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Cefotetan-induced life-threatening haemolysis

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TO THE EDITOR: A 32-year-old woman presented with fatigue and jaundice 12 days after an uncomplicated elective caesarean delivery. She had a haemoglobin level of 76 g/L (reference range [RR], 110–160 g/L), reticulocytosis ($202 \times 10^9/L$, 12.6%; RR, $20\text{--}100 \times 10^9/L$) and hyperbilirubinaemia ($139 \mu\text{mol/L}$, 97% unconjugated; RR, $<20 \mu\text{mol/L}$).

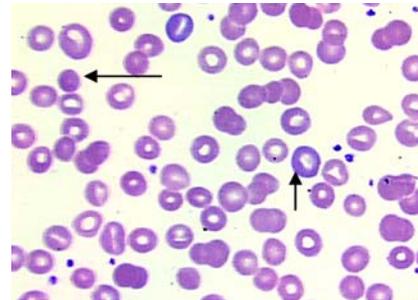
Within 24 hours, her haemoglobin level fell to 37 g/L, and a blood film showed spherocytes and polychromasia consistent with haemolysis (Box). A direct antiglobulin test was strongly positive for IgG and complement. The patient's obstetric case notes revealed administration of a single intravenous dose of cefotetan at the time of delivery. Donor red cells treated in vitro with this antibiotic reacted dramatically with the patient's serum, indicating the presence of antibody to the drug–red cell combination.

The patient was admitted to the intensive care unit and received 6 units of red cells over 24 hours, until the haemolysis resolved.

Cefotetan disodium is a broad-spectrum second-generation cephalosporin commonly used as prophylaxis in abdominal and pelvic surgery. It is given as a single intravenous dose at the start of the operation, and 50%–80% of the dose is excreted within 24 hours.^{1–3} A positive direct antiglobulin test is seen in one in 250 patients treated with cefotetan, although this in itself does not always imply active haemolysis.

The true incidence of symptomatic haemolysis is difficult to determine for several reasons: the severity of haemolysis varies between patients, and, if mild, may go undiagnosed; the process is self-limiting; and, when the drug has been used perinatally, symptoms may not be distinguished from the fatigue and anaemia expected (and therefore accepted) by most new mothers. Furthermore, as in our case of caesarean delivery, the obstetrician is not always aware of drugs administered by the anaesthetist,

Blood film in a woman with drug-induced haemolytic anaemia



Blood film taken on Day 1 of admission shows features of immune-mediated haemolysis, with polychromasia (vertical arrow) and spherocytosis (horizontal arrow). ◆

making the link between the antibiotic and haemolysis easy to miss.

The Adverse Drug Reactions Advisory Committee has 15 listings of haemolytic anaemia caused by cefotetan in Australia, which probably represents significant under-reporting. Indeed, the recognition of cefotetan-induced haemolysis prompted a US Food and Drug Administration review of its incidence in 2002, which revealed more than 85 reports worldwide, including 15 fatal cases.⁴ Cephalosporins are the most common group of drugs to cause haemolytic anaemia (93% of all cases), with cefotetan alone accounting for 83%.⁵ A patient with haemolytic anaemia induced by one cephalosporin carries a 10% risk of cross-reactivity with other cephalosporins and consequently should avoid further exposure if possible.

First-generation cephalosporins are less likely to cause significant haemolysis than second- and third-generation cephalosporins, yet are equally efficacious in surgical prophylaxis.^{1,3} We therefore recommend the use of cefazolin as an alternative to cefotetan.

- 1 Shariatmadar S, Storry JR, Sausais L, Reid ME. Cefotetan-induced immune hemolytic anemia following prophylaxis for cesarean delivery. *Immunohematol* 2004; 20: 63-66.
- 2 Ehmann WC. Cephalosporin-induced hemolysis: a case report and review of the literature. *Am J Hematol* 1992; 40: 121-125.
- 3 Naylor CS, Steele L, Hsi R, et al. Cefotetan-induced hemolysis associated with antibiotic prophylaxis for cesarean delivery. *Am J Obstet Gynecol* 2000; 182: 1427-1428.
- 4 Viraraghavan R, Chakravarty AG, Soreth J. Cefotetan-induced haemolytic anaemia. A review of 85 cases. *Adverse Drug React Toxicol Rev* 2002; 21: 101-107.
- 5 Garratty G. Review: drug-induced immune hemolytic anaemia – the last decade. *Immunohematol* 2004; 20: 138-146. □

