to the illness. For someone who was too sensitive to harm the feelings of even a complete stranger this lack of concern about the episodes was almost as frightening as the violence itself.

Gradually, as perhaps a few gaps appeared between the clouds, this all gave way to feelings of tremendous guilt, regret, and sorrow about every conceivable event that had occurred from childhood to the present day. Symbolism was everywhere; the ice-cream's van's siren heralded impending doom, a rare five-leaf clover meant worse not better luck, the sky was full of single magpies; no amount of reassurance counted for anything.

As I look back on these events I see them now in a new light. Many people are I am sure familiar with the sensation that overtakes one when a terrifically traumatic storm has swept across and eventually passed away, leaving behind it any amount of destruction and injury; and although one realises that one has survived the onslaught (and ought to be happy for this) the sheer magnitude of the blow leaves one curiously numbed inside. It is almost too much to comprehend fully what has happened.

I wonder also in retrospect how many couples were not so fortunate as us in having a really sympathetic friend to say, "Wait and be patient; and one day you will wake up to find that it has all gone." I personally know of a few couples whose marriage has run into troubles soon after the birth of a baby; one or other has had affairs, and sometimes a divorce has resulted. Goodness knows how much has been said or thrown at each other unwillingly, with maybe irreparable damage caused. With no real warnings about the risk that such an

illness will occur its onset can be extremely frightening to a family, especially when they do not know to whom they can turn for help. My own general practitioner was doing all he could within his powers; but when an hour may seem an interminable age how much longer does an appointment at weekly intervals?

So many questions, so few answers. Why should it, for example, affect the more sensitive of women? Why are they turned by these hormones mostly against the relatives closest to them? If the illness is said to have a hormonal cause can it not then be treated by appropriate hormones in some way? Does it affect animals in a similar way? Or is the whole episode just a question, so to speak, of "What goes up must sooner or later come down again"? The pity of it to my mind was the lack of warning; and surely its very frequency as well as its terrifying severity would justify further concern in this respect.

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To us it was like a knife which suddenly dropped out of the sky and landed sharply between us, separating our closeness; and during that period literally anything could have happened—but we were fortunate. To a certain extent it is like learning to live life all over again with some of the benefits of hindsight, frightening though they can be.

I still don't really understand from where or with what purpose that cold knife came.

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Scientifically Speaking

Antenatal diagnosis

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Washington, DC—Almost by definition, the convening of a professional group for "consensus development" suggests, at best, an expectation of a tenuous accord. But the National Institutes of Health, which began to conduct such conferences over 18 months ago, appears to be beating the semantic odds by coming up with some conclusions that clinicians can work with.

The latest examples emerge in the reports from a conference held last spring to examine what may be accomplished by antenatal diagnosis. One report (described earlier in this column) covered the predictors of hereditary disease and congenital defects. Of particular importance in that article was

the concerted opinion that amniocentesis has moved from the status of an experimental procedure to become a part of standard medical practice.

The antenatal diagnosis conference also covered two other topics: predictors of fetal maturity and of fetal distress. The report on the latter topic essentially brought into the mainstream of medical practice another technological development—electronic fetal monitoring.

Fetal distress

Endorsement of electronic fetal monitoring, if not as unequivocally crisp as the statement on behalf of amniocentesis, none the less constitutes a strongly positive view of a procedure for which vocal sceptics may still readily be found. In the fetal distress section of the report,* periodic auscultation of the fetal heart rate is described as the "standard method of assessment of fetal condition for women at low risk of intrapartum fetal distress." The recommendation immediately after this is

*Report of the Consensus Development Conference on Antenatal Diagnosis. For further information contact the Office of Public Information, National Institute of Child Health and Human Development, Bethesda, Md 20014, USA.

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carefully couched: "The use of electronic fetal monitoring should strongly be considered in high risk patients whenever the potential benefit of the technique exceeds the known risks. Presently available data on the obstetrical antepartum and intrapartum risk scores to be applied in the variety of clinical situations encountered does [sic] not allow a specific list of indications for the use of EFM at present. The medical record should reflect a careful consideration of the benefits and risks in each individual patient, and a discussion of the indications for EFM with the patient."

In some further recommendations the report cautiously observes that, while good maternity facilities should have the trained staff and equipment to assess fetal status in labour, "This does not imply a requirement for electronic fetal monitoring." Also, the clinician should be mindful of the known potential hazards of electronic fetal monitoring—not keeping the mother in a supine position for too long, and not unnecessarily limiting her mobility. Also, "artificial rupture of the amniotic sac solely for the purpose of applying the direct mode of EFM should not be routine." In other words, more or less: "The electronic fetal monitor should not be a substitute for clinical judgment."

The lack of precision in these expressions of approval of EFM is a consequence of indefinite information all along the line in fetal distress. Although the period of particular interest for these consensus developers was the time of labour and delivery, the possibilities for harmful influences arising in genetics and prenatal events cloud the meaning of any but the most drastic events in the intrapartum period.

