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Mandatory regular meetings of hospital staff would complement medical audit and revalidation

EDITOR—The current ideas and discussions in the United Kingdom about the maintenance of high standards, medical audit of outcomes, revalidation, etc, miss a tremendous opportunity to make this a positive educational exercise.

I spent 10 years in the NHS (1951-61) and have subsequently spent more than 30 years in the American healthcare system. I believe that the mandatory regular meetings of hospital staff in every clinical department in the United States are one of the most powerful approaches to medical outcomes, and therefore to the competence of the doctors responsible for the cases under discussion. This applies particularly when the conference concentrates on deaths and complications. My view is based on my experience as a participant, contributor, and organiser at varying times.

Revalidation by examination, peer review of outcomes in one's patients, and formal continuing medical education sound good and will assuage public concern but are certainly not evidence based. No doctor wants to appear a fool in front of his or her colleagues. What better way to motivate

doctors to keep up to date and practise good, thorough, and safe medicine than to use this as the stimulus?

In addition, the tissue committee and the audit committee have important roles. The tissue committee, at monthly intervals, evaluates a report on every piece of tissue surgically removed. Where there is discrepancy between the specimen and the preoperative diagnosis the responsible surgeon has to justify—albeit initially mostly in an academic sense—his or her course of action; repeated discrepancies of this kind will lead to restriction of independent surgical privileges and possibly suspension.

The audit committee chooses several diagnoses—medical, surgical, gynaecological, etc—and reviews 20 or 30 medical records in these categories every month. The outcomes are reported to department chiefs. If doctors fall below accepted standards their independence will be restricted and they may be retrained.

Every member of the hospital staff knows of the existence and function of these committees and of the various conferences. Thus one cannot escape having one's work and outcomes reviewed in public, whether by committee and department chiefs or by question and discussion at clinical case presentations. I believe that this or a similar system in the United Kingdom would complement the present suggestions regarding medical audit and revalidation.¹ It would almost unavoidably convert a very intermittent imposed regulatory method into a truly continuing and continuous medical education.

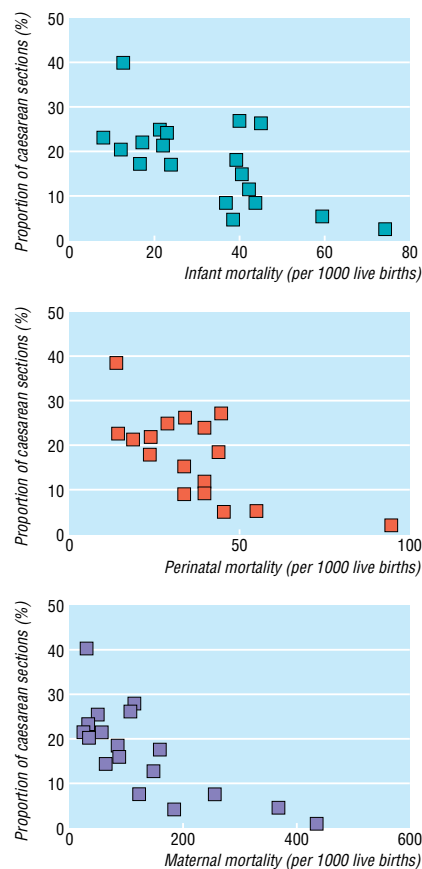
A Singer associate clinical professor of surgery
 Albert Einstein College of Medicine of Yeshiva University, Jack and Pearl Resnick Campus, 1300 Morris Park Avenue, New York, NY 10461-1602, USA

¹ Buckley G. Revalidation is the answer. *BMJ* 1999;319:1145-6. (30 October.)

Caesarean section controversy

The rate of caesarean sections is not the issue

EDITOR—Belizán et al show that the richest countries in Latin America have the highest rates of caesarean section, yet they fail to point out that these countries also have the lowest perinatal, infant, and maternal mortality.¹ Using their figures we found a significant negative correlation between rate



Relation between infant, perinatal, and maternal mortality and caesarean section rate

of caesarean section and each of these (figure) (perinatal mortality $r_s = -0.498$, $p = 0.035$; infant mortality $r_s = -0.506$, $p = 0.032$; maternal mortality $r_s = -0.903$, $p = 0.001$). This does not prove cause and effect, but their claim that 850 000 excess caesarean sections represent an unnecessary increased risk for women and their babies is speculative.

Rates of caesarean section differ hugely within and between countries and reflect numerous variables. To investigate this area properly we must take an impartial view in order to establish the best principles for practice in each situation. To suggest that one caesarean section rate (15%) is optimal for all populations in all countries cannot be sound.² As found in the United States, the recent drive to reduce the overall rate to 15% is causing problems of its own.³

What matters most is that those women who need a caesarean section get one under optimum conditions and that those who

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do not need a section get appropriate care and support through labour. Only then will we minimise damage and maximise satisfaction.

Katie Groom *clinical research fellow*
katie.groom@ukgateway.net

Sara Paterson Brown *consultant in obstetrics and gynaecology*
Queen Charlotte's Hospital, London W6 0XG

- 1 Belizán JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesarean sections in Latin America: ecological study [commentaries by E Showalter and A Griffin; A Castro; H Bastian]. *BMJ* 1999;319:1397-400. (27 November.)
- 2 World Health Organization. Appropriate technology for birth. *Lancet* 1985;ii:436-7.
- 3 Sachs BP, Kobelin C, Castro MA, Frigoletto F. The risks of lowering the cesarean delivery rate. *N Engl J Med* 1999;340:54-7.

Brazilian obstetricians are pressured to perform caesarean sections

EDITOR—I am a Brazilian obstetrician and have worked for more than 10 years as an "on call" obstetrician. During this time, I have been put under pressure to perform caesarean section many times, from patients, husbands, and relatives. Some unjustified fears cause this situation, including the fear of fetal distress during labour, the notion that labour lasting more than six hours is unbearable for the mother, the fear that a vaginal delivery will ruin the woman's sex life, and the idea that a caesarean section is better and more "modern," since it is the preferred form of delivery for rich women in our country. The patients also want to plan the day of the birth, choosing a relative's birthday or avoiding a holiday, for instance.

