Safe Births: Everybody's business

INDEPENDENT INQUIRY INTO THE SAFETY OF MATERNITY SERVICES IN ENGLAND

The panel comprised:

- Professor Onora O'Neill (Chair)
- Dr Jocelyn Cornwell
- Professor Alastair Thompson
- Professor Charles Vincent

The panel was supported by three professional advisers and a part-time secretary:

- Professor Alison Macfarlane
- Professor Lesley Page
- Ms Zoe Penn
- Laura Daniels (Secretary)

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King's Fund

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List of acronyms

BAPM	British Association of Perinatal Medicine
CEMACH	Confidential Enquiry into Maternal and Child Health
CESDI	Confidential Enquiry into Stillbirths and Deaths in Infancy
CGST	Clinical Governance Support Team
CNST	Clinical Negligence Scheme for Trusts
CPD	continuing professional development
CTG	cardiotocograph
FMAIT	fetomaternal alloimmune thrombocytopenia
HCC	Healthcare Commission
HES	Hospital Episode Statistics
HIE	hypoxic ischaemic encephalopathy
IHI	Institute for Healthcare Improvement
ITU	intensive therapy unit
MHRA	Medicines and Healthcare products Regulatory Agency
MOSES	multidisciplinary obstetric simulated emergency scenarios
MRSA	methicillin resistant *Staphylococcus aureus*
MSW	maternity support worker
NED	non-executive director
NHS LA	NHS Litigation Authority
NICE	National Institute for Health and Clinical Excellence
NMC	Nursing and Midwifery Council
NPSA	National Patient Safety Agency
NPfIT	National Programme for IT
NRLS	National Reporting and Learning System
ONS	Office for National Statistics
PbR	Payment by Results
PCT	primary care trust

PEARLS	Perineal Assessment and Repair Longitudinal Study
PMETB	Postgraduate Medical Education and Training Board
PPH	post partum haemorrhage
RCGP	Royal College of General Practitioners
RCM	Royal College of Midwives
RCN	Royal College of Nursing
RCOG	Royal College of Obstetricians and Gynaecologists
SBAR	situation, background, assessment and recommendation
SHA	strategic health authority
SUI	serious untoward incident
UKOSS	UK Obstetric Surveillance System

About the panel

Onora O'Neill writes on ethics and political philosophy, with particular interests in questions of international justice, in the philosophy of Immanuel Kant and in bioethics. She is currently working on questions of trust and accountability in public life; the ethics of communication (including media ethics); and conceptions of informed consent, especially in medical practice and research on human subjects. She is President of the British Academy, chairs the Nuffield Foundation and is Professor of Philosophy in Cambridge. She been a member of and chaired the Nuffield Council on Bioethics and the Human Genetics Advisory Commission and was closely involved in work on a number of reports on bio-medical issues. She was created a life peer in 1999, sits as a crossbencher, and has served on the House of Lords Select Committees on Stem Cell Research and BBC Charter Review.

Jocelyn Cornwell originally trained as a sociologist and ethnographer in Cambridge and London. After periods in academic research and NHS general management, she joined the Audit Commission's health studies directorate, where she directed national value-for-money studies. In 1999, she was seconded to the Department of Health to lead the creation of the Commission for Health Improvement (CHI), the predecessor of the Healthcare Commission. Jocelyn subsequently joined CHI as Director of Policy and Development and Deputy, then Acting, Chief Executive. She currently works as an independent health care consultant and director of the Point of Care programme at the King's Fund. She is a Visiting Fellow in Health and Social Care at the London School of Economics (LSE), Chairman of Connect UK and a trustee of the Mental Health Foundation.

Alastair Thompson graduated in 1984 from the University of Edinburgh and trained as a surgeon and clinical scientist in Scotland before joining the University of Dundee in 1996 as Senior Lecturer, Reader and, since 2002, Professor of Surgical Oncology. He is committed to linking advances in laboratory science to improvements in clinical care and to auditing the performance of surgical teams and cancer services. His principal clinical practice is in helping women with breast cancer, and he is also committed to high-quality undergraduate and postgraduate training, translational research, clinical trials and service development.

Charles Vincent originally trained as a clinical psychologist. He was later appointed to a joint lectureship in psychology at University College London (UCL) and St Mary's Hospital Medical School, and to Professor of Psychology at UCL in 2000. Since 1985 he has carried out research on the causes of harm to patients, the consequences for patients and staff, and methods of prevention. He established the Clinical Risk Unit at University College in 1995 and now directs the Clinical Safety Research Unit based in the Department of Surgical Oncology and Technology, Imperial College London and the National Institute of Health Research Centre for Patient Safety and Service Quality. He is the editor of *Clinical Risk Management*, author of *Patient Safety* (2006) and author of many papers on risk, safety and medical error. From 1999 to 2003 he was a Commissioner on the UK Commission for

Health Improvement. He currently advises the UK National Patient Safety Agency, the WHO World Alliance for Patient Safety.

Alison Macfarlane worked as a statistician in agricultural research, transportation studies, the health effects of air pollution and child health until she joined the newly established National Perinatal Epidemiology Unit in 1978. She remained there until 2001, when she was appointed Professor of Perinatal Health in City University Department of Midwifery. Her research has focused particularly on settings for birth, health inequalities and multiple births. She specialises in analyses of routine data and is co-author with Miranda Mugford of *Birth Counts: Statistics of pregnancy and childbirth* and with Rona Campbell of *Where to be Born: the debate and the evidence*. She has served on a number of specialist committees. Most recently she has been a member of the Statistical Expert Group of the Bristol Royal Infirmary Inquiry, a statistical adviser to the House of Commons Health Committee, Maternity Sub-committee and to the CEMACH Confidential Enquiry into Maternal Deaths and a member of the Bradford and District Infant Mortality Commission.

Lesley Page is Visiting Professor in Midwifery at the Nightingale School of Nursing and Midwifery, King's College London. Lesley has had extensive experience in midwifery practice, management and leadership and academic work in the United Kingdom and Canada. She is widely published and has lectured in many parts of the world. She was a member of the Expert Maternity Group that wrote *Changing Childbirth* in 1993 and was specialist adviser to the House of Commons Sub-committee investigating the maternity services in 2003. Her research over many years has focused on the effects of continuity of carer on the outcomes of birth and the use of evidence in practice.

Zoe Penn trained and qualified in London in 1983 and is now a consultant obstetrician at the Chelsea and Westminster Hospital and Clinical Director for Women's and Children's Services. Her main interests are labour ward care and management of high-risk pregnancies, especially maternal medical conditions, including bowel disorders and HIV. She is a member of the editorial board and ethics committee of the *British Journal of Obstetrics and Gynaecology*. She is committed to making clinical governance work to improve safety and satisfaction in pregnancy and childbirth for women and their families.

Laura Daniels joined the maternity inquiry from the Prime Minister's Strategy Unit, where she worked as a policy analyst for the health team, focusing on system reform and competition in the NHS. Before that she worked for four years for the Health Select Committee, supporting inquiries across a broad range of health policy areas, including PCT reform, sexual health, foundation trusts and the National Institute for Clinical Excellence. Laura has also worked as a health policy analyst for the BBC and the Commission for Health Improvement.

Acknowledgements

The inquiry is indebted to the many professionals working in and with maternity services, and in national organisations connected with maternity services, who gave generously of their time and knowledge through providing written submissions and coming to meet with the panel. The inquiry would particularly like to thank the six maternity units that the panel visited.

More detail about those who gave evidence to the inquiry is contained at Appendix 2.

The inquiry would also like to acknowledge the useful insights and comments of those who reviewed the report. They are: Leroy Edozien, Mary Elford, Muir Gray, Naren Patel, Pat O'Connor and Michael West.

We are also grateful to Michael West and colleagues for allowing us to quote extensively from their work on teamwork in Chapter 3.

Finally, the panelists would like to thank their expert advisers for support and detailed advice throughout the inquiry's process, the staff of the King's Fund for constant availability and support, particularly Anna Dixon and Alex Smith, and above all the indefatigable and expert secretary to the inquiry, Laura Daniels.

Note to readers

The Inquiry draws on a number of sources of evidence, which are cited and referenced throughout the report.

Written evidence was received from organisations and individual experts in the field of maternity and safety. The formal written submissions from organisations are available on the website (where permission to do so was granted), and a full list of those who submitted evidence can be found in Appendix 2.

The panel also met with representatives of organisations and individual experts to take *oral evidence*. These discussions were recorded and transcribed for use by the panel only. Some direct quotations from the oral evidence are included in the report but are not attributed to individuals.

The panel received more than 500 responses to an open call for evidence from individual professionals working in maternity services. The analysis of *professional evidence* is published separately (Smith and Dixon 2008). The panel also commissioned research to understand women's views. The analysis of these interviews is published separately (Magee and Askham 2008). Quotes from the professional evidence and the research with women are cited in the report.

Summary

This report presents the conclusions and recommendations of a small independent panel set up by the King's Fund in 2007 to inquire into the safety of NHS maternity services in England.

The panel members, selected for their expertise in areas related to health and patient safety, concentrated primarily on the safety of mothers and babies during birth.

They based their findings on oral and written submissions from a broad range of relevant organisations and individuals and on visits to selected maternity units in England, as well as on the wider literature on safety and on safety in maternity services.

Their overall conclusions are as follows:

- the overwhelming majority of births in England are safe
- however, some births are less safe than they could and should be
- safety is the responsibility of each and every member of all the teams working in and supporting maternity services – not only of midwives and obstetricians, but also of anaesthetists, support staff, managers and trust boards
- 'safe teams' are the key to improving the safety of maternity services.

The key findings and recommendations for each chapter are outlined below.

1. How safe are maternity services?

Discussion of safety issues tends to focus on risk and harm and the ways in which things go wrong. However, it is important to think about the causes of success as well as about those of failure. Discussion should also focus on the positive actions that create and maintain a system that achieves maximum reliability and resilience.

There is much on which to build. The maternity services have a strong tradition of championing safety, of pioneering quality initiatives (such as the drives for woman- or family-centred and evidence-based care) and of using women's views to inform service planning.

CONCLUSIONS

- Giving birth in England in 2008 is likely to be safe for the overwhelming majority of women and babies.
  - The stillbirth rate of 5.4 per 1,000 total births has remained virtually unchanged since the mid-1990s, despite a reduction in the threshold for registering stillbirths from 28 to 24 weeks' gestation in 1992.
  - Rates of infant mortality have continued to fall over the same period, from 6.1 per 1,000 live births in 1996 to 4.8 per 1,000 in 2006.

  - Maternal deaths directly attributable to problems in pregnancy or at birth have remained relatively stable at just over 6 per 100,000 maternities since the mid-1980s.
  - Nevertheless, safety 'incidents' in maternity are regularly reported. Two-thirds of these cause no harm to mothers or babies; just over a fifth cause 'low harm' and 1.5 per cent cause severe harm.
- It is not possible to say how safe it is to give birth in England, or to compare this with the safety of maternity services elsewhere. This is partly because the outcome measures used are only broad indicators of safety, partly because the data collected in different jurisdictions are not comparable, and partly because information systems do not collect enough information about adverse outcomes other than deaths.

2. Maternity services in context

There is a useful amount of evidence about the features of maternity care most relevant to safety and about ways in which these have changed in recent years.

- **Sudden transitions** Although pregnancy and birth are normal physiological processes, unexpected emergencies can develop rapidly.
- **Two lives** The fact that maternity services have to care for two or more lives (mother and baby or babies) simultaneously raises the stakes and sometimes – as with caesarean sections – may involve a conflict of interest between mother and child.
- **Duration of care** Maternity care is delivered over a long period, often in different settings and involving many professionals, ranging from midwives and obstetricians to social workers.
- **Women's experiences** The quality of the birth experience can have lasting effects on mothers, babies and families.
- **Changing demands** Some recent changes in the pregnant population have important implications for safety in maternity services.

Changes in recent years include:

- numbers of births have risen since 2002 and are projected to increase
- there are more older mothers, with higher rates of complication
- there is more fertility treatment, leading to a higher rate of multiple births
- there are more obese women, who are less fit for pregnancy
- there are more women who survive serious childhood illness and go on to have children, and who need extra care in pregnancy and childbirth
- there are rising rates of intervention in labour, in particular in rates of caesarean section
- there is increasing social and ethnic diversity, sometimes leading to communication difficulties and other social and clinical challenges in maternity care.

3. Safe maternity teams

Most maternity care is delivered by teams rather than individuals. Effective teamwork can increase patient safety; poor teamwork can jeopardise safety. The inquiry found a number of recurrent difficulties in teamwork.

PROBLEMS

- **Interprofessional relationships** Doctors and midwives sometimes have differing approaches to care, and in particular to the need for intervention in labour.
- **Difficulties with leadership and management** Maternity teams are not always clear about leadership and are not always well managed.
- **Difficulties with communication** Communication between clinicians, particularly at crunch points such as referrals between health professionals, shift changes and in emergencies, is not always effective.

SOLUTIONS

- Safe maternity teams need:
  - clarity about team objectives and roles
  - effective leadership
  - clear and agreed procedures for communication.

4. Staffing for safety

Safe maternity teams need adequate numbers of staff with the right skills. This requires effective deployment of staff as well as employment of enough skilled staff.

PROBLEMS

- **Shortage of midwives** It is widely accepted that all women should have one-to-one midwife care during labour, but often this is not available.
- **Inadequate consultant cover** Some maternity units do not achieve the recommended level of consultant cover.
- **Inexperience** Safety may be compromised if staff have insufficient experience. Changes to obstetric training as a result of the European Working Time Directive mean that specialist registrars are likely to be less experienced on completion of training than in the past.
- **Administrative overload** Midwives and doctors complain that clinical time has to be spent on administrative tasks that could be done by clerical staff.
- **Inappropriate deployment of clinical skills** Midwives are sometimes diverted to tasks that could more appropriately be done by maternity support workers, theatre support staff, nurses or cleaners.

SOLUTIONS

- Safe teams need the right staff in the right place at the right time. Without systems to ensure effective deployment of maternity teams and their members, employing more staff may not improve safety.
- Maternity units need to review demand and capacity regularly, ensure that they employ enough staff with the right mix of skills, and deploy them effectively across peak and other times and across different locations.
- National bodies, including the Department of Health, should provide simple and effective tools to help managers achieve these goals in real time.

5. Training for safety

Teams can provide safe services only if their individual members have the right skills and

training, as well as the appropriate resources, and if they practise relevant skills together as a team.

PROBLEMS

- **Poor uptake of training** Training requirements are not always met, sometimes because of difficulties in securing time off for training and in funding cover for those who would be absent.
- **Lack of specific safety training** Clinicians do not receive enough education in general safety awareness and skills.

SOLUTIONS

- Teams that work together should also train together, with regular training taking place on the labour ward rather than on 'away days' and being seen as a core activity rather than an optional extra.
- Simulation-based training, which assesses clinical, communication and team skills within a single exercise, should be offered to all maternity staff, ideally within their own units.
- Safety awareness training should be introduced into mainstream professional education.

6. Guidance on safe practice

Safe practice must be based on evidence about interventions that work, as set out in guidelines, protocols and other forms of guidance.

PROBLEMS

- **Guidelines not available** Some units do not have the recommended guidelines in place. Even where guidelines are available, they are not always used or followed.
- **Guidelines not useful** Government, professional bodies and other organisations issue too many guidelines for maternity staff. Many are repetitive and lengthy, and some are inconsistent with others.

SOLUTIONS

- A single set of evidence-based guidelines that are backed by all relevant organisations, including the National Institute for Health and Clinical Excellence (NICE), should be produced.
- Short summaries and one-page protocols should be prepared to make the guidelines usable.
- All staff should be trained to use these protocols, and their implementation should be regularly audited.

7. Information for safety

Information about clinical outcomes can be used for *summative*, retrospective purposes, such as reporting on standards; but it is more crucially used for *formative* purposes, to help maternity teams assess and improve their own work.

PROBLEMS

- **Information not useful** Information relevant to safety is regularly collected from maternity services through many different systems, but teams do not receive enough feedback to learn lessons that would help them improve their performance.
- **Time-wasting systems** Clinicians complain of multiple data-collecting systems that take up large amounts of time at the expense of time for patient care. The new IT systems being implemented and planned in many trusts do not permit integrated data collection and handling.

SOLUTIONS

- Maternity teams need manageable amounts of information about their own performance, combined with information about national performance that they can use for benchmarking purposes.
- Trust boards should ensure that maternity teams collect, use and reflect on a small set of reliable information measures that are critical to safety.
- Pending an effective national information system, simple systems for capturing information on safety should be designed, implemented and maintained locally.

8. The role of trust boards

NHS trust boards have had a statutory responsibility for the quality of health care since the 1999 Health Act, and in 2001 this remit was broadened. It now explicitly includes responsibility for patient safety. Boards discharge their responsibility for quality and safety through the health care governance (formerly clinical governance) committee, which may be chaired by a non-executive director (NED). All trusts have a board director responsible for patient safety, usually the director of nursing or the medical director.

PROBLEMS

- **Low priority for maternity** Many contributors claimed that maternity services were of low priority for trust boards. Some claimed that this was due to the absence of centrally imposed targets, which are set for other areas of health care and command board attention.
- **Poor focus on safety** Although health care is the core business of the NHS, trust boards pay relatively little attention to clinical matters, including patient safety. We note that this may be due partly to the fact that clinical members are in a minority on boards, and partly to the intense pressure on chairs and chief executives to focus on financial health and national targets.

Trust boards have a fundamental duty to safeguard the patients for whom their staff provide care. They should demand rigorous routine information on safety from maternity units and support the collection of this information. Safety information should form part of the 'balanced scorecard' of key performance indicators that should be the first agenda item at every board meeting.

SOLUTIONS

Boards should take the following steps to improve safety.

- Prioritise safety, communicate that priority to staff and patients and make data on safety publicly available.

- Educate board members about safety issues in maternity services and strengthen advocacy for maternity safety on the board.
- Have governance structures in place to assure safety, including strengthening safety committees and systems for collecting and reporting safety information.
- Improve understanding of local safety issues through regular executive 'walk-rounds' of units, including maternity units, analysis of safety indicators and detailed review of safety incidents.
- If boards are not persuaded by the ethical and clinical case for engaging in safety they should at least regard it as a business imperative. In an era of patient choice, boards need to understand the damage that safety lapses can cost them in what will be an increasingly competitive market.

9. National structures for safety

A number of national bodies are concerned with patient safety, and some with maternity safety in particular. These include the Healthcare Commission, the Confidential Enquiry into Maternal and Child Health (CEMACH), the NHS Litigation Authority (NHS LA) and the National Patient Safety Agency (NPSA).

PROBLEMS

- **Administrative overload** The large number of different national organisations with a stake in maternity safety places considerable administrative burdens on staff, without delivering commensurate safety improvements 'on the ground'.
- **Poor co-ordination** The links between these bodies are not always well understood, even by those working in them.
- **Low priority for maternity safety** Although policy attention to maternity services has increased, the focus on safety has not. The only government target for maternity is linked to choice rather than safety. Although the Healthcare Commission monitors standards on safety, none of these is specific to maternity.
- **Clinical Negligence Scheme for Trusts (CNST) standards** These standards, set and monitored by the NHS LA, have not provided trusts with sufficient incentives to improve maternity safety.
- **Poor impact of recent NHS reforms** The Payment by Results (PbR) financial reform seems unlikely to act as a lever for improving maternity safety, although patient choice and commissioning have some potential to do so.
- **Poor regional planning and support** There is a need for stronger regional leadership, particularly for contingency planning when units have to close for safety reasons, and for ensuring adequate support during reconfiguration, when units may be particularly vulnerable to safety problems.

SOLUTIONS

- Standards for the safety of maternity services should be set and monitored by just one body – the Healthcare Commission (in future the Care Quality Commission) on the advice of other relevant bodies.
- Existing standards should be distilled into a smaller number that are critical to safety.
- Strategic health authorities and others providing regional leadership for maternity services should offer special support to trusts undergoing reconfiguration.
- The Department of Health should ensure that financial incentives are aligned to promote the safest care, and develop commissioning and patient choice as drivers for improvement.

Foreword

There is a level of concern about the safety of maternity care in England – a number of reports and individual cases have pointed to shortcomings in some services and the recent comprehensive review by the Healthcare Commission underlined the variability in the quality of care in different units around the country.

Last year the King's Fund decided to launch an independent inquiry looking specifically at the issue of safety – its aim was to understand whether there were grounds for concern and what needed to be done to make services safer. We took the somewhat controversial decision to appoint members of an inquiry team from outside the maternity world but who, between them, had real expertise in marshalling evidence and argument, in how health systems work, in patient safety and in comparing clinical and safety performance. The team was ably supported by three professional advisers with extensive experience in midwifery, obstetrics and epidemiology.

The result is a report that should provide some reassurance to prospective mothers and their families, but which makes it clear that there is much to be done to make maternity care in England as safe as it could be. The fact that care is and will be safe in the overwhelming majority of cases should not be a cause for complacency – the fact that there are serious shortcomings in the way care is organised and delivered should be a call for action. In short, we could do better.

Few of the areas highlighted will come as a surprise to those on the front line of care – underlying many of them is the presence of two necessarily different approaches to childbirth, exemplified in the two principal professions responsible for delivering care. Debate and discussion within multidisciplinary teams is essential to good decision-making – but the debate can be destructive where goals are not shared and there is too little understanding or appreciation of the other's contribution. That does appear to be the case too often in maternity services, and the inquiry found there was much to be done to improve team working. There were also issues around clinical leadership, staffing levels and deployment, training, information and guidance as well as about the role of hospital boards.

The aim of this inquiry was not to create headlines but to create safer care for mothers and their babies – and so this must be the start of a process not its conclusion. At the Fund we would like to join as partners with other organisations and with maternity units who are interested in exploring and adopting these recommendations to their own circumstances in a concerted effort to improve safety standards. In the coming months we will be exploring how this can be achieved with a view to launching a programme of activities later this year.

I would also like to take this opportunity to thank Professor O'Neill and the rest of her team for their hard work in producing a thoughtful and balanced report, which has the potential to improve the safety of maternity care in England. Above all, we hope this will be a useful document for everyone committed to bringing about safer care for mothers and their babies.

Niall Dickson
Chief Executive
King's Fund

Introduction

The inquiry

At the end of 2006, the King's Fund set up a small panel to inquire into the safety of maternity services in England. This inquiry was intended to be independent of the institutions and professions that are directly responsible for maternity services, and to make practical recommendations.

The panel members, although independent of maternity services, were appointed for the knowledge they brought to the subject from other areas, including patient safety in particular and health service improvement and regulation in general. This choice of members provides a different perspective from that of other projects in this area, which have been conducted by people more closely connected to maternity services and the NHS. These projects are listed in Appendix 1.

This recent increased interest and investment in safety in maternity services is very welcome and suggests there is significant national momentum to drive forward improvements. Rather than duplicating or overlapping with existing work, we have aimed to use our more distanced perspective to add value in a different dimension. So instead of conducting original research, we have considered the informed views of those who responded to our calls for evidence, as well as some of the wider literature relevant to safety in maternity services. We have tried to place their submissions in the wider context of safety and policy in general and to use it as a basis for making practical recommendations for change.

We framed our call for evidence in broad terms, and the responses we received covered a correspondingly broad range of issues, linked to safety in various ways. We have not been able to consider every issue raised in detail, nor to provide definitive answers to all the questions posed. Instead, we have adopted a more streamlined approach, focusing our report and recommendations on seven key areas that appear most crucial to improving patient safety in maternity services at this time. However, we hope that the rich variety of the responses we received, which are published alongside this report, will prove a useful resource for others with an interest in this area.

We are enormously grateful to everyone who took the time and trouble to respond to our questions, discuss their work, tell us about steps they had taken to improve safety and help us form a view on some difficult issues. Our discussions over the past year have been lengthy and involved, and we are grateful to our advisers for their constant availability for 'reality checks' and also to our expert peer reviewers. Full details of how the inquiry was organised and the responses on which this report is based are included in Appendix 2.

A positive approach to safety

This report is focused specifically on the *safety* of maternity services rather than their quality or efficiency, although both may be closely linked to safety. We have concentrated primarily on the safety of mothers and their babies during the intrapartum (delivery) period; we have restricted our remit to NHS maternity services; we have also been limited by the charitable remit of the King's Fund to maternity services in England rather than in the United Kingdom as a whole.

In many ways maternity services are similar to other areas of health care and, indeed, to other enterprises unconnected with health. However, as newcomers to this specific area, we were struck by certain issues that are unique to maternity services and that add to the challenge of delivering these services safely. Maternity care can range from looking after women going through a natural process with little medical intervention, through to 'high-tech' emergency care more akin to the services provided by an accident and emergency department or intensive care unit, when complications arise. This and other issues are described more fully in the next chapter, which sets maternity services within a broad context of patient safety in general.

Nowhere have the negative aspects of patient safety been emphasised more than in the maternity services, which have been subjected to numerous reviews in recent years. The problems highlighted by these reviews have led to a great deal of discussion by the media, not all of it well informed.

Safety however, has another face, which is best described as an aspiration. To review the safety of maternity services as we came to understand is less a matter of dwelling on (recording, investigating, analysing) failure that has occurred and more a matter of striving to create and maintain a system that is geared to success. Safety is as much a matter of understanding how success is achieved as of understanding why failure happened.

Safer care, according to Michael West, is most likely to flourish in

> *... a climate that encourages co-operation, innovation and excellence. In particular, this is a climate characterised by optimism, confidence and celebration of success. Too many NHS environments are characterised by pessimism, cynicism, anxiety and fear of failure.*
> (Written evidence, unpublished)

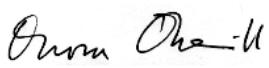
This view was endorsed by many of the maternity professionals contributing to this inquiry, who pointed out that successes were never investigated or celebrated. In fact, by comparison with many activities, childbirth is low risk and the overwhelming majority of births in England in 2008 will be safe ones. The fact that maternal and perinatal death rates remain low should also be celebrated, as this has been achieved in the face of a number of important demographic and clinical pressures.

However, there is no room for complacency because care can always be safer, and continuing safety requires constant work; it is only achieved by reflection, adaptation to change and ceaseless vigilance. Past achievements never guarantee future safety, particularly in the face of new challenges and demands. Safety must therefore always be under review: indeed this is one of the markers of a safe system.

Our central conclusion, expressed in the title of this report, is that safety is everybody's business. It is the responsibility of each and every member of the maternity team – not just of midwives, doctors and maternity support workers but also of housekeepers, security staff, porters and ward clerks. It is also the responsibility of wider management teams, trust boards and a range of NHS bodies and policy-makers.

We have tried to make our recommendations as practical as possible, with suggestions for new tools to support safety, ideas for sharing best practice and an overview of some of the components needed to build and support safe maternity teams.

If this report is to be effective, action is needed to take these recommendations forward. We are delighted that the King's Fund is committed to supporting initial action to aid implementation. We recognise that where safety is concerned there are no quick fixes, and our seven main recommendations call for quite complex changes in team working. But there are immediate steps that can be taken – safety is everybody's business now!



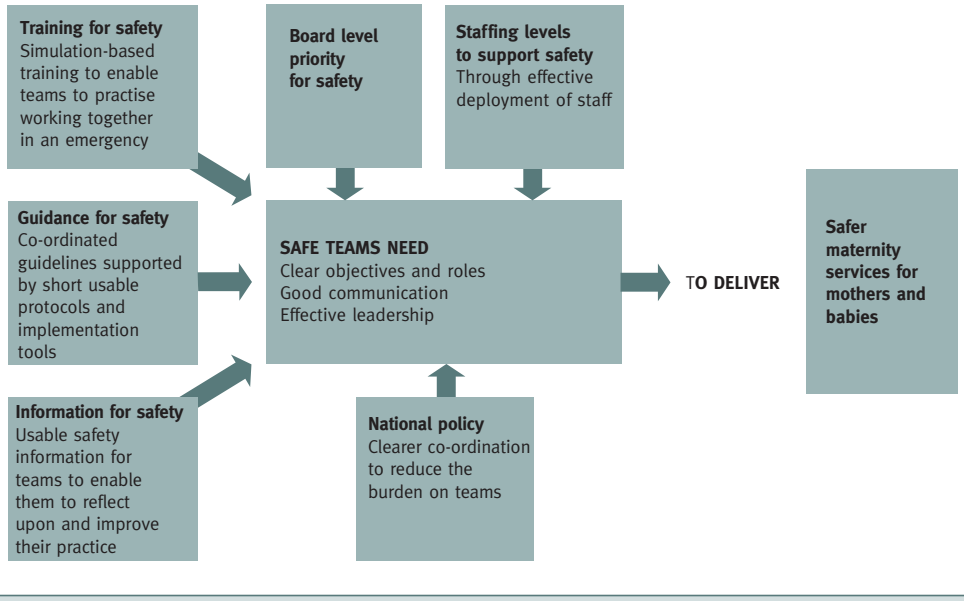
Onora O'Neill
Chair
Maternity Services Inquiry

BUILDING AND SUPPORTING A SAFE MATERNITY TEAM: A SUMMARY BASED ON THE RECOMMENDATIONS OF THIS REPORT

Safe maternity care calls for teamwork, and teamwork means working effectively with your colleagues in any situation, whether you know them personally or not.

