

Confidential Enquiry into Maternal and Child Health

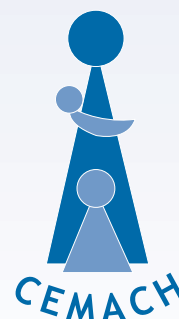
Improving the health of mothers, babies and children

STILLBIRTH, NEONATAL AND POST-NEONATAL MORTALITY

2000–2003

England, Wales and Northern Ireland

April 2005



CEMACH mission statement

Our aim is to improve the health of mothers, babies and children by carrying out confidential enquiries on a nationwide basis and by widely disseminating our findings and recommendations.

Please cite this work as: Confidential Enquiry into Maternal and Child Health. *Stillbirth, Neonatal and Post-neonatal Mortality 2000–2003, England, Wales and Northern Ireland*. London: RCOG Press; 2005.

Published by the RCOG Press at the Royal College of Obstetricians and Gynaecologists, 27 Sussex Place, Regent's Park, London NW1 4RG, on behalf of CEMACH

First published 2005

© 2005 Confidential Enquiry into Maternal and Child Health

Apart from any fair dealing for the purposes of research or private study, criticism or review, as permitted under the Copyright, Designs and Patents Act, 1988, no part of this publication may be reproduced, stored or transmitted in any form or by any means, without the prior written permission of the publisher or, in the case of reprographic reproduction, in accordance with the terms of licences issued by the Copyright Licensing Agency in the UK. Enquiries concerning reproduction outside the terms stated here should be sent to the publisher at the UK address printed on this page.

The use of registered names, trademarks, etc. in this publication does not imply, even in the absence of a specific statement, that such names are exempt from the relevant laws and regulations and therefore for general use.

This work was funded by the National Institute for Clinical Excellence and by the Department of Health, Social Services and Public Safety of Northern Ireland. The views expressed within this publication are those of the Enquiry and not necessarily those of its funding bodies.

RCOG Press Editor: Jane Moody.

Design/typesetting by Tony Crowley.

Printed by Manor Press, Unit 1 Priors Way, Maidenhead, Berkshire, SL6 2EL.

Contents

	Page
Key findings	ii
Author	ii
Acknowledgements	ii
Definitions	ii
1 Introduction	1
1.1 Developments to the CEMACH Perinatal Death Notification system	1
2 Stillbirth, neonatal and post-neonatal mortality rates, 2000–2003	2
2.1 Total notifications	2
2.2 Multiple births	3
3 Cause of death	4
3.1 Stillbirths	4
3.2 Neonatal deaths	5
3.3 Post-neonatal deaths	5
3.4 Intrapartum related mortality rates	6
3.5 Variation in mortality by CEMACH region	6
3.6 Variation in mortality by hospital trust	7
4 Rate of postmortem examination	8
References	9
Appendix	10

KEY FINDINGS

- A significant increase in the stillbirth rate in England, Wales and Northern Ireland was seen from 2001 to 2002. This increase was sustained in 2003.
- A small increase in the neonatal mortality rate was seen from 2002 to 2003.
- Multiple births have a stillbirth rate over three times that of singleton births and a neonatal mortality rate nearly seven times that of singleton births.
- Intrapartum-related mortality rates remained roughly constant across the 4-year period, 2000–2003, despite a previously sustained decrease from 1993 to 1999.
- Rates of postmortem examination in England, Wales and Northern Ireland have continued to decrease during the 4-year period, 2000–2003, with a decrease in overall postmortem examination rates in late fetal losses, stillbirths, neonatal and post-neonatal deaths from 48.4% to 39.0%.

AUTHOR

Kate Fleming, Senior Data Analyst, CEMACH

April 2005

ACKNOWLEDGEMENTS

With thanks to:

- all CEMACH/CESDI Regional Managers and Administrative Assistants for the collection and validation of all data provided for this report
- the hospital unit co-ordinators, clinicians and staff throughout England, Wales and Northern Ireland, without whose commitment and continued support we would not have had the data to enable us to produce this report
- members of the CEMACH Perinatal Mortality Steering Group and CEMACH Board for advice and comments on this report
- Ms Di Goodwin, ONS, for providing additional denominator data.

DEFINITIONS

Late fetal loss	An <i>in utero</i> death delivering between 20 ⁺⁰ and 23 ⁺⁶ weeks of gestation
Stillbirth	An <i>in utero</i> death delivering after the 24th week of pregnancy
Early neonatal death	Death of a liveborn baby occurring less than 7 completed days from the time of birth
Late neonatal death	Death of a liveborn baby occurring from the 7th day of life and before 28 completed days from the time of birth
Post-neonatal death	Death of a liveborn baby occurring from the 28th day of life and before 365 completed days from the time of birth
Stillbirth rate	Number of stillbirths per 1000 live births and stillbirths
Perinatal mortality rate	Number of stillbirths and early neonatal deaths per 1000 live births and stillbirths
Neonatal mortality rate	Number of neonatal deaths per 1000 live births
Post-neonatal mortality rate	Number of post-neonatal deaths per 1000 live births

1 Introduction

The Confidential Enquiry into Maternal and Child Health (CEMACH) was launched in April 2003. Included within CEMACH's remit are the work programmes of two previous national confidential enquiries – the Confidential Enquiry into Maternal Deaths (CEMD) and the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI). CEMACH is continuing the programme of enquiries into maternal and perinatal mortality and is extending its remit to encompass morbidity and the establishment of a new national enquiry into child health. More details about CEMACH's work programmes can be found on the website (www.cemach.org.uk).