I think that the population should be alerted to the risks of unnecessary caesarean sections, including the death of the mother.¹ In some private hospitals, where most patients have their own obstetrician, the rate of caesarean sections reaches 80%.

Luis G A Quadros *visiting professor*
Department of Obstetrics and Gynaecology,
Federal University of São Paulo, Brazil
quadros.toco@epm.br

- 1 Belizán JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesarean section in Latin America: an ecological study [commentaries by E Showalter and A Griffin; A Castro; H Bastian]. *BMJ* 1999;319:1397-400. (27 November.)

Women choose caesarean section

EDITOR—The paper by Belizán et al shows the link between gross national product and caesarean sections, indicating that wealthier women are more likely to have caesarean sections.¹

In their commentary to the paper Showalter and Griffin argue for women to have the opportunity to choose caesarean section as the mode of delivering their babies. As the Chelsea and Westminster Hospital is in an affluent area of London, we audited our indications for caesarean section for 1999 to assess the contribution of women's choice to elective caesarean section.

Out of 420 elective caesarean sections (10.6%, from a total of 3971 births) recorded in the planning book in our labour ward, the major indications were previous caesarean section (186, 44%), maternal request alone

(no other indication) (59, 14%), and breech delivery (55, 13%). All women who had previously had a caesarean section or who had a breech presentation were given the opportunity to try vaginal delivery, so the ultimate decision in these cases was arguably also maternal request. Thus, 300 (72%) of all our elective caesarean sections were because of either purely or mainly maternal request (7.6% of all births).

It is clear from these data that maternal choice is now a major factor influencing the mode of delivery, at least in affluent areas in the United Kingdom, and should be taken into account in resource planning for the maternity services.

Kathy Eftekhar *medical student*
University of New South Wales, Sydney, Australia

Philip Steer *head of maternal fetal medicine*
Imperial College School of Medicine, Chelsea and Westminster Hospital, London SW10 9NH
psteer@ic.ac.uk

- 1 Belizán JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesarean sections in Latin America: ecological study [commentaries by E Showalter and A Griffin; A Castro; H Bastian]. *BMJ* 1999;319:1397-400. (27 November.)

A debate is needed on caesarean section rates in India

EDITOR—The issue of increasing rates of caesarean section, its impact, and methods of control have been well researched and discussed in developed countries. In comparison, work in developing countries is limited. In this context, the study by Belizán et al is relevant and important.¹

In India, unfortunately, we do not have any national estimates of the rate of caesarean section. In fact, hardly any population based data exist in India. We have just reported our observations on the rate of caesarean section from a population based survey in Madras city, India.² This study, the first of its kind in India, was published along with an editorial³ by the *National Medical Journal of India*, to open up the debate.

Our survey was an expanded programme on immunisation, 30-cluster survey in an urban, educated, middle and upper class population in Madras city. Some 45% of the babies had been delivered by caesarean section. We also found some evidence (though it was not conclusive) that caesarean sections adversely affected breastfeeding practices in this community.

I hope that there will be a wider debate in India on this issue, and that attempts will be made to estimate our national rate. The Latin American study would serve as a useful guide in this effort.

Madhukar Pai *consultant, community medicine and epidemiology*
Sundaram Medical Foundation, Madras, India
madhupai@vsnl.com

- 1 Belizán JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesarean sections in Latin America: an ecological study [commentaries by E Showalter and A Griffin; A Castro; H Bastian]. *BMJ* 1999;319:1397-400. (27 November.)
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Elective caesarean can increase the risk to the fetus

EDITOR—In their commentary on the paper by Belizán et al Showalter and Griffin correctly identify the recent improvement in the safety of caesarean section and the improvement in birth weight associated with better maternal health and nutrition.¹ In cases where normal vaginal delivery incurs considerable risk to the mother and fetus, elective caesarean section may be justified, but decisions must take into account the risk to the infant associated with delivery before 39 weeks' gestation.

It is now clear that respiratory distress syndrome is indeed seen in "term" infants and is a considerable source of morbidity and mortality in this group.² A recent article by Madar et al shows that mechanical ventilation to treat presumed surfactant deficiency is 120 times more likely to be needed after elective delivery at 37-38 weeks than after delivery at 39-41 weeks.³

We recently revisited this issue as part of a departmental audit. We reviewed those infants born by elective caesarean section at or after 37 completed weeks' gestation who were admitted to the neonatal intensive care unit with a diagnosis of transient tachypnoea of the newborn or respiratory distress syndrome, on the basis of clinical and radiological findings, from 1996 to 1999. A total of 762 elective caesarean sections at term were carried out. Of these, nine infants were admitted to the neonatal intensive care unit with a diagnosis of respiratory distress syndrome (an incidence of 11.8/1000) and 11 with transient tachypnoea of the newborn (an incidence of 14.4/1000). In these 20 infants there were no deaths, although one baby with the respiratory distress syndrome developed pneumothorax. The average admission was 6.9 days for infants with respiratory distress syndrome (range 3-13 days) and 3.6 days for those with transient tachypnoea of the newborn (range 1-9 days).

These findings are consistent with the findings of previous studies⁴ and confirm that babies delivered before 39 weeks' gestation are at increased risk of respiratory distress and that for term infants caesarean section before the onset of labour results in a considerably greater risk of neonatal respiratory morbidity than delivery by any other means. Moreover, the risk of respiratory morbidity is halved with each completed week of gestation between 37 and 41 weeks.

Evidence based guidelines should be established so that when there is no clear benefit to mother or fetus elective caesarean section before 39 weeks' gestation is avoided.