- Safe teams need shared *objectives:* what is your team trying to achieve?
- Safe teams need good *communication:* how well does your team communicate?
- Safe teams need effective *leadership:* are your leaders focused on safety?
- Safe teams need to be *adequately staffed* to allow for one-to-one care in labour: do the teams at your trust achieve this?
- Safe teams need regular *team training* to support safer services: does your team train together?
- Safe teams need the right g*uidelines:* do your guidelines support safety?
- Safe teams need *information:* does your team receive information you can use to make deliveries safer?
- Safe teams need *trust boards* that prioritise safety: does yours?

1 RECOMMENDATIONS TO SUPPORT TEAMS IN DELIVERING SAFE CARE



1 Patient safety and the maternity services

Defining patient safety

Patient safety can be defined, at its simplest, as 'the avoidance, prevention and amelioration of adverse outcomes or injuries stemming from the process of health care' (Vincent 2007).

SOME KEY TERMS DEFINED

Patient safety Freedom from unnecessary or potential harm associated with health care

Patient safety incident An event or circumstance which could have resulted, or did result, in unnecessary harm to a patient

Harm Impairment of any structure or function of the body and/or any deleterious effect arising from that impairment. Harm includes disease, injury, suffering, disability and death, and may be physical, social or psychological

Error Either failure to carry out a planned action as intended (error of omission) *or* application of an incorrect plan (error of *co*mmission)

Risk The probability that a [safety] incident will occur

Adverse event A [safety] incident resulting in harm to a patient

Near miss A patient safety incident that did *not* cause harm

Patient outcome Impact on a patient that is wholly or partly attributable to an incident

Source: Project to Develop the International Classification for Patient Safety (WHO 2007)

Safety is achieved partly through the dedication and vigilance of individual clinicians, mothers and families, and partly by robust processes and systems of care.

Much of the vocabulary currently used to discuss patient safety is negative, focused on risk and harm. But safety means much more than simply trying to avoid damage: high reliability is a goal that must be actively pursued as an essential component of high-quality, safe care.

Nowhere have the negative aspects of patient safety been more emphasised than in the maternity services, which in recent years have been subject to increasingly frequent reviews by professional and regulatory bodies, often accompanied by media commentary. Some of these reviews have been stimulated by individual tragedies and others by more general concerns about the safety of processes, structures and the care environment.

However, in our view safety is better characterised as taking positive actions to create a system that achieves maximum reliability and resilience; it is therefore as important to understand the reasons for success as to analyse the causes of failure.

Safe care in maternity services should mean the reliable reduction of risk of harm to both mother and baby during pregnancy, childbirth and the postpartum period. Harm may arise either from failure to intervene appropriately or from unnecessary intervention. Safety in maternity also rests on a broader concern with patient safety in general, together with an understanding of health care systems and processes.

An expanded definition of patient safety is given by the United States National Patient Safety Foundation (*see* box below).

CHARACTERISTICS OF PATIENT SAFETY

Patient safety is concerned primarily with the avoidance, prevention and amelioration of adverse outcomes or injuries stemming from health care itself. It should address events that span the continuum from 'errors' and 'deviations' to accidents.

Safety emerges from the interaction of the components of the system. It is more than the absence of adverse outcomes and it is more than avoidance of identifiable 'preventable' errors or occurrences. Safety does not reside in a person, device or department. Improving safety depends on learning how safety emerges from the interaction of components.

Patient safety is related to 'quality of care', but the two concepts are not synonymous. Safety is an important subset of quality. To date, activities to manage quality have not focused sufficiently on patient safety issues.

Source: Vincent 2006b

Safety in health care is frequently linked with quality, and there is some confusion about the relationship between the two. Safety is the most critical component of quality of care, a broader concept that also encompasses effectiveness, patient focus, timeliness, efficiency and equity (Institute of Medicine 2000). Care can be of poor quality and still be safe, but unsafe care can never be considered of good quality. In practice, patient safety initiatives in health care organisations are often not integrated with broader quality programmes, leading to a confused and diffuse strategy for improved service provision.

The evolution of patient safety

Recent studies from various countries suggest that 8–12 per cent of all patients admitted to hospital suffer some kind of adverse outcome due to unsafe care; about half of these outcomes are preventable. In England, this means that each year as many as 1 million people treated by the acute services alone may be harmed by unsafe care, although the degree of harm in most cases may be slight or temporary (Vincent 2006b).

The financial costs of adverse events, in terms of additional treatment and days in hospital, are vastly greater than the costs of litigation. In Britain the cost of preventable adverse events is £1 billion per annum in lost bed days alone. The wider costs of lost working time, disability benefits and other economic consequences are greater still. There is also an enormous human cost.

- Many patients suffer increased pain, disability and psychological trauma and may regard failures in their treatment as a terrible betrayal of trust.
- Staff may experience shame, guilt and depression after making a mistake, especially if they face complaints, inquiries or litigation.
- Doctors and nurses whose confidence has been impaired will work less effectively and efficiently; at worst they may abandon medicine as a career.

The consequences of adverse events in advanced health care systems are therefore huge. In less developed systems they may be greater still in relation to the benefits derived from the system (Vincent 2006b).

In recent years developed countries have given increased prominence to patient safety in their health systems. In the United States, the Institute of Medicine report *To Err is Human: Building a safer health system* (Institute of Medicine 2000) set out an ambitious and radical agenda for change that attracted presidential backing and a major funding programme. High-profile inquiries in several countries, including the Bristol Inquiry into paediatric cardiac surgery in the United Kingdom and the similar Winnipeg Inquiry in Canada also helped to raise public awareness of safety issues and drive policy change. The Department of Health's 2000 report *An Organisation with a Memory* led to the creation of the National Patient Safety Agency (NPSA) and a heightened focus on improving the safety and effectiveness of clinical care through clinical governance strategies (Department of Health 2000).

Approaches to safety are now progressing from the development of specific safety solutions to addressing safety improvement across whole organisations, as with the US 'Safer Patients Initiative', described in more detail in the box overleaf. Many countries now have both national and regional safety initiatives, while the World Health Organisation (WHO) hosts a World Alliance for Patient Safety, which has sponsored global campaigns on hand hygiene and safer surgery (Vincent 2006b).

SEVEN STEPS TO PATIENT SAFETY

1. Build a safety culture
2. Lead and support your staff
3. Integrate your risk management activity
4. Promote reporting
5. Involve and communicate with patients and the public
6. Learn and share safety lessons
7. Implement solutions to prevent harm

Source: NPSA 2004

THE SAFER PATIENTS INITIATIVE

The Safer Patients Initiative was devised by the US Institute for Healthcare Improvement (IHI) in Boston and has been extended to the United Kingdom by the Health Foundation. Funding was initially provided to support four acute hospital trusts in developing, using and promoting initiatives to improve patient safety with a view to achieving a 50 per cent reduction in adverse events over two years. The programme has now been extended to a further 20 trusts.

In its first two years the programme concentrates on building effective leadership to create a safety culture in the trusts. The next two years focus on refining learning in order to turn these trusts into centres of excellence for patient safety in the United Kingdom. Managers at the trusts are working with consultants from the IHI and international experts in patient safety. A collaborative learning model supports the core hospital teams through conference calls, email support and regular visits. Leadership support from IHI and Health Foundation faculty is designed to bring about positive culture change and strengthen leadership and activity in patient safety in each of the trusts. Consultants are working with the trusts in many ways, such as helping to improve communication between teams and by conducting safety 'walk rounds' with senior management.

In addition to supporting and developing leadership, each site has several teams working simultaneously on the following five priority areas:

- medicines management
- infection prevention
- intensive care risk assessment and response
- medical device management
- perioperative care.

The model of change adopted by the Safer Patient Initiative is based on asking three key questions, using Langley's Model for Improvement. The questions are:

1. What are we trying to accomplish? Are we setting aims that are time-based, measurable and define a distinct patient population?

2. How will we know if the change is an improvement? Small tests of change are performed in a rapid cycle to create a simple local measurement system that empowers local staff to change practice.

3. What changes can we make that will result in an improvement? Not all change results in improvement, and selecting those most likely to do so is a key activity.

The programme has succeeded in achieving a 50 per cent reduction in adverse events in each of the four pilot sites over two years, as identified through case note review (Haraden and Safer Patients Initiative 2006).

CEMACH REPORTS 1997–2005

Lack of communication and poor teamwork among staff were identified as problems in the CEMACH report for 1997–1999 (Lewis *et al* 2001). The assessors found that 60 per cent of direct maternal deaths were associated with some form of substandard care. Examples included:

- failure to appreciate severity of illness and consequent suboptimal treatment
- wrong diagnosis
- failure of junior staff to diagnose or refer a case to a more senior colleague
- failure of consultants to attend
- lack of policies for dealing with pulmonary embolism, eclampsia or haemorrhage
- failure of lead professionals to seek advice about conditions in which they did not specialise.

Direct maternal deaths are defined as deaths resulting from obstetric complications of the pregnant state (pregnancy, labour and puerperium) from interventions, omissions, incorrect treatment, or from a chain of events resulting from any of the above. Indirect maternal deaths are deaths resulting from previous existing disease, or disease that developed during pregnancy and that was not due to direct obstetric causes, but that was aggravated by the physiological effects of pregnancy.

In the 2000–2002 triennium, 67 per cent of direct maternal deaths were judged to be at least partly due to substandard care, with the main causes similar to those described above. New examples of substandard care included:

- failure of accident and emergency staff to recognise severe illness in pregnant women and to ask for obstetric or midwifery assessment
- lack of active follow-up of women who did not attend antenatal appointments
- failure of GPs to pass on all relevant information in referral letters or telephone calls (Lewis *et al* 2004).

The report for 2003–05 took the new title *Saving Mothers' Lives*. In this report, 64 per cent of direct deaths, were associated with substandard care, with examples including:

- poor or nonexistent team working
- inappropriate or too-short consultations by telephone
- failure to share relevant information
- poor interpersonal skills.

A key innovation of this report was its list of 'top 10' recommendations, designed to be audited. These related to preconception care, access to care, migrant women, treatment of systolic hypertension, caesarean section, clinical skills, early warning scoring systems, the need for guidelines on obese pregnant women, sepsis in pregnancy, and pain and bleeding in early pregnancy (Lewis *et al* 2007).

The tradition of safety in maternity services

The maternity services have provided the focus for a number of pioneering safety and quality initiatives since the early 20th century, which are discussed in more detail in Appendix 3. In 1952, the Confidential Enquiry into Maternal Deaths (CEMD) started to produce triennial reports, reviewing maternal deaths and recommending improvements to prevent future deaths. Similar enquiries were established in Scotland and Northern Ireland. Since 1985, joint reports have been published for the United Kingdom as a whole. In April 2003, the Confidential Enquiry into Maternal and Child Health (CEMACH) took over the work programmes of CEMD and the Confidential Enquiry into Stillbirths and Deaths in Infancy (CESDI). Its most recent report was published in December 2007 (Lewis *et al* 2007).

In addition to the Confidential Enquiries, the Healthcare Commission (HCC) for England and Wales has conducted a number of high-profile inquiries into the safety of specific maternity units (*see* box below).

HEALTHCARE COMMISSION INQUIRIES INTO MATERNITY SERVICES

The HCC has investigated maternity services at three hospitals:

- Ashford and St Peter's Hospitals NHS Trust in 2002 following the death of a baby in the maternity unit (Commission for Health Improvement 2003)
- New Cross Hospital in Wolverhampton in 2003 following four serious incidents, in which three babies died (Healthcare Commission 2004)
- Northwick Park Hospital in north-west London after the deaths of 10 women in the maternity unit over three years (Healthcare Commission 2005).

Overarching themes that emerged from all three investigations were:

- inadequate staffing levels
- lack of effective team working
- poor working relationships between different consultants and between consultants and midwives
- a culture of bullying
- poor support for staff from human resources
- lack of effective data collection for audit
- poor staff attendance at training sessions.

The maternity services also have a long history of concern with broader quality initiatives, such as the drives for patient-centred and evidence-based care. The maternity services were among the earliest to review evidence about effective care, in the 1988 publication *The Oxford Database of Perinatal Trials* (OUP 1988). This became the basis for *Effective Care in Pregnancy and Childbirth* (Chalmers *et al* 1989). The database was revised and re-published in 1992 as the *Cochrane Pregnancy and Childbirth Database*, which was the precursor of and prototype for The Cochrane Library (Starr and Chalmers 2003). The concept of patient-centred care, specifically woman-centred care, was introduced into maternity services at an early stage; indeed it formed the central message of *Changing Childbirth* (Department of Health 1993), which was published by the government in response to the House of Commons Health Committee's report on maternity services (House of Commons 1992).

Women's views on safety

The maternity services also have a strong tradition of involving women in service planning, and the past year has seen the publication of a major survey of women's views on maternity services (Redshaw *et al* 2007).

However, there has been little specific research into women's views about *safety* in maternity care, so our panel commissioned some research to explore this area. This project was small-scale and inevitably subjective so it cannot be used to answer the question 'how safe are maternity services?' It does, however, provide a consumer perspective that represents a valuable supplement to the views of professionals and organisations (Magee and Askham 2008).

Most of the women interviewed believed they had received safe care and offered no suggestions for making it safer. Interestingly, when discussing how they had felt during their recent experiences of childbirth, safety did not appear to be a major pre-occupation for these women. Rather, they seemed to feel that safe care set a basic standard that they should be able to expect, with high-quality care meaning something extra.

> *I think probably I would expect safe care automatically. You've got to have safe care to be able to give birth in a satisfactory environment, but I feel that high-quality care is an extra on top of safe care.*

Women's perception of their own care as safe may have been influenced by overall good outcomes.

> *I pulled through OK, so yes, I'd say I was safe.*

> *In terms of safety I'd say the baby's born healthy and I'm OK, and so in that respect they know what they're doing...*

However, these women showed a sophisticated understanding of the components of safe care. In discussing the meaning of safety on a more general level, a consistent theme was the importance they placed on the skill and professionalism of the people caring for them.

> *I think having midwives there... and knowing that they're around and trusting that they're doing what they should be doing basically.*

Given the highly personal nature of childbirth, it is not surprising that the quality of individual staff was seen as so central to safe care; but a number of other factors were also mentioned, including cleanliness, being well informed about what to expect, regular monitoring, appropriate equipment, security on the labour ward, shared decision-making and prevention of accidents.

> *Safety for me is mainly avoiding any accidents – preparing everything so that you can prevent the worst from happening.*

Several women referred to the importance of early identification of problems and the

emergency systems to deal with them, but only one woman talked about the importance of safety protocols in general.

> *I think safety probably means having enough staff and feeling that you are getting the attention you require and that things are done according to the protocols set down.*

The women's perception of unsafe care often consisted of the converse of safe care – that is, low staffing levels, poor monitoring and receiving inadequate or conflicting information. But some women also referred to being left alone, not knowing who was caring for them, having to rely on maternity care assistants and not receiving the full attention of the midwives responsible for them.

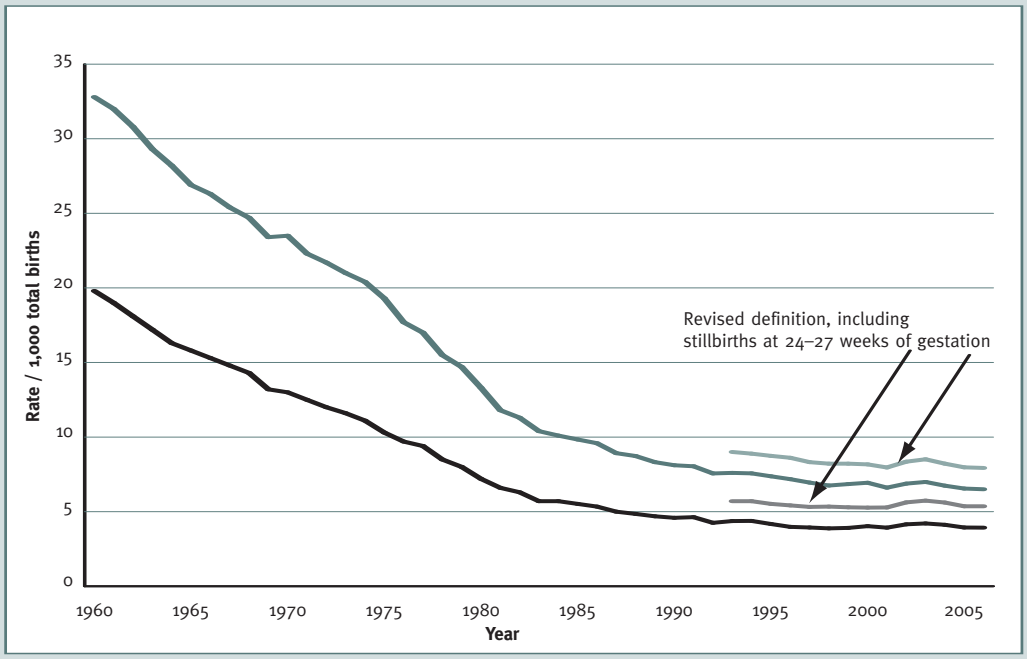
> *Walking in to somewhere that was disorganised or... where people ignored you. Pressing a button and nobody coming for quite some time, it being open to anyone walking through, again, and not knowing the people at all and just being left, having no one around at all.*

Women reported that one-to-one care in labour had a crucial impact on how safe they felt, and that feeling safe was linked to trust in their carer, built up through good communication. Both of these issues are discussed more fully later in this report.

How safe are maternity services?

By comparison with many high-risk activities, maternity services in the United Kingdom are very safe. Giving birth in England in 2008 is likely to be a safe experience for the

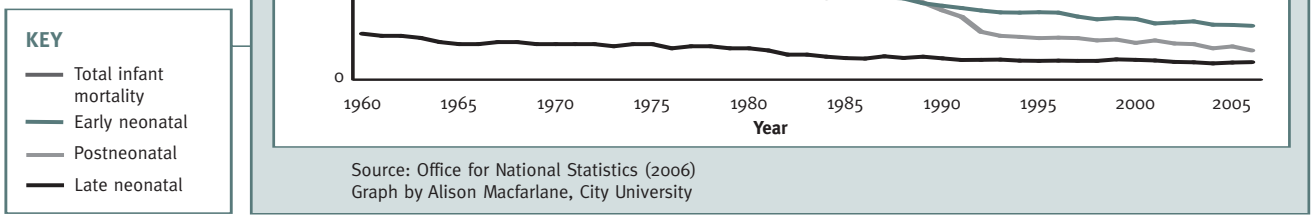
2 STILLBIRTH AND PERINATAL MORTALITY RATES, ENGLAND AND WALES, 1960 TO 2006



KEY
Stillbirth rate
Perinatal mortality

Source: Office for National Statistics (2006)
Graph by Alison Macfarlane, City University

3 INFANT MORTALITY RATES, ENGLAND AND WALES, 1960 TO 2006



Source: Office for National Statistics (2006)
Graph by Alison Macfarlane, City University

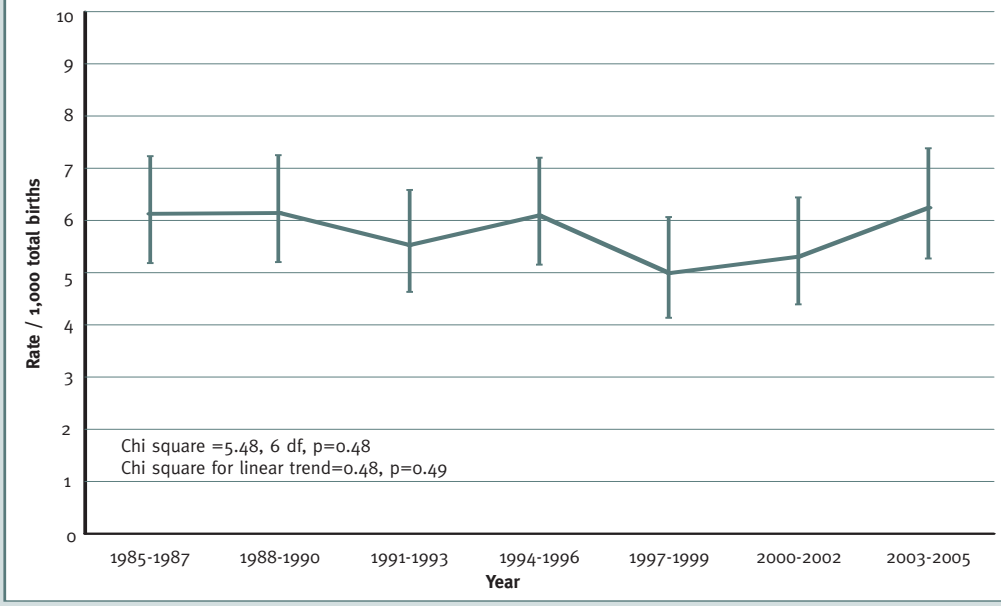
overwhelming majority of women and babies. Figures for England and Wales published by the Office for National Statistics (ONS) show that in 2006 stillbirth accounted for just 5.4 per 1,000 total births, while only 3.5 per 1,000 live-born babies died in the first month after birth. The threshold for registering stillbirths was reduced from 28 to 24 weeks' gestation in October 1992, yet stillbirth rates have remained virtually unchanged since the mid-1990s, with higher rates in the years 2002–04, followed by a slight fall (*see* Figure 2, opposite). Rates of neonatal death (up to 27 days after birth) and postneonatal death (28–365 days after birth) have continued to fall over this period, with the infant mortality rate falling from 6.1 per 1,000 live births in 1996 to 4.8 per 1,000 in 2006 (*see* Figure 3, above; ONS 2006).

The risk of mothers dying is much lower. In 2005, there were only 5.6 registered maternal deaths per 100,000 maternities in England and Wales. This rate is derived from information on death certificates relating to the underlying cause and is used for international comparisons. The Confidential Enquiries use all the information on the death certificate, together with record linkage techniques, to increase ascertainment, especially of indirect deaths. Based on this evidence, in the period 2003–05 the direct maternal death rate in the United Kingdom – the statistic most relevant to patient safety – was 6.24 per 100,000 maternities, as shown in Figure 4, overleaf (Lewis *et al* 2007).

USING OUTCOME MEASURES TO ASSESS SAFETY

Outcome measures such as maternal and infant mortality and morbidity offer a useful starting point for assessing the safety of maternity services. However, they cannot be used as direct indicators of safety because they do not distinguish between unavoidable adverse outcomes and those that might have been prevented by safer care. Adverse

4 DIRECT MATERNAL MORTALITY RATES PER 100,000 MATERNITIES, UNITED KINGDOM, 1985 TO 2005



KEY

Direct death rates, with 95 per cent confidence intervals

Source: Lewis 2007

outcomes are also affected by a wide range of clinical, social, environmental and genetic factors and are likely to be correlated with the general health and well-being of women becoming pregnant. It is usually only through detailed individual case reviews that the contribution of standard of care to an adverse outcome can be assessed.

MATERNAL DEATHS

CEMACH conducts just such detailed case reviews of maternal deaths. Information about the women who have died is compiled from case notes and other sources by the local co-ordinator and submitted in confidence to the Enquiry for review by a multidisciplinary panel of relevant experts. These panels assess whether the women who died received

TABLE 1: NUMBERS AND PERCENTAGES OF DIRECT AND INDIRECT DEATHS BY DEGREE OF SUBSTANDARD CARE, UNITED KINGDOM, 1997 TO 2005

	Numbers with substandard care			Percentages of all deaths			Total deaths
	Major	Minor	Total	Major	Minor	Total	
Direct							
1997–99	53	11	64	50	10	60	106
2000–02	50	21	71	47	20	67	106
2003–05	72	12	84	55	9	64	132
Indirect							
1997–99	26	20	46	13	10	22	205
2000–02	31	25	56	20	16	36	155
2003–05	45	20	65	28	12	40	163

Source: Lewis 2007

substandard care judged by prevailing standards (*see* Table 1, opposite). Key themes are drawn out and recommendations for improvements made in the reports, which are published every three years.

The CEMACH reports, with their detailed consideration of the causes of all known maternal deaths, including standards of care, are seen as international beacons of excellence, providing some of the best information available on the safety of maternity services. However, some respondents to our inquiry expressed concerns that not all late maternal deaths (occurring more than 42 days but less than a year after the end of pregnancy) are notified to CEMACH, and that such late deaths will not be assessed in future reviews. Also, the CEMACH data on substandard care cannot be used to monitor trends in safety because the standards for assessing care change with each report.

Neonatal deaths and stillbirths

Although ONS and its predecessors have published reliable national data on neonatal death and stillbirth rates for many years, individual cases are not systematically investigated so conclusions cannot be drawn about the safety of care or the contribution of lack of safety to death rates.

The Confidential Enquiry into Stillbirths and Deaths in Infancy was established in 1992 to follow the precedent set by the Confidential Enquiry into Maternal Deaths, and the two have since merged to form CEMACH, which conducts detailed reviews of defined subsets of deaths and stillbirths. Since overall numbers are much higher than for maternal deaths, the Enquiry cannot review all deaths in depth. As well as investigating specific categories of deaths, the Enquiry focuses on specific pregnancy complications, most recently gestational diabetes. It has also started to publish annual volumes of trends in stillbirth and neonatal mortality rates, based on data from the notifications it collects. Reports can be accessed at: www.cemach.org.uk/Publications/CEMACH-Publications/CESDI-Publications.aspx.

Maternal and infant morbidity

Deaths are, thankfully, rare, with severe illness a far more common adverse outcome of pregnancy and childbirth; data from the Royal College of Obstetricians and Gynaecologists (RCOG) suggest a ratio of 56 incidents of severe maternal morbidity to every one maternal death (Templeton 2007).

Unfortunately, national data on morbidity in mothers and babies are sparse and problematic. Such data are more difficult to compile than data about defined events like births and deaths. Consequently it is not possible to assess the contribution of substandard maternity care to maternal or infant morbidity.

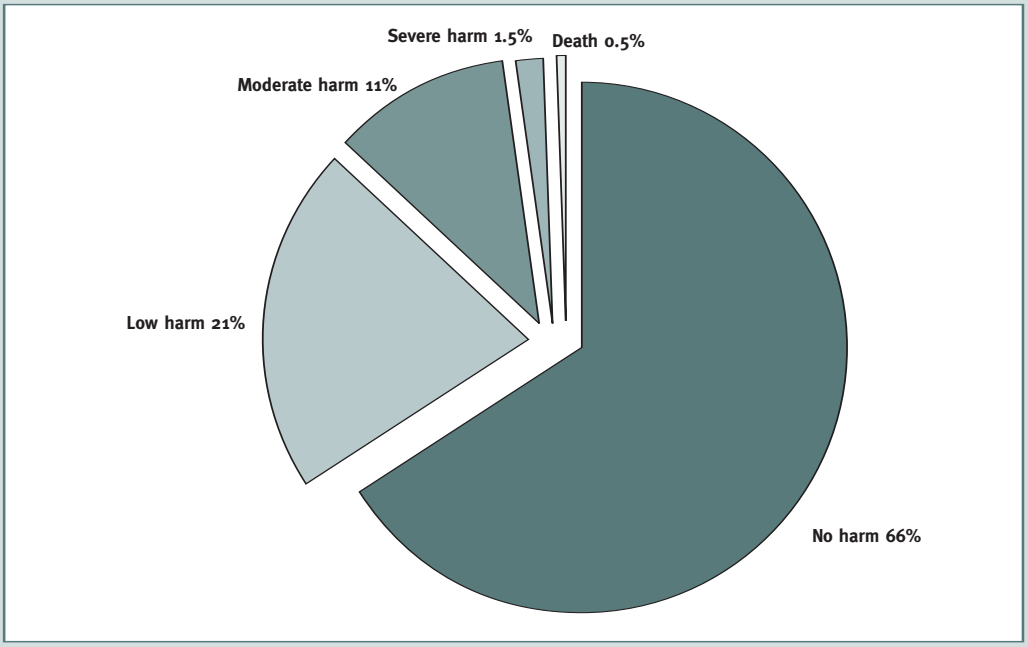
Some information about maternal and infant morbidity may be recorded in clinical records created in maternity units. However, there is wide variation in how information is recorded, the quality of the manual and electronic systems in use and their ability to supply data to national systems. Hospital Episode Statistics (HES) should contain important clinical information relating to any episode of care in hospital. For episodes of care in which a baby is born, an additional record, the 'maternity tail', is appended to the core HES record. This data collection system is not mandatory, and the clinical data in the maternity tail are missing for about a quarter of births. This means that even when good records are

collected locally they cannot necessarily be shared nationally. As a result, data about morbidity in mothers and babies are incomplete; even when they are collected, there can be major inconsistencies in how they are recorded. Thus, although HES contain some information about conditions after delivery, data collection is too variable to allow for reliable conclusions.

