood, though splashes of vomitus, sputum, saliva, pus, faeces, and urine were documented.

Comment

The accident and emergency department operates a policy of "universal precautions,"³ and medical and nursing staff receive guidance in appropriate barrier procedures when contact with blood or other body fluids is anticipated. Despite the appropriate use of gloves, masks, face shields, gowns, and plastic aprons splashes on clothing and skin contamination may occur. Nursing uniforms do not protect the legs or arms, and white coats do not protect against spattering of personal clothing. White coats have been shown to be a potential source of cross infection, especially when worn in accident and emergency departments.⁴ The soiling of personal clothing is both unacceptable and unhygienic. Contamination of skin despite wearing a

uniform suggests that the design and material used are inappropriate.

In most accident and emergency departments the core of resuscitation teams is drawn from the staff working within the unit, and by the very nature of the emergency presentation there is often very little time to protect personal clothing and exposed skin. Not only are invasive procedures carried out in the resuscitation room but wound management elsewhere in the department results in appreciable risk of contamination. Nevertheless, it is impossible to anticipate all potential incidents, and staff are often unaware of contamination when it occurs.

An NHS report on the choice of reusable fabrics for operating theatres places emphasis on certain performance specifications which should meet British Standards.⁵ Synthetic fabrics of polyester, for example, are now available which meet these criteria. Protective clothing produced from such fabric acts as an efficient bacterial barrier and is liquid repellent. We are currently exploring the feasibility of providing our

medical and nursing staff with theatre-style uniforms made from this material.

This study highlights the inappropriate practice of wearing personal clothing in the accident and emergency department and the inadequate protection provided by traditional "uniforms." We recommend that accident and emergency staff should be protected by clothing of appropriate design and fabric.

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General practice and accident and emergency department care: does the patient know best?

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Accident and emergency departments function under a considerable workload. In a recent study, 12% of attendances were considered inappropriate (B Farrell *et al*, 35th meeting of Society for Social Medicine, 1991). Other work has shown that 8% of attenders have already consulted a general practitioner with the same problem.¹ If such patients are self referred, it is presumed that the general practitioner, having decided that referral to accident and emergency was unnecessary, has already given them appropriate treatment and advice. Consequently such patients often encounter scepticism from accident and emergency staff, when, in reality, little is known about them to justify such an attitude. This study considers the outcome of attendance at accident and emergency departments, comparing self referred patients who have already consulted a general practitioner with other groups.

Methods and results

For two weeks in November 1988, every tenth adult registering at our accident and emergency department was asked, before seeing a doctor, if they had already consulted a general practitioner with the same clinical problem. After treatment, case notes were examined for routinely coded clinical data, including mode of referral (self, general practitioner, workplace, etc). Cases of unconsciousness, self poisoning, and road accidents were excluded because these groups always require accident and emergency facilities. Also excluded

were patients visiting the area or not registered with a local practice and those certified dead on arrival.

From 4560 sequential attenders, 442 cases were identified between 12 and 26 November 1988. Valid responses to the question were obtained from 371 (84%).

Of the 371 respondents, 103 had already seen a general practitioner with the same problem before attending. Of these, 67 had been professionally referred, 56 by a general practitioner and 11 by other health care professionals such as a workplace nurse. The remaining 36 patients had referred themselves. Among the 268 patients who had not first seen a general practitioner, 197 had referred themselves and 71 had been professionally referred.

The table shows the numbers of patients who were discharged, referred to outpatient clinics, or admitted as emergencies. Patients who had already seen a general practitioner before referring themselves to the accident and emergency department (n=36) were just as likely to be admitted as those in any other group. A total of 24 patients defaulted before completion of treatment (although a working diagnosis had been made by this point), but only one had seen a general practitioner before referring himself to the accident and emergency department.

Comment

The tabulated data suggest that considerably more patients than previously recognised (28%) attend accident and emergency departments having first seen a general practitioner.¹ In this group 28% warranted hospital admission. Within this group, patients who had chosen to refer themselves to the accident and emergency department had done so despite having seen a general practitioner who clearly had not recommended such a course of action; none the less these patients were just as likely to require admission (34%). Scepticism about self referred patients who have

Outcome of consultation in accident and emergency department for 371 attenders

	No refused or did not wait	No given formal discharge	No (%) admitted as emergency	No given outpatient appointment	Total
Seen by general practitioner	1	46	29 (28)	27	103
Self referred (a)	1	18	12 (34)	5	36
Professionally referred (b)		28	17 (25)	22	67
Not seen by general practitioner	23	155	31 (13)	59	268
Self referred (c)	18	119	15 (8)	45	197
Professionally referred (d)	5	36	16 (24)	14	71

Statistics (excluding column 1): whole table, $\chi^2=27.8$, $p=0.0001$; (a) v (b), (a) v (d): not significant; (a) v (c), $\chi^2=18.1$, $p=0.0001$.