

# CESDI

Confidential Enquiry into Stillbirths and Deaths in Infancy  
[www.cesdi.org.uk](http://www.cesdi.org.uk)

# Executive Summary

of the  
**7th**  
**Annual**  
**Report**

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Focusing on:

Breech Presentation at Onset of Labour  
Obstetric Anaesthesia - Delays and Complications  
Cardiotocograph Education Survey  
and  
Sudden Unexpected Deaths in Infancy - Pathology

Since 1992 the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI) has provided accurate national clinical data in perinatal and infant medicine. This is especially important for rare circumstances such as intrapartum stillbirth and cot deaths. These have a major impact on parents and health professionals but occur so infrequently that lessons from individual events are limited.

The multidisciplinary approach used by CESDI enables failures of care to be more readily understood.

The 7th Annual Report of CESDI addresses a number of topics that are of major current concern and makes a series of recommendations to address the deficiencies it has identified.

### **Infant and perinatal mortality - England, Wales and Northern Ireland 1998**

In 1998 there were 663,365 total births in England, Wales and Northern Ireland, a figure which has been declining since 1991. The Rapid Reporting Form is the notification system used by CESDI since 1993 and in 1998 10,225 deaths were notified. These comprised: 1503 legal abortions, 1672 late fetal deaths, 3347 stillbirths, 2493 neonatal deaths, and 1210 postneonatal deaths.

Completeness of ascertainment is assessed using data from the Office for National Statistics (ONS) as the 'gold standard'. This is based on Death Notifications collected by the Registrar of Births and Deaths. The proportion of ONS deaths reported by CESDI rose from 93% in 1993 to 99% in 1996 and has remained at this level since. Postneonatal deaths are the most difficult category to collect, but this has improved from 86% in 1993 to 96% in 1998.

The stillbirth rate (5.0/1000 total births) has declined from 1995 and the neonatal death rate (3.8/1000 live births) since 1996. Postneonatal death rates (1.8/1000 live births) are unchanged over the last 5 years.

### **Postmortem Rates**

In 1998 the postmortem rate for England, Wales and Northern Ireland was 55%, ranging from 45% in North Western Region to 67% in South Western Region. Stillbirths were most likely to have a postmortem (62%) and neonatal deaths least likely (41%).

### **Breech presentation at the onset of labour**

The management of breech presentation is contentious. Despite a lack of supportive evidence there is increasing use of Caesarean section as the routine mode of delivery in the UK. This is in part due to the widely held belief that birth trauma is responsible for a substantial part of the excess risk.

CESDI undertook a review of the management of all babies in 1994-1995 who were normally formed, weighed over 1.5kg at birth, were breech at the onset

of labour and died due to an intrapartum related event.

A fifth of these babies were born at home, many of them already delivering by the time a health professional attended. The unexpected nature of these events emphasises the need for explicit plans of action for dealing with an undiagnosed breech at home.

The undiagnosed breech was the largest category and is the group most at risk. Most mothers were admitted in the early stages of labour but the diagnosis was often not made until late in the first stage. Although failure to diagnose a breech is not viewed as a direct failure of care it highlights the need for increased effort to identify presentation both antenatally and in labour.

Examination of the intrapartum management of those delivering in hospital found that:

- the single and most avoidable factor was suboptimal care given in labour rather than the conduct of the delivery itself.
- where the cardiotocograph (CTG) was available for review: there was clinical evidence of hypoxia in all but one case prior to delivery and there were delays in staff response to fetal compromise in nearly three quarters of cases. These ranged from 30 minutes up to 10 hours.
- the registrar was the professional most likely to be involved in the labour and delivery. Less than a fifth of these labours had more senior involvement at any stage: Consultants were only informed in half of these cases prior to delivery. Inexperience at the time of delivery exacerbated the risk to an already hypoxic baby in some cases.

Pathology review confirmed the clinical findings that hypoxia was the commonest cause of death. Trauma as a sole cause contributed to one case. Less than a quarter of the postmortems included a systematic and comprehensive examination of factors relevant to the death of a breech baby born vaginally.

The Report recommends that:

- Trusts should ensure that all staff are skilled in fetal surveillance
- the most experienced available practitioner needs to be involved and should be present at delivery of a vaginal breech birth
- the postmortem examination should be conducted by a perinatal pathologist or pathologist with a special interest in perinatal work

- structured simulated training is advocated for all staff who may encounter a vaginal breech delivery

### Obstetric anaesthesia - Delays and Complications

Anaesthetists are an integral part of the maternity team. Their presence allows early consultation on the management of life-threatening obstetric complications. CESDI in collaboration with the Obstetric Anaesthetists' Association reviewed anaesthetic delays and serious complications involved in the 1994-1995 intrapartum deaths. The review highlighted several important issues, in particular:

- general anaesthesia may result in serious life threatening complications to the mother
- anaphylaxis of the mother to a general anaesthetic can result in unnecessary delays in delivery. The report emphasises the need for *immediate* delivery of the baby in these circumstances. Epinephrine is the drug of choice for severe anaphylaxis. All staff should be aware of resuscitation techniques and should maintain their skills.

Delays in the provision of an anaesthetic were equally divided between problems of getting personnel into place and those of administering adequate anaesthesia for an urgent delivery. It was often not possible to distinguish between clustering of emergencies and inadequacies of organisation. As a result the review recommended that:

- Trusts should review their practice and implement the standards outlined for obstetric anaesthesia services.