Skin cancer medicine in primary care: towards an agenda for quality health outcomes

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TO THE EDITOR: The MJA is to be congratulated on promoting the debate related to the significant increase in the number of “skin clinics”.¹

Standards are important in both the maintenance of the facilities and the formal training of the practitioners undertaking the assessment and care of patients. The four medical Colleges actively involved in treating skin conditions, who have their training programs accredited by the Australian Medical Council and their selection and assessment processes authorised by the Australian Competition and Consumer Commission, are the Royal Australian College of General Practitioners (RACGP), the Royal Australian and New Zealand College of Radiologists (Faculty of Radiation Oncology), the Royal Australasian College of Surgeons (RACS), and the Australasian College of Dermatologists.

The Colleges already have established standards for accreditation of facilities (eg, *Guidelines and standards for day surgery in Australia* <http://www.surgeons.org/Content/NavigationMenu/FellowshipandStandards/AustraliaDaySurgeryCouncil/Guidelines_and_Stand.htm>, or the RACGP *Standards for general practice* <<http://www.racgp.org.au/document.asp?id=17623>>) and have well established programs for training medical practitioners in the treatment of skin conditions. The Colleges base these programs on high standard “holistic” care that is not influenced by entrepreneurial medicine.

Our Colleges encourage the development of improved training programs at all times. It is important that we maximise the benefit of the structures and standards that currently exist. Our Colleges have already begun discussion about the ways we can build on our work to date. Our members, and the Australian public, expect specialist medical Colleges to take a lead in ensuring the quality of health care, and we will continue to do so.

- 1 Wilkinson D, Bourne P, Dixon A, Kitchener S. Skin cancer medicine in primary care: towards an agenda for quality health outcomes. *Med J Aust* 2006; 184: 11-12. □

Changing patterns of tuberculosis in Far North Queensland

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TO THE EDITOR: Australia has a low incidence of tuberculosis (TB), which has remained constant for over a decade.¹ However, the incidence is not uniform across the population; immigrants and Indigenous Australians have higher rates.

An audit of all cases of TB in Far North Queensland over 5 years showed an incidence of 35.9/100 000 per annum in Indigenous Australians, and poor outcomes in this group.² This finding led to a number of policy changes, including an increase in directly observed therapy (DOT), made possible by increased use of Aboriginal health care workers in remote communities, and more aggressive and prolonged treatment of relapses.

A follow-up audit was undertaken to assess the effect of these changes. The results are shown in the Box for both time periods. New cases of TB in Indigenous Australians were significantly reduced ($P < 0.0001$ by Fisher's exact test), and DOT had increased significantly ($P < 0.0001$). The number of deaths from TB had declined, as had relapses, but these falls were not statistically significant. There were no deaths among Indigenous Australians during the second 5-year period. Of the people who died in this period, three were elderly men suspected of having cancer, and one was a patient from Papua New Guinea (PNG) who had HIV co-infection with TB.

The most striking finding was the dramatic increase in cases in people from PNG ($P < 0.0001$). The outer Australian islands in the Torres Strait are only 3 kilometres from the PNG coast, and there is free movement of people across the border under a treaty arrangement.

Although there are no precise figures,³ it is clear that there are epidemics of both TB and HIV in PNG, and that these have extended to rural areas. Specialist outreach clinics with x-ray facilities have been established on the outer islands, but numbers have continued to rise. In 2005, of 38 cases of TB in Far North Queensland, 26 were from the Torres Strait including seven cases of multidrug resistant TB. This represents a significant public health

Findings of two 5-year audits on tuberculosis in Far North Queensland

Findings	1993–1997	1998–2002
Total cases	87	92
Indigenous Australians	50	22
Non-Indigenous	30	26
Papua New Guineans	7	44
Pulmonary tuberculosis	54	57
Sputum smear positive	67%	47%*
Directly observed therapy	18 (21%)	67 (73%)
Death from tuberculosis	10	4
Deaths in Indigenous Australians	7	0
Total early relapses	7	2
Indigenous Australians	7	0
Drug resistance	6	7
Multidrug resistant tuberculosis	1†	3‡
HIV co-infection	0	2‡

* Queensland average, 48%. † Patient from the Philippines. ‡ All in Papua New Guineans. ◆

threat and highlights the importance of local audits of TB control, as state and national data may not be adequate to identify emerging local problems.