1.1 Developments to the CEMACH Perinatal Death Notification system

Infant and perinatal mortality data had been collected by CESDI since 1993 via a system known as the 'Rapid Reporting Form' (RRF). This data collection system had two main aims:

- to obtain a data set for each death within the CESDI range between 20 weeks of gestation and 1 year of life
- to provide information as soon as possible after the death in order to support the enquiry process.

Since its inception in April 2003, CEMACH has made a number of changes to the death notification system to streamline the data collection process. From 2004, CEMACH has collected epidemiological and clinical data on each *in utero* death from 22 weeks of gestation and each live birth resulting in a neonatal death (up to 28 days of life) via the Perinatal Death Notification (PDN) form. These data, and data previously collected using the RRF, are provided through a network of local health professionals coordinated by the CEMACH regional offices. Data are then compiled centrally and cross-validated with information from the Office for National Statistics (ONS).

CEMACH will produce annual reports on stillbirth and neonatal mortality rates at national, regional and trust level. Future perinatal mortality data collected will also be combined with the historical data to expand the longitudinal dataset from which more detailed investigative work can be conducted. The first piece of work using this dataset will be a trend analysis of the risk factors associated with stillbirths and is due to be published later in 2005.

CEMACH welcomes enquiries from professionals who may wish to use the perinatal mortality data that have been collected over the past 10 years for specific projects or collaborations. The CEMACH data release policy and data request forms can be found on the CEMACH website (www.cemach.org.uk).

2 Stillbirth, neonatal and post-neonatal mortality rates, 2000–2003

This report provides a summary of perinatal mortality data for the period 2000–2003. Data for 2000–2002 were published by CEMACH in November 2004.¹ Data are presented using cohorts based on date of delivery. As a result, data presented here for neonatal and post-neonatal deaths are not directly comparable with data previously published by CESDI,^{2–9} which used cohorts based on date of death. In addition, since 2004, CEMACH has not collected information on post-neonatal deaths. CEMACH thus has information only on those post-neonatal deaths that died on or before 31 December 2003. Figures for 2003 would therefore be an underestimate of the true post-neonatal mortality and are not reported here.

2.1 Total notifications

Absolute numbers of notifications and mortality rates for England, Wales and Northern Ireland for 2000 to 2003 are shown in Table 1. Mortality statistics for this period for England and Wales are also available via the ONS¹⁰ and for Northern Ireland via the General Registrar's Office (GRO).¹¹ Stillbirth, neonatal deaths and legal abortion figures as notified to CEMACH differ from registration data collected by the ONS. Data collected by CEMACH in 2004 will be cross-validated with registration data collected by the ONS to try and determine the exact nature of this difference in ascertainment. Some of the differences in stillbirth figures are partly explained by the inconsistency in the reporting of fetuses that have died before 24 weeks of gestation but are delivered at 24 weeks and over. Guidance issued by the Royal College of Obstetricians and Gynaecologists in 2004, *Registration of stillbirths and certification for pregnancy*

Table 1: Notifications, 2000–2003, England, Wales and Northern Ireland

	Year of birth							
	2000		2001		2002		2003	
	Frequency	Rate	Frequency	Rate	Frequency	Rate	Frequency	Rate
Total reports	9544		9188		9474		8844	
<i>Legal abortion</i>	1602	–	1542	–	1525	–	1639	–
Late fetal loss	2668	–	2608	–	2674	–	2764	–
Stillbirth ^a	3366	5.35	3320	5.36	3542	5.71	3730	5.77
Perinatal death ^a	5220	8.30	5023	8.11	5257	8.47	5564	8.60
Neonatal death ^b	2436	3.89	2250	3.65	2214	3.59	2350	3.66
Post-neonatal death ^b	1074	1.72	1010	1.64	1044	1.69	–	–
Total live births	625642		616322		617299		642899	

^a Rate per 1000 live births and stillbirths
^b Rate per 1000 live births

Sources: RRF 2000, 2001, 2002, 2003
CEMACH death notification 2004
ONS 2000, 2001, 2002, 2003
Northern Ireland GRO 2000, 2001, 2002, 2003

loss before 24 weeks of gestation,¹² aims to ensure greater consistency in the reporting of these deaths. CEMACH has revised its data collection form for 2005 to enable an enumeration of any changes this guidance may have effected.