These difficulties are compounded by the fact that postnatal morbidity may not present or be diagnosed until after the mother or baby has been discharged from hospital, which can be very soon after the birth. Even if a woman or baby requires readmission to hospital for a problem related to the birth, there is no way of ensuring that any link to maternity records will be made if either is admitted to a different part of the hospital, or to a different hospital. In future, such linkages are planned through the National Programme for IT (NPfIT) and its Care Records Service, but it will be some time before this system is implemented and data become available.

Meanwhile, there are a number of dedicated systems that successfully collect data on a very limited range of specific types of maternal and infant morbidity. The UK Obstetric Surveillance System (UKOSS) operated by the National Perinatal Epidemiology Unit (NPEU) collects data about selected rare conditions that are then studied for defined periods. Data collection for eclampsia, peripartum hysterectomy, pulmonary embolism, tuberculosis and acute fatty liver of pregnancy is now complete. In December 2007 further studies were being conducted through UKOSS on amniotic fluid embolism, extreme obesity , fetomaternal alloimmune thrombocytopenia (FMAIT), gastroschisis, myocardial infarction, pregnancy in transplant recipients, pulmonary vascular disease, therapies for peripartum haemorrhage, and stroke in pregnancy. Further details can be found at: www.npeu.ox.ac.uk/ukoss

5 MATERNITY-RELATED INCIDENTS, 1 JUNE 2006 TO 31 MAY 2007



Source: NPSA 2007

However, these studies are restricted to rare conditions (fewer than 300 cases per year) so do not cover many forms of morbidity affecting mothers and babies after delivery.

'Near misses'

A total of 62,746 maternity-related patient safety incidents were reported from 1 June 2006 to 31 May 2007. Sixty-six per cent of these caused no harm to mothers or babies and 21 per cent caused low harm (*see* Figure 5, opposite). This shows that information systems focusing only on deaths and (highly) selected types of morbidity miss most patient safety incidents and thereby also miss the learning that could be gained from them. The NPSA's National Reporting and Learning System (NRLS) requires clinicians to submit information about patient safety incidents to a central system. However, these data cannot be used for simple quantification of safety, as they are self-reported and need detailed interpretation to establish causality.

Using process measures to assess maternity safety

Process measures of safety, such as Clinical Negligence Scheme for Trusts (CNST) standards and some of the other measures recently published by the Healthcare Commission, indicate whether processes that may be associated with improved safety have been followed, but do not give a complete picture of safety. These standards are listed in Appendix 4.

CONCLUSIONS

The low overall maternal and infant mortality rates show that giving birth in England is broadly safe. However, it is impossible to state *how* safe maternity services are, or to compare their safety with the safety levels of maternity services elsewhere. There are two reasons for this. First, many of the measures available are not of themselves indicative of unsafe care, and detailed analysis is needed to ascertain whether care was safe in each individual case. Second, much data collection, both nationally and internationally, is incomplete, and even where data are good the form in which they are collected may preclude accurate comparisons.

Even if we do not aim at precision, or at international comparisons, it is still difficult to judge just how safe maternity services in England are.

2 Maternity services and their context

Of all areas of health care, the maternity services have one of the longest histories of striving to improve safety standards and reduce loss and suffering, having carried out formal reviews of care for almost 100 years (*see* Appendix 3). However, it is only in the past 10 years that the health service has begun to examine safety more systematically, enabling reviews of the safety of maternity services to be set within a broader context, and providing a wider range of conceptual and practical possibilities for change and improvement.

A recurring theme in the submissions we received was that maternity services had not been given high priority in this drive for safety and had been largely bypassed by recent target-driven attempts to reform and improve NHS services. This perceived distinction between maternity and other NHS services may be reinforced both by the geographical separation of some maternity units from the rest of their trusts and by the seemingly self-contained nature of much of the business of maternity services.

In considering the safety of maternity services, we have deliberately sought to place them within a context of broader learning about safety from other areas of health care. Indeed, this report has drawn on many examples of good practice that might helpfully be transferred to the maternity services. However, we have included this chapter to highlight what have struck us as specific features of maternity care that have relevance to safety.

- **Pregnancy and birth are normal physiological processes, but the transition from routine to emergency can occur rapidly and unexpectedly.** Because pregnancy and childbirth do not normally involve ill health, the expectation of safety is particularly high and the obligation of the health care system to do no harm may be seen as an even higher imperative than normal. The issue of normality and intervention in childbirth is discussed more fully below.
- **Maternity services have to care for two (or sometimes more) lives, and when adverse events occur, the consequences, including lifelong disability for a child, can be particularly devastating.** This heightens the complexity, responsibility and risk involved in caring for each individual woman and her baby. In addition, the best interests of mother and baby may not always coincide, which can create conflict. It is important to recognise, for example, that a caesarean section carried out in the interests of the baby will inflict a surgical injury on the mother and that unnecessary caesareans inflict unnecessary risk.
- **Maternity care for each pregnant woman and her baby is delivered over a long period, often in many different settings and involving large numbers of clinicians**, making the maternity team a singularly complex entity. These issues are addressed more fully in Appendix 3.
- **The woman's experience** is an important aspect of the service provided (Newburn

2006). Birth is a time of transition, and there is evidence that the experience of care may have profound positive or negative effects on mother, baby and family. This inquiry has chosen not to focus on the birth experience, but its importance must be acknowledged and this adds a further layer of complexity to decision-making processes about safe care.

- **Changing demands** from recent changes in the pregnant population have important implications for maternity services, which are discussed later in this chapter.

Normality and intervention

In many cases pregnancy and labour proceed to a good outcome, with no intervention needed apart from encouragement and support. Research suggests that when pregnancy and labour are uncomplicated, spontaneous vaginal delivery leads to the best outcomes for both mother and baby (Maternity Care Working Party 2007).

However, even though pregnancy and childbirth are normal physiological processes, there may still be some degree of risk for both mother and baby. Maternity care is, therefore, based on managing risk within a normal physiological process. Some problems can be detected and managed during pregnancy, which is why antenatal care is now routinely offered to pregnant women in most parts of the developed world. Others become apparent only during labour. When problems are detected, a range of medical interventions is available to reduce risk and secure a good outcome. However, as with all medical interventions, they also involve a degree of risk for the mother or baby or both. If a treatment or intervention that harms is given to a woman or baby, that itself constitutes unsafe care. Examples of some common interventions and some of the reasons why they may be undertaken, together with some of their associated risks of harm, are listed opposite in Table 2.

In recent years there has been a considerable rise in intervention rates in women giving birth, as shown in Figure 6, p 22.

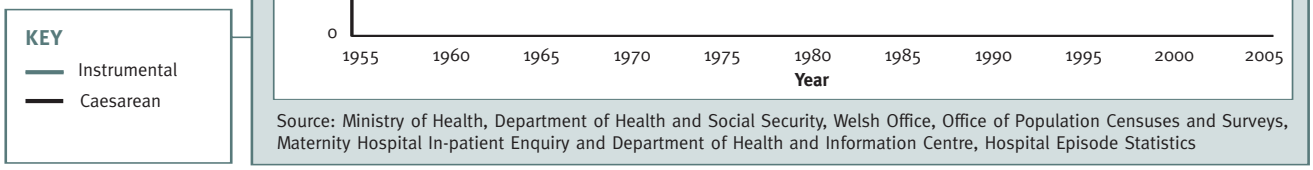
Thresholds for referral to medical care and for the use of certain interventions have been agreed by all professional groups involved in maternity services, including, for example, National Institute for Health and Clinical Excellence (NICE) guidance on caesarean section (National Collaborating Centre for Women's and Children's Health 2004). However, the rise in the rate of caesarean sections has not been accompanied by improvements in maternal or neonatal outcomes; and the considerable variation between units suggests that a proportion of interventions being carried out are unnecessary and therefore not safest practice. The NHS Institute for Innovation and Improvement has recently been working with trusts with a view to reducing caesarean rates.

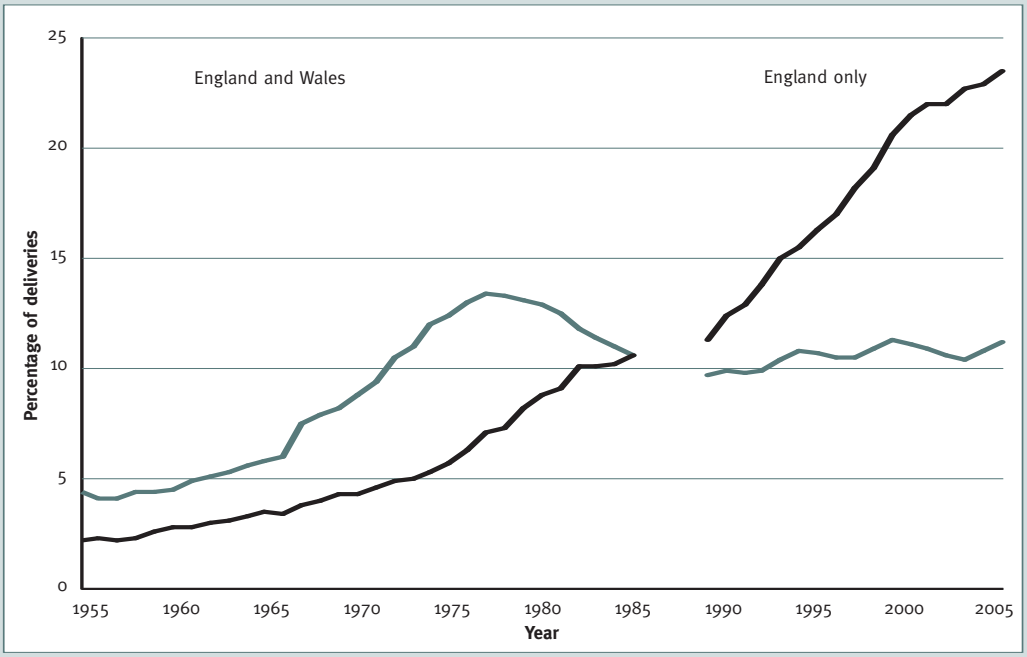
High caesarean section rates have been linked with a lack of consultant presence on labour wards (HCC 2005; Ontario Women's Health Council 2000). Factors that are believed to reduce intervention rates in uncomplicated pregnancies include continuity of care and one-to-one support in labour, midwife-led care, and consultant review of the decision to perform caesarean section; other helpful factors include an appropriate environment for labour and avoiding such interventions as electronic fetal monitoring in labour when not indicated.

TABLE 2: COMMON INTERVENTIONS AND SOME OF THEIR RISKS

Intervention	Rationale	Associated harms
Elective caesarean section	**For mother** Factors identified pre-labour that put her at risk from a normal delivery (eg, previous section; placenta praevia) **For baby** Factors identified pre-labour that put the baby at risk from a normal delivery (eg, congenital abnormalities; abnormal position)	**For mother** Increased surgical risks; longer recovery; increased risk of adverse outcomes in subsequent pregnancies; adverse impact on future fertility **For baby** Increased respiratory morbidity
Emergency caesarean section	**For mother** Potentially dangerous complications (eg, placental abruption) **For baby** Concern about risk of asphyxia and subsequent death or brain damage if the labour is difficult or prolonged or the baby is already compromised	**For mother** Increased surgical risks; longer recovery time; increased risk of adverse outcomes in subsequent pregnancies; adverse impact on future fertility **For baby** Increased respiratory morbidity
Assisted delivery (ventouse or forceps)	**For mother** For example, failure of labour to progress and maternal exhaustion **For baby** Concern about risk of asphyxia and subsequent death or brain damage if the labour is difficult or prolonged or the baby is already compromised	**For mother** For example, possible increased risk of perineal trauma **For baby** Traumatic injury to scalp and head and, rarely, intracranial haemorrhage
Induction of labour	**For mother** Pregnancy complications (eg, pre-eclampsia) **For baby** For example, pre-labour rupture of the membranes or prolonged pregnancy	**For mother** Possibility of failed induction and hence delivery by caesarean section **For baby** Increased risk of hyperstimulation of the uterus, causing fetal distress
Augmentation of labour	**For mother** Failure to progress in labour **For baby** Concern about risk of asphyxia and subsequent death or brain damage if labour is prolonged. Concern about infection if labour is prolonged	**For mother** For example, possible increased risk of postpartum haemorrhage **For baby** Increased risk of hyperstimulation of the uterus, causing fetal distress
Epidural anaesthesia	**For mother** Pain relief	**For mother** For example, urinary retention and fever in labour **For mother and baby** Possible higher rate of instrumental delivery

6 OPERATIVE DELIVERY RATES, 1955 TO 2005/6





Source: Ministry of Health, Department of Health and Social Security, Welsh Office, Office of Population Censuses and Surveys, Maternity Hospital In-patient Enquiry and Department of Health and Information Centre, Hospital Episode Statistics

However, pregnancy and birth without obstetric intervention, though safe for many, is not possible for all mothers and babies, and reducing interventions should never be pursued to the detriment of safety. Promoting normality with an eye to safety requires a delicate balance; achieving this balance in day-to-day practice depends not just on good local organisation but on committed, confident midwives and doctors who can reliably manage risks, make appropriate clinical judgements for each situation and maintain good communication.

New demands from a changing population

ETHNICITY AND SOCIO-ECONOMIC FACTORS

It has long been known that rates of adverse outcome of pregnancy vary by socio-economic group and ethnic origin. The last three reports on maternal death have highlighted various socio-economic factors associated with maternal deaths, although the absence of similar data for all women made it impossible to calculate rates (Lewis *et al* 2001, 2004, 2007). These factors included: late booking or poor attendance at antenatal clinics; substance abuse; social exclusion; domestic violence and the fact that women from some minority ethnic groups and those without a partner are at increased risk.

These factors are *associated* with maternal mortality. However, because the data are not collected for all women, these factors cannot be shown to be *correlated* with maternal mortality let alone *causally linked* to maternal mortality. The list given includes heterogeneous factors (for example, late booking of antenatal appointments, domestic violence) and complex and contentious social categories (for example, being socially excluded). Also, the listing does not allow any evaluation of the distinct contribution of

each socio-economic factor, and as some of them are likely to be correlated (for example, women who abuse substances may also book late), this limits the conclusions that can be drawn.

Socio-demographic factors associated with stillbirth and neonatal death include socio-economic status, maternal age, country of birth and ethnicity. Mothers who are very young or in their late 30s or 40s are at higher risk than others of losing their babies. In 2006, the stillbirth rate for women under 20 was 5.9 per 1,000 total births and 8.6 for women aged 40 and over, compared with an overall rate for all women of 5.4 per 1,000 births.

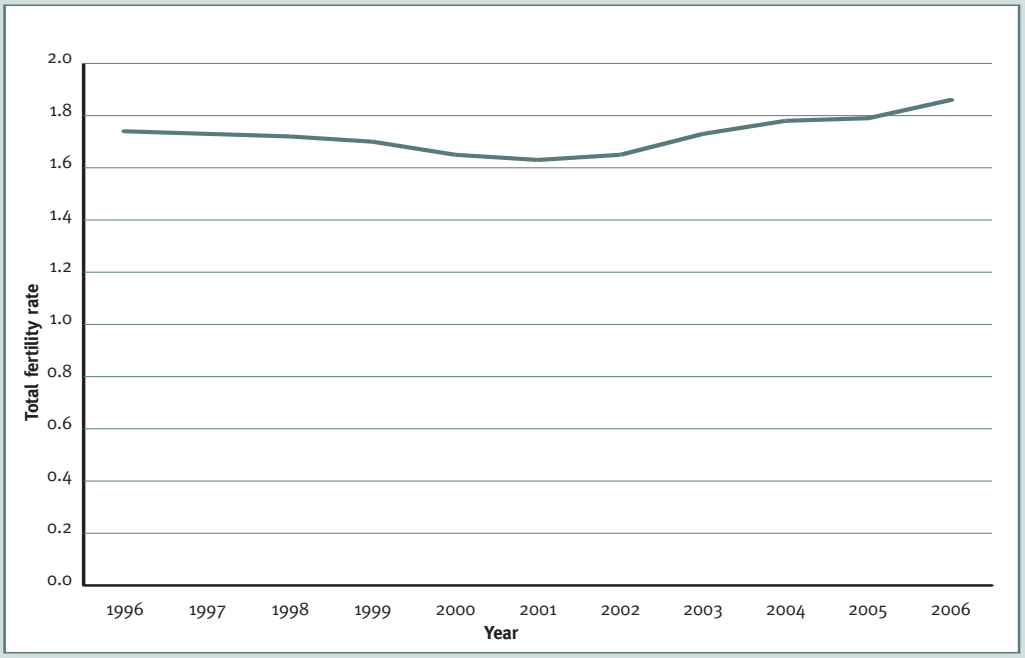
In 2006, the infant mortality rate for babies born to women born in Pakistan was 9.4 per 1,000 live births and the rate for women born in the Caribbean was 8.8 per 1,000, compared with an overall rate for all births of 4.8 per 1,000 (ONS 2007).

Although it is important to meet the challenge of providing appropriate care for high-risk women, it is also necessary to acknowledge that providing safe maternity services means meeting the medical and social needs of all pregnant women. With that in mind, it is helpful to understand how changes in the population of England are giving rise to changing demands on maternity services.

RISING BIRTH RATES

Although both the birth rate and overall numbers of births had been declining up to 2003, both have risen since then and have continued to rise ahead of government projections. Provisional figures from the Office for National Statistics (ONS) show an average of 1.87 children per woman in 2006, compared with 1.63 in 2001 (*see* Figure 7, below).

7 TOTAL FERTILITY RATES, ENGLAND AND WALES, 1996 TO 2006



This rise in the birth rate has occurred in most parts of England and Wales, but is particularly marked in inner city areas and some rural areas, where numbers of births are relatively small.

COUNTRY OF BIRTH AND MIGRATION

The number of live births to women born outside the United Kingdom increased by nearly 10 per cent between 2005 and 2006 (from 134,189 in 2005 to 146,944 in 2006), compared with a 2.1 per cent increase for women born in the United Kingdom (511,624 in 2005 to 522,627 in 2006) (ONS 2006 table 9.1).

There has been a corresponding increase in the proportion of overall births that are to women born outside the United Kingdom, from 16.5 per cent in 2001 to 21.9 per cent in 2006. Some of these women may have lived in the United Kingdom for many years; but others are recent migrants. Some may have language and communication difficulties as well as social and health problems – in a few cases even genital mutilation – with which maternity staff may be unfamiliar (Dorkenoo *et al* 2007), while others are native or highly competent speakers of English without greater than average social or health problems. Limitations in our national migration statistics make it difficult to know the precise extent to which recent migrants with greater language and health problems have contributed to the rising birth rate.

Age, health and lifestyle

Recent years have brought both positive and negative influences to bear on the health and lifestyles of women of childbearing age. One positive development was the decline in smoking in pregnancy (except among women under 20) between 2000 and 2005. Drinking in pregnancy has also declined (Information Centre 2007a).

On the other hand, rising rates of obesity mean that increasing numbers of women are less fit for pregnancy. Although there is no specific information about obesity in pregnancy, data from the Health Survey for England show a rise in body mass index (BMI) among women of all ages. By 2003, 2 per cent of women aged 16–24, 3 per cent of those aged 25–34 and 3.5 per cent of those aged 25–44 were morbidly obese with a BMI of 40 or more. The percentage of women defined as obese, with a BMI of 30 or more, was 13.1 for women aged 16–24, 18.1 for those aged 25–44 and 22.7 for those aged 35–44 (Information Centre for Health and Social Care 2006).

The trend towards older motherhood has persisted, leading to an increase in the proportion of women at risk of pregnancy complications and severe congenital anomalies. There has also been a rise in multiple birth rates, compounded by the use of ovarian stimulants and assisted reproduction by women with fertility problems.

At the same time, improved care for serious childhood illness, including cancer and congenital heart conditions, has permitted growing numbers of women to reach their childbearing years after surviving major health problems; and these women are more likely than other women to need additional care in pregnancy and labour. Less common conditions like tuberculosis are also on the rise and can pose a threat to women in pregnancy.

We conclude that the maternity services face a challenge in caring for rising numbers of women and babies, of whom an increasing proportion may have a variety of problems. Providing safe maternity services means meeting the medical and social needs of all pregnant women.

TOWARDS SAFETY IN MATERNITY SERVICES

This chapter has identified a number of recent pressures on the maternity services, including:

- older motherhood
- problems caused by fertility treatment
- increased obesity
- survival of critical illness in childhood
- more surgical intervention
- the challenges presented by some forms of social and cultural diversity.

The fact that reductions in maternal and perinatal mortality have been achieved in spite of these pressures should be recognised as a major achievement.

Given these achievements, and a history of continuous concern with safety in the maternity services, it is reasonable to ask why this inquiry into the safety of maternity services is still needed. We identified three main reasons.

- Achieving and maintaining safety calls for a continual review of practice by individual clinicians, teams, organisations and the maternity services as a whole.
- Despite the overall safety of maternity services, the responses of professionals to our call for evidence identified a significant number of problems that make care less safe.
- The maternity services need to move away from seeing safety as primarily the responsibility of individual clinicians caring for particular patients and towards a wider concern with providing safe systems for all care.

Making this last shift means embedding safety awareness right across the maternity services. Those at every level – individual clinicians, teams, trust boards and national organisations – need to improve their awareness of safety issues and support safety reliably in their practice.

Safe teams are the key driver for improving safety. The next chapter looks at the core elements of safe team working: objectives, leadership and communication.

To function safely, teams also need safe staffing levels (Chapter 4); training for safety (Chapter 5); guidance to support safety (Chapter 6) and information to support safety (Chapter 7).

At a broader level, trust boards need to explicitly prioritise safety (Chapter 8), while national organisations must make sure their actions support rather than distract from safe practice (Chapter 9).

3 Safe maternity teams

Overview

Maternity services are mostly delivered by teams rather than individuals. Even when a mother has a continuing relationship with one midwife or obstetrician, a wider maternity team is always there as well. Our report emphasises the central importance of effective teamwork in maternity as one of the most important drivers of improved safety.

There are several reasons for this.

- Effective teamwork is associated with improved outcomes in many different spheres and industries, including health care.
- Health care is in the process of moving away from a traditional hierarchical model of organisation and leadership towards a team approach. This transition has the potential to improve services greatly, but if poorly implemented could lead to disruption, even chaos.
- Other areas of health care, such as cancer services, have benefited greatly from a stronger emphasis on multidisciplinary working by teams.

However, the strongest reason by far for our emphasis on teamwork is that many of the solutions to safety problems can be introduced by the teams themselves. Teams may be enabled or hindered by the wider organisational and regulatory environment, but the delivery of safe health care rests ultimately with them (West and Borrill 2005).

This chapter reviews some of the problems in current team working that were identified in submissions to our inquiry. These problems are often not specific to maternity services but are examples of common issues that can affect any team-based organisation. We draw on this wider understanding and consider its implications for maternity. We are grateful to Michael West and colleagues for allowing us to quote extensively from their work on teamwork in this chapter. References are included at the end of the report.

Teamwork and patient safety

There is extensive evidence from many different settings, including health care, that effective teamwork improves organisational performance in terms both of efficiency and of quality. In health care organisations, teamwork contributes to performance by reducing errors and improving the quality of patient care (Edmondson 1996; West and Borrill 2005). West and colleagues (2003) found an association between management practices in hospitals and patient mortality, with team working one of the three practices most strongly associated with reduced mortality. On average, in hospitals where more than 60 per cent of staff worked in formal teams, mortality was around 5 per cent lower than would have been expected (West and Borrill 2005).

Teamwork plays a particularly critical role in patient safety because teams have the power to either enhance or jeopardise safety (Vincent 2006b). A team that is not working well multiplies the possibility of error. Conversely, teams that *are* working well add up to more than the sum of their parts where safety is concerned. Members of teams can create additional defences against error by monitoring, double-checking and backing each other up; when one is struggling, another assists; when one makes an error another recognises and rectifies it.

Clinicians and researchers in many areas have identified some key team behaviours that can protect against errors (*see* box below). Many of these overlap with error prevention and team enhancement strategies fostered in other high-risk environments, such as navy teams. Implicit in these strategies is an acceptance that errors will always occur, that no one can function effectively all the time and that the environment will always present unexpected threats. Individuals can respond to these threats and challenges to some extent, but a team has a better chance of weathering a crisis if members watch each other constantly, communicate openly and effectively and back each other up when necessary. Team skills require an outward focus, an awareness of others and a strong sense of how your own work fits into the overall process. These skills are not sufficiently emphasised in health care training, which tends to focus on individual and professional skills.

TEAM BEHAVIOURS TO PREVENT, DETECT AND RECTIFY ERRORS

Identify the protocol to be used or develop a plan It must be clear to everyone on the team what protocol or plan is being used

Prioritise tasks for a patient Team members must understand how their individual tasks fit into the overall task

Speak up Health professionals must be prepared to speak up when patients are at risk and team leaders must foster a climate which makes this possible

Cross-monitor within the team Team members should watch each other for errors and problems; this should be seen not as criticism but as support for fellow members and an additional defence for patients

Give and accept feedback Feedback should not be restricted to team leaders; any member should be able and prepared to give feedback to any other. But for this to be helpful, team members need to understand each other's roles

Use closed loop communications Communications must be acknowledged and repeated by their recipients and even their senders. This provides an additional check and defence

Back up other team members Team members need to be aware of each other's actions and be ready to step in with support and assistance.

Source: Risser *et al* 1999; Ilgen 1999

In health care, effective team working is generally notable by its absence. In recent studies of the NHS, 90 per cent of a sample of more than 200,000 employees reported working in teams; yet only 40 per cent confirmed that their teams met the following basic criteria (West and Borrill 2005):

- operating with shared objectives
- working closely together to achieve these objectives
- meeting regularly to review performance and consider potential improvements.

WHAT IS A MATERNITY TEAM?

In the maternity services, as in other areas of health care, team working can refer both to the particular group of people looking after a woman at any one time and, more abstractly, to the way those people manage the interfaces between their different areas of expertise and responsibility, both within the immediate team and when working with other teams.

A woman and her family may be cared for by many individuals and several different teams in different settings during the various phases of her care, from antenatal through to postnatal. Even the relatively brief phase of intrapartum care can be a lengthy process, spanning several staff shift changes and even changes of location.

'Teams' in maternity services may refer to any of the following:

- the team of clinicians caring for a woman and her baby during labour at any given point in time
- the wider clinical team that has been involved throughout the pregnancy
- the midwifery team working on a labour, antenatal or postnatal ward
- midwifery teams providing antenatal care to specific groups of women
- midwives working in practices with small caseloads
- the obstetric team led by a specific consultant
- the staff of the maternity unit as a whole.

Any maternity 'team' must respect and support the accountability of their individual professional members to the individual women and babies in their care.

Maternity professionals often work in more than one team; and managing professional relationships within maternity teams is particularly demanding because many include members of two largely autonomous professional groups – midwives and obstetricians – either of which may need to take the lead in caring for a patient at different times. Effective teams need to manage transitions of accountability, whether routine (such as handovers at shift change), or exceptional (such as summoning immediate assistance in an emergency).

A commonly perceived difficulty with team working in intrapartum care is that shift patterns make it likely that there will be a 'new' team at each handover of care. This can make it difficult to develop the personal relationships within maternity teams. Team working is undoubtedly easier when team members have good personal relationships – though even then things can go wrong. However, personal relationships are not essential if other crucial elements are in place. In good teamwork, common objectives, roles, protocols and standards for communication are well specified and understood. Other industries, such as airlines, also have to cope with constantly changing teams, but staff are trained to work effectively with those assigned to their team on a given day.

Problems in maternity teams

During the course of this inquiry, we both saw and heard many instances of effective teamwork that corroborated its importance (oral evidence). However, we also became

aware of a range of vulnerabilities and weaknesses in maternity teams. Staff working in maternity services, including both midwives and obstetricians, were often aware of these problems and commented on them (Smith and Dixon 2008).

> *We are not always good team players and would benefit from more collaborative working sometimes.*
> (Professional evidence, midwife)

> *Strong leadership and the ability to provide care as a team is really important; midwives respecting their obstetric colleagues and vice versa.*
> (Professional evidence, midwife)

> *We need to ensure colleagues have respect for each other and can help one another, working as a team for the common goal of patient safety and satisfaction.*
> (Professional evidence, obstetrician)

INTERPROFESSIONAL WORKING

Interprofessional teams face particular challenges, as confirmed by many sources. Reports from the Confidential Enquiry into Maternal and Child Health (CEMACH) have highlighted a lack of communication and teamwork between different professional groups (Lewis *et al* 2007) and a similar theme emerged from the recent investigations by the Healthcare Commission (HCC) into maternity services. At London's Northwick Park Hospital, the HCC drew particular attention to 'rigid professional boundaries and lack of respect' between professionals (Healthcare Commission 2005). Differences of opinion between midwives and obstetricians and a lack of mechanisms to resolve them were also identified by Ashcroft (2003).

Responses to our inquiry from institutions suggest that problems of this type are far from isolated. The British Association of Perinatal Medicine (BAPM) suggested in a written submission that at times there was an 'ongoing battle' between professional groups. We also heard suggestions that 'swings of influence' between midwives and obstetricians over the past 30 years had led to unhappiness and unrest on both sides. We were told that, although the highly influential Department of Health report *Changing Childbirth* (Department of Health 1993) had led to considerable improvements in maternity services, it had also caused divisions, particularly in relation to the role of obstetricians. We heard of one unit where obstetricians were able to enter a midwife-led birthing unit only if expressly invited by midwives; but we also visited another where midwives had an impressively proactive approach to managing boundaries between themselves and their obstetric colleagues.