Nilofer Sabrina *specialist registrar*
Neonatal Unit, South Cleveland Hospital,
Middlesbrough TS4 3BW
nilofer.sabrina5@virgin.net

- 1 Belizán JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesarean sections in Latin America: ecological study [commentaries by E Showalter and A Griffin; A Castro; H Bastian]. *BMJ* 1999;319:1397-400. (27 November.)
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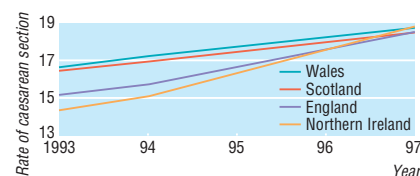
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- 1 Editor's choice. Politically incorrect surgery. *BMJ* 1999;319. (27 November.)
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- 3 Showalter E, Griffin A. All women should have a choice [commentary]. *BMJ* 1999;319:1401. (27 November.)

Further research is needed on why rates of caesarean section are increasing

EDITOR—Belizán et al's article highlights important health issues which are not confined to Latin America.¹ We have looked at the rates of caesarean section in the United Kingdom for 1993, 1994, and 1997-8. The 1993 and 1994 figures were obtained from the annual statistical returns of the Royal College of Obstetricians and Gynaecologists, and the 1997-8 figures were obtained through a manual search of the Royal College of Obstetricians and Gynaecologists' returns from 221 individual units in the United Kingdom.^{2,3} The annual returns for 1995 and 1996 are not yet published. The figure compares the rates of caesarean section in Northern Ireland, Scotland, England, and Wales. Clearly, the rates rise over the period studied. If we subject these data to an analysis similar to Belizán's, using the World Health Organization figure of 15% as the maximum desirable rate of caesarean section,⁴ then in 1993 the excess number of caesarean sections in the United Kingdom would have been 4723, and it would have been 5765 in 1994 and 19 470 in 1997-8. The 1997-8 figure may well be an underestimate because only 221 of the units had returned data when we created our database.



Caesarean section rates in the United Kingdom

Although we agree that there is an overall increase in rates of caesarean section, unlike the figures for Latin America this increase is consistent for the four countries analysed. The range for rates of caesarean section was 14.33-16.61% in 1993, 15.08-17.19% in 1994, and 18.22-18.97% in 1997-8.

These trends confirm the need for a detailed audit of rates of caesarean sections in the United Kingdom, to identify the reasons for the increase. The audit is being organised by the Royal College of Obstetricians and Gynaecologists. Once the results become available then we will be in a position to target the specific areas that are responsible for any increase in rate of caesarean section and so deal with the issue in a more scientific manner.

M P O'Connell *clinical research fellow*
W Lindow *senior lecturer in perinatology*
 Hull Maternity Hospital, Hull HU9 5LX

1 Belizán JM, Althabe F, Barros FC, Alexander S. Rates and implications of caesarean section in Latin America: an ecological study [commentaries by E. Showalter and A

Authors' reply

EDITOR—We agree that caesarean section is one of the "most politically fraught of operations"¹ and hope that the different opinions on this issue may contribute to its more rational use.

In ecological studies (as in any study) it is not appropriate to perform statistical analysis without bibliographic or rational support. Populations with better socioeconomic conditions, and therefore higher rates of caesarean section, will generally have better health indicators. We agree that the World Health Organization's suggested figure of a limit of 15% should be analysed and adapted to different scenarios, but to draw attention to problems related to this figure they unfortunately quote an article where the authors gave only their beliefs, with no scientific support.² Everybody agrees with Groom and Paterson Brown that the option is to deliver the best care possible, but everybody knows how difficult it is to achieve and audit the "best care." It is hard to accept that Quadros's figure of 80% for caesarean sections could be associated with good or even sensible care.

We agree with Quadros that people have many beliefs about the benefits of caesarean section, but he should know that in his country those beliefs mainly originate from physicians "justifying" their behaviour and their preference for caesarean section.

We agree with Showalter and Griffin in their commentary to our paper that women should be involved in the decision about mode of delivery.³ However, we consider that the data presented by Eftekhar and Steer should be interpreted with caution. In Latin America at least, doctors strongly influence women's decisions; therefore to distinguish between free maternal choice and maternal choice induced by doctors is difficult.

Pai wishes to improve the information on caesarean section in India. A major weakness of developing countries is a lack of knowledge about their situation—and consequently about their main problems and priorities. Improved knowledge about our situation would improve the use of our scarce resources. The epidemic of caesarean sections in countries with so many constraints is an example of how a risky fashion, which has been initiated in countries with more resources, has been translated to the entire population.

José M Belizán *director*
Fernando Althabe *researcher*
Fernando Barros *consultant*
 Latin American Centre for Perinatology, Pan American Health Organization, World Health Organization, Montevideo, Uruguay

Sophie Alexander *lecturer*
 Ecole de Santé Publique, Université Libre de Bruxelles, Brussels, Belgium

The caesarean culture of Brazil

EDITOR—Last year the debate on whether women should be charged for a caesarean on request was also aired in the *BMJ*.¹

As an anthropologist I have spent the past two years researching caesarean section in Vitoria, a coastal city in south east Brazil, where the caesarean rate is currently around 25% in public hospitals and around 98% for women who have access to private medicine (mainly through health insurance schemes). The caesarean culture took hold in Brazil over 30 years ago (in 1970 the caesarean rate was 20.2%).

The reasons are complex and concerned not only with the history of obstetric procedures but also with the following cultural issues specific to Brazil.

- All births are attended by obstetricians; although an increasing number of nurse-midwives are being trained, they find it difficult to obtain employment.
- Obstetricians receive little training and practice in handling even marginally difficult vaginal deliveries because caesarean section rates have been high for so long, and they therefore choose caesareans owing to lack of experience.
- Doctors are currently paid the same rate for a normal vaginal delivery as for a caesarean section by both the public health system and private health insurance schemes; they are, however, not prepared to wait hours for their patients to deliver when they can do a caesarean section in an hour.
- Delivery by caesarean section has a certain status. Brazilian society values modernity and technology highly, and caesarean section is equated with these qualities. Normal delivery is thus seen as "alternative" if chosen by middle class women.
- In Brazil, as in most Catholic countries, the maternal role is revered. However, women's bodies are perceived as sexual rather than maternal and the genitals as being for sexual intercourse rather than for childbearing.