The increase in stillbirth rate from 2001 to 2002, an increase of 0.35 per 1000 live births and stillbirths (rate ratio 1.06; 95% CI 1.02–1.12), is sustained in 2003, with a small additional increase in rate. This increase has previously been reported by the ONS¹³ and prompted CEMACH to begin an investigation into the risk factors associated with stillbirth. A report on this work is due to be published in 2005.

In contrast to 2000–2002, where there was a decrease across the 3-year period, there was a small increase in the neonatal mortality rate from 2002 to 2003 of 0.08 per 1000 live births (rate ratio 1.02; 95% CI 0.96–1.08).

2.2 Multiple births

Multiple births are at a greater risk than singleton births of adverse perinatal outcome, including stillbirth and neonatal death.¹⁴ From Table 2, it can be seen that multiple births accounted for 2.9% of the total live births for 2003, 10.3% of all stillbirths and 16.8% of all neonatal deaths. In this 4-year period, the stillbirth rate for multiple births was consistently greater than 3.5 times that for singleton births, with the neonatal mortality rate for multiple births nearly seven times that for singleton births.

Table 2: Stillbirths and neonatal deaths by multiplicity, England, Wales and Northern Ireland, 2000–2003

	Year of birth							
	2000		2001		2002		2003	
	Frequency	Rate	Frequency	Rate	Frequency	Rate	Frequency	Rate
Total live births	625642		616322		617299		642899	
Singleton	607427		598283		599038		624228	
Multiple	18215		18039		18261		18671	
Stillbirth ^a	3366	5.35	3320	5.36	3542	5.71	3730	5.77
Singleton	3039	4.98	2981	4.96	3183	5.29	3331	5.31
Multiple	326	17.58	339	18.45	354	19.02	384	20.15
Unclassified	1	–	0	–	5	–	15	–
Neonatal death ^b	2436	3.89	2250	3.65	2214	3.59	2350	3.66
Singleton	2008	3.31	1827	3.05	1815	3.03	1933	3.10
Multiple	422	23.17	422	23.39	377	20.65	391	20.94
Unclassified	6	–	1	–	22	–	26	–

^a Rate per 1000 live births and stillbirths

^b Rate per 1000 live births

Sources: RRF 2000, 2001, 2002, 2003

CEMACH death notification 2004

ONS 2000, 2001, 2002, 2003

Northern Ireland GRO 2000, 2001, 2002, 2003

3 Cause of death

Deaths are classified according to the Extended Wigglesworth, Obstetric (Aberdeen) and Fetal and Neonatal Factor classifications. Details of these classification systems can be found at www.cemach.org.uk/pdn_classifications.htm.