The underlying causes of these difficulties are difficult to disentangle and were not explored in any depth in the responses we received. However, consideration of the objectives of maternity services, a crucial aspect of team working, may be useful in coming to terms with the problem.

The objectives for maternity teams may seem relatively clear cut: to provide safe, high-quality care for both mother and baby. However tensions exist between, for example, the

desire for a normal birth and the arguments for intervention. Although there is broad interprofessional agreement on the need to promote normality in childbirth (see. for example, Maternity Care Working Party 2007) and on the safety risks posed by unnecessary interventions, it is interesting to note that proportionately more midwives than obstetricians saw 'excessive medicalisation' as a safety problem among the professionals who responded to our call for evidence (Smith and Dixon 2008).

Differing approaches to care may reflect differences in training between midwives and obstetricians. One consultant obstetrician with a specific interest in safety told us that the strong emphasis on normality in maternity services and the relative rarity of adverse events made it difficult to promote a culture of safety awareness on the labour ward without being perceived as alarmist and over-medicalising.

> *When I'm doing anything on labour ward, when I'm doing the ward round, I'm always thinking 'what could go wrong here?' and 'how are we going to stop it going wrong?' But then I find… I'm at risk of operating in isolation and it's like I am seen to be wanting things to go wrong and because it's relatively uncommon for things to go wrong, more likely than not I will be perceived to be ringing alarm bells unnecessarily…*
> (Oral evidence)

One consultant midwife also described how risk management approaches to safety may be perceived in negative terms.

> *The rise of risk management (which is often perceived in a negative way) also results in an increase in arguably unnecessary interventions (especially increasing caesarean section rates) which reduce safety and expose mothers to increased risk of complications and possible problems in future pregnancies.*
> (Professional evidence)

People working in the maternity services told us that the quality of multi-professional team working varied considerably between units, with areas of good and poor practice.

We were told that the polarised views of some sections of the midwifery and obstetric professions, and their differing emphases on promoting normality or intervention, may have exaggerated the differences between the professions. We also heard that the majority of professionals working in maternity services hold more balanced views, but that these views can be drowned out by the more vociferous minority. Crucially, we were told that this debate may be distracting professionals and others from the central issue of building effective teams that can ensure safety for mothers and babies.

TEAM LEADERSHIP

Clinical and managerial leaders at all levels have important roles to play in ensuring patient safety. They can be proactive in promoting safer practice, monitoring standards of care and improving safety measures where necessary. Poor leadership was raised in many of the written evidence we received (*see*, for example, Healthcare Commission, written submission); lack of support from trust HR departments is often seen as partly responsible for poor selection and development of leaders (Clinical Governance Support Team, written submission); the Royal College of Obstetrians and Gynaecologists (RCOG) agrees that 'poor

clinical and administrative leadership underlie many problems' (RCOG, written submission).

Leadership is needed at many different levels in maternity units.

- Teams caring for mothers and babies in labour have leaders. In routine cases, this may be the individual midwife caring for the woman and her baby, who may also be supervising a midwifery student and a maternity support worker as well as co-ordinating wider input if necessary. In an emergency, leadership would pass to an obstetrician, co-ordinating a larger team, including paediatricians, midwives, anaesthetists, operating department practitioners and more junior obstetricians.
- Midwifery co-ordinators are the leaders of a labour ward midwifery shift, providing support to all midwives on duty, taking decisions about staff deployment and reviewing professional decisions where appropriate.
- The consultant obstetrician on call needs to provide similar leadership to the team of obstetricians on duty and is ultimately responsible for all the care provided on an obstetrician-led labour ward.
- Other clinical areas also have their own leaders: antenatal and postnatal wards have a midwifery shift leader; operating theatres have separate structures of leadership, involving anaesthetists, scrub nurses, and recovery nurses.
- Anaesthetic teams are normally led by a consultant anaesthetist or specialist registrar. Similar leadership structures apply to neonatologists.
- Specific leadership and support on safety issues may be provided by a dedicated unit safety lead or risk manager, linking in to trust-wide clinical governance and risk strategies.
- Finally, at a higher level, the unit's head of midwifery, clinical director or service lead, and general manager lead the entire maternity unit team.

It is clear, therefore, that both midwives and obstetricians may be leaders within the maternity services. Multidisciplinary teams are usually led by obstetricians and include midwives in certain clinical situations. Midwives may take on other leadership roles within maternity units (for example, in relation to risk management) when their teams may include obstetricians.

We heard specific concerns about the quality of both midwifery and medical leadership. The HCC reports a '…lack of clarity as to respective roles of head of midwifery, consultant midwife, business manager and clinical director or lead for maternity (sometimes also for women's and children's health)' (written evidence). The Royal College of Nursing suggested that midwifery managers sometimes have little clinical contact with patients, which may prevent them from offering fully effective leadership to maternity teams (written evidence).

Medical leadership came in for particular criticism at Northwick Park, where consultants were said to have worked poorly together (Healthcare Commission 2005). Another potential medical leadership issue is the lack of subspecialisation for labour ward care/leadership within the wider role of consultant obstetrician and gynaecologist. There

are many more opportunities for doctors to train for gynaecological subspecialty areas and fetal medicine than to acquire the specialist skills needed to provide clinical care for complicated pregnancy or labour, or to lead a maternity team on the labour ward. The RCOG has introduced a special skills training module called Preparing for Leadership on the Labour Ward, which may help to raise the profile of this role and attract motivated and appropriately skilled obstetricians in larger numbers in the future.

The skills required to lead maternity teams at different levels need to be carefully defined. This was emphasised by one organisation, which has worked closely with organisations aiming to improving their clinical performance and highlighted the problems created when leaders lack basic management skills.

> *Certainly our experience on the ground is that there are a lot of core management skills that people in very key roles are lacking, and that's to do with managing conflict, getting teams to work effectively together, being able to analyse incidents and drawing out learning from that. When we do development work with people, some of the basic management skills appear to be a revelation.*
> (Oral evidence)

Another organisation with a similar role in clinical performance improvement identified visible leadership as crucial to success.

> *We had people telling us either that they didn't know who was in charge or that those in charge never seemed to be around unless there's a crisis.*
> (Oral evidence)

COMMUNICATION

Effective communication is key to all clinical care, particularly in the maternity services, where there may be multiple handovers of care. Communication is effective only if the relevant information is actually made available to, and understood by, those who need to act on it. Communication is never merely a matter of 'transferring' or 'disseminating' information and has not been made easy or automatic by the introduction of information technology to health care. On the contrary, where sources and quantities of information proliferate it is easy for communication to deteriorate – unless it is controlled by effective teamwork.

Good communication is particularly essential in the circumstances described below:

- referrals from one professional to another: for example, a labouring woman whose baby appears to be in distress will need her midwife to refer her promptly to an obstetrician, either for assessment or takeover of care
- handovers at the time of shift changes
- emergency situations, when, for example, a junior obstetrician requests urgent advice from a consultant on whether to perform a caesarean section, or a midwife updates an emergency team on her observations about a woman in labour.

Communication difficulties were identified in many of the responses we received from organisations, with handovers and shift changes seen as particularly crucial times. More specifically, the RCOG echoed comments from the Confidential Enquiry into Stillbirths and

Deaths in Infancy (CESDI) and the National Institute for Health and Clinical Excellence (NICE) in emphasising the importance of communicating the urgency of the need for caesarean section effectively (written evidence). There is now an agreed definition of the grades of urgency of caesarean section and the time within which it must be performed:

- **Grade 1** Immediate threat to the life of mother or baby – 30 minutes
- **Grade 2** Maternal or fetal compromise that is not immediately life threatening – 45 minutes
- **Grade 3** No maternal or fetal compromise but needs early delivery – 60 minutes
- **Grade 4** Delivery timed to suit woman or staff.

(National Collaborating Centre for Women's and Children's Health 2004)

However, although obstetricians may have decided on the degree of urgency, they do not always communicate this well to others in advance. The Royal College of Midwives (RCM) in its written submission pointed to a need for clear communication of medical rotas, with greater clarity about emergency roles.

Historically, medical teams have been organised along hierarchical lines, with all referrals and requests for advice made initially to a junior member, then referred upwards as appropriate. However, in obvious emergencies referring a case to a consultant via several more junior medical colleagues may cause unnecessary delay. Standards now exist to promote quick referral from midwives to senior obstetricians, but the RCM submission suggested that delays still occur in some units.

Barriers to making teams more effective

Problems with team working, and related issues of communication and leadership, have been mentioned frequently in the literature on causes of adverse events in maternity services (Lewis *et al* 2004; HCC 2005; Ennis and Vincent 1990; Ashcroft 2003). The CGST was asked to provide specialist support at Northwick Park Hospital to improve the way staff worked together, but there have been few systematic national recommendations for tackling such problems. The importance of team working, communication and leadership have been better reflected in standards issued both by the royal colleges and the Clinical Negligence Scheme for Trusts (CNST) (RCOG *et al* 2007; NHS LA 2006). However, in our view these standards convey too little sense of what effective teamwork requires in practice. Similarly, our respondents pointed to many problems with teamwork but made relatively few concrete suggestions for improvement. We would suggest that the lack of significant progress in these areas *despite a body of evidence confirming their importance for safety* points to a lack of detailed national guidance. It is with this gap in mind that we have framed our recommendations.

Team working can be hindered or even completely undermined by a range of barriers, including a lack of clarity about objectives, roles and responsibilities, and poor leadership. In health care, a particularly important potential barrier is the wide range of parties (health professionals, trusts, health authorities, patients, carers, voluntary groups) each with their own aims, objectives and priorities. In addition, philosophies of care, approaches to care and perspectives on quality of care vary considerably between professional groups (West 2004). The main barriers to teamwork are set out in the box opposite.

BARRIERS TO EFFECTIVE TEAMWORK

- **Teams without tasks** The only point of a team is to get a job done, a task completed, a set of objectives met. These jobs and tasks should be those that are best performed by a team. Teams need team tasks if they are to be of any value.
- **Teams without freedom and responsibility** In many organisations teams are created without the power to make decisions, implement them and bring about radical change.
- **Unwieldy teams with the wrong members** Teams should be as small as possible and no larger than about 6–8 people. Larger groupings are unlikely to be effective; where they are needed, they should be broken down into subgroups or teams.
- **Organisations focused on individual work** Creating team-based organisations means radically altering the structure, the support systems and the culture.
- **Team processes neglected** How the team functions is critical to its success. Teams must have clear objectives, meet regularly, engage in constructive debate about how best to serve customer/client needs, share information, co-ordinate their work, support each other's ideas and constantly reflect on their performance and how it could be improved.
- **Team dictators rather than leaders** Team leadership is very different from traditional directive supervision. Its purpose is to make sure the team profits optimally from its shared knowledge, experience and skill.
- **Strong teams in conflict** Good team working means establishing inter-team co-operation from the beginning and reinforcing it throughout the process.

Source: West 2004

Solutions

As outlined in the box, above, members of effective teams need clarity about their roles, their responsibilities and their accountability; a shift from a more traditional hierarchical model does not imply any lessening of personal responsibility. They should have as few members as are necessary to perform the task – ideally no more than 6–8 – with larger teams broken down into sub-teams. Finally, each team must be recognised as such by others in the organisation.

When teams are created it is necessary to look beyond the relatively unchangeable personalities of members and to understand how their motivation, knowledge and skills can contribute to teamwork. This includes considering:

- their preference for working in teams
- whether they have an individualist or collective approach to working with others
- their basic social skills, including listening, speaking, and co-operating
- their team-working skills, such as collaboration, concern for the team, and interpersonal awareness.

In teamwork settings, employees need to be able to perform as individuals as well as working effectively in a team, because both are important for team performance (West 2004).

CLEAR TEAM OBJECTIVES AND ROLES

A culture of respect and trust between professionals is highly unlikely to develop unless all professionals see themselves primarily as part of the maternity team, rather than as individuals with a particular professional identity.

The development of shared objectives and a shared understanding of roles may offer a means of promoting effective team working within maternity services. Responses to the inquiry suggest that such an approach would be welcomed. The CGST suggested in a written submission that making professional and team roles and responsibilities clear to everyone was an important step towards improving safety. The RCM's written submission supported this view.

> *Agree who is the lead professional in obstetric emergencies; professional rivalry and conflict lead to poor team working. This should be agreed through shared clinical guidelines that focus on the needs of women.*
> (Written evidence, RCM)

Clarity about roles and responsibilities can be achieved by various means. National guidance on professional roles is set down by the royal colleges; locally, clarity is achieved by clear, simple guidelines, accessible to the whole unit, on who does what in particular situations, such as obstetric emergencies. But such guidelines, however well formulated, can never encompass all the potential scenarios and uncertainties a team may face. That is why effective communication, team meetings and training (in which specific cases can be discussed, and responses rehearsed) are so important. Training is discussed more fully in Chapter 5.

At a more fundamental level, team working and allocation of roles and responsibilities need to be underpinned by explicit shared objectives, which should be agreed by multidisciplinary teams at a local level and should also, ideally, be measurable. In our view, safety should sit at the heart of these objectives (but this does not imply that normality and consideration of the experiences of patients and staff are unimportant).

Shared objectives need not be a threat to the autonomy of different professions. There will inevitably be differences of view both within and between professions about intervention and normality, among other issues. However, a more important issue for effective teamwork is the extent to which such differences can be openly discussed, debated and resolved, as this can be a constructive route to innovation and better team performance.

Placing safety at the heart of maternity services requires the royal colleges to support the development of effective teamwork, find common ground and provide national leadership for culture change. It is clear that this can be achieved: the normal birth statement and Safer Childbirth standards have both been agreed multiprofessionally (RCOG *et al* 2007; Maternity Care Working Party 2007). The challenge is now to put safety at the heart of teamwork and so at the heart of maternity care.

TEAM LEADERSHIP

Team leaders have three main tasks (Hackman 2002).

- **Create the conditions that enable the team to do its job** This means making sure it has a clear task to perform (and one that is best performed by a team) and making sure the

necessary resources are available. Sometimes a team leader has to fight to make sure the team gets the necessary budget, accommodation, IT equipment and other tools to do its job effectively.

- **Build and maintain the team as a performing unit** This means making sure the team includes members with the necessary skills and abilities. The leader must also develop processes that help the team to perform effectively by nurturing good decision-making, problem-solving, conflict management and the development of new and improved ways of working together.
- **Coach and support the team to success** This means helping the team do its work successfully by giving direction and support. The team leader has to be sensitive to the mood of the team and to note how well members are interacting and communicating. A key task is to ensure that everyone is on 'the same page' while training and working together, which is why the best teams engage in constant team briefing and exchange of information.

Team leaders must pay attention to these processes and intervene to facilitate them when necessary. The leader's task also includes helping team members to develop their skills and abilities; this means taking time to review what they want to achieve and which skills they need to develop, then creating the appropriate learning opportunities, which could include formal training, visits to other organisations, or learning on the job.

Team leadership is different from traditional hierarchical leadership. Traditional leaders tend to direct rather than facilitate and support, to give rather than seek advice and to determine rather than integrate views. Effective team leaders, on the other hand, encourage members to offer solutions when things are not going well and do not insist on having the final say when decisions need to be made. Team leaders differ most clearly from traditional leaders in focusing on the team as a whole rather than on its individual members and in sharing responsibility with the team (West 2004).

Leaders also have a crucial role to play in supporting more junior staff to be confident about asking for help, even if it transpires that there was not a problem. Leaders must be easily available and visible to junior staff to encourage this type of open communication within teams.

Leadership at different levels requires specific skills in addition to clinical ability; these skills cannot be assumed and must be learned. One obstetrician made this point very well (Smith and Dixon 2008).

> *Managers need to listen to staff working on the 'shop floor'. Senior staff need to support juniors, not destructively criticise. Staff need seniors they can feel confident to approach if they feel lacking in experience. This needs a culture change and the seniors need to be selected according to whether they have the management skills to run a safe ship. People are the way forward for safety, not targets.*

Leadership is needed at all levels; the ultimate aim of good leadership is to enable all team members to be potential leaders and champions of safety.

The statutory system for supervision of midwives has an important role to play in providing

leadership that is focused on safety. Supervisors both form teams and belong to teams within the NHS. Supervision is provided by experienced midwives, who undertake further specific training; and all midwives, whether practising in hospital, the community or self-employed, are required to accept this supervision. Supervisors provide support, advice and guidance on practice issues and encourage further development of skills and knowledge.

COMMUNICATION STANDARDS

All units should have clear standards and guidance for communication. These should make it clear that speaking up about concerns or worries is more important than protecting hierarchy or position and should offer support for staff who challenge others at all times. Employees should be encouraged to seek advice, ask for second opinions and seek help in reviewing decisions. Formal protocols that aim to empower all team members to communicate effectively, regardless of grade or profession, have been used in maternity units and other areas of clinical care, with impressive results (*see* box below).

Simple tools for improving handover have also been developed and piloted by the Hospital at Night programme. These are available online at: www.npsa.nhs.uk/patientsafety and www.healthcareworkforce.nhs.uk

AN EXAMPLE OF A FORMAL COMMUNICATIONS PROTOCOL

SBAR (Situation-background-assessment-recommendation) is a protocol that provides a framework for team members to communicate about a patient's condition in urgent situations. It offers a straightforward mechanism for structuring conversations, focusing on immediate attention and action. It generates set expectations about what will be communicated, and how, between team members. This can be critical for developing teamwork and embedding a culture of patient safety.

The SBAR tool can be downloaded from the Institute for Healthcare Improvement at: www.ihi.org

Communication can sometimes be helped by very simple measures: we were told of one trust where the whiteboard had been removed from the labour ward so that staff were forced to communicate directly with one another about their patients.

SUPPORT AND COMMUNICATION WHEN THINGS GO WRONG

When a patient has suffered harm, the professionals involved often suffer too; they may experience guilt, humiliation and shame and also anxiety about the professional consequences for themselves (Vincent 2006a). Proactive and pre-emptive support for staff is therefore vital after a serious patient safety incident.

Equally important is timely and honest communication with patients who experience unsafe care. Many people harmed by their treatment suffer further trauma if the incident is handled insensitively. Conversely, when staff come forward, acknowledge the damage and take any necessary action, their support can ameliorate the impact of the incident for the patient both at the time and in the long term. Injured patients need explanations,

HOW ONE TRUST TACKED TEAMWORK PROBLEMS

One trust the panel visited provided helpful insight into how to resolve certain teamwork problems through good communication. The trust was addressing problems in the links between its midwife-led maternity unit and its obstetrician-led delivery suite. These included delays in medical assessment of women in the midwife-led unit and delays in transfer to the delivery suite.

Better communication protocols and earlier detection and communication of potential problems on the midwife-led unit were identified as ways of overcoming these problems. In addition, theatre nurses and critical care nurses were deployed to manage these elements of care, and midwives were left more free to concentrate on the needs of women in labour.

apologies and the knowledge that changes have been made to prevent similar incidents in future; they may also need practical and even financial help. However, hospitals with a long history of open disclosure have found it a positive policy, which has not, as was once feared, led to increased costs (Vincent 2006b) .

CONCLUSION

Effective teamwork lies at the heart of safety in maternity services. However, there is not enough shared understanding of how to improve team working, either within maternity teams or more widely. Drawing on the wider literature on team working and safety, we conclude that safe maternity teams need:

- clear team objectives and roles
- effective leadership
- robust standards for communication.

There are some significant steps that teams themselves can take immediately to improve their effectiveness, while others take longer and also require action by others.

Recommendations

- Teams themselves can:
  - agree shared, safety-focused objectives
  - clarify roles and responsibilities within the team
  - adopt clear standards and protocols for communication.
- The Royal College of Midwives (RCM) and Royal College of Obstetricians and Gynaecologists (RCOG) can give a lead by demonstrating effective team working between themselves that places safety at the heart of shared objectives for maternity services.

4 Staffing for safety

Overview

There is little objective evidence about safe staffing levels, although research suggests that better staffed hospitals (including medical and nursing staff) tend to have lower mortality levels (Rafferty *et al*, 2007; Jarman *et al*, 1999; Institute for Healthcare Improvement, 2003). Despite this lack of clear evidence, it must be obvious that without adequate numbers of staff, or staff with the right skills, teams will become unsafe. When considering staffing levels, it is useful to make the distinction between *employment* of enough staff with the right experience levels and effective *deployment* of staff to maximise safety.

Problems with employment

MIDWIVES

It is a widely accepted principle that all women should have the one-to-one care of a midwife during labour, whatever the birth setting (Hodnett *et al* 2007).

However, calculating the numbers of midwives needed to achieve this ideal is a complicated matter. Birthrate Plus is the main tool designed to help units calculate how many midwives they need to deliver one-to-one care in labour, taking account both of the local birth rate and the complexity of the caseload. Details are available at: www.birthrateplus.co.uk The recommendations of Birthrate Plus have been reflected in the *Safer Childbirth* standards (RCOG *et al* 2007). The Clinical Negligence Scheme for Trusts (CNST) includes a Level 2 standard that clinical areas are 'staffed appropriately by midwives at all times' (NHS LA 2006).

Many respondents to our inquiry from organisations argued that there are not enough midwives and described the consequences of this.

> *Inadequate midwifery staff will lead to many women being left alone for long periods of time when they feel very vulnerable. Incidents like bleeding, drop in blood pressure or abnormality in the fetal heart rate may not be picked up in time to avoid morbidity.*
> (Written evidence, RCOG)

> *Poor staffing levels leads to increased infection risks as there is the potential for corner cutting. If 'hot bedding' and hand washing are compromised there is the risk of knock-on effects compromising mother and infant.*
> (Written evidence, RCN)

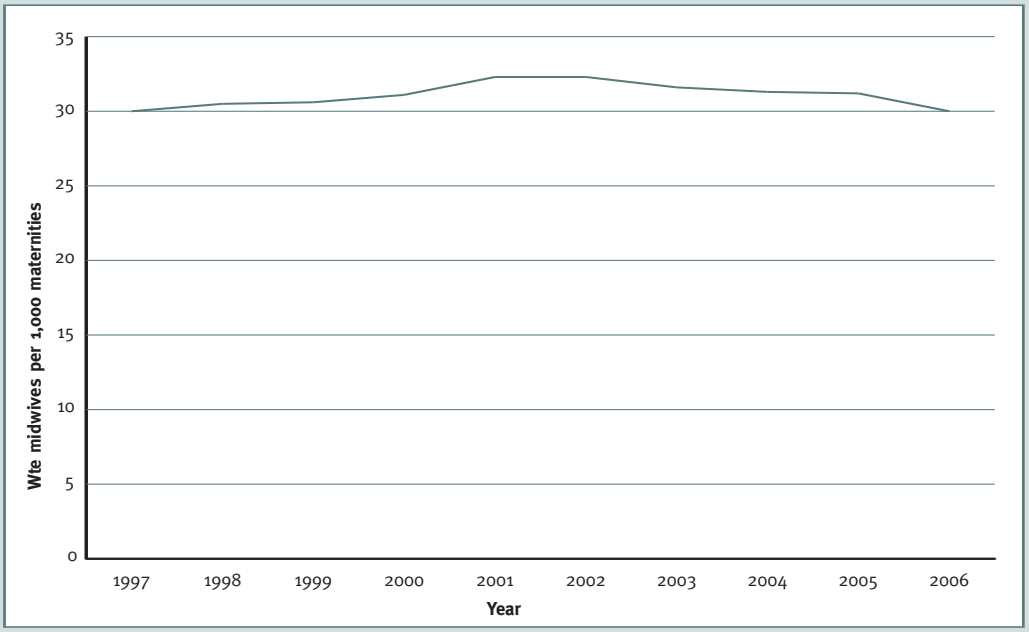
We heard similar arguments from individual professionals (Smith and Dixon 2008).

A shortage of staff makes it unsafe for women. In my unit, there are usually five qualified midwives and one healthcare assistant dealing with 11 women. If we are lucky, these numbers are increased by one each. We may have one or two student midwives who are supernumerary and should be fully supervised, but they are forced to make up the numbers. On planned section days there are usually three cases. There may also be three people who have epidurals in situ. All of these women need one-to-one care, but they are usually being looked after by midwives who are also looking after someone else in labour… As the shift and unit co-ordinator I should ideally not have a case. Having two or three clients is not unusual.
(Midwife)

Concerns were also expressed that promoting choice of birth place for women will make staffing issues harder to manage. For example, it might require reorganisation of service delivery models to enable more women to give birth at home. We saw no evidence that increasing the number of home births would necessitate an increase in midwives, but noted that a '…lack of clarity about appropriate numbers of midwives to deliver new models of care and implementation of maternity standards' (Healthcare Commission, written evidence).

According to *Safer Childbirth*, 27 per cent of responding units employed 1.15 midwives per labouring woman, the number recommended by Birthrate Plus (RCOG *et al* 2007), suggesting that 73 per cent of units employ less than this standard. According to *Safer Childbirth*, the equivalent of between 36 and 40 midwives employed per 1,000 deliveries are required to deliver one-to-one midwifery care, depending on the complexity of the cases being cared for. The rise in the birth rate since 2002 has led to a fall in the numbers of full-time equivalent midwives per 1,000 maternities for England as a whole (*see* Figure

8 WHOLE-TIME EQUIVALENT MIDWIVES PER 1,000 MATERNITIES, ENGLAND, 1997 TO 2006



Source: Department of Health, Information Centre

8, opposite). However, this global figure does not reflect either regional and local variations or seasonal variations in birth numbers.

OBSTETRICIANS

Teams of obstetricians, led by a consultant, are not attached to individual women in labour but are on call to provide medical assistance to any of the women on the labour ward, as required. Standards in this area relate not to ratios of doctors to patients but to the seniority and availability of members of the obstetric team.

Maternity emergencies happen at all times of the day and night (Healthcare Workforce 2007) so it would be logical for levels of cover to be constant. However, historically, consultants, the most senior members of the team, have delegated labour ward work to more junior members, making themselves available by telephone should their help be needed, and are not usually present at night. However, data from the National Patient Safety Agency (NPSA 2006) indicates that cases of severe fetal compromise are most likely to occur between 8.00pm and 4.00am, and this trend has been noted many times elsewhere (RCOG *et al* 2007). A cohort study by Murphy *et al* (2003) demonstrated improved outcomes with increased consultant supervision of trainees in complex obstetric procedures; increased supervision meant more hours of consultant time, and better outcomes for mothers and babies.

Standards have now been set with a view to increasing the consultant presence on labour wards. CNST now specifies that for a unit to achieve a Level 2 rating there must be 40 hours' dedicated cover on the labour ward by a consultant, or equivalent, during the working week. The consultant does not have to be present, but should be available within 30 minutes of being called (RCOG *et al* 2007; NHS LA 2006).

Problems relating to consultant cover were mentioned in many submissions received by the inquiry.

> *The number of senior and junior doctors available needs to be carefully planned. One major issue is inadequate staff and absence of senior staff to provide prompt and effective care. Junior doctors are less experienced and need to take advice before taking definitive action. Acute emergencies arise in obstetrics and gynaecology 24 hours of the day and there are no seniors to provide adequate supervision to the junior doctors who feel helpless. The senior doctors, if present, would provide them with the supervision immediately rather than coming from home and trying to solve a problem which has meanwhile got worse.*
> (Written evidence, RCOG)

According to *Safer Childbirth*, 71 per cent of consultant-led units of the relevant size that responded provided 40 hours of consultant cover during the working week, but fewer than a third of these had consultants actually *present* for 40 hours (RCOG *et al* 2007).

Moreover, the existing 40-hour standard only covers the working week; extending consultant presence into out-of-hours periods is likely to necessitate a considerable, and costly, increase in consultant numbers.

ANAESTHETISTS

Anaesthetists play an important role in the maternity team: they are responsible not only for ensuring that epidurals and general anaesthetics are given safely but also for the resuscitation and care of women who are seriously ill as a result of haemorrhage, pre-eclampsia and other major complications. The Obstetric Anaesthetists' Association (OAA) drew attention, in written evidence, to a shortage of anaesthetists on labour wards; and concerns were raised about the need to extend their hours of availability (to match the availability of obstetricians) and to ensure they have the right skilled support in the form of operating department assistants/practitioners.

EXPERIENCE LEVELS

Submissions from both organisations and professionals also emphasised the importance of ensuring the availability of appropriate number of midwives and obstetricians with different levels of experience.

> *The number of midwives is not the only issue; the grade or seniority of midwife in each shift also needs to be carefully considered. The junior midwives left to look after high-risk cases feel stressed (and leave midwifery) and the care provided may be inadequate. Each trust has to make sure that the level of seniority of midwifery staff in each shift is balanced in order not to compromise safety.*
> (Written evidence, RCOG)

Concerns were also expressed about the experience levels of more junior obstetric staff. The reduction in the length (and possibly breadth) of obstetric training as a result of the European Working Time Directive and changes to training was raised as an issue in several written submissions (Royal College of General Practitioners (RCGP), RCM, OAA). According to *Safer Childbirth*, there has been a steady decrease in both the availability of junior doctors on labour wards and their contribution to service provision (RCOG *et al* 2007). The likely consequence is that in future specialist registrars will be less experienced on completion of their training than they used to be; this could reduce their ability to detect and act on problems arising during labour and could limit their technical and surgical skills. A number of midwives pointed out that relative inexperience might also make junior doctors overly risk-averse, encouraging them to perform unnecessary interventions, which in themselves constitute unsafe care (Smith and Dixon 2008).