I find it worrying that childbirth in the United Kingdom is being discussed in some of the same terms. In world terms, most European countries are considered as still laying importance on the social and physiological values of normal birth, and it would be ironic if childbirth in the United Kingdom were to follow the Brazilian path, especially with the increase in private medicine. While Brazil is held up as an extreme example, many obstetricians acknowledge the high caesarean section rate, even if they have no intention of trying to reduce it.

Christine Nuttall *independent researcher*
 Rua Dr Dorio Silva 7, Mata da Praia, Vitoria
 29066-100, Espirito Santo, Brazil
 CL.Nuttall@pop.ig.com.br

1 MacKenzie IZ. Should women who elect to have caesarean sections pay for them? *BMJ* 1999;318:1070.

Serious hazards of transfusion (SHOT) initiative

Conclusion was not supported by data presented

EDITOR—Williamson et al report on the safety of transfusions in the first two annual reports of the serious hazards of transfusion (SHOT) initiative.¹ Although they found 366 cases of serious complications after transfusion, they conclude that transfusions are extremely safe. This conclusion is not supported by their data because they do not mention the total number of transfusions. A rate of complications would be useful for junior doctors, who usually have to seek patients' consent to procedures. Do any such data exist?

Paul Nederlof senior house officer in obstetrics and gynaecology
Gloucestershire Royal Hospital, Gloucester
GL1 3NN
paulesteruk@paulesteruk.demon.co.uk

1 Williamson LM, Lowe S, Love EM, Cohen H, Soldan K, McClelland DBL, et al. Serious hazards of transfusion (SHOT) initiative: analysis of the first two annual reports. *BMJ* 1999;319:16-9. (3 July.)

Autologous transfusion would avoid many of the problems of blood transfusion

EDITOR—Two articles in the *BMJ* last year highlight important issues in blood transfusion—namely, safety and autologous transfusion—and emphasise the need for education and standardisation of procedures.^{1,2} Provan raises the issues of availability and cost.¹ The requirement for red cells is increasing annually by 2-3% against a static or even falling number of donations. One solution, suggested by both Provan¹ and the NHS Executive,³ is to increase the use of autologous transfusion. The safest and most ecologically friendly method of autologous transfusion is perioperative cell salvage, but its cost was regarded as prohibitive until the introduction of universal leucodepletion of allogeneic blood. Currently, the salvage of as little as 1.5 units of red cells can be cost effective.⁴ Williamson et al show that the wrong unit of blood had been given in over half of the cases reported in the serious hazards of transfusion (SHOT) initiative.²

This problem is avoided with perioperative cell salvage. However, autologous transfusion is possible in only a small percentage of all blood transfusions. Therefore the use of autologous transfusion must be greatly increased to make any noticeable impact on the overall usage of blood in the United Kingdom. The Autologous Transfusion Special Interest Group of the British Blood Transfusion Society recently conducted a confidential survey of the provision of autologous transfusion in England and Wales. The results show, contrary to the suggestions of best practice by Provan and Williamson et al,^{1,2} that training is patchy with little standardisation of techniques.

In an effort to overcome this problem the council of the British Blood Transfusion Society has asked its autologous transfusion

group to set up a series of regional training sessions. A pilot session has been successfully completed; details of future sessions can be obtained from Mrs Alison Wilkins, administrator, British Blood Transfusion Society, Plymouth Grove, Manchester M13 9LL, or from me.

Michael J G Thomas colonel (retired), Royal Army Medical Corps
Winchfield, Hook RG27 8SP
MichaelJGThomas@compuserve.com

1 Provan D. Better blood transfusion. *BMJ* 1999;318:1435-6.
2 Williamson LM, Lowe S, Love EM, Cohen H, Soldan K, McClelland DBL, et al. Serious hazards of transfusion (SHOT) initiative: analysis of the first two annual reports. *BMJ* 1999;319:16-9. (3 July.)
3 NHS Executive. *Better blood transfusion*. Leeds: NHS Executive, 1998. (HSC 1998/224.)
4 Desmond M, Gillon J, Thomas MJG. Perioperative red cell salvage. *Transfus Med* (in press).

Authors' reply

EDITOR—Confidential inquiries such as the serious hazards of transfusion (SHOT) initiative are, by their voluntary nature, not able to calculate the precise risk of the complications reported to them. Only 66% of hospitals contributed data to the initiative during 1997-8, and some serious complications, such as hepatitis C, may manifest themselves months or years later. However, the 366 reports over two years were in the context of 6 million blood components issued during this time. In addition, 235 of the 366 reported problems had no or only minor effects on the patient. Even when underreporting and late complications are taken into account, serious complications are obviously rare compared with the number of transfusions carried out. Specific consent for transfusion is not sought in the United Kingdom, but we hope that this information will be helpful when gaining patients' consent for surgery.

In 191 of the 366 cases reported, transfusion of a blood component either did not meet the patient's requirement or was intended for another patient. These cases were all the result of human error and are preventable if correct checking is performed. The British Committee for Standards in Haematology has recently produced a guideline on the handling and administration of blood.¹ Every hospital trust must ensure that staff are aware of this document and are trained in its key points. This is relevant for junior medical staff taking samples for blood grouping and crossmatching. These samples are sometimes labelled correctly but contain blood from the wrong patient—if such an error goes undetected a fatal ABO incompatible transfusion may result. Similarly, junior doctors administering blood must check the details on the pack against the patient's wrist band—too often checks are made between blood and paperwork without confirming that the blood is going into the right patient.