1 Li J, Roche P, Spencer J, et al. Tuberculosis notifications in Australia 2003. *Commun Dis Intell* 2004; 28: 464–473.

2 Simpson G, Knight T. Tuberculosis in Far North Queensland. *Int J Tuberc Lung Dis* 1999; 3: 1096–1110.

3 Merianos A. Report on the Second Technical Advisory Group Meeting to stop TB in the Western Pacific region, Beijing, China; 4–6 June 2001. *Commun Dis Intell* 2002; 26: 234–237. □

What exactly is society getting for its research dollars?

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TO THE EDITOR: We support the suggestion in the recent editorial on modernising the National Health and Medical Research Council (NHMRC)¹ that the Council assess the outputs and value of sponsored research

by going beyond considering primarily published articles and granted patents. More attention to mechanisms that improve the translation of research into policy and practice is required.

As part of an NHMRC Capacity Building Grant in Population Health in Injury, Trauma and Rehabilitation, we have interviewed a number of Australian injury researchers to identify the facilitators of, and barriers to, enhancing the interface of research with policy and practice. Researchers readily reported peer-reviewed journals and conference presentations as measurable indicators of research success, but found policy and practice outcomes more difficult to identify. This may be because research utilisation often occurs through a slow and indirect process of “enlightenment”;² however, it may also reflect minimal opportunities available, or taken, to disseminate research directly to policy makers and practitioners, and thereby encourage uptake.

Some researchers perceived that funding bodies, such as the NHMRC, do not explicitly fund the person-time necessary for researchers to work with relevant stakeholders to disseminate their research. Without such funding, researchers must move onto the next funded project, without the opportunity to “value-add” to their research by facilitating uptake. Further, there may be little incentive from academia to develop relationships with policy makers, industry or practitioners.³ Such interactions should be considered as “part of the ‘real’ work of research”⁴ and should attract funding.

The Canadian Health Services Research Foundation has identified the job of a knowledge broker as someone “to bring people — researchers, decision makers, practitioners and policy makers — together and build relationships among them that make knowledge transfer more effective” and has recommended that the task of brokering be acknowledged and rewarded.⁵ The Sax Institute in New South Wales is exploring a similar concept.

In considering new approaches to assessing sponsored research, consideration should be given to ensuring the legitimate funding of research dissemination (however, and by whom, that is to be undertaken), and appropriate, objective measurements that reflect dissemination, with the potential to improve uptake. Those familiar with program evaluation will recognise the importance of measuring effective dissemination as a prerequisite to outcome evaluation, and

as being highly relevant to the assessment of research output and influence.

- 1 Van Der Weyden MB. Modernising the National Health and Medical Research Council [editorial]. *Med J Aust* 2005; 183: 340-342.
- 2 Weiss CH. The many meanings of research utilization. *Public Adm Rev* 1979; 39: 426-431.
- 3 Lomas J. Improving research dissemination and uptake in the health sector: beyond the sound of one hand clapping. Ontario: McMaster University Centre for Health Economics and Policy Analysis. Policy Commentary C9701, Nov 1997.
- 4 Lavis JN, Ross SE, Hurley JE, et al. Examining the role of health services research in public policymaking. *Milbank Q* 2002; 80: 125-154.
- 5 Canadian Health Services Research Foundation. Preliminary report: the practice of knowledge brokering in Canada's Health System. Ottawa: CHSRF, 2003. Available at: http://chsrf.ca/brokering/pdf/brokers_final_e.pdf (accessed Nov 2005). □

Efficacy of an alcohol/chlorhexidine hand hygiene program in a hospital with high rates of nosocomial methicillin-resistant *Staphylococcus aureus* (MRSA) infection

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TO THE EDITOR: Johnson et al detailed an intensive hand hygiene program planned to reduce the burden of nosocomial methicillin-resistant *Staphylococcus aureus* (MRSA) infections.¹ The results were based on observations before and after the program. Hand hygiene compliance rates reached only 42% despite the program, and there was no effect on patient MRSA colonisation or environmental colonisation or contamination. Outside the intensive care unit, there was no effect on health care worker colonisation. Despite this evidence of ineffectiveness, the program was held responsible for a reduction in hospital-wide rates of clinically important MRSA infections.