> *Changes in junior doctors' training and hours have resulted in doctors gaining less experience than in the past. Even recently appointed consultant obstetricians are less experienced than those of 10 years ago. This results in increased intervention in birth (as a result of decreased confidence in the birth process) together with increased fear over litigation.*
> (Professional evidence, consultant midwife)

Problems with deployment

Getting employment levels rights is pointless if there are problems with deployment. Responses to the inquiry pointed to major problems with staff deployment.

My instinct is that many [maternity units] are lacking investment and could do with more staff, but I think the issues are to do with making sure that they are working efficiently and using the staff and skills and techniques to the best possible advantages, rather than just putting in 3,000 more midwives… 3,000 more midwives doing what?
(Oral evidence)

NON-CLINICAL ROLES

A large number of professional submissions (Smith and Dixon 2008) pointed out that many tasks currently performed by midwives could be delegated to clerical staff, leaving both hospital and community midwives more time to care for mothers. Relevant tasks included doing paperwork, ordering and re-stocking equipment, data inputting, filing and writing letters and reports.

Midwives are also expected to do all the relevant paperwork to get the women discharged from the delivery suite. WHY? I accept that we must write up our notes, but once this is done why can't a clerical member of staff do the rest of the paperwork? We are often working without the support of clerical staff. Until these areas are addressed very little will change within the unit I work in.
(Professional evidence, midwife)

This was identified as a particular problem for senior staff, whose valuable clinical experience was perceived to be wasted on administrative tasks.

The senior staff are too wrapped in red tape and bureaucracy. Their admin tasks are horrendous, but they are senior midwives as a result of the experience they have, not as a result of their admin skills! These skills are wasted, and it is such a waste of money, employing senior, experienced midwives as office clerks.
(Professional evidence, student midwife)

Similar problems were also described by senior doctors:

A small example of the false economies is that consultants have gone from having 1.0 to 0.25 secretaries over 14 years, which has led to increased stress and a very expensive use of consultant time doing menial tasks. Every hour that my colleagues spend opening post, making appointments, taking phone calls, printing letters, checking appointments, looking up results, phoning patients, filling in repetitive risk management forms about the same risks, and typing their own letters and minutes is an hour taken out of frontline patient care. Too often, people are acting down below the level of their skills covering holes further down the system which is wasteful.
(Consultant obstetrician, written evidence, unpublished)

The inquiry heard anecdotal evidence that in cost-saving exercises, clerical and administrative staff are usually cut to protect clinical posts. However, non-clinical tasks are clearly indispensable to patient care, and when staff are cut their work has to be absorbed by other members of the team, potentially diverting them from clinical tasks. Despite this widespread concern about inappropriate deployment of staff, there is little hard evidence of the extent of the problem.

CLINICAL ROLES

In addition to clerical and administrative tasks, midwives are also often detained on elements of patient care that could be performed by maternity support workers. In recognition of the need for greater clarity about this evolving role, a scoping study of maternity support workers (MSW) was carried out in NHS trusts in England in 2006 (Sandall *et al* 2007). The study showed managers were generally positive about maternity support workers' contributions to the work of maternity teams. However, there was considerable variation between hospitals in their range of activities, training, pay and levels of competence, and there were inconsistencies in delegated responsibility and accountability. The study team pointed to the crucial need for a national framework for entry requirement, training and competencies, determined by job profile, for roles in different settings, as well as a national framework for pay.

The role of the midwife is complex, and we heard that midwives are often called on to perform a broad range of different clinical tasks, including assisting during caesarean sections and managing recovery after surgery. It is not clear that midwives should be asked to carry all of these roles. As a consultant anaesthetist pointed out:

> *Midwives… should be valued to do jobs they are particularly skilled at. Recovery and observation after surgical procedures should be left to nurses, freeing up midwives for more specialist tasks.*
> (Consultant anaesthetist, written evidence, unpublished)

We were told that using dedicated theatre support staff rather than midwives to assist in obstetric theatres could ensure better use of differing skills sets and also enable units to manage demand more effectively.

The role of the consultant obstetrician is similarly broad. All are trained as, and most continue to practise as, gynaecologists as well as obstetricians, and we heard that an increasing proportion subspecialise in gynaecology as their careers advance, although we have not seen data to support this claim. One potential implication of this shift is that many labour wards are staffed by consultants whose primary interests and expertise lie outside obstetrics.

Solutions

National standards and tools have been devised for setting staffing levels for maternity teams; however, staffing levels are ultimately determined by individual trusts, which are under no compulsion to use tools like Birthrate Plus or adhere to their recommendations.

Staffing levels and availability of experienced staff were major themes in the submissions we received from individual professionals and their organisations. Many reported working in understaffed environments and found this a harsh experience. Although we do not doubt the importance of achieving safe levels of staffing for midwifes and doctors, this in itself cannot guarantee increased safety. We believe that a broader approach to measuring and meeting local staffing needs, taking full account of deployment, is more likely to deliver improvements at ground level than is repeated endorsement of existing standards for levels of employment.

IMPROVING DEPLOYMENT TO SUPPORT STAFFING

Building an informative picture of the staffing requirements for a safe service means taking account of a wide range of factors, many of which can only be known locally. These include:

- training
- experience
- time taken by non-clinical tasks
- availability of support staff and how their roles are defined (including cleaners, security, administrators, assistants)
- geography and physical lay-out of facilities, noting the particular difficulties created by split sites
- how well staff are deployed and how they use their time.

Work has already been done in a wide range of other clinical specialities to increase productivity (*see*, for example, the Productive Ward (NHS Institute for Innovation and Improvement 2007)). Productivity involves the right person, doing the right thing, at the right time, at the right place. Applying the same approach to maternity should free up staff time, with a positive knock-on effect on safety as well as on the experience of professionals.

- The *right person* includes having consultants present on the labour ward at the times when of greatest risk and pressure, and easily accessible to junior staff at other times.
- Doing the *right thing* might include actively aiming to reduce unnecessary interventions, releasing staff time spent in theatres and on extended postnatal care. The NHS Institute for Innovation and Improvement's work on caesarean section rates is a good example of this.
- Doing the right thing at the *right time* might involve early detection and referral of problems to the most appropriate staff. For example, the Royal College of Physicians emphasised the importance of early involvement of medical consultants in the care of women with pre-existing medical conditions.
- Carrying out care in the *right place* might involve the use of triage midwives to keep women who are not in labour off the labour ward and to keep elective work (such as elective caesarean section) away from the labour ward and labour ward theatres.

Subspecialisation for both midwives and obstetricians could also contribute to deploying staff for maximum safety, ensuring that those carrying out particular roles have the specific aptitudes and commitment required. For example, employing dedicated obstetricians to work on labour wards rather than generalist obstetrician-gynaecologists might enhance their skills in non-surgical obstetrics (instrumental deliveries rather than caesarean sections), and their experience of normal birth.

The Albany midwifery practice (*see* box overleaf) has demonstrated that it is possible to achieve high rates of productivity and excellent outcomes through different ways of deploying staff. They have done this through radical revisions to the allocation of women to midwives and to the way in which the midwives are accountable for women in their care.

CASE STUDY: THE ALBANY PRACTICE

The Albany midwives make up one of nine midwifery group practices at King's College Hospital in south-east London. The midwives, who are self-employed and self-managed, provide midwifery care for women who live in and around Peckham, an area with high levels of deprivation. Individual midwives are allocated to individual women, securing continuity of care and carer. Each midwife has an individual caseload of 36 women, when acting as primary midwife, and another 36 women as secondary midwife, with cases referred by local GPs and, sometimes, by consultants at King's. The caseload is representative of the local population.

In 2003, the Albany midwives looked after 221 women, with outcomes as follows:

- 83 per cent of births were spontaneous vaginal deliveries
- 80 per cent of these women had no pharmacological pain relief
- the caesarean section rate was 13.5 per cent
- a known Albany midwife was present at 97 per cent of the births
- 98 per cent of babies were breastfed at birth and 79 per cent were breastfed at 28 days.

An evaluation of the Albany midwives' work, published in 2001, concluded that the practice was successful at facilitating normal pregnancy and birth, with high rates of home birth. They also achieved an improvement in childbirth outcomes in very deprived groups of women. Women felt they were provided with informed choice. Accessible and appropriate care was also provided.

Source: Sandall *et al* 2001

TEAMWORK PRINCIPLES

The principles underpinning effective teamwork outlined in the previous chapter also have a role to play in determining appropriate staffing levels and deployment.

- The wider clinical team agrees objectives for the services to be provided for the local population, and the guidance to be followed for assessing appropriate staffing levels and deployment. The need for one-to-one care in labour should be a crucial guiding principle in discussion of optimal staff numbers.
- Roles and responsibilities are discussed and agreed within teams, with clarity about the boundaries between disciplines and staff groups and where they can and cannot be flexible.
- Demand and capacity are mapped to ensure that staff are deployed effectively in relation to predictable fluctuations in demand, both short term, over 24 hours, and long term, over the days, weeks, and months ahead.

CONCLUSION

Safe teams need the right staff, in the right place, at the right time. We support the crucial guiding principle of providing one-to-one care in labour, which should underlie all approaches to maternity staffing. However, in our view the 'tools' and recommendations

for staffing devised by professional bodies are only a starting point because they focus on employment but take no account of effective deployment. Planning of both employment and deployment needs to be informed by a broader set of factors than mere ratios; it must also take account of standards for organisation and processes of care, definitions of roles, experience levels and availability of support staff. Above all, staff must be deployed to ensure that there is enough cover at busy times, and no wasteful deployment at slacker times. Without systems to ensure that maternity teams are effectively deployed to care for women and their babies, employing larger numbers of midwives, consultants, or both, may not improve safety.

As in the previous chapter, some steps to improve staffing can be taken immediately, while others will take longer.

Recommendations

- Maternity units should review demand and capacity regularly and make sure they employ enough staff, with the right mix of skills, and deploy them effectively across peak and other times.
- Information on employment levels, skill mix and deployment achieved across all shifts and location should be made available promptly to unit managers and regularly to trust boards.
- National bodies, including the Department of Health, should draw on existing work in other clinical specialties to commission simple and effective tools to help maternity managers to manage employment and deployment, to map demand, capacity and patient flow, and to provide timely feedback on levels achieved across all shifts and locations.

5 Training for safety

Overview

Unless teams and their individual members have the right skills and training, the services they provide will be unsafe. Midwives and doctors working in maternity services need a broad set of skills, equipping them to manage not only uncomplicated childbirth but also the complications that can arise.

A number of bodies claim to set standards for skills and training for maternity professionals. Minimum professional standards for clinicians working in maternity services are set by the Royal College of Obstetricians and Gynaecologists (RCOG), working with the Postgraduate Medical Education and Training Board (PMETB) and the Nursing and Midwifery Council (NMC). These standards define core practical skills and also cover related areas like communication. Further areas for training are identified in the *Safer Childbirth* standards (RCOG *et al* 2007). Many but not all of these skill requirements are also embedded in the training standards specified by the Clinical Negligence Scheme for Trusts (CNST) (NHS LA 2006). The multiple standards set by different bodies for maternity services are discussed more fully later in the report.

A survey by the RCOG suggested 98 per cent compliance with six-monthly training on high-risk labour and cardiotocograph (CTG) interpretation within the 108 maternity units that responded (RCOG *et al* 2007).

Problems in training

CORE CLINICAL SKILLS

When investigating problems at London's Northwick Park Hospital, the Healthcare Commission (HCC) found that it was difficult for doctors to secure time off for training and meetings and that there were poor levels of attendance at mandatory training sessions. As part of its follow-up, the Commission stipulated that such attendance must be improved and also made recommendations designed to ensure the recruitment of staff specifically trained in postoperative care (Healthcare Commission 2005). The Confidential Enquiry into Maternal and Child Health (CEMACH) has also made recommendations about improving training in specific areas (Lewis *et al* 2004; Lewis *et al* 2007).

Our written submissions from organisations (including, for example, BAPM, RCM, RCN) revealed widespread concern about the lack of on-the-job training and skills updating by all groups of clinicians working in maternity services. The main reasons identified for this problem were inability to secure time off work for training, often due to staffing pressures, and lack of funding for training.

The budget for study leave has been cut drastically for both midwives and doctors. They are not released to go for study days, as it is said this will affect the service. Even if they are prepared to pay their own money, taking leave is not always possible.
(Written evidence, RCOG)

These arguments were also reflected in responses we received from individual professionals working in maternity services (Smith and Dixon 2008).

TRAINING TO PROMOTE SAFETY

Training in core clinical skills is crucial to safety in maternity services, but so is systematic safety training. However, we heard that doctors and midwives working in maternity and other services do not receive enough formal education in safety awareness.

I think a lot of this has to do with the way we train our doctors and our midwives. Patient safety training should be included in the core training. We just don't recognise the idea of red flags. On labour wards, in particular, most people are not cognitively attuned to safety; they are not in optimal safety mode.
(Oral evidence)

BUILDING ON EXISTING WORK

Problems with individual and team competence that may be linked to lack of training are frequently found in maternity safety investigations (Healthcare Commission 2005; Lewis *et al* 2004). In response to these findings, standards set by CNST now cover the core labour ward skills, which need regular updating for safe care (NHS LA 2006). There was little suggestion from our respondents that important aspects of care were omitted from these core training standards, and there seems to be a consensus on the core clinical skills required for safety. However, there are several important limitations to the effectiveness of these standards in ensuring team training to promote safety.

- The fact that CNST standards exist is no guarantee that all maternity units will comply with them.
- CNST and other data on skills in the maternity workforce are derived from process measures (such as numbers attending training) and are based on self-reporting rather than objective assessment of skills. Even in units that comply with these standards, there is considerable variation in delivery of training, with no formalised quality assurance about the training used. Currently, training takes place either on the labour ward, in the form of ad hoc sessions led by duty consultants or qualified midwives, or away from the ward in the form of multidisciplinary lectures. While the training specified by CNST standards may provide adequate coverage of individual skills, their application to clinical situations is often complicated by the need to carry out a number of skilled tasks, while communicating effectively with team members, under conditions of stress.
- There has been little systematic attempt to embed formal training in safety awareness in either midwifery or obstetric practice (oral evidence).

Solutions

TRAINING TEAMS IN CORE CLINICAL SKILLS

It has long been recognised that professional groups who work together should also train together to promote understanding of each other's practice and foster good team working.

> *When trained together they understand each other's practice which will enhance safe patient care…*
> (Written evidence, RCOG)

This understanding is reflected in the CNST standards, which specify that training in a number of areas must be multidisciplinary. However, some of our respondents said that multidisciplinary training is not always well implemented.

> *Multi-professional skills & drills should be the norm and has been recommended by the CNST, but it is not completely adhered to by all the hospitals.*
> (Written evidence, RCOG)

> *I think that there should be a stronger focus on midwives and doctors training together for some aspects of professional development, for example managing normal births. Doctors could have work experience at standalone birth units; midwives could improve their understanding of the use of forceps/ventouses so that they know when it is being applied and used appropriately.*
> (Professional evidence, midwife)

However, effective team-based training requires more than having staff learn together. The safe performance of clinical tasks must be underpinned by effective team working and communication, and must be actively practised using simulated emergencies.

Training is currently provided for many individual aspects of clinical practice, including vaginal breech delivery, CTG interpretation and postpartum haemorrhage. However, delivering training on isolated aspects of care may limit its usefulness. A clinician's ability to perform a vaginal breech delivery may be complicated by having to communicate with a distraught mother and father, manage nervous neonatal senior house officers, interpret a CTG and cope with a postpartum haemorrhage!

All the barriers to implementing team-based training for safety identified by our respondents related to difficulty in securing funding for training and/or arranging time off clinical duties for staff to attend. We conclude that the costs associated with team-based training need to be set against its demonstrable effectiveness in improving outcomes and its potential contribution to reducing the cost of clinical negligence claims. Investment in training is clearly justified and should be seen as an integral aspect of service provision rather than an expendable add-on.

Training models such as MOSES, which require dedicated facilities and equipment, can be expensive, but in our view maternity units could easily provide their own simulation-based training at lower cost. Any such training should include clinical skills, communication, team working, and awareness of roles within the team.

LOCAL TEAM-BASED TRAINING

Research suggests that providing skills training for clinicians within their teams, and ideally within their own units, is effective in improving outcomes. The introduction of training in obstetric emergencies at Bristol was associated with a significant reduction in low five-minute Apgar scores and neonatal hypoxic ischaemic encephalopathy. This improvement has been sustained as the training has continued. This is the first time an educational intervention has been shown to be associated with a clinically important and sustained improvement in perinatal outcome (Draycott and Crofts 2006). More recently, research from Liverpool showed a 50 per cent reduction in the incidence of cord pH of less than seven after training was introduced in 2001 (Scholefield 2007).

Source: Colllins *et al* 2007

MOSES SIMULATION TRAINING AND LABOUR WARD DRILLS

Talking through scenarios may be useful, but simulation-based training gives clinicians hands-on practice in working with their team to manage emergencies that call for the simultaneous use of a variety of clinical and interpersonal skills. The MOSES (Multidisciplinary Obstetric Simulated Emergency Scenarios) course, offered at Barts and The London NHS Trust, trains teams in real-time scenarios, using real vital signs monitors, clinician actors, and mannequins controlled by clinical observers, who assess the process through a one-way mirror. These scenarios are designed to be highly realistic, to replicate the stress levels associated with real emergency situations and to test skills as diverse as drug dosing, manual skills, communication, delegation and team working. Extensive feedback is provided for every individual and team. A few other hospitals have simulation suites that are used to replicate anaesthetic emergencies, but these are little used by maternity services.

Further details of the MOSES course can be found at: www. bartsandthelondon.nhs.uk

Simulation-based training can also be carried out on site in a unit's own labour ward, with the advantage that staff are not taken away from their workplace, and training can be adapted to reflect the actual setting in which staff will have to put emergency drills into practice.

This training model involves putting out practice emergency calls to marshal the team for a simulation on the labour ward. Once the team is assembled, one medical student may be asked to act as the labouring woman and another as the father, with an instructor calling the problems, watching the team manage them, then providing a full debrief. Ideally this sort of training needs to be extended to all those who might be involved in managing an emergency, including, for example, porters and blood transfusion teams. Because this kind of activity can be seen as disruptive, high-level support is needed, for which training in major accident preparedness has already paved the way.

Maternity services are obliged to operate a round-the-clock service, making disruptions and staff absences harder to absorb than in other specialties, where routine commitments can be cancelled. However, some routine elements of maternity care can be postponed to facilitate fuller participation; any resulting disruption needs to be offset against the benefits that will be derived from this sort of training.

TRAINING TO PROMOTE SAFER TEAM WORKING

Team training helps members to learn how to work better together in routine and, particularly, in emergency clinical situations. However, as mentioned in the previous chapter, additional developmental training may be needed to help leaders promote effective team working, and training in specific communication skills may also prove useful.

In addition to this, we feel that systematic training in safety awareness should form part of both pre-registration training and continuing professional development (CPD) for all professional groups. Further research will be needed to explore the most effective ways for the royal colleges to introduce this training.

CONCLUSIONS

Teams need to train together for two reasons:

- to ensure that individual members have the necessary skills and expertise
- to help the team itself function effectively.

Compliance with CNST training requirements is not enough to guarantee active team training, quality assured training or training in safety awareness. Submission to our inquiry also suggested that constraints on staff time and funding make it difficult for staff to meet current training requirements because they often require absence from the unit. However, there are smarter approaches to training that can get round these difficulties. There is evidence that team-based training in clinical skills can be an effective way of improving outcomes.

Regular training should be seen as a core activity for every maternity team rather than an optional extra. The ‘awayday’ model of training is not optimal. Core clinical skills should be taught in ‘down time’ on the labour ward wherever possible, so that clinicians need not leave their place of work, that learning is specific to the unit and genuinely team-based and that it is more likely to take place.

Ward-based simulation-based training, which assesses clinical, communication and team skills within a single exercise, should be used to augment training in specific clinical skills. This training not only enhances a team’s working practices and awareness of roles, but also tests the safety of a maternity unit’s emergency procedures. In our view, all maternity staff should be offered this training, again, ideally within their own units.

Recommendations

- A designated maternity unit manager should keep information on all training completed – and on all training required and planned but not yet undertaken – by members of maternity teams. This information should be made available on a regular basis both to unit managers and trust boards.

- The RCOG, the NMC and the PMETB should spread expertise on skills training and emergency drills to all maternity units by adapting elements of existing simulation-based training models and turning them into high-quality training tools that can be used locally at minimal cost and disruption.
- The royal colleges and the NMC should introduce safety awareness training into mainstream professional education at all levels.

6 Guidance to support safety

Overview

Safe clinical practice must be based on evidence about interventions that work. Such evidence provides a basis for guidelines, protocols and decision-making aids, and expert opinion. Maternity services have a long tradition of evidence-based care in clinical practice (Chalmers *et al* 1989). Guidance may be produced centrally or locally, using a range of terminology. We use the following terms.

- **Guidelines** These are high-level expositions – often lengthy and detailed – of the evidence base that supports the use of particular treatments or diagnostic tools in specific situations.
- **Protocols** These provide an operational distillation of guidelines, or of other useful clinical steps, relevant to a given condition or situation for use in clinical practice.
- **Guidance** This is a generic term encompassing guidelines, protocols and other forms of authoritative advice that bear on clinical decision-making.

Problems with guidelines

GUIDELINES NOT AVAILABLE

According to a written submission from the Department of Health, 'clinical guidelines have now become a routine part of practice'. However, *Safer Childbirth* suggests that only 74 per cent of trusts had all 27 maternity guidelines 'in place', with some units having as few as 10 in place (RCOG *et al* 2007).

If guidelines are not even available they are unlikely to be implemented. Lack of locally implemented guidelines was also mentioned as a problem by the Confidential Enquiry into Maternity and Child Health (CEMACH) report for 2000–2002. 'In some units, there is a continuing lack of a clear policy for the prevention or treatment of conditions such as pulmonary embolism, eclampsia or massive haemorrhage' (Lewis *et al* 2004). For two of these conditions (eclampsia and haemorrhage), the availability of guidelines is already required as a Level 1 standard for maternity units. One of the top 10 recommendations in the CEMACH maternal mortality report for 2003–05 was to fill gaps in the guidelines available (Lewis *et al* 2007). Of course, availability is not enough: implementation is also required.

The Healthcare Commission's (HCC) investigation into Northwick Park Hospital also found a lack of guidelines available within the trust. There were no specialist guidelines for at-risk patients; some guidelines were out of date; and the recommendation of an earlier internal review that a full set of guidelines be made available in every delivery room had not been implemented (Healthcare Commission 2005).

GUIDELINES NOT IMPLEMENTED OR USEFUL

There are many clinical guidelines relevant to staff caring for pregnant women and their babies, issued variously by government, professional and other organisations. Unfortunately, more is not necessarily better, and these guidelines are both repetitive and, in some cases, inconsistent. They are collected in Appendix 4.

The responses we received made it clear that the comprehensive set of national guidelines now available to maternity teams do not fully meet their needs.

> *National guidelines are only a start. If you provide a national guideline it is a lovely glossy document, it gives you fantastic information, everything you would possibly want to know about the evidence base of that practice; but it is the last thing which is useful to [help you] know what to do when the event occurs. You need a modified version that you can actually use in your local environment.*
> (Oral evidence)

Centrally produced guidelines on clinical care can offer a rapid means of disseminating best practice to clinicians, supposedly enabling them to update practice to reflect the latest advances and minimising duplication of effort. However, if these guidelines are to be of practical use, they need to be distilled into shorter, locally agreed *protocols* that set out steps for managing specific clinical situations, and particularly emergencies, in local settings. A recurring question from clinicians was why each individual trust should have to 'reinvent the wheel' in adapting central guidelines into formats that are actually useful to maternity teams. Protocols need to cover clinical treatment as well as crucial practical details such as which other members of the team should be called in an emergency, and how to contact them. Examples of areas where protocols can be useful include shoulder dystocia and massive postpartum haemorrhage.

> *I could argue that there are actually too many guidelines: it is confusing and counter productive.*
> (Oral evidence)

Crucially, the existence of clinical guidance within a maternity unit does not in itself improve care.

> *Actually what they should be doing is making sure that guidelines are implemented or that people are auditing their practice.*
> (Oral evidence)

Even where protocols exist and are made available, staff need to be properly trained to use them if they are to avoid serious safety failures (Ashcroft 2003). The adherence to protocols must also be audited.

Solutions

The availability of clinical guidelines that set out agreed best practice in maternity care is a big step forward. However, these guidelines can enhance safety only if they are translated into useful protocols and implemented in training and in daily clinical practice.

USEFUL PROTOCOLS, READILY AVAILABLE

The first step towards implementing guidelines is to make them operationally useful to maternity teams by setting out clear, concise protocols. These should clarify responsibilities and lines of communication within the team implementing them. But while some aspects (such as telephone numbers) need to be locality-specific, local variations are usually few enough to allow protocols to be developed on a national basis.

Protocols need to be produced in usable formats, preferably taking up no more than one side of A4 paper. They must be immediately accessible where they will need to be used. One of the units we visited had made protocols available on their intranet system, with a computer terminal available in every delivery room, offering instant access to a wide variety of guidance. Another simple way of making protocols accessible is to stick them on the wall in relevant locations.

INTEGRATING GUIDANCE

The term 'bundle' has been introduced by the US Institute for Health Improvement (IHI) to describe a way of tackling specific safety issues by assembling a simple group of evidence-based clinical actions that are likely to have most impact on the problem in hand. For example, elements of the 'augmentation of labour bundle' include:

- estimated fetal weight
- monitoring fetal heart rate for reassurance
- pelvic assessment
- monitoring and management of hyperstimulation (Cherouny *et al* 2005).

The most important aspect of bundles is that all their elements can be implemented quite easily by local practitioners. The care specified is viewed as the default option, and the entire bundle of care should be delivered reliably to every patient for whom it is appropriate.

The National Patient Safety Agency (NPSA) is currently developing 'bundles' and processes of care for managing two specific high-risk maternity situations: cardiotocography (CTG) monitoring and placenta praevia following a previous caesarean section. We understand from an oral submission that these will be published in mid-2008. These examples are not the only 'bundles' that could be identified for safe maternity care.

Another knowledge management tool that can aid the integration and presentation of guidance is the Map of Medicine. This is a web-based visual representation of evidence-based patient care journeys covering 28 medical specialties and 387 pathways, including term labour, caesarean section, intrapartum fetal monitoring and postpartum haemorrhage (Map of Medicine 2007). These are available at: http://healthguides.mapofmedicine.com.

The All Wales Normal Birth Pathway is another example of a care pathway that aims to bring together evidence and guidance in a useable format. This is available at: www.wales.nhs.uk.

There may also be a role for an independent digest of evidence on guidance, including useful information designed to update members of multidisciplinary teams. For example,

BMJ Clinical Evidence uses Cochrane methodology, with interprofessional input, is updated annually and published in various formats. It is available at: http://clinicalevidence.bmj.com.

COMMUNICATING GUIDANCE

Guidelines, backed by short protocols and bundles, cannot be implemented by mere dissemination: they must be effectively communicated to the teams that will need to use them. Although implementation must be driven locally, responses to our inquiry suggested that there might be a role for additional central support to bring maternity teams' attention to new guidance and especially to specific protocols or bundles on a regular basis. The NPSA already runs a national system for briefing and dissemination (*see* the patient safety section at: www.npsa.nhs.uk). The Medicines and Healthcare Regulatory Authority's clinical alerts system may also provide a useful model, along with the NOTAM (Notice To Airman) system used in aviation. However, it is important to obtain agreement on who is to produce such guidance, and to ensure that it does not duplicate or (still worse) conflict.

FROM PROTOCOL TO SAFE PRACTICE

Making guidelines and protocols available does not guarantee safe practice. For example, team members using the guidance may disagree with the content and refuse to use it. One problem identified at Northwick Park Hospital was that certain consultants had not been involved in the development of guidelines and did not support them (Healthcare Commission 2005). Submissions to our inquiry suggested that good multidisciplinary team working is promoted when guidelines are developed across professional groupings. When this co-operation is achieved at national level, as happens increasingly, it is still necessary to seek local 'buy-in' to protocols derived from the guidelines to make sure team members have a full understanding of the evidence base.

Following the development of locally tailored protocols, teams need to familiarise themselves with new or revised protocols through training and induction. Team-based drills training of the type described in the previous chapter can play an important role in embedding guidance in practice.

Another way to make guidance more visible is to give copies of (some) relevant protocols to appropriate patients. This not only familiarises them with the type of treatment they can expect to receive but may also equip them to detect and challenge deviations from the protocol.