3.1 Stillbirths

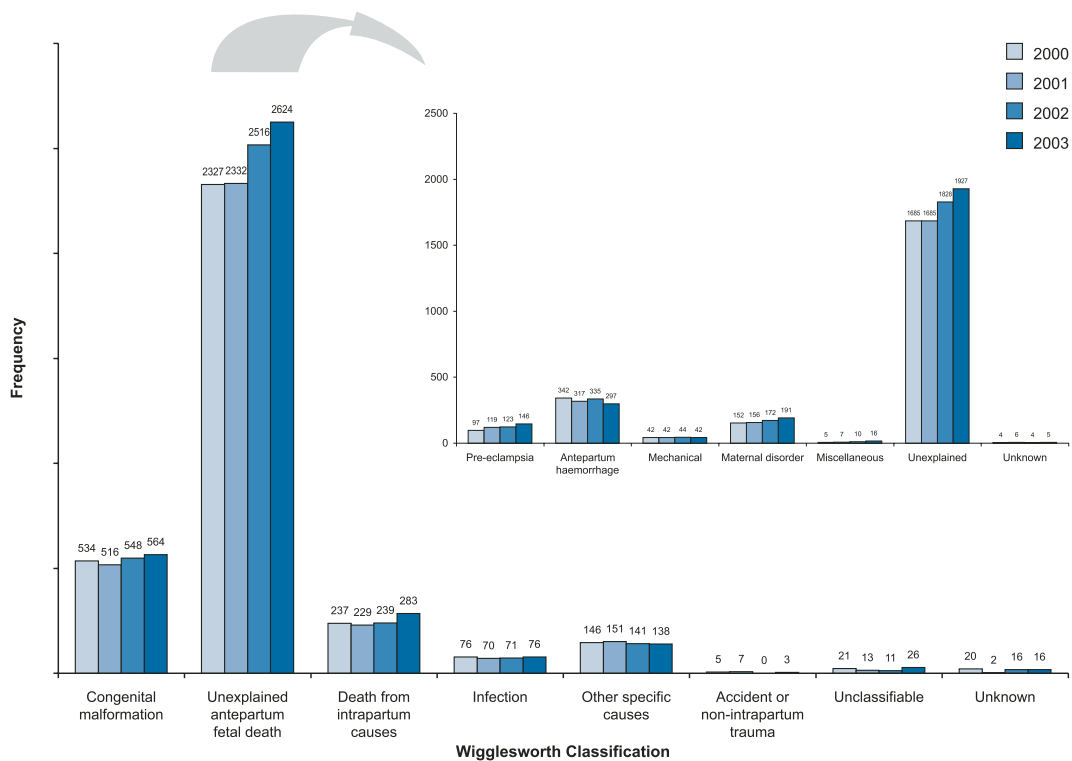


Figure 1: Stillbirths in England, Wales and Northern Ireland 2000–2003, by Wigglesworth classification
 Inset: Unexplained antepartum fetal deaths 2000–2003, Obstetric (Aberdeen) classification. (Sources: RRF 2000, 2001, 2002, 2003)

As in previous CESDI reports,²⁻⁹ stillbirths categorised according to the Extended Wigglesworth classification show the largest proportion of deaths being ascribed to unexplained antepartum fetal deaths, representing 70.7% of all reported stillbirths in 2003 (Figure 1). The largest identifiable causes of deaths were congenital malformations (15.2% in 2003) and death from intrapartum causes (7.6% in 2003). Those deaths classified as unexplained antepartum fetal deaths are then further categorised according to the Obstetric (Aberdeen) classification, which enables a further 18.7% of stillbirths to be assigned to antepartum haemorrhage (8.0% of all stillbirths in 2003), maternal disorder (5.1%), pre-eclampsia (3.9%) and mechanical complications (1.1%).

In 2003, the deaths of some 1927 stillborn babies remain unexplained according to the classification systems in use. This represents 51.9% of all stillbirths reported in 2003. A similar proportion of stillbirths remain unexplained using registration data from the ONS.¹⁵ Cause-specific stillbirth rates can be found in the Appendix.

3.2 Neonatal deaths

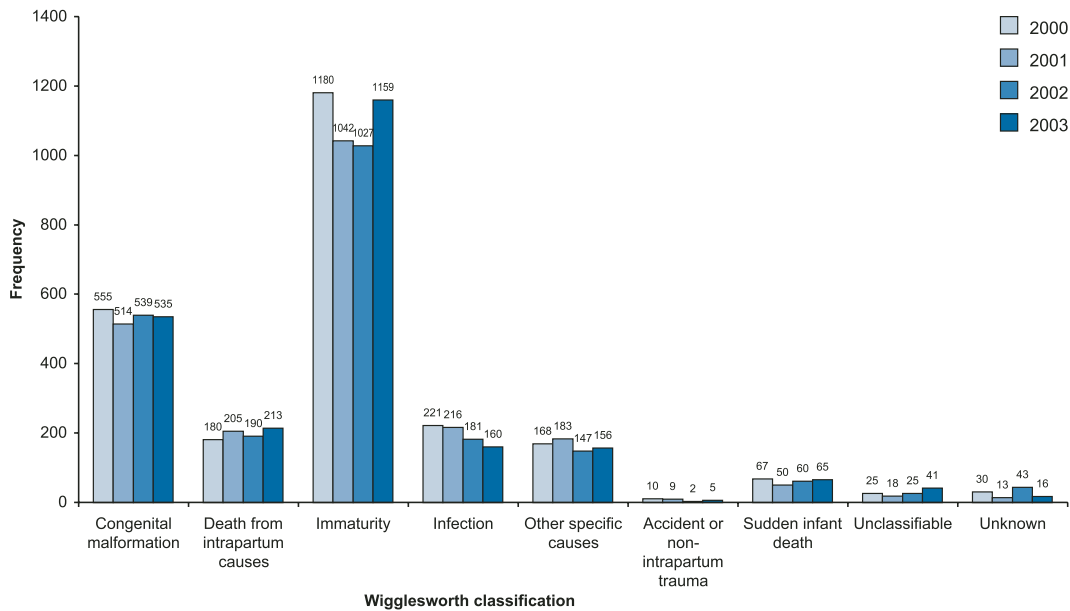


Figure 2: Neonatal deaths in England, Wales and Northern Ireland 2000–2003, by Wigglesworth classification. (Sources: RRF 2000, 2001, 2002, 2003; CEMACH death notification 2004)

As in previous CESDI reports,²⁻⁹ the largest proportion of neonatal deaths classified according to the Extended Wigglesworth classification were deaths due to immaturity, representing 49.7% of all reported neonatal deaths in 2003 (Figure 2). This is followed by deaths classified as congenital malformations (22.9% in 2003) and deaths from intrapartum causes (9.1% in 2003).

Cause-specific neonatal mortality rates can be found in the Appendix.