The literature on hand hygiene is inadequate. The recent edition of *Clinical evidence* contains no randomised controlled trials of hand hygiene.² In fact, the only published randomised trial is the Mortimer study,³ which is now more than 40 years old.

Huynh and Commens made the point that hand hygiene procedures involving application of chemical agents or scrubbing are hazardous for staff and suggested using mechanical barriers (ie, gloves) on clean unscrubbed hands.⁴

The hand hygiene bandwagon rolls on despite the absence of evidence of benefit for patients and its hazardous nature for staff. Mechanical barriers together with reduced contamination opportunities (hand-shaking, touching telephone handsets and computer key boards) may be better options. We need properly conducted studies to find an effective means of protecting patients from nosocomial infections by MRSA and other agents.

- 1 Johnson PDR, Martin R, Burrell LJ, et al. Efficacy of an alcohol/chlorhexidine hand hygiene program in a hospital with high rates of nosocomial methicillin-resistant *Staphylococcus aureus* (MRSA) infection. *Med J Aust* 2005; 183: 509-519.
- 2 Clinical evidence. London: BMJ Publishing Group Ltd, 2005.
- 3 Mortimer EA Jr, Lipsitz PJ, Wolinsky E, et al. Transmission of staphylococci between newborns. Importance of the hands to personnel. *Am J Dis Child* 1962; 104: 289-295.
- 4 Huynh NT, Commens CA. Scrubbing for cutaneous procedures can be hazardous. *Aust J Dermatol* 2002; 43: 102-104. □

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TO THE EDITOR: We congratulate Johnson et al on their article, which illustrates a successful hand hygiene program associated with a fall in transmission of multidrug-resistant organisms.¹ Their publication is significant for three reasons:

- It is only the second article² to demonstrate the anticipated relationship between increased hand hygiene and a fall in multidrug-resistant organism transmission;
- It again indicates that 100% compliance in hand hygiene is not necessary to significantly improve outcomes;^{2,3} and
- It suggests that environmental contamination with MRSA has little relationship to patient colonisation.

However, the specific aspects of their program that led to success are not obvious, and may not relate to a sustained response to either education or the provision of alcohol/chlorhexidine hand hygiene solution. Alternative explanations include:

- The education program and/or overt observation induced a Hawthorne effect on hand hygiene practice;
- The screening and treatment program induced the same effect on hand hygiene behaviour; or

• The treatment of MRSA carriers reduced the size of the MRSA reservoir and thus the probability of transmission and subsequent colonisation.

Although we agree that the approach of Johnson et al is laudable, without teasing out those causal factors that induce the improvement in hand hygiene in health care workers, it remains expensive to implement and maintain. Moreover, there is no evidence that improved hand hygiene would continue if the alcoholic gel alone remained, without all other aspects of the program. This was recognised in the successful Geneva program on which the protocol used by Johnson et al was modelled. In that study, the authors remained so uncertain as to what elements of the program were causal that they stated:

Whether improved hand-hygiene practice will outlast the intervention remains uncertain; we decided to refrain from testing this issue by maintaining a permanent component of the intervention.²

Evidence currently available⁴ and soon to be amplified⁵ suggests that hand hygiene practice in health care workers is simply an extrapolation of their community behaviour. Unfortunately, community hand washing behaviour is not microbiologically founded, being developed on the basis of emotion not science. Both the Austin and Geneva protocols supported the introduction of alcoholic hand gel with strong promotion of specific behavioural elements to induce change in hand hygiene practice. Our findings suggest that alcoholic gel is not pivotal to the improvement of hand hygiene, in that behavioural modelling suggests its effect is relatively small and very dependent on concomitant behavioural change.^{4,5}

The World Health Organization World Alliance for Patient Safety has recently advocated the introduction of alcoholic gel into all hospitals.⁶ While not denying that this is a step toward improvement, we strongly caution against unrealistic expectations of this single intervention. The hand hygiene practices of health care workers are learned behaviours of childhood, continued as professionals, and reinforced in everyone's daily lives.^{4,5} Entrenched, longstanding behaviour patterns will not be changed in a sustained fashion by the introduction of a new hand hygiene product.

