which they are being asked to give an opinion. Unless they understand what negligence means in law they should not express the opinion that a doctor has been negligent. Similarly, if causation is at issue experts should ensure that they understand exactly what it means. The language of the report should be as accessible as possible: the judge and the jury may not know anything about medicine.

As well as tackling the complexities of the expert's report the seminars will include opportunities for delegates to appear as expert witnesses and be cross examined just as they would in a real court case. Although delegates will be briefed on what to expect before taking part, they will have to rely mainly on their experience and their grasp of the matters on which they are giving evidence.

Adequate study of the papers in the cases used in the seminars is an essential prerequisite, as it would be in a real court case. Each participant will receive a critique on his or her "performance," highlighting its strengths and weaknesses. Workshops will feature examples of medical negligence and personal injury that are also based on real cases.

Expert witnesses may easily stray out of their field of competence because of overconfidence—leading to disastrous consequences in the courtroom. For example, in giving his evidence regarding the assault of a prisoner in his cell a pathologist expressed the opinion that the injuries that had been sustained were consistent with a violent struggle and not a prank that went wrong (as claimed by the defendants). When asked how he had formed this opinion the pathologist responded that when he examined the cell the furniture and personal effects were in considerable disarray, suggesting a violent altercation. Counsel for the defence said that the furniture had been moved by the medical team while it was attempting to resuscitate the victim, thereby undermining the expert's testimony and his credibility.

Not all the pitfalls of the witness box are as obvious as this one, and the seminars will guide delegates through the legal maze. In addition they will highlight some of the more subtle techniques that can help experts to be as effective as possible in the courtroom (box).

How to be a better expert witness

Stand still. Fidgeting in the witness box or swaying from side to side makes the expert appear shift and unsure.

Answer the question asked, not the tricky question that may or may not be hiding behind it.

If there are weaknesses in the client's case the expert should concede them rather than attempt to defend the indefensible at the expense of credibility with the court. Experts should never forget that they are expected to be independent.

Speak slowly and audibly.

Avoid arguing with counsel. This will irritate the judge and plays into the hands of counsel, who is far more experienced in such verbal combat.

Build up a rapport with the judge by speaking audibly and maintaining eye contact when answering questions.

Keep it simple. The expert should avoid jargon and long explanations where possible; the judge and jury may easily become lost.

Do not be afraid to pause before answering. A common mistake made by expert witnesses is that they panic if they can't answer every question instantly. A pause for thought can often create the impression that the expert is considering the question carefully.

If an advocate requests a "yes" or "no" answer to a question the expert should comply with the request only if such a reply would not mislead the court. If a "yes" or "no" answer would be misleading, the expert should explain this to the judge and ask for the opportunity to reply in more detail.

There is more to successfully giving evidence in court than one might at first realise. This new venture is designed to give medical experts a thorough understanding of their responsibilities and to generate personal confidence in courtroom technique.

JANETTE GULLEFORD
Managing director

Professional Solutions and Services,
London EC4Y 0BN

Screening for Down's syndrome

Ignorance abounds

Down's syndrome (trisomy 21) is the commonest cause of mental retardation and is also associated with major structural anomalies of the heart and gastrointestinal system and an increased risk of leukaemia. Early mortality is high, mainly due to congenital heart defects, but between infancy and 40 years of age mortality is similar to the norm. Most surviving adults go on to develop brain abnormalities that are typical of Alzheimer's disease.

At birth the incidence of the syndrome is 1.3 per 1000, with the risk rising with increasing maternal age. Until recently screening was confined to women over an arbitrary age limit of 35 to 37 and entailed amniocentesis or chorionic villus sampling. These procedures carry a small but important rate of miscarriage. On this basis, one in 20 pregnant women would be offered screening, and the risk of giving birth to a baby with Down's syndrome would be comparable to the risk of miscarriage due to the procedure. This screening programme was based on questionable

arguments relating to the provision of services and an assumption that the impact of giving birth to a baby with Down's syndrome equated to losing a pregnancy.

In population terms this method of screening was a failure. Hook estimated that prenatal diagnosis between 1980 and 1985 in England and Wales reduced the number of babies being born with Down's syndrome by 10%.¹ The reason for this failure lies in the fact that only 30% of babies with Down's syndrome are born to women over the age of 36, many of whom decline invasive prenatal diagnosis for fear of losing the pregnancy. The remaining 70% are born to younger women, who individually are at lower risk but who form 95% of the pregnant population and are excluded from this method of screening. The possibility that these younger women are at risk of giving birth to babies with Down's syndrome was rarely, if ever, discussed during their antenatal care.