3.3 Post-neonatal deaths

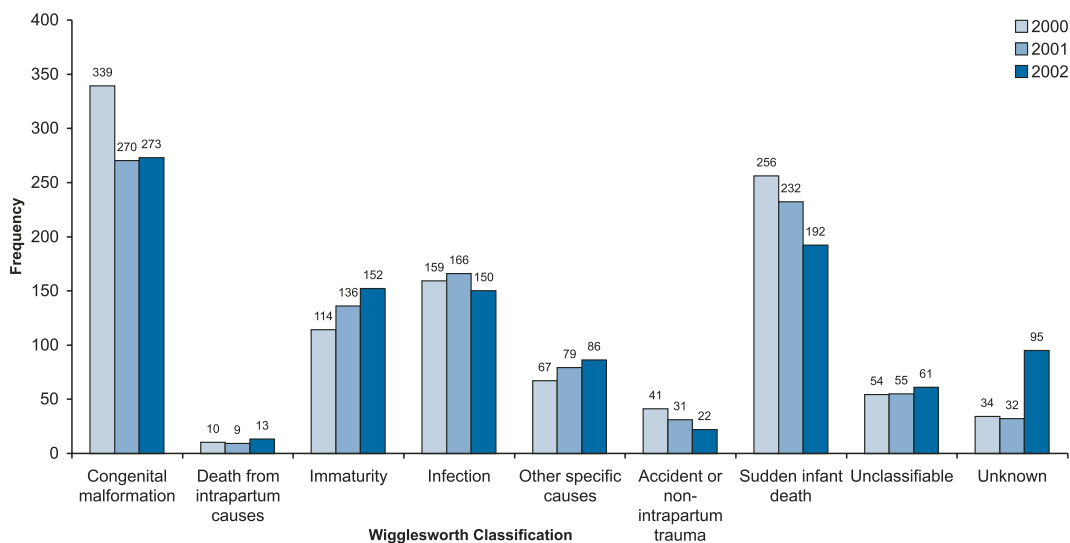


Figure 3: Post-neonatal deaths in England, Wales and Northern Ireland 2000–2002, by Wigglesworth classification. (Sources: RRF 2000, 2001, 2002, 2003)

Figure 3 shows the number of post-neonatal deaths, grouped by Wigglesworth classification, for 2000–2002. CEMACH stopped collecting information on post-neonatal deaths in 2004. Information on post-neonatal death rates from 2003 onwards can be found via the ONS.¹⁰

The largest proportion of post-neonatal deaths is ascribed to congenital malformation (29.7% across the 3-year period), followed by sudden infant death (22.9%) and infection (16.0%).

3.4 Intrapartum related mortality rates

Table 3: Intrapartum related deaths (≥ 1 kg), 2000–2003

Year	Intrapartum related deaths (≥ 1 kg)		Live births + stillbirths (≥ 1 kg)
	Frequency	Rate ^a [95% CI]	
2000	345	0.55 [0.50, 0.61]	624730
2001	354	0.58 [0.52, 0.64]	615399
2002	326	0.53 [0.47, 0.59]	616201
2003	382	0.60 [0.54, 0.66]	640051*

^a Rate per 1000 live births and stillbirths (≥ 1 kg)

* Includes births at all weights for Northern Ireland

Sources: RRF 2000, 2001, 2002, 2003
CEMACH death notification 2004
ONS 2000, 2001, 2002, 2003
Northern Ireland GRO 2000, 2001, 2002, 2003

An intrapartum-related death refers to category three of the Extended Wigglesworth classification, and is defined as ‘any baby who would have survived but for some catastrophe occurring during labour’. Table 3 shows the number and rate of intrapartum-related deaths for babies weighing 1 kg and above in England, Wales and Northern Ireland for 2000–2003. Previous CESDI reports showed a sustained decrease in intrapartum-related mortality from 1993 to 1999. No further decrease is seen in this 4-year period, with rates fluctuating between 0.53 and 0.60 per 1000 live births and stillbirths.