1 Johnson PDR, Martin R, Burrell LJ, et al. Efficacy of an alcohol/chlorhexidine hand hygiene program in a hospital with high rates of nosocomial methicillin-resistant *Staphylococcus aureus* (MRSA) infection. *Med J Aust* 2005; 183: 509-519.

- 2 Pittet D, Hugonnet S, Harbath S, et al. Effectiveness of a hospital-wide programme to improve compliance with hand hygiene. *Lancet* 2000; 356: 1307-1312.
- 3 Whitby M, McLaws M-L. Hand-washing in health-care workers: accessibility of sink location does not improve compliance. *J Hosp Infect* 2004; 58: 247-253.
- 4 World Health Organization. Behavioural considerations. In: WHO Guidelines on hand hygiene in health care (advanced draft). Chapter 15. Geneva: WHO, 2005: 53-57. Available at: http://www.who.int/patientsafety/events/05/HH_Guidelines_10Oct2005_AdvDraft_FINAL.pdf (accessed Jan 2006).
- 5 Whitby M, McLaws M-L, Ross M. Why healthcare workers don't wash their hands: a behavioural explanation. *Infect Control Hosp Epidemiol* 2006; 27. In press.
- 6 World Health Organization. World Alliance for Patient Safety [website]. Available at: <http://www.who.int/patientsafety/en/> (accessed Jan 2006). □

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IN REPLY: Woollard is critical of the lack of randomised controlled data to support the use of alcohol/chlorhexidine hand rub solution (ACHRS). Although a placebo-controlled study would be ideal, it is doubtful whether one could be performed. Apart from the complexity of design and cost, there would be the requirement to ask patients to consent to being treated in a hospital where there was a substantial risk of nosocomial sepsis, but where half the health care workers would not have clean hands when attending them.

Woollard argues that our failure to reduce colonisation or contamination with MRSA shows that our project failed. However, he offers no alternative explanation for the reduction in MRSA bacteraemia, clinical MRSA isolates and resistant gram-negative bacteria that we reported. Our project was a multimodal quality intervention, and we cannot know which component of the project resulted in the benefit, or whether the improvement should be attributed to other confounders, as suggested by Whitby and McLaws. However, we have presented all our data so that readers can draw their own conclusions. It seems unlikely to us that the intervention on which we concentrated our major effort, the progressive introduction and promotion of ACHRS, would be the one component that failed to contribute to the improvement.

Woollard also mentions the potential toxicity of asking health care workers to scrub with a chemical agent, and proposes the use of gloves instead. Our ACHRS is a quick to

apply, self-drying solution. It is rubbed on the hands, but scrubbing is not required. We actively monitored rates of cutaneous reactions and found it to be extremely well tolerated.¹ Gloves must be changed between patients or when moving from a dirty to a clean site.² We know that busy health care workers often do not have time to do this, and that hands can become contaminated despite the use of gloves.³

We agree with Whitby and McLaws that simply providing ACHRS, without an active campaign to support its use, is pointless. The provision and promotion of ACHRS is a tool to assist health care workers improve hand hygiene, and is just one component in a web of interventions needed to control nosocomial sepsis. Whether it is cost-effective depends on the largely unknown costs to Australian hospitals of preventable infections. At our institution, we believe that it is worth the money, and continue to require all clinical staff and students to know where to find and when to use ACHRS before they start work.

- 1 Graham M, Nixon R, Burrell LJ, et al. Low rates of cutaneous adverse reactions to alcohol-based hand hygiene solution during prolonged use in a large teaching hospital. *Antimicrob Agents Chemother* 2005; 49: 4404-4405.
- 2 McBryde ES, Bradley LC, Whitby M, McElwain DL. An investigation of contact transmission of methicillin-resistant *Staphylococcus aureus*. *J Hosp Infect* 2004; 58: 104-108.
- 3 Pessoa-Silva CL, Dharan S, Hugonnet S, et al. Dynamics of bacterial hand contamination during routine neonatal care. *Infect Control Hosp Epidemiol* 2004; 25: 187-188. □

Ethics and access to teaching materials in the medical library: the case of the Pernkopf atlas

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TO THE EDITOR: Last year was the 60th anniversary of the liberation of the Nazi concentration camps. We would like to draw your attention to an anatomy textbook, *Atlas of topographical and applied human anatomy*, authored by a Nazi physician, Eduard Pernkopf, and the alarming evidence which has emerged about the

source of subjects used for the illustrations of this book.