Even the statistics that should put units of dimension on intrapartum problems are hard to figure out. Different countries have different definitions of the perinatal period; in the US the definition varies even among the states. Fetal hypoxia during labour and delivery has many associations with morbidity and mortality, but, as a cause, is elusive to measure. Taking all intrapartum events together, the report blames them for about 30% of stillbirths and early neonatal deaths, 20% to 40% of cerebral palsy, 10% of severe mental retardation, and probably lesser but unmeasurable incidences of subtle neurological damage, respiratory distress syndrome, and renal dysfunction. Traditional methods of detecting fetal distress have not decreased this toll. Meconium passage indicates a fetus in trouble, but not often enough. Intermittent auscultation of the fetal heart rate is not sufficiently successful for showing distress.

Electronic fetal monitoring, developed in the 1960s, offered a promise of reliable information during labour. Heart rates and their changes with uterine contractions, when recorded continuously, came to be dependably associated with physiological and pathological events. Electronic fetal monitoring has increased to such an extent that 60% to 70% of US births are now monitored in this way.

More than a decade has been needed to build up enough data even to begin to indicate what effect all this monitoring is having. Intrapartum fetal death has declined by more than one birth in 1000, and the overall neonatal death rate has decreased by more than six in 1000. A causal link between electronic monitoring and these and other statistical improvements, however, can be appreciated only in the higher risk deliveries. In the low-risk group, benefit of this monitoring is impossible to distinguish, much less to weigh against damage from fetal manipulation, electrode attachment, and the like.

In the same decade, the rate of caesarean sections in the US has more than doubled. That is alarming enough to have been studied extensively, but the aggregated results of those studies indicate that little of the increase in caesarean sections can be attributed to fetal monitoring. Many more of the excess caesareans were done because of disproportion between the dimensions of fetus and pelvis. Had the caesareans been found linked strongly to monitoring, the economics of such monitoring would have been skewed beyond redemption; direct cost of a section is \$1200 or more, and the estimated direct and indirect costs (the latter including lifetime earnings lost in maternal deaths) of a section total more than \$4000.

A cost-benefit analysis for electronic fetal monitoring is so elusive as to be meaningless. The report mentions estimates of direct cost that range from \$30 to \$60 per delivery. An averted intrapartum death may be said to generate a lifetime earnings average of more than \$68 000. Each salvation of an otherwise severely retarded infant may be estimated to bring direct and indirect benefits of about \$236 000. The report does not suggest that any of these figures are nearing relevance. In fact, it pays as much or more attention to the various legal aspects of using or not using monitors in these litigious days of medical practice in the US, and gives much more than lip service to the potentially chilling effect of medical technology on the concept of "family-centred" childbirth and the popularised "natural" deliveries.

Fetal maturity

On the topic of fetal maturation, the consensus developers were a great deal more direct—and in a report less than one-third as voluminous. Seeking after predictors of maturation is occasioned mostly by the frequency of caesarean section deliveries in the US. Premature delivery is strongly associated with respiratory distress syndrome, and caesarean section itself appears to pose an increased risk of distress. The overall case fatality rate for respiratory distress syndrome is about 30% here, which translates into more than 12 000 neonatal deaths a year.

Amniocentesis and ultrasonography furnish the separate or complementary routes towards determining fetal age. Echolocation is a desirable procedure to furnish a guide for the tap of amniotic fluid. The report acknowledges, however, that amniocentesis will sometimes be conducted in the absence of ultrasound equipment.

Amniotic-fluid analysis for phospholipids (which provides specific information about maturity of the fetal lung, and thus bears directly on respiratory distress) is likely to be the most widespread technique, the report concedes. But in its simplest version, the "shake test," it is so deceptively easy as to call for much extra caution. The test employs serial saline dilutions of amniotic fluid, with ethanol added, and is read by observing the stability of foam at the surface. Good foam—indicative of good surfactant phospholipids that act as a detergent in the interface of water and air in the alveoli—promises competent fetal lungs.

More complicated as a test, and therefore more likely to require better laboratory facilities, is the determination of the lecithin/sphingomyelin ratio in amniotic fluid. Lecithin increases with fetal age; sphingomyelin stays about the same, and simply serves as a control level against which to gauge lecithin. Notwithstanding a need for good laboratory equipment and careful procedure, the lecithin/sphingomyelin ratio has become the most widely used measurement of antepartum pulmonary maturation, a development the report appears to approve.

Ultrasonography by itself, although happily non-invasive in the instrumental sense, requires the kind of medical centre that has some use for such equipment and reason to train operators to a competent level. Given these conditions, the ultrasonic measurement of the diameter between the lateral surfaces of the fetal skull appears to pin down fetal age to within 10 or 11 days on a single measurement, and perhaps to 1 to 3 days if two measurements can be taken a month apart. More experience is needed with the technique, which means that more facilities are needed—but particularly that more sonographers must be trained, according to the report.

"Consensus development" in these and many other clinical problems is so recent that its effect on medical practice is not yet known. The National Institutes of Health carefully distinguishes it from regulation or arbitration of practice modes. But it seems only too likely that a government-sponsored conference that issues a report containing recommendations about the best current ways to practise medicine will soon be seen as setting standards. Flimsier standards than these are invoked every day in professional liability litigation.