Thomas discusses the potential role of intraoperative and postoperative cell salvage techniques in minimising patients' exposure to allogeneic blood. This approach will almost certainly become more widespread for the reasons stated by Thomas, and it

does avoid the possibility of transfusing the wrong blood. In the enthusiasm for avoiding donor exposure, however, we need to be able to provide equal reassurance to patients on the safety of all forms of autologous blood. Therefore the SHOT Steering Group is collaborating with the Autologous Transfusion Special Interest Group of the British Blood Transfusion Society in developing a system for reporting serious complications of all types of autologous procedures, including cell salvage, pre-deposit donation, and haemodilution techniques.

Lorna M Williamson lecturer/consultant in transfusion medicine, Cambridge
Elizabeth Love consultant haematologist, Manchester
Hannah Cohen consultant in haematology, London
On behalf of the SHOT Steering Group, SHOT Office, Manchester Blood Centre, Manchester M13 9LL

1 British Committee for Standards in Haematology. The administration of blood and blood components and the management of transfused patients. *Transfus Med* 1999;9:227-38.

Establishing probable cause in cerebral palsy

How much certainty is enough?

EDITOR—The thesis set out by Little in 1862 that cerebral palsy was primarily due to perinatal cerebral injury did not meet with approval from the London Obstetrical Society—it was an obvious conflict of interests.¹ Almost 14 decades later the echoes of those opposing voices still resonate, most recently in a statement from a group calling itself the International Cerebral Palsy Task Force.² This statement makes some useful points, but there are aspects that need further debate.

One is the need to recognise that it is usually possible to form a view on what caused cerebral palsy only in probabilistic terms. The question then is, how much certainty is enough? In the medicolegal context the answer is clear—more than 50% certainty (that is, $P < 0.5$). It is irrelevant that birth asphyxia causes cerebral palsy rarely and that cerebral palsy is due to birth asphyxia rarely, as long as it is accepted that cerebral palsy is caused by birth asphyxia sometimes. In that case, when confronted with a case of cerebral palsy that could be due to birth asphyxia and in which there is evidence of birth asphyxia of potentially damaging severity, the relevant question to ask is, are these events probably causally related or are they probably coincidental? The answer is that they are more likely to be causally related, as long as no better explanation for the cerebral palsy is forthcoming.

Secondly, insisting that there is a certain severity of metabolic acidaemia before attributing cerebral palsy to birth asphyxia is unreasonable. Such evidence might be necessary to form a view that approaches certainty (for example, $P < 0.05$), but it is not necessary to form a view "on the balance of probabilities." For instance, if a baby is

stillborn after placental abruption, responds to heroic resuscitation, experiences an acute neonatal encephalopathy, and then develops athetoid cerebral palsy with evidence of basal ganglia injury shown by a magnetic resonance imaging scan, then birth asphyxia is the probable cause of disability regardless of whether metabolic acidaemia was found.

This insistence on ascertaining metabolic acidaemia is questionable—cord blood gas analysis is not universally practised; if cord venous blood is obtained severe fetal acidaemia may be missed; bicarbonate is often used during resuscitation; and it will discourage the assessment of acid-base status at birth.

Peter Dear consultant in neonatal medicine

Simon Newell consultant in neonatal medicine
St James's University Hospital, Leeds LS9 7TF

- 1 Little WJ. On the influence of abnormal parturition, difficult labours, premature birth and asphyxia neonatorum on the mental and physical condition of the child, especially in relation to deformities. *Trans Obstet Soc Lond* 1862;3:293-344.
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There are problems with the consensus statement

EDITOR—We agree with MacLennan and Bakkeiteig that whenever a child presents with one of the cerebral palsy syndromes, appropriate meticulous investigation into why this has happened is needed.^{1,2} We agree also that only a minority of children with cerebral palsy have sustained their brain injury as a consequence of intrapartum hypoxic ischaemic damage at term and that an even smaller number have sustained their problems as a consequence of an inappropriate standard of care. We nevertheless have multiple concerns about these papers.

Firstly, we do not accept the premise that birth asphyxia is commonly accepted either professionally or at a lay level as being a frequent cause of cerebral palsy. That view was dispelled some years ago.

Secondly, the implication in box 1 is that the International Cerebral Palsy Task Force has not attracted dissident views. Quite the opposite is true. Indeed, its signatories do not include any UK paediatric bodies or any individual paediatric neurologists.

Thirdly, we are unable to accept that unless there is documented fetal acidaemia intrapartum hypoxia can be excluded as the cause of cerebral palsy in any individual case. Retrospectively, and also frequently in practice, reliable measures of fetal acidosis have simply not been sought.

Fourthly, we are disappointed that the statement was dismissive of the role of neuroimaging and electroencephalography. We believe that the use of brain imaging and electroencephalography both prospectively and retrospectively is of particular value when attempting to determine when brain insults have occurred, especially when these data are used together with clinical information.

Furthermore, although this document undoubtedly represents consensus reached after extensive discussion among those selected to participate, in no way does it contain a meta-analysis of the kind usually required before an authoritative guideline can be produced.

Finally, we are surprised that the section on expert witnesses should have been allowed to remain in a peer reviewed journal published in Britain. Recent changes in English law subsequent to the Woolf recommendations and reforms³ have now been instituted. These define and explain the role of the expert witness far more objectively than this consensus statement.

L Rosenbloom consultant paediatric neurologist

Alder Hey Children's Hospital, Liverpool L12 2AP

JM Rennie consultant in neonatal medicine

King's College Hospital, London SE5 9RS
janet.rennie@kcl.ac.uk

- 1 Alastair MacLennan for the International Cerebral Palsy Task Force. A template for defining a causal relation between acute intrapartum events and cerebral palsy: international consensus statement. *BMJ* 1999;319:1054-9. (16 October.)
- 2 Bakkeiteig LS. Only a minor part of cerebral palsy cases begin in labour. *BMJ* 1999;319:1016-7. (16 October.)
- 3 *Access to justice*. Final report to the Lord Chancellor by the Right Honourable Lord Woolf, July 1999. London: Stationery Office. (www.open.gov.uk/lcd/civil/cpr/intro.htm; accessed 23 March.)