The context of raising this issue is that this text is listed as available for loan in a general collection on the catalogue of several university libraries around Australia, including the University of Sydney, the University of New South Wales, the University of Adelaide, the University of South Australia, La Trobe University, the University of Western Australia, the Queensland University of Technology and the University of Tasmania, often with multiple copies, which suggests that it may be held as teaching material.

Evidence overwhelmingly suggests that the Pernkopf anatomical atlas contains pictures of victims of the Nazi regime. An investigation into this issue by the University of Vienna in the mid 1990s revealed that at least 1377 bodies of murdered victims, including children, were accepted by the Institute of Anatomy.¹ The bodies of the victims were used, without the victims' or their families' consent, for research and teaching, including by Pernkopf for his atlas.^{1,2}

Pernkopf, an enthusiastic Nazi, took over as Dean of the Vienna Medical School after the annexation of Austria by Nazi Germany, and led the expulsion of the then majority Jewish faculty, including several Nobel laureates.³ He is known to have willingly accepted specimens from murdered children and adults. Original editions, even as recently as 15 years ago, contained swastikas painted at the bottom of the pictures. These have been airbrushed out in more recent editions.^{4,5}

Internationally, there have been a number of different approaches to managing this item within library collections. Some have asked their libraries to remove this book from their general collections. For example, a US physician, upon finding the book in his centre's library, convinced them to expunge it from their collection. He also resigned from editorial responsibilities to the publisher of the atlas, and cancelled his subscriptions to their journals.¹ Another approach has been placing a summary of the report from the University of Vienna's investigation inside the front cover of the book, so that library patrons are given the context for the drawings and can make an informed choice.¹

While acknowledging the need to preserve freedom of access to information, the unethical use of executed victims for this atlas leads us to believe that it has no place as a general anatomy text in an academic setting. The atlas may have a role as a

reminder of the atrocities committed in the name of medical science during the Nazi era, and could remain available for researchers examining abuse of human rights, medical ethics and history. We have contacted our library (the University of Sydney library) about this atlas and asked them to take appropriate action. They have elected to move copies held in high usage collections to special collections. We urge others whose institutions hold this text to do the same.

- 1 Atlas MC. Ethics and access to teaching materials in the medical library: the case of the Pernkopf atlas. *Bull Med Libr Assoc* 2001; 89: 51-58.
- 2 Angetter DC (on behalf of the Senate Project of the University of Vienna). Anatomical science at the University of Vienna 1938-45. *Lancet* 2000; 355: 1454-1457.
- 3 Ernst E. A leading medical school seriously damaged. Vienna 1938. *Ann Intern Med* 1995; 122: 789-792.
- 4 Hubbard C. Eduard Pernkopf's Atlas of topographical and applied human anatomy: the continuing ethical controversy. *Anat Rec* 2001; 265: 207-211.
- 5 Norton SA. On first looking into Pernkopf's atlas (Part 1). *Arch Dermatol* 2001; 137: 549-551. □

The MP3 surgeon and the opera fan

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TO THE EDITOR: Music is often played in operating theatres, for a variety of reasons. It has been shown to decrease the anaesthetic requirements of patients¹ and the autonomic reactivity of surgeons,² and not to interfere with laparoscopic task performance under non-clinical conditions.³ However, I have witnessed several events that have "pushed back the boundaries" of this common practice.

In one case, a surgeon requested that a videocassette player and monitor be moved into the operating suite before a major operation. Thinking that this might be for educational purposes before use of a new technique, the nursing staff obliged. After the operation was under way, the surgeon directed that a commercial videocassette of an opera be taken from his briefcase and played during the operation. The anaesthetic team were concerned about this, and the video player was turned off when the operation became more difficult.

In another case, a surgeon undertook an operation while listening through ear-bud headphones to low-level music from his digital music player. Before the operation



Equipment worn by the MP3 surgeon

began, the anaesthetist questioned the surgeon about the wisdom of this practice and asked several times if it might interfere with communication or concentration. The operation proceeded without incident with the surgeon listening to his music.