3.5 Variation in mortality by CEMACH region

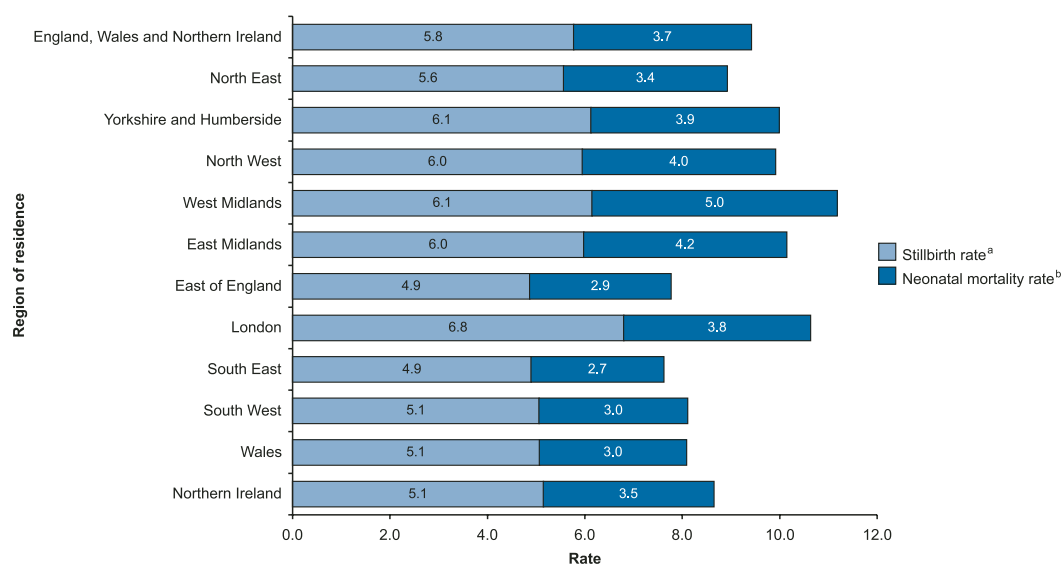


Figure 4: Stillbirth and neonatal mortality rates by CEMACH region of residence of mother 2003; ^a per 1000 live births and stillbirths; ^b per 1000 live births. (Sources: RRF 2003; CEMACH death notification 2004; ONS 2003; Northern Ireland GRO 2003)

Stillbirth rates and neonatal mortality rates by maternal region of residence of mother in 2003 are shown in Figure 4. CEMACH regions are coterminous with the government offices for the regions as of 1 March 2003, plus Wales and Northern Ireland. It must be emphasised that these crude mortality rates should not be interpreted as direct indicators of standards of care. There are other factors that can influence outcomes.

3.6 Variation in mortality by hospital trust

Stillbirth rate and neonatal mortality rate for hospital trusts within England, Wales and Northern Ireland are presented in Figures 5 and 6. Figures are based on trusts with five or more ‘events’, stillbirth or neonatal death depending on the figure, occurring within the trust, taking no account of intended or actual place of delivery. These funnel plots display the individual trust mortality rates by number of live births, the national mortality rate and associated 95% confidence intervals, by size of trust. These graphs are useful in giving an indication of the variation in mortality rates in trusts throughout England, Wales and Northern Ireland, although care should be taken in their interpretation. The graphs do not take into account the case mix of the population served by a particular trust, nor do they take into account the transfer of mothers and babies between hospitals due to medical or other reasons.

CEMACH intends to build up its knowledge of patterns of variability in mortality rates in individual units throughout England, Wales and Northern Ireland, to enable more sophisticated analyses of stillbirth and neonatal mortality rates to be presented in future reports.

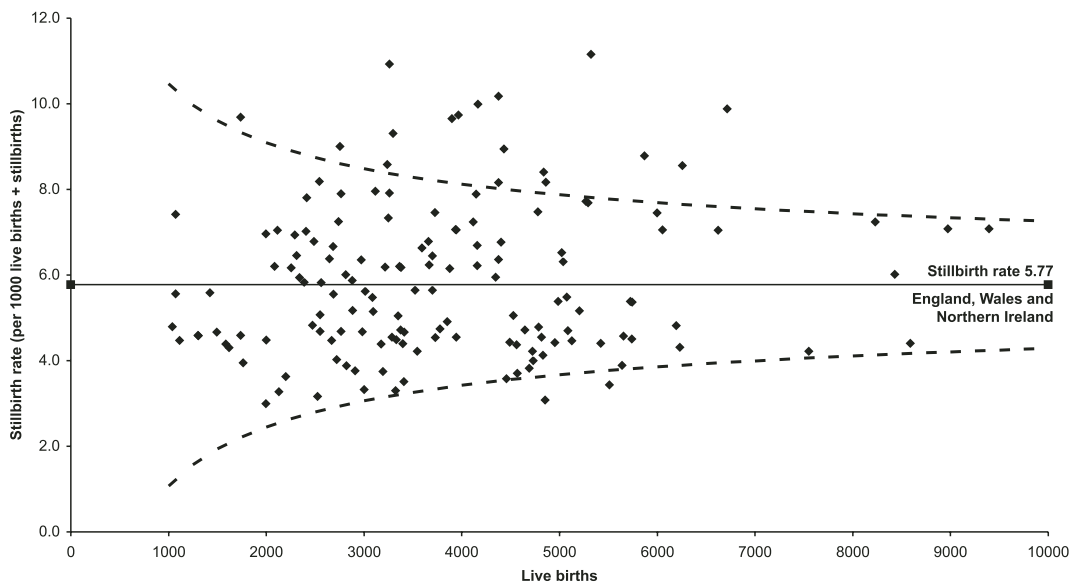


Figure 5: Stillbirth rate in NHS trusts, England, Wales, Northern Ireland, 2000–2003, - - - 95% CI