Choice of anaesthesia in an urgent situation depends on the skills and experience of the anaesthetist to achieve a satisfactory balance of maternal and fetal risk. In several cases long delays were associated with top-ups of epidural analgesia; unless these are going to be rapidly effective they should not be initiated in urgent situations.

Communicating and defining the degree of urgency of the need to deliver a baby is particularly problematic. There is no standard classification, partly due to the widely varying circumstances and the difficulties of predicting the long-term outcome of fetal hypoxia. This lack of consistency precludes effective audit in this field and an agreed classification is needed. The decision-to-delivery interval of 30 minutes or less is a pragmatic rather than an 'evidence-based' standard. Its feasibility has been questioned by some, and the review concluded that benchmarking nationally of the decision-to-delivery interval is a priority.

- Trusts need to ensure good documentation of anaesthetic events including the times of the decision-to-deliver, when the patient reaches the operating theatre, when the anaesthetist is informed and when the baby is delivered.

### Cardiotocograph Education Survey

One of the recurrent themes noted by CESDI is the problem surrounding the use and interpretation of cardiotocographs (CTGs). This formed the basis of the recommendation in the 4th Annual Report (1997) that Trusts should provide adequate training in this subject. Last year CESDI undertook a survey of all Trusts regarding their practice in 1998. Responses were received from 99% of Trusts and found that:

- training was almost universally available. Ability to confirm attendance existed for most (88%) midwives but for only half of the medical staff. The difference may be due to the more rigorous supervisory structure for midwifery.
- of the midwives involved, those most likely to be conducting the deliveries (grades E and F) were the least likely to have received training.
- of the doctors involved, locums and staff grades were the least likely to have access to training.
- many midwives are self-funded for this form of education.

These findings led to the recommendations:

- Trusts should be able to confirm that **all** staff involved in intrapartum care have received CTG training within the preceding year.
- Self-funding is inappropriate for training in a skill that is widely used to assess the wellbeing of the baby.

Multidisciplinary education is available in over three-quarter of all units. However, there are often conflicts between service needs and education. Protected time is generally available for Specialist Registrars but not for other levels of staff. The content of education is the same for both medical and midwifery personnel. The area least likely to be addressed in training was the medico-legal aspects of documentation and storage of CTGs. Risk management policies need to include information on this point.

The survey did not address the effectiveness of training; work in this area is limited although increased core knowledge has been demonstrated when interactive computer packages are compared to conventional methods. Relatively little use is made of the former approach and the report recommends their availability on or near the Labour Ward.

### **The role of pathology in the investigation of Sudden Unexpected Infant Deaths**

Sudden Infant Death Syndrome is a diagnosis of exclusion - negative results are a positive finding. It is therefore important that a thorough postmortem examination is undertaken. In 1993 to 1996 CESDI undertook the largest study to date on sudden unexpected infant deaths. This included a second review of the postmortem examination findings in 450 cases by a regional pathology coordinator, without knowledge of the original conclusions.

The original pathologists identified 30% as being 'explained', but the reviewers confirmed this in only 18%. This was in part due to over-interpretation of relatively minor pathological changes and a failure to identify the significance of real pathology (eg fractures).

Use of tests varied with the type of pathologist: general, paediatric or forensic. The review concluded that a detailed clinical history, including the precise circumstances of the death, is the single most useful component of the investigation of sudden unexpected deaths in infancy. Histology is the single most useful ancillary investigation and should be performed in every case. Adequate histology was taken in 53% of cases investigated by general pathologists, 69% of cases seen by paediatric pathologists and 47% of cases seen by forensic pathologists.

A recommended protocol for postmortem examination of a sudden unexpected death in infancy has been drawn up on the basis of these findings.

### **Communication**

Communication failures have been cited in some 17% of comments analysed in the enquiries into intrapartum related deaths. CESDI commissioned a review of published evidence of the contribution of these failures to perinatal losses and a summary of this is given in the Report.

### **Changing Local Practice**

Learning from the lessons found at enquiries is essential to their purpose. This year CESDI has outlined initiatives occurring at local level. The Regional Co-ordinators have a valuable role in promoting these changes and there is an emphasis on:

- collaboration between Trusts and between disciplines
- education and training - particularly skills-based CTG interpretation, neonatal resuscitation and obstetric emergencies

- promoting internal review processes - local assessment of deaths and near misses using the enquiry process; standards of record keeping
- introducing protocols within Trusts, and standards into commissioning processes.

### **The future**

CESDI is one of the four Confidential Enquiries under the umbrella of the National Institute for Clinical Excellence (NICE).

Lessons from CESDI have included recurrent themes, in particular deficiencies in: risk recognition; intrapartum fetal surveillance; senior involvement in high risk obstetrics; documentation; pathology services; and communication at times of urgency. CESDI also has a key role in promoting advice to parents and health professionals regarding the sleeping position and environment for infants.

NICE has commissioned a review of the role of Confidential Enquiries and in particular their impact on health care. This review is timely as there is a need to optimise the ways that enquiry processes lead to improved practice. CESDI awaits the findings of the review and meanwhile looks forward to continuing to promote improvements in the standards of care for mothers and babies.

### **ACKNOWLEDGEMENTS**

Particular thanks are due to the district co-ordinators and the many others based throughout England, Wales and Northern Ireland, who, often without recognition and in their own time, undertake work for CESDI.

**A full copy of the 7th Annual Report can be obtained from:**

**CESDI Secretariat  
Chiltern Court  
188 Baker Street  
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**Tel 020 7486 1191  
Fax 020 7486 6543**

**Price £6:00**

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**The Report can also be found on the CESDI website  
[www.cesdi.org.uk](http://www.cesdi.org.uk)**

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