

best, a tenuous relation to the more serious events of real interest.

These criticisms aside, however, this review is welcome as it provides further support for the contention that prophylactic treatments are unnecessary.

Peter Dawson *professor*

(peter.dawson@uclh.nhs.uk)

Department of Imaging, UCL Hospitals, London NW1 2BU

1 Tramèr MR, von Elm E, Loubeyre P, Hauser C. Pharmacological prevention of serious anaphylactic reactions due to iodinated contrast media: systematic review. *BMJ* 2006; doi: 10.1136/bmj.38905.634132.AE

2 Katayama H, Yamaguchi K, Kozuka T, Takashima T, Seez P, Matsuura K. Adverse reactions to ionic and nonionic contrast media. A report from the Japanese Committee on the Safety of Contrast Media. *Radiology* 1990;175:621-8.

3 Palmer EJ. The RACR study of intravenous contrast media reactions. Final report. *Austral Radiol* 1988;32:426-8.

4 Lasser EC, Berry CC, Talner LB, Santini LC, Lang EK, Gerber FH, et al. Pretreatment with corticosteroids to alleviate reactions to intravenous contrast material. *N Engl J Med* 1987;317:845-9.

5 Wolf GL, Mishkin MM, Roux SG, Halpern EF, Gottlieb J, Zimmerman J, et al. Comparison of the rates of adverse drug reactions. Ionic agents, ionic agents combined with steroids and non-ionic agents. *Invest Radiol* 1991;26:404-10.

6 Dawson P, Sidhu PS. Is there a role for corticosteroid prophylaxis in patients at increased risk of adverse reactions to intravascular contrast agents? *Clin Radiol* 1993;48:225-6.

doi 10.1136/bmj.38981.652118.DE

Bullying and harassment in medical schools

Still rife and must be tackled

Recent changes in undergraduate medical education have been rapid and profound. Faced with the explosion of knowledge, ongoing technological advances, patients' changing expectations, the recognition of health inequalities worldwide, and better understanding of educational theory, medical educators have striven to provide undergraduate programmes that equip students with basic knowledge, skills, and attitudes that recognise their immediate progression into independent practice and their need to develop skills as lifelong learners.

What remains familiar at the core of medical education is exposure to patients with their multifaceted problems and the experience of health care at the point of delivery. Sadly, clinical practice also exposes medical students to some of the best recognised yet least easily solved problems in medical education: bullying and harassment. A study by Frank and colleagues in this week's *BMJ* reports the experiences of US medical students of this important but uncomfortable issue that needs to be tackled.¹

Bullying and harassment occur in all organisations, although rates seem to be higher in healthcare institutions,^{2,3} and such behaviour may be more common in medical faculties than in other higher education departments.⁴ Many definitions of bullying and harassment exist,^{5,6} and can be categorised into threats to professional status, threats to personal standing, isolation, overwork, and effects on self confidence. In all cases bullying behaviour is persistent, malicious, and undermining. It has important effects on the psychological wellbeing of the bullied and harassed person in terms of future performance, career choice, and retention within the profession.

Frank and colleagues describe the extent to which belittlement and harassment were reported by medical students in the United States in a large study of more than 2300 students from 16 medical schools at three different time points in their studies.¹ By the end of the course 85% of students reported having been harassed or belittled and 40% had experienced both. These findings were not influenced by ethnic origin or gender. The perpetrators included other students and patients, but residents and attending doctors or clinical professors were most often to blame. In all, 13% of respondents reported these incidents to be severe.

The authors asked about specific groups of medical staff and patients but not about other healthcare professionals. In a recent cross sectional survey by the British Medical Association of 297 UK medical students,⁷ bullying was reported, but UK students held nurses (a group not reported in the US study) to be the second most likely perpetrators. Interestingly, rates of bullying and harassment were much lower among UK students than US ones—83% reported no incidents through their entire medical school career.

These data and the results of numerous other studies should be interpreted with caution. Many studies are small, cross sectional, and conducted by faculty members of the students' institution; others ask for specific instances of abuse such as sexual harassment or racism. In general, bullying and harassment are more commonly reported by female students. However, the high rate of reported incidents of bullying in Frank and colleagues' study is striking.¹

Medical students in the US tend to be older than their UK counterparts and may have a greater awareness of unacceptable professional behaviour or a lower threshold of tolerance. Other cultural, educational, and contextual differences may underpin the results from the US. Given that the incidence of bullying and harassment in the United Kingdom's health service is high,² it is unlikely that UK medical students are not exposed to these behaviours. Most probably UK students develop coping strategies such as peer support, deliberate intervention in teaching sessions, or ignoring unwanted events as they arise.⁸

Not all students have the psychological characteristics to respond in this way, however, and those that do may perpetuate the problem as they qualify and move into the workforce. Other students may be reluctant to report incidents of harassment, may just regard it as normal behaviour, or may even think that harassment and humiliation are useful educational experiences.⁹ On the contrary, it is clear from the available evidence that bullying and harassment can have profoundly negative effects. Severe harassment and belittlement may be associated in students with higher rates of alcohol misuse, depression, and suicidal intent and with lower satisfaction with their chosen career as a doctor.¹

Research p 682

BMJ 2006;333:664-5

It is not easy to prevent bullying and harassment in the workplace. It requires people to moderate their behaviour so that they become positive role models and demands considerable changes in institutional culture. The negative impact that bullying and harassment have on the wellbeing of students and doctors, overall morale in the medical workforce, and recruitment and retention in the profession demand our continuing efforts to resolve these problems.