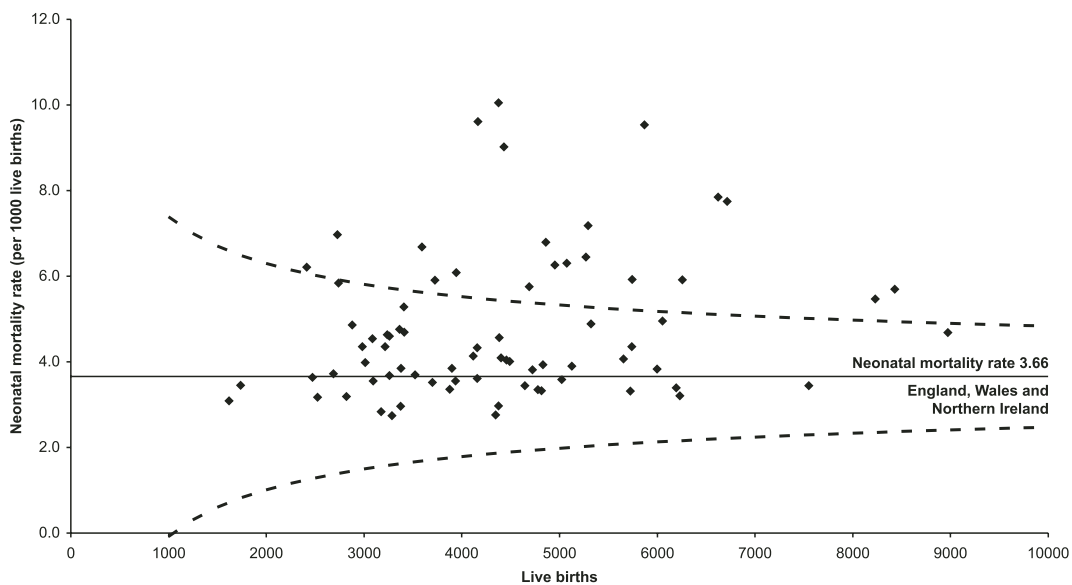


Figure 6: Neonatal mortality rate in NHS trusts, England, Wales and Northern Ireland 2000–2003, - - - 95% CI

4 Rate of postmortem examination

Table 4: Postmortem rates in England, Wales and Northern Ireland, 2000–2003

Year	Cases where a post mortem was performed				
	Frequency (%)				
	Late fetal loss	Stillbirth	Neonatal death	Post-neonatal death	All deaths
2000	1484 (55.6)	1782 (52.9)	816 (33.5)	540 (50.3)	4622 (48.4)
2001	1208 (46.3)	1577 (47.5)	634 (28.2)	479 (47.5)	3898 (42.4)
2002	1237 (46.3)	1548 (43.7)	627 (28.3)	428 (41.0)	3840 (40.5)
2003	1235 (44.6)	1583 (42.4)	632 (26.9)	–	3450 (39.0)

Sources: RRF 2000, 2001, 2002, 2003
CEMACH death notification 2004

The number and rate of postmortem examinations for late fetal losses, stillbirths, neonatal and post-neonatal deaths are shown in Table 4. The overall rate of postmortem examination for England, Wales and Northern Ireland fell from 48.4% to 39.0% across the 4-year period. The decrease is replicated in all case definitions, with the largest decline in postmortem examinations in late fetal losses.

Over the 4 years, the reasons given for a postmortem examination not being performed were: offered, but consent not given, 60.9% (decreasing from 64.5% to 57.2% from 2000–2002 but increasing again in 2003 to 61.4%); not requested, 38.3% (increasing from 34.7% to 41.9% from 2000–2002 but decreasing to 37.9% in 2003); and parental consent given but no autopsy performed, 0.8%.

This reported decline in postmortem examinations can in part be explained by an increase in partial examinations. Currently, the CEMACH PDN form does not collect information on partial postmortem examinations. This issue is being addressed for the next revision of the PDN form in 2006.