Author's reply

EDITOR—The consensus statement on cerebral palsy causation clearly challenged the views of some of those who have given expert medicolegal opinion in the past.¹

Dear and Newell seem to support the assumption of Little in 1862 that if no antenatal cause of cerebral palsy is evident then cerebral palsy must be due to "birth asphyxia." As the antenatal causes are usually silent and difficult to detect in retrospect, the task force suggested that the expert witness seeks scientific evidence for one of the possible causes (that is, perinatal asphyxia) before presuming that this was the primary cause. The first three criteria in the template give a mechanism for identifying objectively whether asphyxia was present at birth, and the other five criteria help determine whether the hypoxia was acute or chronic. Non-specific signs such as meconium staining, non-reassuring fetal heart rate patterns, low Apgar scores, and neonatal encephalopathy can be associated with acute or chronic hypoxia, a non-hypoxic chronic cause, or no detectable abnormality and a normal outcome. Hospitals should adopt a policy to collect umbilical arterial and venous blood gases routinely from all cases where such information would be helpful—for example, caesarean section and instrumental delivery for fetal indications.

In reply to Rosenbloom and Rennie, the consensus statement was supported by several international paediatric societies and endorsed by several distinguished paediatric neurologists, of whom one was a clearly labelled author. The statement's publication enables any UK paediatric body and all international scientific groups to endorse or reject it. The task force welcomes any

support or critical comment with appropriate scientific references. Like all opinions, the statement should change when convincing new evidence is available.

The task force unsuccessfully sought good evidence as to whether magnetic resonance imaging and electroencephalography could retrospectively determine the cause and precise timing of cerebral palsy. Though invited, Rosenbloom did not join the task force debates, and he and his colleagues have not supplied references in their letter to support their views. Reliable evidence would be welcome. To date, publications using magnetic resonance imaging and electroencephalography to determine asphyxial causes have used unsatisfactory criteria to determine the aetiology. It is hoped that there will be adequate validation of any association between specific neuroimaging patterns seen in childhood and well defined acute de novo intrapartum hypoxia, chronic antenatal hypoxia, neonatal hypoxia, and non-hypoxic antenatal and infant causes of neuropathology. The sensitivity, specificity, false positive rates, and false negative rates of these diagnostic tests should be ascertained by using control groups.

Alastair MacLennan chairman, International Cerebral Palsy Task Force, Perinatal Society of Australia and New Zealand

Department of Obstetrics and Gynaecology, University of Adelaide Women's and Children's Hospital, North Adelaide, South Australia 5006, Australia

amaclenn@medicine.adelaide.edu.au

- 1 Alastair MacLennan for the International Cerebral Palsy Task Force. A template for defining a causal relation between acute intrapartum events and cerebral palsy: international consensus statement. *BMJ* 1999;319:1054-9. (16 October.)

The implications of outlawing age discrimination

Resources are already inadequate to meet workload

EDITOR—All over the country health services are groaning under the weight of increasing workloads, pushed upwards in many instances by skyrocketing public expectations fuelled by the utterances of self seeking politicians. Levels of stress among health professionals are ratcheted up even further by demands for more accountability, publication of audit data, clinical governance, the ever expanding "blame culture," and so on, all in an environment where resources are nowhere near adequate to deal with the workload that we already bear. Now we are being told by Rivlin that it would be a great idea to make age discrimination in health care illegal.¹ I am sure none of us would disagree with the principle behind his argument, but does he have any idea what a can of worms he is opening? The problems which he dismisses so breezily as "grey areas" could, in fact, result in a large number of legal actions against doctors who are simply trying to do an extremely difficult job in

balancing the countless demands on our services. It's no good saying that if a doctor acts properly and in good faith any legal action against him or her is likely to fail: does Rivlin have any idea how stressful defending such an action could be even if the doctor were acquitted?

Can we please try first of all to get a grip on this extraordinary cloud-cuckoo-land vision of the NHS which people are being sold by politicians—that is, that they can have whatever they want, when they want it, but without the patient or the taxpayer putting up any more money? Until we do that we will never be in a position to make a sensible exploration of ideas like Rivlin's.

Roger A Fiskin *consultant physician*
Friarage Hospital, Northallerton, North Yorkshire
DL6 1JG
raf@rose-cottage.demon.co.uk

1 Rivlin M. Should age based rationing of health care be illegal? *BMJ* 1999;319:1379. (20 November.)

Elderly people have different needs

EDITOR—Rivlin mischievously says that age based rationing should be made illegal.¹ What are the realities of forcing a doctor to ignore the different needs of elderly people, or his or her own common sense, on pain of criminal prosecution? The lawyers, once again, would be the only winners in such a scenario.

With my feet firmly on the ground in general practice I would decline to refer a 60 year old for fertility treatment and would accept a consultant's decision that with few hearts available for transplantation my 75 year old patient could not be given priority.

Rivlin erroneously says that extrapolation of the Race Relations Act could similarly "protect" older patients. A 30 year old is not the same as an 80 year old, and it would be folly to see them as such.

Perhaps rationing should first be made illegal, maybe after a government minister acknowledges that it exists.

David Carvel *locum general practitioner*
13 Edgemont Street, Glasgow G41 3EH
carvel@breathemail.net

1 Rivlin M. Should age based rationing of health care be illegal? *BMJ* 1999;319:1379. (20 November.)

Author's reply

EDITOR—There is no disagreement in substance between Fiskin and me. He agrees that the principle of making age based rationing illegal is well founded, but he suggests that the practicalities of ensuring that legislation works may be insuperable. I disagree with him about age based rationing on a macro and meso level. For example, the legislation I am proposing would make it illegal for there to be a policy of not admitting anyone over the age of, say, 65 to a particular department just because they are 65 or older. However, I accept that on a micro level, rationing at the bedside, it may not be as easy to make age based rationing illegal.