Diana F Wood *director of medical education and clinical dean*

(dfw23@medschl.cam.ac.uk)

University of Cambridge School of Clinical Medicine, Addenbrooke's Hospital, Cambridge CB2 2SP

Competing interests: None declared.

- 1 Frank E, Carrera JS, Stratton T, Bickel J, Nora LM. Experiences of belittlement and harassment and their correlates among medical students in the United States: longitudinal survey. *BMJ* 2006 doi: 10.1136/bmj.38924.722037.7C.

- 2 BMA Health Policy and Economic Research Unit. *Bullying and harassment of doctors in the workplace*. London: BMA, 2006. www.bma.org.uk/ap.nsf/Content/bullying2006 (accessed 25 Aug 2006).
- 3 Bully OnLine (UK National Workplace Bullying Advice Line). Bullying: surveys, facts, figures and costs. www.bullyonline.org/workbully/costs.htm (accessed 25 Jul 2006).
- 4 Rautio A, Sunnari V, Nuutinen M, Laitala M. Mistreatment of university students most common during medical studies. *BMC Med Educ* 2005;5:36.
- 5 Chartered Institute of Personnel and Development. *Managing conflict at work: a survey of the UK and Ireland*. London: CIPD, 2004.
- 6 Digital Opinion. National workplace bullying survey—the feedback. 2006. www.digitalopinion.co.uk/?SERVICES-BULLYING-NATSURVEY RESULTS (accessed 25 Jul 2006).
- 7 British Medical Association. *Medical students welfare report*. London: BMA, 2006. www.bma.org.uk/ap.nsf/Content/WELFARE2006 (accessed 20 Jul 2006).
- 8 Nicholson S. "So you row, do you? You don't look like a rower." An account of medical students' experience of sexism. *Med Educ* 2002;36:1057-63.
- 9 Musselman LJ, MacRae HM, Reznick RK, Lingard LA. "You learn better under the gun": intimidation and harassment in surgical education. *Med Educ* 2005;39:926-34.

doi 10.1136/bmj.38954.568148.BE

Congenital anomalies after treatment for infertility

Partly related to the cause of infertility

Research p 679

More than 10 000 children are born each year in the United Kingdom through in vitro fertilisation. Studies have shown an increased risk of adverse outcome in singleton infants conceived by the assisted reproductive technologies of in vitro fertilisation and intracytoplasmic sperm injection. These infants are at increased risk of intrauterine growth retardation, low birth weight, premature delivery, and perinatal mortality compared with infants born to fertile couples.¹ A twofold increase in the risk of major congenital malformations has also been reported,²⁻⁴ and there is some evidence of a specific increased risk of imprinting disorders such as Beckwith-Wiedemann and Angelman's syndromes.^{5,6} The source of the increased overall risk of anomalies could be the infertility treatment, either from the in vitro procedure or the drugs used to stimulate ovulation, or intrinsic factors associated with infertility itself. Various data have suggested that infertility, especially female infertility, is likely to be the most important factor.⁷⁻⁹

In this week's *BMJ* the relationship between infertility, infertility treatment, and the risk of congenital abnormality is addressed by a large scale, prospective cohort study by Zhu and colleagues.¹⁰ They found that women who took a prolonged time (> 12 months) to conceive but who did not receive infertility treatment had a small but significantly increased risk of having infants with congenital abnormalities. Furthermore, the authors show that when these women are compared with women who did receive infertility treatment, many of the apparent associations between assisted reproductive technologies and congenital abnormality are lost. However, they show that the association between infertility treatment and genital tract anomaly persists, even when rates are compared with women who took a long time to conceive.

The authors did not have information about infertility treatment among women who reported a time to

pregnancy of less than six months. Although most of the women in this group are unlikely to have had such treatment, it is plausible that some couples with known causes of infertility (such as azoospermia due to failed vasectomy reversal or known severe endometriosis) may have conceived with infertility treatment within six months of starting their attempts to have a baby. Any misclassification due to this issue would tend to underestimate the strength of association between infertility and anomalies, but the effect is likely to be small.

What are the implications of these results? To reproductive specialists, it is useful to know that infertility treatment may not be causally associated with the risk of adverse outcome in singleton infants conceived by assisted reproductive technologies. More likely, the causative factors for these outcomes are unrelated to the treatment, with the possible exception of malformations of the genital tract. Clearly, counselling about the spectrum of possible fetal adverse outcomes should form an integral part of the care of couples seeking fertility treatment. A balanced view should be offered, allowing couples to weigh up the small but significantly increased risk of complications against the benefit of parenthood that may not be otherwise achievable.

It may be helpful to emphasise the absolute risks. Zhu et al report an overall increased risk of congenital abnormalities in the region of 1-2% compared with women conceiving within 12 months. This is unlikely to be a major disincentive for most couples deciding on infertility treatment. The Human Fertilisation and Embryology Authority's website (www.hfea.gov.uk) and guide to infertility are important sources of accurate and up to date information about infertility treatment for UK patients. Future editions of these could reflect the new information provided by this study. A further valuable role for the authority may be to allow the use of its database of cycles of licensed fertility treatment for further research studies.