References

1. Confidential Enquiry into Maternal and Child Health. Stillbirth, neonatal and post-neonatal mortality, 2000–2002, England, Wales and Northern Ireland. September 2004 [www.cemach.org.uk/publications.htm].
2. Confidential Enquiry into Stillbirths and Deaths in Infancy. *Annual Report March 1992 – July 1993*. London: Department of Health; 1993 [www.cemach.org.uk/publications.htm].
3. Confidential Enquiry into Stillbirths and Deaths in Infancy. *Annual Report 1 January – 31 December 1993*. London: Maternal and Child Health Research Consortium; 1995 [www.cemach.org.uk/publications.htm].
4. Confidential Enquiry into Stillbirths and Deaths in Infancy. *3rd Annual Report 1 January – 31 December 1994*. London: Maternal and Child Health Research Consortium; 1996 [www.cemach.org.uk/publications.htm].
5. Confidential Enquiry into Stillbirths and Deaths in Infancy. *4th Annual Report 1 January – 31 December 1995 concentrating on intrapartum related deaths 1994–95*. London: Maternal and Child Health Research Consortium; 1997 [www.cemach.org.uk/publications.htm].
6. Confidential Enquiry into Stillbirths and Deaths in Infancy. *5th Annual Report Focusing on Second Pass Panels, Sudden Unexpected Deaths in Infancy – The Explained Group, Antepartum Term Stillbirths, Focus Group – Place of Delivery, Focus Group – Ruptured Uterus, Focus Group – Shoulder Dystocia*. London: Maternal and Child Health Research Consortium; 1995 [www.cemach.org.uk/publications.htm].
7. Confidential Enquiry into Stillbirths and Deaths in Infancy. *6th Annual Report Focusing on The ‘1 in 10’ Enquiries 1996–97, The ‘4 kg and over’ Enquiries 1997, Perinatal Pathology, Record Keeping and Developing the Enquiries*. London: Maternal and Child Health Research Consortium; 1999 [www.cemach.org.uk/publications.htm].
8. Confidential Enquiry into Stillbirths and Deaths in Infancy. *7th Annual Report Focusing on Breech Presentation at Onset of Labour, Obstetric Anaesthesia – Delays and Complications, Cardiotocograph Education Survey and Sudden Unexpected Deaths in Infancy – Pathology*. London: Maternal and Child Health Research Consortium; 2000 [www.cemach.org.uk/publications.htm].
9. Confidential Enquiry into Stillbirths and Deaths in Infancy. *8th Annual Report Focusing on Stillbirths, European Comparisons of Perinatal Care, Paediatric Postmortem Issues, Survival Rates of Premature Babies*. Project 27/28. London: Maternal and Child Health Research Consortium; 2001 [www.cemach.org.uk/publications.htm].
10. National Statistics. Mortality statistics: childhood, infant and perinatal, series DH3 [www.statistics.gov.uk].
11. General Register Office (Northern Ireland) Annual report of the Registrar General [www.groni.gov.uk/index.htm].
12. Royal College of Obstetricians and Gynaecologists. *Registration of stillbirths and certification of pregnancy losses before 24 weeks of gestation*. Good Practice No.4. London: RCOG; 2004.
13. National Statistics. Infant and perinatal mortality 2002: health areas, England and Wales. *Health Statistics Quarterly* 2003;(19):70–3 [www.statistics.gov.uk/downloads/theme_health/HSQ19.pdf].
14. Petterson B, Blair E, Watson L, Stanley F. Adverse outcome after multiple pregnancy. *Baillere’s Clin Obstet Gynaecol* 1998;12(1):1–17.
15. Office for National Statistics. Investigation into the increase in stillbirth rate in 2002 in England and Wales. October 2004 [www.statistics.gov.uk/downloads/theme_population/stillbirths_2002_E-W.pdf].

Appendix

Table A: Cause-specific stillbirth rates by year of birth, England, Wales and Northern Ireland, 2000–2003

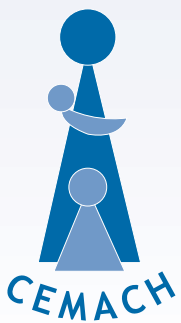
Cause	2000		2001		2002		2003	
	Freq.	Rate	Freq.	Rate	Freq.	Rate	Freq.	Rate
Congenital malformation	534	0.85	516	0.83	548	0.88	564	0.87
Unexplained antepartum fetal death	2327	3.70	2332	3.76	2516	4.05	2624	4.06
Death from intrapartum causes	237	0.38	229	0.37	239	0.38	283	0.44
Infection	76	0.12	70	0.11	71	0.11	76	0.12
Other specific causes	146	0.23	151	0.24	141	0.23	138	0.21
Accident or non-intrapartum causes	5	0.01	7	0.01	0	–	3	–
Unclassifiable	21	0.03	13	0.02	11	0.02	26	0.04
Unknown	20	–	2	–	16	–	16	–

^aRate per 1000 live births + stillbirths; Freq. = frequency

Table B: Cause-specific neonatal mortality rates by year of birth, England, Wales and Northern Ireland, 2000–2003

Cause	2000		2001		2002		2003	
	Freq.	Rate	Freq.	Rate	Freq.	Rate	Freq.	Rate
Congenital malformation	555	0.89	514	0.83	539	0.87	535	0.83
Death from intrapartum causes	180	0.29	205	0.33	190	0.31	213	0.33
Immaturity	1180	1.89	1042	1.69	1027	1.66	1159	1.80
Infection	221	0.35	216	0.35	181	0.29	160	0.25
Other specific causes	168	0.27	183	0.30	147	0.24	156	0.24
Accident or non-intrapartum causes	10	0.02	9	0.01	2	–	5	–
Sudden infant death	67	0.11	50	0.08	60	0.10	65	0.10
Unclassifiable	25	0.04	18	0.03	25	0.04	41	0.06
Unknown	30	–	13	–	43	–	16	–

^aRate per 1000 live births; Freq. = frequency



CEMACH, Chiltern Court, 188 Baker Street, London NW1 5SD
Tel: 020 7486 1191; fax: 020 7486 6543; email: info@cemach.org.uk
Website: www.cemach.org.uk