I agree wholeheartedly with Fiskin that the government should make it clear that rationing of health care is necessary. The public would then realise that if it wants a better health service it will have to pay substantially more tax, change its spending priorities, or adopt a more responsible lifestyle.

I disagree with Carvel that lawyers would be the only people to gain from my proposal: elderly people would be the real winners. Once legislation is in force that bans age based rationing lawyers need not be involved at all.

Carvel suggests that rather than impose legislation we should rely on doctors' common sense. But to do so might not be sensible. Common sense would mean that in many instances doctors should be treating rather than denying treatment to elderly people because they respond to treatment better than younger patients do.¹ I recently gave a lecture to a forum of general practitioners. When I asked them whether they would send a 45 year old patient with newly diagnosed angina to a cardiologist for investigation, they unanimously said that they would. When I asked the same question about a 65-70 year old patient, a large proportion said that they would not. Furthermore, at least 30% of the doctors not only agreed that they practised ageism but were prepared to admit it publicly. In view of this, does Carvel really think that elderly people can rely on the common sense of doctors to protect them?

M M Rivlin *part time lecturer in medical ethics*
School of Philosophy, University of Leeds, Leeds
LS17 8SJ
rivlin@globalnet.co.uk

1 Grimley Evans J. *Rationing in action*. London: BMJ Publishing Group, 1993.

Ageism occurs in prevention of heart disease too

EDITOR—Bowling's article on ageism in cardiology focused exclusively on the treatment of ischaemic heart disease.¹ She might also have looked at prevention.

I have constructed a model of prevention of cardiovascular disease. Broadly speaking, lowering blood pressure by 10 mm Hg systolic (or cholesterol concentration by 20%) reduces the risk of an ischaemic heart disease event by about 30%. This is roughly the effect of an antihypertensive drug or a statin. As the reduction in risk depends on the initial level of risk it is clearly most efficient to concentrate on those at highest risk—that is, elderly people. An efficient ischaemic heart disease prevention policy would be to treat only elderly people. As only a minority of younger patients need treatment we do a lot of screening to find only a few patients.

I have also crudely analysed the efficiency in terms of quality adjusted life years (QALYs) gained rather than simply ischaemic heart disease events avoided. This is often criticised as an intrinsically ageist

approach. Nevertheless, the results are the same: the most efficient outcome is gained by treating those aged 65-74, with those aged 55-64 and ≥ 75 only slightly behind.

Williams's approach is essentially to weight the gain in QALYs over age 70 with a lower value than gain in QALYs in younger years.² He argues that this is to reflect society's view that we are allotted three score years and ten and that anything after this is a bonus. By my estimation, even applying a crude version of this approach only makes the efficiency of treatment at ages 55-64, 65-74, and ≥ 75 roughly equal. At earlier ages it is still clearly less efficient to screen and treat. In other words, Williams's philosophy may be ageist but even this is less ageist than what we are currently doing.

One practical example of this is in the prescription of statins. Statins reduce the risk of ischaemic heart disease by 30% and are recommended for patients at $> 3\%$ annual risk of the disease. We know that everyone over 75 in the United Kingdom has this annual risk of the disease; therefore everyone over 75 should take statins. But we use specious arguments to wriggle out of this, such as the fact that patients over 75 were not included in the original randomised controlled trials of statins.

Sometimes we do not even have to invoke arguments about ageism: purely from an efficiency standpoint, the case for prevention is stronger in elderly people than in young people.

Tom Marshall *lecturer in public health medicine*
University of Birmingham, Birmingham B15 2TT
marshaTP@HSRC1.bham.ac.uk

1 Bowling A. Ageism in cardiology. *BMJ* 1999;319:1353-5. (20 November.)

2 Williams A. Rationing health care by age: the case for. *BMJ* 1997;314:820-2.

Evaluation of hospital at home scheme

Despite study's positive findings the scheme faces financial constraints

EDITOR—I am the researcher who managed the randomised controlled trial of the Leicester hospital at home scheme.^{1,2} Perhaps the following details will explain why I did not feel a sense of achievement when the results of our study were finally in print.

For 18 months a team of dedicated nurses cooperated with a research protocol demanding that access to their service would be random. They, and I, persevered because we believed (and were told) that the continuation of the service depended on evidence. Poorly, frail people who preferred to be nursed at home were randomised to hospital. At times, when successive referrals were randomised to hospital, the staff had to cope with the frustration of being on duty and having no patients.

Results from the trial suggest a safe and cost effective alternative to hospital. Despite these encouraging findings the Leicester hospital at home scheme is currently faced with financial constraints that do not

support realistic development and expansion. The result is that staff numbers have been reduced, contracts are being amended, morale is low, and many have left.

Hilda Parker *researcher*
3 Westminster Road, Leicester LE2 2EH
hilda@botha.u-net.com

- 1 Wilson A, Parker H, Wynn A, Jagger C, Spiers N, Jones J, et al. Randomised controlled trial of effectiveness of Leicester hospital at home scheme compared with hospital care. *BMJ* 1999;319:1542-6. (11 December.)
- 2 Jones J, Wilson A, Parker H, Wynn A, Jagger C, Spiers C, et al. Economic evaluation of hospital at home versus hospital care: cost minimisation analysis of data from randomised controlled trial. *BMJ* 1999;319:1547-50. (11 December.)

Another study found that patients prefer home care to hospital care

EDITOR—Jones et al stated that no randomised controlled trials of hospital at home schemes to avoid acute admission have been published.¹ Wilson et al made similar claims.² Both articles were published in December 1999.