AUDITING ADHERENCE TO GUIDELINES AND PROTOCOLS

Compliance with guidelines must be monitored so that teams have an incentive to follow them and can assess whether they are implementing the safest care. Simulation-based training enables teams to test how well they follow protocols in simulated emergency situations, as well as testing the workability of the guidance.

Maternity teams also need to carry out retrospective audits of their work. Auditing small samples over a period of time can provide rapid feedback, leading to consequent improvements. When guidance is published along with a ready-made audit tool, as now happens with the National Institute for Health and Clinical Excellence (NICE) guidance, the audit process should be easier. Audit skills are now incorporated into junior doctors'

training. One unit we visited aimed to co-ordinate this training with the unit's own audit requirements for the Clinical Negligence Scheme for Trusts (CNST), directing junior doctors in search of development opportunities towards these priority areas.

In addition to audit, web-based intranet programmes may provide another opportunity to test the maternity teams' awareness and understanding of guidelines and protocols. Similar programmes established earlier for medical ethics and radiation protection appear to operate effectively.

DESIGNING SYSTEMS FOR SAFETY

This report has focused primarily on what we believe to be the basic building blocks for maintaining safe maternity care. However, safety in health care is a growing concern, with many new approaches and techniques that may be relevant to some trusts already and to most in the future.

There are many examples of tools that help clinicians to identify deviations from the norm through prompts and visual aids to recording. Partograms, which provide a standardised visual way of recording the process of labour, flagging up the actions needed at different stages, have been in widespread use within maternity units for many years. Documentation aids, introduced in some trusts to support teams in monitoring CTG traces, have been well received by staff. Visual physiological early warning systems can also make it easier for staff monitoring women postnatally to detect emerging problems and crises more quickly; one system was recommended in the latest CEMACH report (Lewis *et al* 2007) and similar systems are already in operation in other clinical specialties.

Redesigning systems and processes for clinical care can also support the implementation of clinical guidance by making sure that the safest action is the default action. For example, if it is best practice to use only one type of suture, that should be the only type of suture that is available. The Perineal Assessment and Repair Longitudinal Study (PEARLS) project is a joint initiative by the Royal Colleges of Midwives (RCM) and the Royal College of Obstetricians and Gynaecologists (RCOG) that is testing training to support implementation of NICE guidelines on suturing perineal tears. It includes standardising the suturing materials that are available through procurement and training staff in the right technique of suturing (Royal College of Midwives 2007; Health Foundation 2007).

CONCLUSIONS

There are several major problems with the guidance currently provided for maternity teams.

- A large amount of clinical guidance is produced by professional and other organisations and is promulgated for use in maternity services. However, many of the guidelines are too long and complex to be useful in everyday clinical practice.
- Guidelines are not always supplemented with shorter protocols that are usable in everyday clinical practice.
- Neither guidelines nor protocols are always available within maternity units, and even where they are available, they are not always followed.

Recommendations

- Maternity services need a single set of evidence-based guidelines that are backed by professional organisations, NICE and other organisations.
- Guidelines must be supplemented by short summaries and usable, consistent protocols. We recommend a national approach to distilling clinical guidelines into short, one-page protocols for practical use.
- Staff in all disciplines should be encouraged to familiarise themselves with using guidelines in a local setting and should be trained to use the relevant protocols. The implementation of protocols should be regularly audited by simple methods and, further down the line, processes should be modified to make the safest care the 'default option' and so the easiest to deliver.
- Understanding of clinical guidance should be reinforced by annual evidence digests and a national briefing system and by extending existing tools like the Map of Medicine into maternity services.

7 Information for safety

Overview

Information about interventions and outcomes in clinical care has many uses. It can be used for *summative* retrospective purposes, such as informing trust boards, regulators, commissioners and patients about the standards achieved in a particular trust or service; we discuss some of these summative uses of information in later chapters of this report. However, information is more crucially used for *formative* purposes, to help maternity teams and units assess and improve the service they provide.

The collation and analysis of retrospective information about the circumstances and causes of adverse incidents lies at the heart of many recent approaches to improving patient safety. For example, information is collected nationally on adverse incidents, and local incident reporting systems are in place in all maternity units. However, although this kind of information can be helpful in promoting change, incident monitoring has limited value as a measure of safety or quality. The information conveyed by counting incidents or near misses does not in itself show where there are safety shortcomings, or what those shortcomings are.

Other types of information critical to effective teamwork are often lacking. Only if a team has reliable, locally relevant information about how well it is doing and where its problems lie can it reflect on performance, assess what changes are needed and monitor progress. Teams with access to useful data can take pride in their achievements, demonstrate them to others and track safety improvements over time. We regard access to reliable performance information as more crucial to safety than access to retrospective documentation of shortcomings. Performance information will, of course, highlight a team's shortcomings to those in a position to do something about them, but above all it will help teams take control of improving their own performance.

Problems with information

Written responses to our inquiry revealed good understanding of the importance of information for teams seeking safety improvements; however, they also highlighted dissatisfaction with the available systems for gathering and using information. It was striking that many enthusiastic members of maternity teams showed very little awareness of their team's performance levels and were not in a position to consider the safety of their services and how it might be improved. The Healthcare Commission (HCC) cites information as a key tool for improving safety.

> *First, it is important that good data is collected and reviewed in order to analyse trends, assess the causes of safety incidents and audit improvement.*
> (Written evidence, HCC)

However, 'good data' here are seen as useful for summative rather than formative purposes. As a result, cumbersome systems that take up clinicians' time but offer little demonstrable benefit to maternity teams have been introduced. Members of teams we met spoke repeatedly of their exasperation at being providers of information for others rather than recipients of information that they could use to make improvements. Information relevant to safety is regularly collected from maternity services through many different systems (*see* Appendix 5). However, the ways in which it is fed back do not appear to help teams improve their performance.

CLINICAL INCIDENT REPORTING AND 'LEARNING FROM INCIDENTS'

Clinical incident reporting provides a good illustration of current perceptions about summative gathering and use of information in maternity services. These systems depend on self-reporting, and we were told that the quality of some reports is poor. Sometimes this is because the true cause of the incident is not immediately apparent. Concerns were also voiced about the quality and completeness of information captured in both clinical incident reporting systems and national reporting systems on outcomes. Some respondents were worried that fear of litigation could compromise learning from events. One clinician told us that her trust's legal department had amended the conclusions of incident reports, resulting in recommendations that were less than complete. She pointed out that trusts have an interest in not reporting too many incidents and that: 'clinicians have to be careful not to be too honest'.

INFORMATION ABOUT SAFETY

The information collected from incident reporting is part of a much larger reservoir of information needed for monitoring safety (Vincent 2007), many components of which are currently lacking.

> *Meaningless and incomplete information is monitored, but little is produced at local level for clinicians or teams that would help develop their practice.*
> (Written evidence, consultant obstetrician, unpublished)

Another senior clinician commented on the quality of national outcome data and also on the clinical ownership of and engagement with information.

> *We have a big problem relating to data in maternity services, even the national maternity statistics. They are available, but the quality of the data is still poor, the different maternity units have a wide range of maternity information systems and there isn't clinical leadership and ownership of the data in most places, so nobody's taking a critical look at what data is available and making good use of it. I think that's an area that needs to be addressed: it's important for safety, for audits and for research. Senior obstetricians [should] be more actively involved in what happens as far as collecting and analysing data is concerned.*
> (Oral evidence)

Some respondents believed that the use of information relevant to safety was too negative and could damage morale as well as learning. We were told pointedly that very little resource is devoted to investigating the causes of good outcomes (written evidence, consultant obstetrician, unpublished).

DATA COLLECTION

Our respondents described multiple systems for collecting different types of data that are hugely time consuming and often take clinicians away from frontline care. IT inefficiencies and constant changes to systems were blamed in some cases (Smith and Dixon 2008).

> *You spend more time completing notes and paperwork than caring for women. In one unit where I worked, we had simple records and one computer system to complete delivery records. Since then three further computer programmes have been introduced. Instead of losing the previous ones we now have all of them to do. Much of the information is repeated. The original plan was to link them all together so that the information would default across to each programme, but the money ran out so this never happened.*
> (Professional evidence, midwifery lecturer practitioner)

Other clinicians told us of problems connected with multiple data collection exercises occurring simultaneously without any linkage. Payment by Results was cited as an example of a lever that placed renewed focus on the importance of good data collection, as trusts do not receive funding for procedures that are not coded; but again there were concerns that systems were inadequately connected.

Even current systems for collecting clinical information are not well implemented. The 'maternity tail' of the Maternity Hospital Episode Statistics (HES – described in more detail in Chapter 1) is not well completed in all trusts. Despite initiatives over the years designed to improve this, maternity tail data were available for only 74 per cent of hospital births and 15 per cent of home births in England in 2005/6 (Information Centre 2007b).

There has been concern over the years about the limited scope of information contained in the HES maternity tail; and there have been many initiatives to define a new maternity dataset, none of which has yet come to fruition. The most recent initiative was under the auspices of the Information Centre for Health and Social Care, with a new dataset put out for consultation and piloting. However, we were told that this dataset, along with those developed for child health and children's and adolescent mental health services, has now been put on hold by the Information Standards Board because resources to implement it had not been included in the contract with the IT supplier.

HES data are extracted from hospitals' patient administration systems for analysis centrally. A 1999 survey found that some hospital IT systems had maternity modules, while other maternity units had their own standalone systems, connected in varying ways with patient administration systems, and some units had no computer system at all (Kenney and Macfarlane 1999). Many units that had developed or had access to computer systems had also developed systems for analysis and feedback of their data.

Considerable investment is now being made in the National Programme for IT (NPfIT). The old patient administration systems are being replaced by new electronic patient record systems, which will transfer information to the NHS spine, which will, in turn, bring together information about the care provided to each person registered for NHS care. Data derived from the spine will be passed to a data warehouse, the Secondary Uses Service.

But these improvements are a long way off for many trusts, as the HCC pointed out.

> *Many trusts still collect data manually due in part to delays due to anticipation of the NHS Connecting for Health IT system, which in some cases has blighted overdue investment in standalone maternity systems.*
> (Written evidence, HCC)

We were also told that the new hospital systems do not have facilities for accessing and analysing data locally, while the old systems that are able to do this are no longer supported as they are not spine-compliant. Thus, the result of significant investment has so far been a move backwards.

WHY IT IS HARD TO LEARN FROM INFORMATION

Although lip service is often paid to the importance of 'learning from information', a recurring theme in the submissions we received from professional and other organisations was that staff do not receive enough feedback to learn any lessons from the data. Many professionals expressed extreme frustration with the amount of data collection required, which was seemingly fed upwards into a 'black hole', with no apparent gain to the service provided. They complained of 'information overload' and were often hard pressed to identify a use for the information. Some organisations, including professional bodies, argued that it was difficult for overstretched staff to find time to absorb the lessons and implement the actions that might be indicated from analysis of performance information (oral evidence).

Solutions

Information can be a powerful motivator. But if information is to help improve safety, maternity teams need to know what effects their efforts are having and to see what they could do to make changes that would improve safety, and where their efforts are effective. Information should therefore be made available to clinical teams in ways and at times that would allow them to use it to monitor and improve their clinical performance.

Collection of routine data should be made as easy as possible and tied into routine requirements, such as birth notification and discharge letters for GPs. We note that receiving too much information can be as unhelpful to teams as receiving too little. Best practice would be to collect data on a limited number of measures, that are linked to the team's objectives, and to make them available for review by the team on a regular basis (oral submission).

A focus on the formative use of information does not undermine the importance of certain types of summative use, but is more likely to contribute to patient safety.

Beyond decisions about making formative or summative uses of data lie issues about publication. Publishing data – even patient-anonymised data – on clinical performance has been a contentious issue, and it is important to make sure that trust ownership of clinical information is not weakened through fear of the other uses to which it might be put. However, we have observed that trusts with strong safety cultures are proud to publish information on their clinical performance and see this openness as an essential

aspect of patient care. Such approaches may in future serve as useful levers to improve services through patient choice, encouraging patients to choose the safer trusts and so driving up safety levels.

EFFECTIVE FORMATIVE USES OF INFORMATION

Units with a strong safety culture will already have access to a developed set of data about their performance, which they will review frequently and use to inform changes in practice. One trust we visited set an excellent example, with the following systems in place:

- a wide set of relevant clinical information available
- trends regularly reported to all staff via a newsletter celebrating good performance as well as highlighting areas for improvement
- information passed to the trust board through quarterly assurance reports
- information on clinical performance published in annual clinical reports (Alfirevik 2006).

Innovative interrogation of clinical information can provide rich material for improving safety.

- One respondent told us that computerised checking of prescribing records for Narcan, a drug administered to babies who have suffered as a result of a pethidine overdose during labour, offered a quick and easy retrospective way to monitor a potentially unsafe practice.
- For a trust whose postpartum haemorrhage rates had remained static, further investigation of clinical information revealed a fall in use of their blood products, suggesting that haemorrhages were either less severe or better managed.

Listing the types of clinical information that can be valuable to maternity teams is no easy task, and no single measure provides a perfect proxy for safety. However, as a starting point, useful information for maternity teams might include those set out in Table 3 (overleaf).

As well as information on clinical outcomes, maternity unit leaders need a broader set of information in order to manage effectively for safety, including information about levels of attendance at training, about staffing levels and about complaints. These are discussed in greater detail in the next chapter.

CONCLUSIONS

Maternity teams need manageable amounts of information about their own performance, as well as about national performance for benchmarking purposes. At present, teams are required to collect a great deal of data but often cannot use this information effectively to promote safety. Sometimes they know little about their own performance; sometimes they feel the information they are given is poorly integrated or incomplete, or both, and often it is not made available to them in usable forms.

TABLE 3: USEFUL INFORMATION FOR MATERNITY TEAMS

Type of information	Measures
The care process	
Antenatal care and behaviours/risk factors	Antenatal steroids prior to preterm birth*
Intrapartum care	Total births* Maternities by multiplicity Inductions – indication, outcomes and success* Augmentation of labour* Epidural rates including dural taps* Normal birth without intervention* Percentage of labours lasting more than 18 hours* Instrumental birth: ventouse, rotational and non-rotational* Elective caesarean rate – indication and incidence* Emergency caesarean rate – incidence and indications* Failed maternal intubation* Percentage of complicated births attended by a consultant obstetrician*
Postpartum care	Admissions to a neonatal unit for babies weighing more than 2.5kg* Caesarean hysterectomies and other therapies for haemorrhage*
Outcomes	
Mortality and morbidity in babies	Distribution of birth weight and gestational age by multiplicity Preterm and very preterm babies, Intrapartum stillbirths* Apgar scores below 7 at 5 minutes in babies before and after 37 weeks' gestation* Need for neonatal resuscitation of babies before 37 weeks* Neonatal deaths* Neonatal birth injury* Neonatal encephalopathy* Preterm and very preterm births
Mortality and morbidity in mothers	Failed maternal intubation* Third and fourth degree tears* Incidence of primary postpartum haemorrhage* Maternal transfer to ITU* Maternal transfer to other units* Maternal deaths*
Positive outcomes and parents' experiences	Breastfeeding rates at birth and discharge
Contextual information Characteristics of the parents, including ethnicity, class, age, parity and residential area	Distribution by ethnic group, mother's age, parents' social class, indices of multiple deprivation by area of residence
Resources for care	Staffing data, bed availability and occupancy

*dataset recommended in *Safer Childbirth* standards (RCOG *et al* 2007)

Attempts have been made to improve and co-ordinate national information systems, but these have not yet succeeded in delivering necessary improvements. In these circumstances it is important for trust boards to concentrate on providing maternity teams with a smaller amount of reliable, preferably benchmarked, information that is critical to safety and that they can use to monitor their own performance.

Recommendations

- Trust boards should take action to ensure that maternity teams collect and regularly use and reflect on a small set of reliable, safety-critical information measures.
- Wherever local systems cannot be integrated with other systems, simple systems for capturing local information on safety should be designed, implemented and maintained locally.

8 Safety – the trust board's primary responsibility

Overview

The first duty of health care organisations, as of health care professionals, is to do no harm. This obligation is particularly pressing in maternity care, where errors and accidents have the potential to cause severe damage, with lifelong effects on women, children and families. Meeting this obligation is central to the tasks of trust boards and has important implications for how they conduct their business.

FORMAL RESPONSIBILITIES OF NHS TRUST BOARDS

The board's role is to lead the organisation as a whole, taking corporate responsibility for *all* activities and risks, not just some of them.

The board's key tasks are strategic: the board determines the organisation's strategy and priorities, monitors progress against objectives and manages financial and other risks, including clinical risk. Effective boards actively manage communications so that patients, the wider community, staff and partner organisations understand their objectives and priorities.

The complexity of modern health care organisations makes the job of trust boards very challenging. Health care in advanced societies is highly specialised, technical, fragmented, subject to growing demands, and expensive. Organisations providing health care are under immense pressure and their boards have to balance patient care against responsibilities to staff, the wider public, the public purse and government.

Because organisations take their character from the top, the actions and decisions of the board influence the culture of the entire organisation. The issues prioritised by the board communicate an important message to staff about the values of the organisation. When boards take an active interest in the quality and safety of clinical care and the experience of patients and families, their involvement is known to contribute to staff morale. Board members are uniquely placed to look across the organisation, to challenge silo working and to spread best practice.

> *In general there is strong correlation between the quality of the leadership by the Chair and the Chief Executive and the success of the NHS organisation. Conversely, where an organisation is not delivering, questions can legitimately be asked about the quality of the board leadership.*
> (NHS Appointments Commission 2003)

BOARD RESPONSIBILITY FOR PATIENT SAFETY

In most industries, especially service industries, it is taken for granted that the board has

ultimate responsibility for the quality of the goods and services the company produces. In the NHS, however, boards have been responsible for the quality of health care for less than a decade, beginning with the passage of the 1999 Health Act.

This Act gave boards a statutory duty 'to put and keep in place arrangements for the purpose of monitoring and improving the quality of health care which it provides to individuals'; and it made the chief executive, as the accountable officer, personally responsible for the so-called 'duty of quality'. In 2001, following government acceptance of the Chief Medical Officer's report on patient safety, *An Organisation with a Memory*, the board remit for quality was articulated to include patient safety explicitly (Department of Health 2000).

The structure through which boards discharge their responsibility for quality and safety is the health care governance committee (previously the clinical governance committee). Non-executive directors (NEDs) are not obliged by statute to sit on these committees, but in many trusts they do, and some of these committees have non-executive chairs.

Chief executives cannot delegate their accountability for patient safety, but most chief executives delegate executive responsibility for safety to one or other of the clinical directors on the executive team. All trusts have a board director responsible for patient safety: in most cases the director of nursing (47 per cent) or the medical director (32 per cent) carries this responsibility but in some trusts (11 per cent) it is carried by the chief executive (NAO 2005).

Nursing and medical directors have dual responsibility for patient safety, both as NHS executives and in their professional capacities as members of the register of the Nursing and Midwifery Council or the General Medical Council.

BOARD MEMBERS

In all sectors, non-executive and executive board members have different responsibilities. A small minority of non-executive directors on NHS boards, including a few chairs, are health specialists, but most are lay people.

The chair of the board is expected to spend more time with the organisation and to work more closely with the chief executive than the other non-executive directors. The chair's role is to develop and run an effective board, so they must make sure that:

- board agendas reflect the full range of corporate activities, risks and responsibilities
- board members understand their responsibilities and have the necessary information to discharge them
- discussion is open and constructive.

Effective chairs summarise key points, confirm decisions and make sure the board's priorities and concerns are communicated throughout the organisation.

Non-executive directors are generally less close to the organisation, their role being to represent the interests of patients, taxpayers and the public and to challenge senior executives when necessary. Non-executive directors help to determine strategy and must assure themselves that the organisation makes progress against its objectives and manages financial and clinical risks effectively.

As the most senior employees of the organisation, executive directors are responsible, both individually and collectively, for:

- the achievement of corporate objectives
- all operations and performance
- financial and clinical risks
- relationships with stakeholders.

Problems with trust boards

LOW PRIORITY FOR MATERNITY

Respondents to our inquiry suggested that boards give insufficient priority to safety in maternity services. Some ascribed this failure to national factors, including an absence of measured targets.

> *The National Service Framework sets an expectation of quality of service but does not define exact parameters or indicators of outcome. Standards of care and service defined by the RCOG/RCM and NICE are not enforced and, as a consequence, resources in some trusts have been withdrawn from maternity care to cover costs required to meet defined and monitored targets elsewhere in the trust.*
> (Written evidence, HCC)

Low priority for maternity services was also blamed on a lack of effective advocacy for maternity on trust boards. In most boards, discussion of maternity services is led by the director of nursing, and in 50 per cent of boards this director also leads discussion about quality and safety. However, there is evidence that directors of nursing are not powerful advocates for the 'business of caring' and often struggle for influence at board level (Burdett Trust for Nursing 2006a).

> *There are examples of exceptional clinical leaders who have succeeded in making patient care a driving force in their organisation's strategy and operational processes, but they are in short supply.*

Many people working in or connected with maternity services believe that current representation on boards does not allow the case for these services to be presented powerfully.

> *Low and decreasing investment in maternity services is a reflection of how maternity services have a lower status. Increasing the direct representation on the boards of acute trusts could play a role in this. At present an obstetric lead and the director of nursing sit on each trust, but there is no head of midwifery: instead midwives are represented only by the director of nursing.*
> (Written evidence, National Childbirth Trust)

> *The voice of midwifery is not heard at trust board level due to a lack of senior midwifery representation. Maternity issues therefore do not become trust priorities. Maternity services appear to be a low priority in a target-driven NHS.*
> (Written evidence, Royal College of Midwives)

Given the size of trust boards and the complexity of NHS organisations, which employ many different staff groups in a host of specialties, it is difficult to make a case for board representation for any particular specialty or professional group beyond the generic groups of medicine and nursing. Boards function at a high level and their members should be able to exercise their scrutiny and assurance functions across all the trust's directorates and services, with the support of reliable systems and with access to expertise in specialist areas, like midwifery, when they need it. However, the special nature of maternity services (where a normal physiological process can escalate into an emergency with very little warning, and where the consequences of safety failings can be far-reaching) calls for particular scrutiny of safety.

Those representing maternity services to the trust board need to present accurate, timely data on a small number of critical measures, showing trends, tracking performance over time and supported by an intelligible commentary. Board members need to be made aware of the limitations and gaps, as well as the strengths, of the data and should have access to help in interpreting it; they need to understand the strategic importance of the clinical service and to see it in the round; they should see measures of cost, volume, clinical outcome, clinical risk, efficiency, quality, patient experience, activity, and staffing.

However, most boards do not receive a good set of performance measures for review regularly and do not even appear to know what information about maternity services or patient safety would be most useful. As the HCC observed:

> *Inadequate IT or insufficient expertise to interpret and use management information may result in difficulty in securing greater investment in resources; traditionally clinicians do not routinely explore how the board makes decisions and how to make the case, but instead may use evidence of research without any financial or performance information to secure appropriate resource in the competitive climate of a target-focused trust.*
> (Written evidence, HCC)

Trusts vary in the extent to which maternity incidents and major near misses are reported to the board. Changes to the process for handling complaints also make boards remote from safety issues. Unresolved complaints used to be reviewed by a trust non-executive director acing as 'complaints convenor', and this meant that major complaints had board-level scrutiny at all trusts. However, all complaints are now dealt with centrally by the HCC, and so board-level exposure to safety issues has now been lost. Complaints handling is likely to change again, though, with the introduction of the new Care Quality Commission.

Maternity services are often located within the women's and children's directorate, which may further reduce visibility to boards because data on maternity services is subsumed within a broader set of information. Furthermore, boards are not usually aware of the cost of maternity settlements made on their behalf by the NHS Litigation Authority (oral evidence).

POOR FOCUS ON SAFETY

The Department of Health itself has drawn attention to this problem.

> *The NHS is now well aware of clinical governance, but there is substantial variation in the extent to which the concepts that it embodies have become embedded within the everyday fabric of the NHS teams and organisations. In places, adoption has not progressed beyond the structures of clinical governance: such structures are necessary but not sufficient.*
> (Department of Health 2006)

This, in our view, is a more pressing problem than the lack of effective representation of maternity services. NHS trusts are in the process of developing safety cultures, but at this stage most trusts are 'reactive in their approach to patient safety, only taking action following an incident or near miss'. Only a few boards think strategically about patient safety, making connections between safety, the organisation's corporate objectives and its priorities in relation to finance, market share, workforce or service configuration. Only a minority of boards carry out cost benefit analyses of interventions to improve patient safety (NAO 2005).

The HCC's latest annual assessment of NHS trusts' compliance with the Department of Health's Standards for Health shows that four of the six standards with the lowest compliance rates are directly related to patient safety. Lack of compliance is most frequent in:

- a systematic and planned approach to records management
- participation by health care staff in mandatory training
- ensuring that the risk of health care associated infections to patients is reduced
- ensuring that reusable medical devices are properly decontaminated prior to use.

The inquiry heard that boards pay relatively little attention to patient safety or to maternity services, or to safety in maternity services. The reasons for this relative neglect are difficult to disentangle.

Paradoxically, despite the fact that the core business of the NHS is health care, trust boards pay relatively little attention to clinical matters, including patient safety.

> *Overall 14 per cent of items in meetings were rated as clinical but [this] varied between 7 per cent and 22 per cent over the year for different trusts. Trusts with higher levels of clinical issues discussed seemed to have a chief executive officer who ensured that clinical issues were closely linked to all trust developments, including finance and information.*
> (Burdett Trust for Nursing 2006b)

There are probably many reasons for this.

- Non-executive directors and non-clinical executives may feel that clinical work is specialist and technical, best left to the experts. They may feel more comfortable with non-clinical areas that are familiar and where they can make a more significant contribution.
- There is intense pressure on chairs and chief executives, from the Department of Health, strategic health authorities (SHAs) and primary care trusts (PCTs), to focus on financial health and national targets. Several of the written submissions we received gave this as an explanation of the failure to prioritise safety.

However, these pressures cannot fully explain the failure of boards to make safety their prime concern. For one thing, financial health is not inimical to safety – quite the reverse, in fact; for another, there is a national target for lowering rates of hospital acquired infection. However, even in this one area of patient safety that has a national target, backed by massive public and media interest, boards may fail to pay sufficient attention. This was a key finding of the HCC's investigation into the recent outbreak of *C difficile* at Maidstone and Tunbridge Wells (Healthcare Commission 2007).

In our view, the reasons are twofold, and linked: the first is a lack of confidence by board members in dealing with what is often perceived as a 'clinical' issue; the second is lack of good information about safety.

When a board manifests discomfort about treading on clinical territory or finds compelling reasons to focus attention elsewhere, clinical services without national targets and patient safety need a powerful advocate on the board to ensure these issues gain a place on the board agenda. 'Within local organisations, strong leadership and governance at chief executive and board level is crucial' (National Audit Office 2005).

Every member of the board should be an advocate for safety. As 'current concepts of patient safety place prime responsibility for most adverse events on deficiencies in system design, organisation and operation', board members need to understand how frontline clinical services work and what can go wrong (Department of Health 2006). With the exception of some clinical directors, only a minority of members join NHS boards with an adequate understanding of what is required of them in relation to managing clinical risks and patient safety. As they must acquire that knowledge on the job, what is the best way to do this?

Regrettably, the information that reaches board members about the safety record in their own trusts is often limited. There has been a general increase in the number of incidents reported, but in cases of severe harm, the level of under-reporting is thought to be relatively high (NAO 2005). At least one in five incidents in which a patient has suffered severe and permanent harm or where a patient death reflects unsafe care goes unreported, and the board members will not be told.

Boards can extend their collective knowledge of frontline services and of safety issues if senior executives report back regularly on what is happening 'on the ground'. In some hospitals, the directors of nursing and senior nurse managers, including the head of midwifery, spend a day every month in uniform, working alongside clinical staff, to deepen their understanding of the experience at the front line. More often, though, senior executives are remote, inaccessible and ill-equipped to enlighten the board (Smith and Dixon 2008).

> *We have never seen our chief executive in the maternity unit. A high-profile visit would improve morale and help us to take forward initiatives we have developed.*
> (Professional evidence, midwife)

Barriers to prioritising safety

This is not the first time boards have been criticised for failing to prioritise safety or

maternity services (*see,* for example, Healthcare Commission 2005, 2007). However, the inquiry is aware that boards still do not make patient safety, including the safety of women and babies who use their maternity services, a top priority. It seems important to ask why.

Trust boards are like any other group of people who share a common task. They are a team – potentially, but not always in practice, an effective team. To work effectively, they must agree on the nature of the task, learn how to work together and gain an understanding of their own and others' roles. Board members do not automatically know how to work together: they are always under pressures of time, the information they receive is often poor and there are inevitable tensions and conflicts; people have different opinions about the task, different interests are represented at the board table and boards members have different levels of knowledge, expertise and confidence.

Non-executive directors may lack confidence, while executives may find it difficult to listen to people who know less than they do. This tension may be exaggerated in discussions about clinical care and patient safety, which seem to require specialist knowledge. On an individual level, some people are more articulate or more persuasive than others.

