In conclusion, the following factors have been found to be associated with a poor outcome: extreme prematurity; early need for or repeated resuscitation with adrenaline or atropine, or both; the absence of clear precipitating factors causing the collapse needing resuscitation; and asystole rather than bradycardia. In the presence of any, and especially combinations, of these factors the attending clinician can reasonably question whether or not the use of adrenaline or atropine, or both, is justified. Evidence is now accumulating to support a view that the use of adrenaline or atropine, or both, for resuscitation in the first week of life in extremely preterm infants may be inappropriate and if an infant does not respond to the correction of an easily treated underlying problem, this can be considered to be an indication to withdraw support. A detailed and helpful review of the ethical aspects of cardiopulmonary resuscitation in paediatric practice has now been published.⁹

We are grateful for the secretarial help of Maureen Jones.

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Commentary

This paper is a useful reminder that the outlook is very poor when there is cardiopulmonary collapse of such severity as to require resuscitation by cardiac stimulants (rather than by simply achieving adequate oxygenation), especially with very premature infants <33 weeks' gestation. It would be dangerous to interpret these observations as meaning that such resuscitation should never be attempted. Rather this paper should serve as a reminder that the pursuance of intensive support at all costs is not always appropriate.

This is a clinical paper, but there are also moral and legal arguments to take into account when faced with dilemmas of this sort. It is useful to be able to turn to first principles. The interests of the child are paramount, a concept with which paediatricians are comfortable. From this we can establish a hierarchy of responsibilities and recognise that the interests of parents, though undoubtedly important, are secondary. The interests of society, and here the financial implications of intensive support may be included, take third place.

But what are the best interests of the child? To answer this we must first establish as precise a prognosis as possible. Sims *et al* have helped us with this: the overall outcome in the group described was very poor. The use of cranial ultrasound may have allowed the prognosis to be even more precisely defined for the individual.

The problem with the authors' recommendation that 'the failure of very preterm infants who collapse in the earliest days of life to respond promptly to correction of the cause of their collapse . . . could be considered an indication to withdraw care' is that it is often the most junior and inexperienced member of the team who has to decide to institute resuscitation.

The withdrawal of intensive support is not a decision to be made by a relatively inexperienced doctor on his or her own in the middle of the night. It is a decision that requires the full participation of the medical team, the nurses who are involved with the care of the baby, and the parents. The parents' views are most important: the baby cannot tell us what he or she wants, and generally it is the parents who are considered to be the people who have the best interests of their child most at heart, provided they have been informed as fully as possible of the prognosis by their baby's medical attendants. The process has been well described by Whitelaw *et al*.¹ If any of the discussants take the line that it would not be appropriate to stop intensive support, full support is continued, although discussions about its appropriateness should also continue.

What is the position of the law? There are at least two fairly recent cases relating to neonates. In the first (baby C)² the court allowed intensive support to be withdrawn from a baby whose outlook was considered to be extremely poor, and in the second (baby J)³ a decision by the High Court judge was made for it not to be instituted. Both judgments were upheld by the Court of Appeal. In both cases it was evident that a clear idea of the prognosis, as established by the use of scientific techniques and clinical experience, was essential in deciding how best to proceed.

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Commentary

I suspect that, over the years, most of us have built up *ad hoc* resuscitation policies. These may no longer be good enough as many purchasers and trust boards insert into quality requirements written protocols on who should and should not be resuscitated. Designed

originally to protect the elderly, there is no reason why obstetric and neonatal departments should be exempt.

The paper by Sims *et al* is a welcome contribution to the internal debate in which many of us must now be engaged. It takes its place with other published material on the survival prospects of the extremely premature.

Should labour ward resuscitation start at 500 g or 24 weeks? If fetal ultrasound dating has a standard error of 10 days, does that mean the lower gestation limit should be 22 weeks? If so, should fetuses of 22 weeks (and therefore, possibly 24 weeks) be transferred in utero to a regional centre where the miscarrying mother may be separated from friends and relatives?

Experienced neonatologists and paediatricians who have fought losing (but sometimes

winning) battles on behalf of the very ill and very premature may consider themselves capable of knowing where to draw the line. More junior doctors will, forgiveably, believe they do not have the feel for certain acute situations that allows them to know when to stop.

Weindling's policy of a team decision with any having a veto will work only if none has an eccentric or absolutist point of view. What would intrigue this commentator would be whether or not written newborn resuscitation policies at St Mary's Hospital, Manchester have been revised in the light of Sims *et al*'s meticulous observations.

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