These examples may represent extremes of practice, but they do remind us that we should remain vigilant and not allow developments in entertainment technology to interfere with patient care. Further studies are required to determine the effect of these practices on technical performance and decision-making of surgeons and also communication between staff in the operating suite.

Acknowledgements: I thank Dr Scott Aaronson (model) and Mr Brydon Dunstan (photographer) for their assistance.

- 1 Ayoub CM, Rizk LB, Yaacoub CI, et al. Music and ambient operating room noise in patients undergoing spinal anesthesia. *Anesthesia Analgesia* 2005; 100: 1316-1319.
- 2 Allen K, Blasovich J. Effects of music on cardiovascular reactivity among surgeons. *JAMA* 1994; 272: 882-884.
- 3 Moorthy K, Munz Y, Undre S, Darzi A. Objective evaluation of the effect of noise on the performance of a complex laparoscopic task. *Surgery* 2004; 136: 25-30; discussion, 31. □

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COMMENT: Ask most surgeons about their operating theatres, and they will describe them as havens from the stresses

and pressures of a busy clinical practice. The theatre protects them from the interruptions of telephone calls, the demands of patients and their relatives, and the politics of medicine. It is a microcosm where a surgeon may rule autocratically. Within reason, most theatre personnel would gladly accommodate any means that might diminish the stress or enhance the smooth running of an operation. Techniques such as dimming the lights, decreasing human traffic, eating lollies and playing music are common practices in operating theatres.

As a surgeon, I find background music essential during surgery. It masks the chatter of the scout nurse, the telephone conversation of the anaesthetist, and the beeping of the diathermy machine and the electrocardiograph monitor. Without the pleasant background sound of ABBA or the love songs of Elvis, my stress levels would be compounded by every other audible distraction.

The question of whether surgeons should be able to use whatever means necessary to achieve the best outcome, even if the anaesthetic and nursing staff perceive it as inappropriate, could only be answered with a prospective study using patients' clinical outcomes as the endpoint. With so many variables, a study of this nature would be impossible.

Personally, I have no objection to the scenario in Riley's second case if the surgeon can maintain adequate communication with the scrub nurse. However, I cannot accept that a person would not be distracted by watching a video while operating. Even if the surgeon was simply listening to the music, the video playing on the monitor would be a distraction to other theatre personnel. I agree with Riley that we must continually re-evaluate technology in the workplace. Patient care is paramount, and, unless audiovisual technology is helping us achieve this end, we would be wise to return to simpler times. □

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Little Boy Blue

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TO THE EDITOR: McCallum and Smith's¹ quest for pathology in children's literature took me back 50 years, to a memorable weekend in New Zealand. News had reached Wellington on the previous day that Hilary and Tenzing had climbed Everest — a coronation gift to Princess Elizabeth, who was to be crowned on the following Tuesday.

On the morning of Sunday, 31 June 1953, I was on paediatric call at Wellington Public Hospital. I had been told of the admission of a boy of 11 months, who was neither short of breath nor otherwise ill, despite being very blue.

As I approached the ward I could hear him crying at the top of his clarion lungs. He was, as it were, "blowing his horn", upset at being abandoned by his parents, who would have to wait four more hours for visiting time. (Such was the cruel practice in those days.) He was standing in his cot bellowing energetically. Apart from his dramatic discolouration, he looked well.

I expected a cardiac tetralogy, but he had turned blue only the previous day and there was no evidence of a heart or lung problem. I was bewildered with no idea of a diagnosis.

I called my boss, John Harding, and met him in the corridor. Even before entering the ward, the paediatrician sniffed and said, "There's a child here with diabetes." Of course he was right, and sure enough, it was my little boy blue.

I learned a lot that day:

- A child with diabetes mellitus can be acutely keto-acidotic;
- Our patient's distressed cries probably disguised hyperventilation;
- In some people, acidosis can lead to methaemoglobinaemia; and
- I am unable to detect acetone from diabetics, although I can recognise its smell from a bottle.

My little boy blue was too young for agricultural responsibilities and was not somnolent, so couldn't have been the prototype for the rhyme.

1 McCallum BJ, Smith SM. Ailing allegories and sickly stories: the quest for pathology in children's literature. *Med J Aust* 2005; 183: 670-671. □

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