Boards work well when everyone contributes to the discussion, when non-executive directors challenge executives confidently and when executives cope with being challenged. Like any other group with a common task, the board needs to take some time to look at itself and how it works, to reflect on what does and does not go well and to learn lessons from experience. It is for the chair and chief executive to make sure this kind of reflective activity happens relatively often. Outside formal board meetings, with or without the help of an external facilitator, boards and individual directors need to make time to understand their own and others' roles in relation to their task, and must learn not to evade conflict through silence.

> *In trusts with higher levels of clinical content, non-executive directors seemed to question and interrogate trust board executives in an open and transparent manner. For example, in one acute trust, when non-executive board members asked for further information on clinical governance and service improvements, the chief nurse produced appropriate information at subsequent meetings.*
> (Burdett Trust for Nursing 2006a)

Everything about how the board operates, including the conduct of directors, the relationships between them and how they are seen to interact, sends a message to the staff about what matters in the organisation. Boards are teams too, and if they are to discharge their responsibility for safety effectively, they need to become effective teams.

Solutions

Leaders of NHS organisations face huge challenges in balancing competing priorities in a climate of intense media and political scrutiny. However, they have the potential to bring about significant improvements in patient safety and should be able to do so with the right tools and support. A high-performing board must prioritise safety, and the chair and chief executive should work together to ensure safety has equal weight with other priorities on the agenda.

EDUCATING THE BOARD IN PATIENT SAFETY

If they are to monitor safety effectively, board members need structured opportunities for educating themselves about safety issues and improvement methods. A variety of such opportunities are available, including external training programmes, in-house away days, seminars and workshops. One powerful exercise for a board is to make time, at regular intervals, for in-depth examination of a specific safety incident that occurred in their own hospital, ideally inviting staff involved to take them through a root cause analysis. Some boards are open enough to invite patients and relatives to take part in such discussions, so actively modelling a commitment to learning from experience and making the necessary changes to prevent similar incidents in future.

SAFETY IN A BUSINESS MODEL

Changes in the nature of health systems in England mean that NHS trusts are increasingly looking to a business model for management and governance of their operations. It might appear that safety would struggle for priority in a financially driven organisational climate. However, we would argue that the reverse should be true because with all successful businesses the quality of the product is a key consideration – and unsafe health care is not a high-quality product.

If in future there is increasing competition for patients, boards will need to understand the reputational risk of safety lapses (especially in maternity care) and the damage these will do them in a competitive market. They also need to see the business advantages of having solid data about the safety of their maternity unit, which may attract patients away from other trusts, whose safety data are less compelling. Boards need to be aware of the marketing value of a successful maternity unit in an era of patient choice. For most women, giving birth is their first adult contact with a hospital; if that experience is a happy one, the hospital may well be the health care venue of choice for that family for decades to come.

Apart from performance information about the safety of maternity services, another measure that may be useful to the board is the number of mothers within their catchment area that are electing to attend a different hospital. Boards in receipt of this information would be more likely to focus on maternity, as well as gaining evidence of how the hospital is viewed in the community by the ‘customers’ of the future.

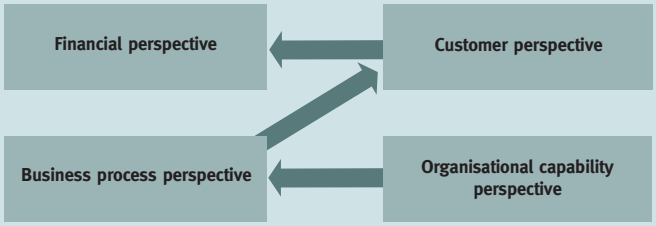
The move to service line reporting may help to reinforce priority for maternity services by ensuring that they are seen as ‘businesses’ in their own right.

INFORMATION FOR SAFETY

It is vital for the board to have the right information, and every meeting should start with consideration of a balanced scorecard, on which safety indicators are prominent and specific maternity indicators included. The safety indicators should be aspirational and set within a context of international best practice if the trust is already exceeding national averages. The board should also receive information on the cost of settlements made on its behalf by the NHS Litigation Authority and on the average levels of settlement made on behalf of all trusts. Such information would invariably be dated but would be sufficiently arresting to warrant regular attention.

The balanced scorecard is a tool that provides high-level information on all aspects of a

DEVELOPING A BALANCED SCORECARD FOR SAFETY AND MATERNITY



The balanced scorecard is an approach to managing and measuring performance in four domains. The domains defined are: financial, customer, business process, and learning and growth. Specific performance measures relating to each domain can be developed by individual organisations according to their needs and circumstances and with reference to the following questions.

- **Financial** To succeed financially, how should we appear to our stakeholders? (In the public sector, the financial perspective tends to emphasise cost efficiency.)
- **Customer** To achieve our vision, how should we appear to our customers (patients)?
- **Internal business processes** To satisfy our stakeholders and customers (patients), what internal processes must we excel at?
- **Learning and growth** To achieve our vision, how will we sustain our ability to change and improve?

We would argue that a balanced scorecard must include safety indicators. In the financial domain we would expect to see information on litigation premiums as well as on actual claims. The customer perspective would draw on information from surveys of women. Business processes that contribute to the achievement of high levels of safe care would be monitored in the third domain. Outcomes indicators as well as process measures could be included. Finally, indicators of an organisation that learns and grows would be included in the final domain. This might include staff training, promoting multidisciplinary working, etc.

Source: NHS Workforce Scorecard Team 2006

trust's business. Underneath this, the board should agree a more detailed 'dashboard' of measures it will use to review the performance and safety of maternity services. These could include outcomes, activity, workload, staffing levels, training, intervention rates, near-miss incidents, risk incidents and complaints, and should be supplemented at intervals by data from staff and patient surveys. Measures of clinical risk can be integrated with trust-wide risk registers.

The clinical governance committee or health care governance committee should use the same dashboard but may wish to add measures that offer greater insight into the more detailed operational matters relevant to quality and safety. Following the maternal deaths at Northwick Park Hospital, the RCOG produced a dashboard of performance and governance measures for governance committees (*see* Table 4, overleaf). Boards might wish to use this model or adapt it for their own purposes.

TABLE 4: PERFORMANCE AND GOVERNANCE SCORECARD

			Goal	Red Flag	Measure	Comment	Data Source
Activity	Organisation	Number ethnic group reps. on Labour Ward Forum	4 reps	<2	Minutes	Aim for 4 but not guaranteed reps available – review quarterly	DATEX
	Births	Benchmarked to 5000 per annum	5000 (420)	>450	Births	If >900 over 2 month period, bookings to be capped	DATEX
	Scheduled bookings	Bookings (1st visit) scheduled	5405 (450)	>500	Bookings (1st visit)	Tolerance 15%	DATEX
	Instrumental vaginal delivery	Ventouse & forceps	10–15%	<5%or >20%	Inst Vag D/Birth		DATEX
	Caesarean section	Total rate (planned & unscheduled)	<23%	>25%	C-section/ Birth	If >30% then cap & refer to other provider	DATEX
Workforce	Staffing levels	Weekly hours of consultant cover on labour ward	>60 hours	<44 hours	Hours	Per week	Labour Suite off-duty
		Midwife/birth ratio	1.30	>1.40	WTE/births		HOM
		Supervisor to midwife ratio	<1.15	>1.20			HOM
		Education & training programme – attendance	>90%	<90%		Review 6 monthly	
Clinical Indicators		Eclampsia	<6 in any 2 month period	>6 cases in any 2 month period	Number of patients		DATEX
		ICU admissions in obstetrics			Number of patients		DATEX
		Blood transfusions (4 units of blood)			Number of patients		DATEX
		Post partum hysterectomies			Number of patients		DATEX
	Neonatal morbidity	Number of cases of meconium aspiration			Number of patients		DATEX
		Number of cases of hypoxic encephalopathy (Grades 2&3)			Number of patients		DATEX
	Risk management	Number of SUIs				Investigations undertaken	Risk Dep
		Failed instrumental delivery	<1%	>3%	Instrumental delivery/birth		Risk Dep
		Massive PPH >2L	<10/month	>15/month			Risk Dep
		Shoulder dystocia	<6/month	>10/month		0.5–1.5% of Deliveries	Risk Dep
		3rd degree tear	<6/month	>10/month		<5% of deliveries (RCOG)	Risk Dep
	Complaints	Number of complaints					
		Number of times unit closed for admission in each month	<1 per month	>3 times per month			
		FMU/DAU					
		Gwillim					
		Delivery suite					
		Total	<5/month	>8/month			

Source: Written evidence, RCOG

Given the human and financial costs of errors and accidents in maternity services, we believe that safety and risk in these services should be explicitly highlighted in trust-wide governance arrangements, and reported to the board rather than delegated downwards.

COMMUNICATING THE IMPORTANCE OF PATIENT SAFETY

Boards need to convey the importance they attach to patient safety clearly to all clinical teams working in the trust, reinforcing the message regularly in emails, posters, management meetings, cascade briefings, newsletters and personal discussions. We were told that positive messages (such as 'we are improving… beginning to show progress… to be praised for…') were more effective than negative ones. Boards should take every opportunity to demonstrate to managers and staff that they take their responsibility for patient safety seriously and expect colleagues to do the same.

ADVOCACY FOR MATERNITY AND FOR SAFETY

Chairs and chief executives must ensure productive discussions about maternity safety at board level. Those leading discussions must be knowledgeable, equipped to present key issues intelligibly and able to direct the board's attention to the critical issues. It may be a good idea to invite the senior obstetrician and head of midwifery to address the board at regular intervals. The board should require finance staff and general managers to work with clinicians in order to engage with relevant issues, solve problems and present a rounded picture of the service.

> *When a really effective general manager works alongside a head of midwifery and a clinical director, you see how they can really work well and produce good data and information to influence the board to talk about staffing levels and so on; there's a kind of structured approach to how they make their case.*
> (Oral evidence)

STRENGTHENING SAFETY COMMITTEES

Safety must be a key focus of the main board, and maternity must be sufficiently visible within that focus. We heard that delegating issues to a subcommittee may reduce the priority attached to them. However, it may be unrealistic to expect large trusts to consider maternity at every board meeting, and giving them an annual paper to consider is not the best solution either. What the board needs is assurance about the quality of the maternity service, with the ability to drill deeper into appropriate issues as necessary.

Having an effective health care governance committee, constituted as a subcommittee of the board and chaired by a non-executive director, to provide assurance on safety matters can play a valuable role in setting the tone on safety to the organisation as a whole. With sufficient influence and board backing, such a committee can have a real impact on matters of clinical quality.

EXECUTIVE SAFETY WALK-ROUNDS

One of the most effective ways to promote communication between board members and frontline maternity staff is for executive directors to conduct 'safety walk-rounds'. We recommend that trust boards should require the chief executive and the director responsible for safety to do this at regular intervals, with formal reports back to the board on lessons learned and actions taken.

With a safety walk-round, executives spend time – either separately or in a group – talking with staff in various care areas about safety incidents. By making time for this activity, they send out an important message about the value the board attaches to patient safety, as well as demonstrating support for frontline staff. Directors can use the safety walk-round as an opportunity to see for themselves how the care systems work and to correct defective processes. They can also gain insight into the unquantifiable interpersonal and human factors that contribute to system safety, including:

- the quality of communication within and across teams
- levels of trust and openness between staff
- relationships between senior and junior members of staff
- staff awareness of the safety record of the department
- staff morale.

(Institute for Healthcare Improvement 2007a, 2007b)

One national organisation that had worked with trusts with safety problems described the difference visibility can make.

> *The way the board engaged with work of the unit was, I think, developed into a very good model. They were visible, they took an active interest in what was happening and there were regular reports from that service to the board.*
> (Oral evidence)

CONCLUSIONS

Trust boards have a fundamental duty to safeguard the patients for whom their staff provide care. In other industries, lack of concern for safety at board level would be regarded as negligent. Yet this seems to be tacitly accepted within health care, where the potential for harm is usually much greater.

The analogy with business is revealing. In business, the quality of the product is critical to its success: a trust's key product is how safely it cares for its patients. Boards should therefore demand rigorous, routine information on safety from maternity units (as indeed from other units) and should support the collection of this information. In our view, failure to do so constitutes failure to discharge a statutory responsibility. Safety must never be delegated to a subcommittee without non-executive director membership. Safety information should form part of the balanced scorecard of key performance indicators that should be the first agenda item on every board meeting. Trust boards also need information from the NHS Litigation Authority (NHS LA) on the cost of settlements of clinical negligence claims made on their behalf.

Recommendations

Boards should take the following steps to improve safety.

- Prioritise safety, communicate that priority to staff and patients and make data on safety publicly available.
- Educate board members about safety issues in maternity services and strengthen advocacy for maternity safety on the board.

- Have governance structures in place to assure safety, including strengthening safety committees and systems for collecting and reporting safety information.
- Improve their understanding of the safety issues in their trusts by means of regular executive walk-rounds, analysis of claims data, incident reports and other safety indicators, and by reviewing safety incidents in detail.
- Clarify the importance of safety as a business imperative.

9 National structures to support safety

Overview

At national level, the NHS and those working in it are subject to a number of requirements and controls that are intended to guarantee and improve performance, in terms not only of safety but also of value for money, efficiency and quality.

Historically, performance management against central targets has been a key driver of investment and change. However, recent reforms are intended to create a market-based system, where financial incentives, commissioning and patient choice, backed by regulation, drive up standards.

In addition, statutory systems for professional regulation are intended to guarantee the standards of individual clinicians, while various national bodies issue guidance for clinical services. These bodies and their interactions are described in Appendix 6.

Problems with national structures

As mentioned in previous chapters, the past year has seen considerable national activity aimed at improving maternity services in general and safety in particular.

- The Healthcare Commission (HCC) recently published data from a year-long national review (Healthcare Commission 2008).
- The triennial report of the Confidential Enquiry into Maternal and Child Health (CEMACH) was published in December 2007 (Lewis *et al* 2007).
- The NHS Litigation Authority (NHS LA) is reviewing its maternity standards (oral evidence).
- The National Patient Safety Agency (NPSA) has begun work on developing care bundles in two areas of obstetrics (oral evidence).
- The theme of the inaugural meeting of the Maternity Matters Advisory Group, charged with taking forward government policy in this area, was safety, and there have been several national conferences on this subject.

This very welcome level of interest and investment in maternity safety suggests there is significant national momentum to drive forward improvements.

However, a constant theme in submissions to this inquiry from individual professionals and stakeholder organisations was that some national structures intended to improve safety place undue administrative burdens on frontline staff, without delivering commensurate improvements for teams on the ground.

A tick-box approach with an expensive bureaucracy churning out reams of protocols/ minutes and evidence, unconnected to frontline experience… a mass of measures and monitoring that don't join up.
(Written evidence, consultant obstetrician, unpublished)

Safety depends on awareness of risk. Despite all the agencies available to reduce risk, ie CNST, National Patient Safety Agency, nothing happens until we have another Northwick Park incident.
(Professional evidence, obstetrician (Smith and Dixon 2008))

LOW NATIONAL PRIORITY FOR MATERNITY AND SAFETY

The National Service Framework for Women's and Children's Services was published in 2004 (Department of Health 2004); *Maternity Matters*, the government's most recent statement on maternity policy, was published in 2007 (Department of Health 2007). In the light of these two substantial policy documents, it was surprising that both institutions and professionals complained of low national priority for maternity services by comparison with other areas of health care. This may reflect the fact that while policy attention to maternity services has increased, the focus on safety within those services has not.

Within the Department of Health, maternity services have struggled to achieve high priority. Responsibility for them has fallen to a junior minister, with an apparent disconnection between the teams responsible for maternity services and those concerned with safety policy.

Many organisations and individuals also pointed out a lack of measurable government targets for maternity services (for example, HCC, written evidence). The HCC does now monitor standards on safety (*see* Appendix 4), but none of these are specific to maternity; and the detailed maternity review that has just taken place will not be ongoing. Although a government target now exists for maternity services, it is linked to choice rather than safety. This is the commitment to giving all women choices about maternity services by 2009, set out in *Maternity Matters* (Department of Health 2007). The choices guaranteed cover:

- access to maternity care
- type of antenatal care
- place of birth – including home, midwife-led facilities and hospitals with full maternity care teams
- place of postnatal care.

However, this commitment to choice has not been presented or interpreted as a lever for improving safety, despite evidence that patients take safety indicators (such as MRSA rates) into account when making choices (MORI 2006). In our submissions, discussion of the choice agenda focused on concerns about the increased demands that may be placed on services obliged to offer a range of alternative options.

The concept of choice is wonderful, but it is a little ahead of its time because at the moment we are struggling to make sure that services are safe for vulnerable women and I think that should be the priority. Once we are confident that services are safe, choice within that safe framework is an excellent idea; but there is a risk that if resources go to

offering a lot of choice to people and making sure that there is capacity to offer those choices, money will be taken away from guaranteeing safe care and high levels of risk management.
(Oral evidence)

One clinician expressed concern that the choice policy was already leading to inequities in standards of care (Smith and Dixon 2008).

Allowing patient choice means that low-risk women often get excellent one-to-one care through midwifery-led units – almost like private care – at the expense of those in need of high-risk obstetric care.
(Professional evidence, obstetrician)

POOR CO-ORDINATION BETWEEN NATIONAL BODIES

The HCC is currently leading the development of a concordat between all the regulatory bodies concerned with health services. However, the inquiry heard that the interactions, linkages and overlaps between organisations with a stake in maternity safety are poorly understood at present, even by those working within them.

We have a lot of people doing things on safety, but we haven't got it all stitched together in the middle with even an organogram that will show who's doing what and where the buck stops.
(Oral evidence)

The large number of national organisations concerned with regulating health care contrasts with the situation in other safety-critical industries. For example, the aviation industry is overseen by just one organisation – the Civil Aviation Authority.

In Chapter 7 of this report we referred to submissions from institutions and professionals suggesting that the multiplicity of different national systems place an excessive burden on staff. One midwife illustrated this graphically (Smith and Dixon 2008).

Cut the paperwork, some of which takes longer than delivering a baby!
(Professional evidence)

The Royal College of Midwives (RCM) suggested reducing the burden of information collection by combining all requirements for performance management and risk assessment into a single assessment (written evidence).

Widespread support was expressed for CEMACH. However, some respondents suggested that it needed to develop stronger formal links with the other national organisations. Links have now been forged with the Central Negligence Scheme for Trusts (CNST), which has led to a CNST standard on the implementation of CEMACH recommendations. But it is only in the last year that CEMACH has begun sharing information on clusters of maternal deaths with the Healthcare Commission, and this system did not seem to us to be well developed.

The statutory system of midwife supervision (responsible for mentoring rather than

management) is a potentially rich source of learning at both national and local level, since local supervising authorities report trends both to trust boards and to the Nursing and Midwifery Council (NMC), while systems also exist for reporting serious untoward incidents (SUIs) to strategic health authorities. Some respondents to the inquiry suggested these systems needed to be strengthened and integrated with each other.

> *The strengthening and support of existing systems of governance, such as the midwifery supervision process, clarity over trigger incidents for SUIs, and clear and unambiguous maternity leaders within SHAs would improve the clarity of reporting and ensure that trends in incidents are noted, followed up and managed appropriately. The Healthcare Commission is developing a number of Memoranda of Understanding to enable sharing of data and information between different bodies inspecting and regulating services. This will, it is hoped, improve the process of screening and surveillance and enable an early-warning system to trigger a review of systems where data indicates a cause for concern.*
> (Written evidence, HCC)

Despite the fact the fact that the NPSA was set up in 2001 with a specific safety remit, it received surprisingly few mentions in written submissions we received from organisation or individual professionals, although some criticised the quality of its information.

CNST STANDARDS

Of particular concern are CNST standards, which are set and monitored by the NHS Litigation Authority. An estimated 20 per cent of all claims and 60 per cent of all payments made by the NHS Litigation Authority relate to obstetric cases (NHS Litigation Authority 2006). Many of our respondents argued that the high litigation costs associated with maternity services could serve as an extremely powerful financial incentive for trusts to invest in improving maternity safety.

> *An average claim for a brain-damaged child is about £3.5–5 million. The general incidence of hypoxic ischaemic encephalopathy (HIE) at birth in the UK is 2–3 per 1,000, while the incidence of grade 2 and 3 is about 1 per 1,000. In a hospital where they deliver 4,800 [a year] this will amount to five HIE grade 2 cases. If we consider one out of these five was due to an intrapartum factor that could have been avoided by adequate and appropriate staff presence, this would have saved £3.5million. We believe that adequate and experienced staff would certainly reduce the litigation sums paid out. This £3.5 million is more than adequate to pay for 20 more midwives (£700,000) and two additional consultants (£200,000). Even if once in three years one case could be avoided in a hospital with 5,000 deliveries per year, the increased staff numbers would have paid dividends to increase the safety.*
> (Written evidence, Royal College of Obstetricians and Gynaecologists)

Although the potential for litigation costs to act as levers for improving maternity safety is clear, there seem to be two main reasons why this has not happened: first, the 'risk pooling' insurance system run by the NHS LA through CNST blunts this incentive; second, the standards against which CNST monitors trusts may not be well designed to promote safety.

An insufficient financial incentive

In England, the total costs of clinical negligence settlements are not borne by individual trusts but pooled between all trusts, with payouts capped. Since all trusts pay similar annual premiums to the NHS LA, the full force of the costs incurred by less safe trusts is not felt by individual trusts.

Achieving CNST standards qualifies trusts for discounts of up to 30 per cent in the premiums they pay, but submissions to our inquiry suggested that in most trusts these discounts do not act as a sufficient incentive to improve practice, since the costs of achieving the standard often exceed the potential savings in premium.

> *From the trust side of things, many people can't be bothered to put the effort into getting CNST2 because it's a lot of effort for not a lot more reward. Very few hospitals have dared to go through CNST3 because it is just so onerous for not much reward*
> (Oral evidence)

The inquiry also heard that savings realised by meeting CNST standards are not usually reinvested in maternity services, so reducing the incentive for maternity teams to raise their CNST rating.

> *I don't think the discounts from CNST are reward enough to make improvements. It costs to make an improvement and maternity services don't necessarily get all the money back. If maternity services were promised the whole discount back, that might galvanise them, but they would still have to invest.*
> (Oral evidence)

> *Unfortunately the savings do not always return directly to the unit and there are a number of units which will not invest in improving their CNST score as they state: 'the savings don't come to us anyway'.*
> (Written evidence, HCC)

Are the standards right?

Concern was also raised in some submissions that the CNST standards were not necessarily the right ones. We also heard from many respondents that it was possible to achieve CNST standards by means of a 'paper exercise', without investing in genuine safety improvements.

> *You have to have a certain percentage of your staff who have been through two CTG trainings in the previous year. Now that is all very well but, having been in a hospital that was ticking the boxes, I can tell you there are various ways we can stretch that.*
> (Oral evidence)

Another clinician argued that CNST standards were not good indicators of a trust's safety, as an unsafe trust could easily receive a CNST level 2 score. Although the NHS LA told us that assessors and staff working in trusts that had achieved a CNST level 3 score sensed a real difference in safety culture, there is no objective evidence of improved safety outcomes.

Indeed, to date there is no evidence that the CNST scheme has improved safety in maternity services. CNST maternity standards have now been in operation for six years, but the NHS LA has not attempted to measure their impact on safety of care. Recent research suggests that one of the standards, for training, may lead to improved outcomes (Collins *et al* 2007). However, measuring the direct clinical impact of the other seven standards is difficult, with no clear evidence that trusts with higher CNST levels are actually practising more safely, or receiving fewer obstetric claims.

It is perhaps unsurprising that CNST standards have not been shown to improve safety, as the expertise of the NHS LA lies primarily in reducing litigation costs and litigation costs can to an extent be contained by a demonstrable compliance with CNST requirements even when these have no real impact on patient safety. We were told that a significant amount of staff time absorbed by preparing for CNST assessments might be better spent on patient care, or on other more effective means of improving patient safety.

THE IMPACT OF OTHER NHS REFORMS ON SAFETY AND MATERNITY SERVICES

Budgets for purchasing health care services for NHS patients, including maternity services, are controlled by primary care trusts, who commission or 'purchase' services from provider trusts. Another recent financial reform is the introduction of Payment by Results (PbR), whereby PCTs pay provider trusts, including those that provide maternity services, according to the number of episodes of specific types of clinical care they carry out.

Some respondents suggested that commissioning might provide a lever for improving safety, but that commissioners were not in a good position to do this at present (*see*, for example, written evidence, Guys and St Thomas' Hospital; National Childbirth Trust).

There are also significant criticisms of the way the PbR system works in maternity services. These suggest that financial incentives may not promote the safest care, and that PbR needs to be refined and adapted for maternity services (*see*, for example, written evidence, National Childbirth Trust). These concerns are acknowledged by the Department of Health in *Maternity Matters* (Department of Health 2007).

- Payment by Results does not cover all birth settings, as home births are excluded.
- Payment by Results does not cover clinics for which a midwife is clinically responsible or community visits by midwives and health visitors. This 'excluded activity' is paid for out of existing 'block' contracts. Providers may currently have an incentive to offer more maternity team care and fewer community visits, as they know extra activity in this area will be rewarded.
- Payment by Results does not include the cost of any emergency ambulance transfers from home or midwifery unit to hospital, or from hospital to neonatal intensive care unit.
- Past reference costs for obstetrics submitted by the NHS have not always recognised the higher proportion of the CNST cost that falls on maternity services.
- With a higher payment for a caesarean section, Payment by Results does not provide an incentive for reducing the high caesarean rate.

Maternity Matters also highlights this latter concern about caesarean rate but finds no evidence to suggest that PbR is leading to an increase in caesareans (Department of Health 2007).

Patient choice was seldom mentioned by our respondents as a lever for improving safety, although it may have the potential to do so. Research on the factors influencing patient and GP choice of hospital at referral identified MRSA rates as a key factor for patients (MORI 2006). This suggests that where safety information is available, patients may use it as a basis for choosing health care providers. The potential for using patient choice as a lever for improvement would thus depend on making robust safety data available to patients.

STRATEGIC PLANNING AND SUPPORT FOR MATERNITY SERVICES

We also heard concerns that there is insufficient strategic planning and support for maternity services at regional level, with many calls for stronger regional leadership and networks. At present, local supervising authority forums are the only focus for regional co-ordination.

One of the main problems identified by patients and professional organisations was a lack of joined-up contingency planning to cope with peaks in demand when units have to close to admissions for safety reasons.

> *The temporary closure of units has significant safety implications for women who would otherwise have been admitted to the closed units, and knock-on effects upon other units in the area.*
> (Written evidence, National Childbirth Trust)

This view was supported by the Royal College of Obstetricians and Gynaecologists (RCOG).

> *No contingency plan is agreed among adjoining trusts. This leaves the mothers vulnerable, with an urgent need to find another hospital whilst they are in active labour.*
> (Written evidence, RCOG)

Another issue highlighted in relation to central planning was the need for support during reconfiguration, when units may be particularly vulnerable to safety problems, as the HCC pointed out.

> *All three units in which we conducted full investigations had either recently completed or were in the process of merger or reconfiguration. During times of change, it is human nature that individuals are concerned primarily about their own roles and futures. Those redesigning services may be unaware of the interdependencies, informal communications links and relationships that ensure systems operate safely, and these may be inadvertently swept away, with resultant increased risk. The current widespread reconfiguration and redesign triggered by financial and working time factors, combined with the organisational implications of* Maternity Matters *and* Making it Better *will require extreme vigilance from all working in the maternity service to ensure that safety and risk systems are not compromised during reshaping of services.*
> (Written evidence, HCC)

We visited one trust that had recently experienced reconfiguration, and their observations about the process suggested that it can be extremely disruptive to safe and effective team work, with fear and uncertainty resulting in under-establishment before merger, and resentments and divisions between staff from different trusts afterwards.

The previous chapters of this report have discussed suggestions for solutions to the problems and challenges they discuss. However, we feel that in this case, solutions require co-operation and central co-ordination, and therefore designing these solutions in detail should be the responsibility of the organisations themselves, led by the Department of Health.

CONCLUSIONS

This report aims to focus on measures that can deliver improvements for staff working in maternity services and the women and babies they serve. Discussion of national structures might seem remote from these issues and from clinical practice.

However, it is important to recognise that lack of clarity, focus and co-ordination in the national organisations set up to improve the safety of maternity services can have the opposite effect.

In our view, national efforts to improve the safety of maternity services need better and clearer co-ordination to avoid overburdening maternity teams with duplicated requests for information. Reorganisation should aim to provide maternity services with integrated, consistent and effective guidance on safe practice. Work to achieve this must be led by the Department of Health.

Recommendations

- Standards for the safety of maternity services should be set and monitored only by the Healthcare Commission (in future the Care Quality Commission), because it has statutory responsibility for monitoring and improving quality and safety. Where appropriate, advice on standards should be sought from professional bodies and other interested organisations.
- Other bodies should not set additional 'safety' requirements. Existing standards should be distilled into a smaller number that are critical to safety, and can be connected to data that can be collected by teams. Where it is useful, such information can then be used to inform the processes of other bodies, such as the NHS LA.
- Strategic health authorities and others providing regional leadership for maternity services should be primed to offer specific support to trusts undergoing reconfiguration.
- The Department of Health should ensure that financial incentives are aligned to promote the safest care and to galvanise boards into prioritising safety. The Department should seek to realise the potential for commissioning and patient choice to act as drivers for improvement.