Our randomised controlled trial of hospital in the home was published in February 1999.³ We studied 100 patients from the emergency department who required admission to hospital and were randomised to treatment at home or in hospital. Patients treated at home had a shorter median length of treatment (6 days *v* 7 days for patients treated in hospital) and no difference in indices of function (Barthel and instrumental activities of daily living) or mental status. Our patients, and their carers, were much more satisfied with home care than with hospital care. We also found a considerable decrease in the incidence of confusion and urinary or bowel complications and a 28% relative decrease in adverse events in patients treated at home, though this was not statistically significant.⁴

The most important factor in improving outcomes in hospital in the home may be in keeping patients away from the hospital and its associated adverse events.

Gideon A Caplan *director, post acute care services*
Prince of Wales Hospital, Randwick, NSW 2031, Australia
g.caplan@unsw.edu.au

- 1 Jones J, Wilson A, Parker H, Wynn A, Jagger C, Spiers N, et al. Economic evaluation of hospital at home versus hospital care: cost minimisation analysis of data from randomised controlled trial. *BMJ* 1999;319:1547-50. (11 December.)
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- 4 Leape LL, Brennan TA, Laird N, Lawthers AG, Localio AR, Barnes BA, et al. The nature of adverse events in hospitalised patients: results of the Harvard medical practice study II. *N Engl J Med* 1991;324:377-84.

Warming feeds is unnecessary and hazardous

EDITOR—Having read Jeffery et al's account of scalds in children, I agree that the cases that they have seen are probably only the tip of the iceberg.¹ Between 1994 and 1997, 10 children under the age of 2 years (range

3-19 months) were admitted to Frenchay Hospital in Bristol with scalds sustained when hot water spilled from a jug in which it was being used to heat a bottle of infant formula. This is equivalent to 6% of children aged under 2 in Bristol being admitted for scalds. The extent of the scald ranged from 1% to 13% of the body surface. Seven of the scalds healed spontaneously, and three required split skin grafts. Complications developed in two cases: the toxic shock syndrome and hypertrophic scarring.

In seven of the accidents children pulled themselves up to stand or reached out and pulled the jug over themselves; in one incident a mother's dressing gown caught the jug. In another a child in a babywalker was able to reach the kitchen counter, and in another the jug was knocked over as the bottle was being taken out. In none of the cases were there any concerns about child abuse. The number of injuries and their subsequent complications are cause for concern.

Not only has the effect of the temperature of feeds on gastric emptying been studied¹ but full term and preterm infants have been given cold milk from the refrigerator and their sleep patterns, food intake, weight gain, and frequency of crying and regurgitation have been compared with those of infants given warm milk; no differences were found.²

The practice of using a jug of hot water to heat the feed is common, and it may be that it is recommended as being safer than using a microwave oven. Children who are just able to crawl, pull themselves to stand, and begin to explore are at particular risk of these accidents. A number of children in the group seen in Bristol had reached a new developmental milestone, which was first observed at the time of injury.

Warming feeds is unnecessary and it should not be recommended since both common methods of warming seem to be hazardous. Carefully prepared formula can be given at room temperature or from the refrigerator. Health professionals caring for mothers and their babies should be aware of these hazards so that appropriate education can be given regarding feeding.

Eleanor Thomas *specialist registrar in paediatrics*
Stoke Mandeville Hospital, Aylesbury HP21 8AL
eethomas@doctors.org.uk

- 1 Jeffery SLA, Cubison TCS, Greenaway C, Gilbert PM, Parkhouse N. Warming milk—a preventable cause of scalds in children. *BMJ* 2000;320:235. (22 January.)
- 2 Illingworth RS. *The normal child*. Edinburgh: Churchill Livingstone, 1991:385-6.

Evidence based substitution of doctors by nurses in primary care?

EDITOR—Pressures to increase the quality and reduce the cost of primary healthcare delivery have led to the redefinition of the roles of health professionals and the creation of new roles such as nurse practitioners, advanced practice nurses, and clinical nurse specialists. Nurses are cur-

rently concerned with many aspects of patient care (asthma, diabetes, prevention of cardiovascular diseases), and they perform a wide range of tasks, ranging from health assessment and education to prescribing. This substitution of care is not well founded on research evidence (controlled trials) and seems to be a consequence of the high demands on primary healthcare providers.

In the early 1970s new nursing roles were seen to be a possible solution to diverse problems in primary health care, including rising demand and costs, a shift from hospital to primary health care, and the changing roles of medical professionals. The nurse's role was redefined and increasingly began to include types of care provision that had been the province of doctors. Nurses also learnt new skills, which enabled them to fill previously unmet health needs. Thus the change in skill mix was characterised by both substitution and diversification of roles. The effects of these changes on patient health, use of health services, and costs are not clear.

We have started a systematic review of the effects of substituting nurses for doctors in primary care for the Cochrane Effective Practice and Organisation of Care Group.¹ We aim to synthesise world research by measuring the outcomes of patient health (morbidity, satisfaction, and quality of life); process of care (patient compliance, adherence to guidelines); use of resources (frequency and length of consultations, prescriptions, test ordering); and economic variables (cost of the intervention, changes in direct and indirect costs of health care). We will group together comparable studies (clinical activity, outcomes, and type of nurse) and perform a qualitative synthesis of the data unless sufficient studies are found to perform a quantitative meta-analysis.

A better understanding of the effects of substituting nurses for doctors will help policy makers and healthcare professionals in primary health care to improve quality and optimise the (cost) effectiveness of health services in the future.

Miranda Laurant *researcher*
Centre for Quality of Care Research, Universities of Nijmegen and Maastricht, PO Box 9101, 6500 HB Nijmegen, Netherlands
M.Laurant@hsv.kun.nl

Michelle Sergison *research associate*
Research and Development Department, Huddersfield NHS Trust, Huddersfield HD3 3EA

Shirley Halliwell *research technician*
Bonnie Sibbald *professor of health services research*
National Primary Care Research and Development Centre, University of Manchester, Manchester M13 9PL

- 1 Laurant M, Sergison M, Sibbald B. Substitution of doctors by nurses in primary care (protocol for a Cochrane review). In: *Cochrane Library*. Issue 1. Oxford: Update Software, 2000.



Rapid responses

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