Biochemical screening of maternal serum permits esti-

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mation of the risk of Down's syndrome for each pregnancy. In a retrospective analysis a positive result would have occurred in 61% of pregnancies in which the fetus had Down's syndrome, with a false positive rate of 5%.² Prospective analyses have reported detection rates of 48% to 91%, with false positive rates of 3.7% to 5.7%.³⁻⁵ This non-invasive method of screening makes it possible for all pregnant women to be aware of their individual risk. Thus younger women who are positive on screening may decide to opt for amniocentesis or chorionic villus sampling, while older women who are negative are spared the risk of an invasive procedure.

In this week's journal Green presents the results of a postal survey of obstetricians' views of serum screening in England and Wales,⁶ and Smith and colleagues present the findings of a questionnaire completed by women after they had discussed biochemical screening with a midwife or obstetrician.⁷ Both papers make for uncomfortable reading. The survey of obstetricians reports that biochemical screening for Down's syndrome was not universally available in July 1993. Interestingly, one in five respondents said that biochemical screening had been introduced in their units as the result of unspecified "outside pressures," while an equal number wanted to introduce biochemical screening but were prevented from doing so by outside pressures. Where biochemical screening had been introduced, difficulties had been encountered in providing adequate counselling before and after the test.

Green rightly draws attention to the trend towards community based antenatal care and raises the question of who will provide the counselling, ensure satisfactory standards, and, most importantly, bear the cost. Furthermore, women who are positive on screening are more likely to opt for amniocentesis or chorionic villus sampling than previously. Provision will have to be made for the costs of laboratory investigation and counselling associated with these procedures.

Adequate counselling before the test should help women to decide whether to opt for biochemical screening, allevi-

ate much of the anxiety associated with a false positive result, and raise appreciation of the possibility of a false negative result.

Smith and colleagues' report shows the poor knowledge that many women have about the implications of false positive and false negative results—even after an obstetric consultation. This must partly reflect the confusion within the profession, as highlighted by Green. The Royal College of Obstetricians and Gynaecologists has defined the essential components of best practice,⁸ and further work is required to investigate whether these are being provided, and if not, the reasons for this.

Alternatives to biochemical screening are being reported,⁹ and some form of screening for Down's syndrome will probably become available for most pregnant women in the future. Although the methods of screening may vary, the requirement for clear, unbiased, knowledgeable advice will be common to them all. Resources will have to be allocated for population counselling as well as screening if we are to do more good than harm.

SANJAY VYAS
Senior registrar

Department of Obstetrics and Gynaecology,
St Michael's Hospital,
Bristol BS2 8EG

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Insulin dependent diabetes mellitus: a lethal disease in the developing world

Some patients are dying for lack of insulin

Before the discovery of insulin in 1921 the diagnosis of insulin dependent diabetes mellitus was tantamount to a death sentence, with 40% or more diabetic patients dying of ketoacidosis. This changed dramatically after 1921, with ketoacidosis becoming a minor cause of death. Life expectancy increased appreciably, although not to the extent hoped for because of the emergence of nephropathy and ischaemic heart disease.

Now, with improved treatment and prevention, life expectancy is good for a patient with newly diagnosed insulin dependent diabetes mellitus. Thus someone in whom the disease was diagnosed before the age of 17 in Pittsburgh between 1950 and 1981 had an 88% chance of surviving 20 years.¹ Survival now would be even better, and the results of the recent diabetic control and complications trial give hope for further improvement.²

Sadly, this is not the situation worldwide. Insulin depen-

dent diabetes mellitus is not only a disorder of developed countries: it occurs everywhere, although its incidence varies widely from about 2-4 per 100 000 in parts of sub-Saharan Africa³ to 14 per 100 000 in Britain. A substantial number of children are affected, and in some developing countries, such as Sudan, rates are close to those in Britain.⁴

Life expectancy in developing countries is substantially less than that in developed countries, although reliable data are few. In Tanzania mortality of patients with insulin dependent diabetes was found to be 40% after a mean of five years.⁵ The main causes of death in those dying in hospital were ketoacidosis (50%) and infection (32%)—mirroring the patterns observed in Europe and the United States in the preinsulin era.⁶ Deaths outside hospital were probably due to ketoacidosis and hypoglycaemia. Many reasons exist for this high mortality, but the main one is the