10 Recommendations

Safe maternity teams

- Teams themselves can:
  - agree shared, safety-focused objectives
  - clarify roles and responsibilities within the team
  - adopt clear standards and protocols for communication.
- The Royal College of Midwives (RCM) and Royal College of Obstetricians and Gynaecologists (RCOG) can give a lead by demonstrating effective team working between themselves that places safety at the heart of shared objectives for maternity services.

Staffing for safety

- Maternity units should review demand and capacity regularly and make sure they employ enough staff, with the right mix of skills, and deploy them effectively across peak and other times.
- Information on employment levels, skill mix and deployment achieved across all shifts and location should be made available promptly to unit managers and regularly to trust boards.
- National bodies, including the Department of Health, should draw on existing work in other clinical specialties to commission simple and effective tools to help maternity managers to manage employment and deployment, to map demand, capacity and patient flow and to provide timely feedback on levels achieved across all shifts and locations.

Training for safety

- A designated maternity unit manager should keep information on all training completed – and on all training required and planned but not yet undertaken – by members of maternity teams. This information should be made available on a regular basis both to unit managers and trust boards.
- The RCOG, the Nursing and Midwifery Council (NMC) and the Postgraduate Medical Education and Training Board (PMETB) should spread expertise on skills training and emergency drills to all maternity units by adapting elements of existing simulation-based training models and turning them into high-quality training tools that can be used locally at minimal cost and disruption.
- The royal colleges and the NMC should introduce safety awareness training into mainstream professional education at all levels.

Guidance to support safety

- Maternity services need a single set of evidence-based guidelines that are backed by professional organisations, National Institute for Health and Clinical Excellence (NICE) and other organisations.
- Guidelines must be supplemented by short summaries and usable, consistent protocols. We recommend a national approach to distilling clinical guidelines into short, one-page protocols for practical use.
- Staff in all disciplines should be encouraged to familiarise themselves with using guidelines in a local setting and should be trained to use the relevant protocols. The implementation of protocols should be regularly audited by simple methods and, further down the line, processes should be modified to make the safest care the 'default option' and so the easiest to deliver.
- Understanding of clinical guidance should be reinforced by annual evidence digests and a national briefing system and by extending existing tools like the Map of Medicine into maternity services.

Information for safety

- Trust boards should take action to ensure that maternity teams collect and regularly use and reflect on a small set of reliable, safety-critical information measures.
- Wherever local systems cannot be integrated with other systems, simple systems for capturing local information on safety should be designed, implemented and maintained locally.

Safety – the trust board's primary responsibility

Boards should take the following steps to improve safety.

- Prioritise safety, communicate that priority to staff and patients and make data on safety publicly available.
- Educate board members about safety issues in maternity services and strengthen advocacy for maternity safety on the board.
- Have governance structures in place to assure safety, including strengthening safety committees and systems for collecting and reporting safety information.
- Improve their understanding of the safety issues in their trusts by means of regular executive walk-rounds, analysis of claims data, incident reports and other safety indicators, and by reviewing safety incidents in detail.
- Clarify the importance of safety as a business imperative.

National structures to support safety

- Standards for the safety of maternity services should be set and monitored only by the Healthcare Commission (in future the Care Quality Commission), because it has statutory responsibility for monitoring and improving quality and safety. Where appropriate, advice on standards should be sought from professional bodies and other interested organisations.

- Other bodies should not set additional 'safety' requirements. Existing standards should be distilled into a smaller number that are critical to safety, and can be connected to data that can be collected by teams. Where it is useful, such information can then be used to inform the processes of other bodies, such as the NHS LA.
- Strategic health authorities and others providing regional leadership for maternity services should be primed to offer specific support to trusts undergoing reconfiguration.
- The Department of Health should ensure that financial incentives are aligned to promote the safest care and to galvanise boards into prioritising safety. The Department should seek to realise the potential for commissioning and patient choice to act as drivers for improvement.

Appendix 1
Recent national publications and ongoing work in this area

Recent national publications and ongoing national work of relevance to the safety of maternity services include the following.

Recently published

- Healthcare Commission (2008). 'Most comprehensive review of maternity services ever carried out'. Healthcare Commission website. Available at: http://2007ratings.healthcarecommission.org.uk/newsandevents/news.cfm/cit_id/23628/widCa111/customWidgets.content_view_1/usecache/false (accessed on 11 February 2008)
- Department of Health (2007). *On the State of Public Health: Annual report of the Chief Medical Officer 2006*. London: Department of Health. Available at: www.dh.gov.uk/en/Publicationsandstatistics/Publications/AnnualReports/DH_076817 (accessed on 24 January 2008).
- Department of Health (2007). *Maternity Matters: Choice, access and continuity of care in a safe service*. London: Department of Health. Available at: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_073312 (accessed on 24 January 2008).
- National Perinatal Epidemiology Unit (2007). *Recorded Delivery: A national survey of women's experiences of maternity care 2006*. Available at: www.npeu.ox.ac.uk/maternitysurveys/report.php (accessed on 24 January 2008).
- NICE (2007). *Intrapartum Care: Management and delivery of care to women in labour* [clinical guideline]. Available at: www.nice.org.uk/guidance/index.jsp?action=byID&o=11837 (accessed on 24 January 2008).
- Royal Colleges of Midwives, Obstetricians and Gynaecologists, Anaesthetists and Paediatrics and Child Health (2007). *Safer Childbirth: Minimum standards for service provision and care in labour*. London: RCOG Press. Available at: www.rcog.org.uk/resources/public/pdf/safer_childbirth_report_web.pdf (accessed on 24 January 2008).
- *Saving Mothers' Lives – Reviewing maternal deaths to make motherhood safer 2003–2005* [CEMACH triennial review of maternal deaths]. Available at: www.cemach.org.uk/getattachment/ee9ca316–2a9a-4de6–9d48-ecaf5716e2b4/Why-Mothers-Die-2000–2002.aspx

Ongoing work

- NHS Litigation Authority review of CNST maternity standards
- NPSA obstetric bundle development

Appendix 2
The process of the inquiry

The King's Fund set up an independent inquiry into the safety of maternity services in England in November 2006. The panel comprised:

- Professor Onora O'Neill, Professor of Philosophy at Cambridge University, President of the British Academy (Chair)
- Dr Jocelyn Cornwell, independent health consultant and visiting fellow in Health and Social Care at the London School of Economics
- Professor Alastair Thompson, Professor of Surgical Oncology, University of Dundee
- Professor Charles Vincent, Professor of Clinical Safety Research at Imperial College London.

They have been supported by three professional advisers and a part-time secretary, with additional research support from the King's Fund:

- Professor Alison Macfarlane, Professor of Perinatal Health, City University
- Professor Lesley Page, Visiting Professor in Midwifery, Florence Nightingale School of Nursing and Midwifery, King's College London
- Ms Zoe Penn, Clinical Director for the Women's and Children's Directorate, consultant obstetrician, Chelsea and Westminster Hospital, and Honorary Lecturer in Obstetrics at Imperial College London
- Laura Daniels, Secretary.

During the course of the year-long inquiry, the panel and advisers held 10 deliberative meetings that were used to scope and plan the inquiry, discuss issues raised by the evidence received, formulate recommendations for action, and agree the inquiry's report.

At the outset of the process, the King's Fund conducted a brief review of the literature (Smith and Dixon 2007) to inform the inquiry's deliberations.

The inquiry issued its call for evidence in April 2007. It asked three broad open-ended questions.

- Do you think there are aspects of maternity services that are not as safe for women and their babies than they should be? If so, what are the main problems?
- How do you think the safety of maternity services can be improved?
- Can you identify any factors or issues that make it hard to introduce changes to improve the safety of maternity services?

The inquiry received and reviewed 29 written responses from organisations with an interest in this area, which are available to read at: www.kingsfund.org.uk

In addition, the inquiry received 591 responses from individual professionals working in maternity services. Analysis of these responses has been published alongside this report (Smith and Dixon 2008).

Following the call for written evidence, the inquiry held oral evidence sessions with 14 individuals and organisations.

To further support the inquiry's processes, the King's Fund commissioned the Picker Institute to conduct in-depth interviews with 30 women who had a recent birth experience. The report of this research is published alongside this report (Magee and Askham 2008).

During the course of the inquiry, the panel visited six maternity units in different parts of the United Kingdom.

The inquiry's report was drafted by the panel, advisers and secretary, and was then subject to a peer review process.

The inquiry is indebted to all those who contributed to the inquiry.

Organisations submitting written evidence to the inquiry

Action Against Medical Accidents
Association for Improvements in Maternity Services
Birthrate Plus
BLISS: the Premature Baby Charity
British Association of Perinatal Medicine
Clinical Governance Support Team
Confidential Enquiry into Maternal and Child Health
Healthcare Commission
Department of Health
Guy's and St Thomas' Hospital
Health Foundation
MedACT
Nursing and Midwifery Council
London Assembly
Independent Midwives Association
National Childbirth Trust
National Institute for Health and Clinical Excellence
NHS Institute for Innovation and Improvement
National Patient Safety Agency
Obstetric Anaesthetists' Association
Perinatal Institute
Royal College of General Practitioners
Royal College of Midwives
Royal College of Nursing
Royal College of Obstetricians and Gynaecologists
Royal College of Physicians
Royal College of Psychiatrists
University Hospitals Coventry and Warwickshire

Organisations and individuals with whom the inquiry met

British Association of Perinatal Medicine
Clinical Governance Support Team

Confidential Enquiry into Maternal and Child Health
Department of Health
Health Foundation
Healthcare Commission
Local Supervising Authority representatives
Mr Leroy Edozien, Consultant Obstetrician, St Mary's Hospital, Manchester
National Childbirth Trust
NHS Institute for Innovation and Improvement
NHS Litigation Authority
National Patient Safety Agency
Professor Michael West, Aston University (specialist on effective teams)
Royal College of Midwives
Royal College of Obstetricians and Gynaecologists

Maternity units the inquiry visited

Homerton University Hospital NHS Foundation Trust
Liverpool Women's NHS Foundation Trust
NHS Tayside, Dundee
Oxford Radcliffe Hospitals NHS Trust
Peterborough and Stamford Hospitals NHS Foundation Trust
Wallingford Hospital Maternity Unit

Peer review

In preparing its report, the panel benefited from helpful comments on the draft from the following reviewers. However, any remaining factual errors or errors of interpretation are those of the panel.

Niall Dickson, Chief Executive, King's Fund
Anna Dixon, Acting Director of Policy, King's Fund
Leroy Edozien, Consultant Obstetrician, St Mary's Hospital, Manchester
Mary Elford, Non-Executive Director, Barts and The London NHS Trust
Sir Muir Gray, NHS Chief Knowledge Officer
Lord Naren Patel, Chairman, NPSA
Pat O'Connor, Head of Safety, Governance & Risk, NHS Tayside
Professor Michael West, Aston University (specialist on effective teams)

Appendix 3
Maternity services background

The development of maternity services in England

At the turn of the last century almost all babies were born at home. The 20th century saw an increasing move towards use of technology to support the birth process, and an increasing proportion of births taking place in hospitals. However, from the late 1980s, a shift in thinking about the maternity services is evident both in changes in policy and changes in practice at a clinical level, occurring in many parts of the economically developed world including England. The changes in practice included the promotion of home birth, the development of continuity of care, midwifery-led care, and the establishment of in hospital and out of hospital birth centres (both within hospitals and in the community).

The House of Commons Health Committee's report, *Maternity Services* (House of Commons 1992) was the first national policy review in the United Kingdom to question some of the premises on which medically led, hospital-based maternity care was founded and draw on reviews of evidence. The report emphasised the importance of having women involved in decisions about their care, and giving families more control in the birth of their babies. *Changing Childbirth*, the Department of Health policy document issued in 1993 in response, recognised the importance of safety as an underlying principle of the maternity services, but suggested that, where safety is invoked as an over-riding principle, it may provide a pretext for unnecessary intervention and technological surveillance, which detract from the experience of the mother. It was argued that the benefits of interventions should be proven rather than assumed. Safety was seen 'not as an absolute concept', but rather as encompassing all aspects of health and well-being. This report, as noted, uses a much more tightly focused conception of safety.

More recent policy documents in England, including the Women's and Children's Services National Service Framework (Department of Health 2004) and *Maternity Matters* (Department of Health 2007) have reiterated many of the principles of these earlier reports.

NATIONAL SERVICE FRAMEWORK FOR CHILDREN, YOUNG PEOPLE AND MATERNITY SERVICES

Standard 11: Maternity Services

Women have easy access to supportive, high-quality maternity services, designed around their individual needs and those of their babies.

- Female-centred care services meet the needs of women and their babies. Parents are involved in the planning and evaluation of services. There is easy access to information and support throughout pregnancy.

- Care pathways and managed care networks link maternity and neonatal services.
- Improved pre-conception care. Women can make initial contact with a midwife when they are first pregnant, and all women are supported by a known midwife throughout pregnancy. High-quality antenatal care and newborn screening for all women.
- Mental health problems for women during or after pregnancy are identified by professionals. There are local perinatal psychiatric services for all who need them.
- Women choose the most appropriate place to give birth. Local options include home birth and delivery in midwife-led units. Women delivering in the community can be easily transferred to hospital if necessary. The decision to have a caesarean section requires the involvement of a consultant obstetrician and evidence of clinical benefit to mother or baby.
- A professional skilled at neonatal resuscitation should be present at every delivery, and all newborn infants should be examined soon after birth. Women should be cared for by a multidisciplinary team according to a structured assessment post-birth.
- Breastfeeding support should be provided.

MATERNITY MATTERS (2007)

The aim of *Maternity Matters* is to improve choice, access and continuity of care for pregnant women. It shows how commissioners, providers, and teams of maternity care professionals can provide women-focused and family-centre services. By offering women an informed choice of the type of care they receive and improved access to services whilst ensuring continuity of care, the aim is to improve the quality of service, safety, outcomes and satisfaction for all women.

The choice guarantees are:

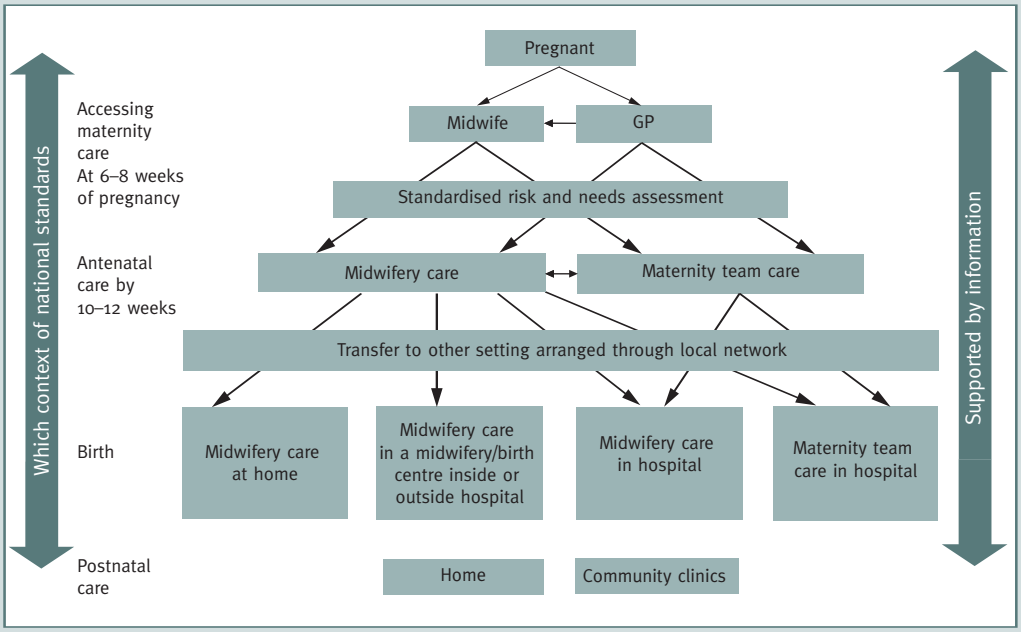
1. Choice of how to access maternity care.
2. Choice of type of antenatal care.
3. Choice of place of birth – depending on their circumstances, women and their partners will be able to choose between three different options. These are:
    - a home birth
    - birth in a local facility, including a hospital, under the care of a midwife
    - birth in a hospital supported by a local maternity care team including midwives, anaesthetists and consultant obstetricians. For some women this will be the safest option.
4. Choice of place of postnatal care.

The organisation of maternity services in England

Maternity care is envisaged as moving through three distinct phases – the antenatal period, the intrapartum period (labour and delivery) and the postnatal period – each with appropriate clinical care.

Currently most women access maternity services via their GP rather than directly contacting midwives. Among the women who responded to the 'Recorded delivery' survey in 2006, 82.5 per cent first saw their GP and only 12.7 per cent went straight to a midwife (Redshaw *et al* 2007).

MATERNITY CARE PATHWAY



Source: Department of Health 2007

MIDWIFERY CARE

The role of the midwife is to provide 'care and advice to women during pregnancy, labour and the postpartum period, to conduct deliveries on her own responsibility and to care for the newborn and the infant'. Uniquely in maternity services, midwives are specialists in caring for women and babies when pregnancy and childbirth and the early weeks of life are healthy, and in supporting a healthy outcome and physiological processes. Midwifery care is defined as care that is led and provided exclusively by midwives rather than obstetricians. This type of care is suitable for women with low-risk pregnancies and labours. While midwives operate as part of a wider team, and may refer to other specialists as necessary (including maternity support workers (MSWs) and anaesthetists), midwifery-led care is essentially provided by midwives working autonomously from doctors.

Many people see the scope of midwifery as going beyond physical care, and as integrating respect for the emotional and spiritual aspects of pregnancy and birth (Page and McCandlish 2006). Although a midwife's primary task is the management and promotion of normal pregnancy and childbirth, midwives must also be skilled risk-managers, monitoring pregnant and labouring women for any deviations from the norm, and making crucial decisions about referral to obstetricians where necessary.

MATERNITY TEAM OR OBSTETRIC-LED CARE

The role of the obstetrician is to act as the lead professional accountable for a woman's antenatal care and delivery if there is a medical or obstetric condition that complicates their pregnancy or labour. Referrals from midwifery care to obstetric-led care take place because of perceived risks or problems detected during antenatal care or labour. If a woman is referred to an obstetric team (described in *Maternity Matters* as 'Maternity Team

Care'), lead responsibility for that woman's care then passes to the obstetrician. It has been estimated that 40 per cent of women giving birth in London either need or receive obstetric-led care in labour (Healthcare for London 2007).

Referrals from midwifery care to obstetric care during labour usually take place once the midwife has consulted the most senior midwife on the labour ward. Some referrals are directly to the most senior obstetrician, but may often begin with an initial consultation with the most junior obstetrician, who will then consult with the rest of the obstetric team before undertaking further investigation or treatment.

Sometimes obstetricians are called upon to give an opinion at a particular stage of pregnancy and the woman can then return to exclusive midwifery care again – for example, an obstetrician specialising in fetal medicine will perform specialised ultrasound scanning and interventional procedures, such as amniocentesis – but more commonly once obstetricians become involved they take over the organisation of care thereafter. The medical team caring for pregnant and labouring women usually comprises:

- one Foundation Year doctor (a junior doctor within one or two years of graduation with little or no specific obstetric training or experience)
- one or more senior doctors (in specialised training and often with professional qualifications in obstetrics and gynaecology)
- one consultant, who heads up the team.

The members of this team may change frequently as shifts change. The introduction of controls on the hours that doctors are permitted to work under the European Working Time Directive makes continuity of care harder to achieve.

Once a labouring woman is referred to an obstetrician for more medical care, midwives remain in attendance but (depending on the degree of intervention) may fulfil a role requiring technical skills to support and monitor a more medicalised and high-risk birth. In some units the midwife's role within an obstetric team includes assisting in the operating theatre should a caesarean section be required, and undertaking procedures such as ventouse assisted birth. After a complex birth such as a caesarean section, or in women with pre-existing medical problems, detailed monitoring and nursing care may be required postnatally, which midwives may also provide. At any one time, this team will be responsible for supervising the care of all labouring women and their babies who require obstetric care.

CHOICE AND AVAILABILITY OF DIFFERENT TYPES OF INTRAPARTUM CARE

In England, pregnant women should be offered a choice between the four types and locations of intrapartum care identified in the figure, p 105. However, in reality this choice is constrained both by the clinical circumstances of a woman's pregnancy and labour and by the availability of local services.

Nationally, only approximately 38 per cent of women are offered a home birth at the booking interview (Redshaw *et al* 2007). There is considerable regional variation in the proportion of births that take place at home. In 2006, 2.7 per cent of women resident in England gave birth at home, but this ranged from 1.4 per cent in the North East Region to 4.1 per cent in the South West (ONS 2006). An earlier survey by the National Childbirth Trust found that the highest proportion locally was 11.7 per cent in Torbay in South Devon

(National Childbirth Trust 2001). Proportions of women delivered in standalone midwife-led maternity units are similarly small, but vary locally according to whether or not these units exist.

In the *Recorded Delivery* survey, only 1.7 per cent of all women transferred from a separate midwife-led unit to a hospital, 1.3 per cent transferred from home to hospital, 0.5 per cent from one hospital to another, but 17.2 per cent transferred within the same hospital (Redshaw *et al* 2007).

Appendix 4
Standards and clinical guidance of relevance to maternity safety

This appendix lists some of the many standards and pieces of clinical guidance that are relevant to the safety of maternity services. It is not, however, intended to be a comprehensive list, rather an illustration of the many sources of standards and guidance for maternity services.

Standards and clinical guidelines may at times overlap and the distinction between the two is not always clear. For the purposes of this appendix we have defined them as follows.

Standards – high-level, national guidance specifying measurable standards to be achieved. These may cover managerial as well as clinical processes, the organisation of services and outcomes. In some cases they are monitored and in some cases they are not.

Clinical guidelines – clinical guidelines provide guidance to professionals on specific aspects of clinical care. In some cases their implementation is monitored and in some cases it is not.

Standards

DEPARTMENT OF HEALTH

Two Department of Health publications contain standards for maternity services. The *National Service Framework for Children, Young People and Maternity Services'* (2004) (*see* Appendix 3) and the choice guarantee contained in *Maternity Matters* (2007) (*see* Appendix 3).

HEALTHCARE COMMISSION

The Healthcare Commission (HCC) carries out an annual assessment of all NHS trusts against core and developmental standards. Five of these relate specifically to safety.

Outcome

Patient safety is enhanced by the use of health care processes, working practices and systemic activities that prevent or reduce the risk of harm to patients.

Core standard

C1 Health care organisations protect patients through systems that:

- identify and learn from all patient safety incidents and other reportable incidents, and make improvements in practice based on local and national experience and information derived from the analysis of incidents; and

- ensure that patient safety notices, alerts and other communications concerning patient safety which require action are acted upon within required time-scales.

C2 Health care organisations protect children by following national child protection guidance within their own activities and in their dealings with other organisations.

C3 Health care organisations protect patients by following NICE Interventional Procedures guidance.

C4 Health care organisations keep patients, staff and visitors safe by having systems to ensure that:

- the risk of health care acquired infection to patients is reduced, with particular emphasis on high standards of hygiene and cleanliness, achieving year-on-year reductions in MRSA;
- all risks associated with the acquisition and use of medical devices are minimised;
- all reusable medical devices are properly decontaminated prior to use and that the risks associated with decontamination facilities and processes are well managed;
- medicines are handled safely and securely; and
- the prevention, segregation, handling, transport and disposal of waste is properly managed so as to minimise the risks to the health and safety of staff, patients, the public and the safety of the environment.

Related developmental standard

D1 Health care organisations continuously and systematically review and improve all aspects of their activities that directly affect patient safety and apply best practice in assessing and managing risks to patients, staff and others, particularly when patients move from the care of one organisation to another.

Other standards monitored by the HCC may also be relevant to safety, including those covering clinical effectiveness and governance. The standards are available at: www.dh.gov.uk/en/Publicationsandstatistics/Publications/PublicationsPolicyAndGuidance/DH_4086665

2007 Maternity review

In addition to this, in 2007 the Healthcare Commission carried out a national maternity services review, collecting information from trusts and assessing them against standards in three key areas:

Clinical focus

Indicator 1: Women not receiving NICE recommended number of antenatal appointments
Indicator 2: Availability of NICE recommended screening
Indicator 3: Appropriate use of caesarean sections
Indicator 4: Maternal Morbidity
Indicator 5: Postnatal care of women and babies
Indicator 6: Progress on implementing Mental Health NICE guidance
Indicator 7: Extent that staff are trained in core maternity skills
Indicator 8: Team working and supervision

Women-centred care

Indicator 9: Average time between first making contact and booking appointment
Indicator 10: Choice and continuity for antenatal care
Indicator 11: Per cent of women offered an informed choice for screening tests
Indicator 12: Per cent of women attending NHS antenatal classes who wanted to
Indicator 13: Extent of choice in labour
Indicator 14: Support for infant feeding
Indicator 15: Quality of support in caring for the baby after discharge
Indicator 16: Stakeholder involvement in service planning and evaluation

Efficiency and capability

Indicator 17: Staffing levels
Indicator 18: Integration of support workers
Indicator 19: Average cost per delivery
Indicator 20: Delivery of hospital-based antenatal care
Indicator 21: Data quality
Indicator 22: Appropriate involvement of obstetricians and midwives in antenatal care
Indicator 23: Per cent of women who considered their length of stay was about right
Indicator 24: Homeliness of delivery rooms
Indicator 25: Women's view of cleanliness of delivery and postnatal areas

Full details are available at: http://2007ratings.healthcarecommission.org.uk/newsandevents/news.cfm/cit_id/23628/widCa111/customWidgets.content_view_1/usecache/false

NHS LITIGATION AUTHORITY

The NHS Litigation Authority sets standards as part of its Clinical Negligence Scheme for Trusts (CNST). Trusts are assessed against these standards at varying intervals (six months to three years) and performance against the standards qualifies trusts for discounts in the clinical negligence premium they pay. The NHS Litigation Authority sets both general standards and specific maternity standards. The maternity standards cover the following eight areas (the maternity standards are currently under review).

Standard 1 : Organisation
Standard 2 : Learning from experience
Standard 3 : Communication
Standard 4 : Clinical care
Standard 5 : Induction, training and competence
Standard 6 : Health records
Standard 7 : Implementation of clinical risk management
Standard 8 : Staffing levels

The standards are available at: www.nhsla.com/NR/rdonlyres/DBF69F15-A130-4D3C-99F7-5C5C8BF66ED1/0/CNSTMaternityClinicalRiskManagementStandardsApri12007website.pdf

PROFESSIONAL REGULATORY BODIES

The General Medical Council (GMC) and Nursing and Midwifery Council (NMC) regulate the professions involved in delivering care to mothers and babies. They define core standards for good clinical practice and the conduct of individual health professionals.

ROYAL COLLEGES

In 2007, the Royal Colleges of Obstetricians and Gynaecologists, Midwives, Anaesthetists and Paediatrics and Child Health published a set of standards, *Safer Childbirth: Minimum standards for the organisation and delivery of care in labour*. Compliance against these standards is not assessed, other than where they have been incorporated into CNST standards. Detailed standards exist in 10 areas:
Standard 1: Organisation and documentation
Standard 2: Multidisciplinary working
Standard 3: Communication
Standard 4: Staffing levels
Standard 5: Leadership
Standard 6: Core responsibilities
Standard 7: Emergencies and transfers
Standard 8: Training and education
Standard 9: Environment and facilities
Standard 10: Outcomes (lists outcome measures that should be audited)

The standards are available at: www.rcog.org.uk/resources/public/pdf/safer_childbirth_report_web.pdf

Clinical guidance

NICE

NICE has published the following clinical guidance:
Induction of labour (2001 – under review)
Electronic fetal monitoring (2001)
Amnioinfusion for oligohydramnios in pregnancy (2006)
Caesarean section (2004)
Intrapartum care (2007)

Available at: www.nice.org.uk

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

Clinical governance

Improving Patient Safety: Risk management for maternity and gynaecology (2005). Available at: www.rcog.org.uk/resources/Public/pdf/improvingpatientsafety_cga.pdf

Good practice series

The Role of Emergency and Elective Interventional Radiology in Postpartum Haemorrhage (2007). Available at: www.rcog.org.uk/resources/Public/pdf/goodpractice6a.pdf

National evidence-based clinical guidelines

The Use of Electronic Fetal Monitoring (2001). Available at: www.rcog.org.uk/resources/public/pdf/efm_guideline_final_2may2001.pdf

Induction of Labour (2001). Available at: www.rcog.org.uk/resources/public/pdf/rcog_induction_of_labour.pdf

Green-top Guidelines

Birth after previous caesarean section (2007)
Group B streptococcal disease: prevention of early onset neonatal disease (2003)
Management of breech presentation (2006)
Management of severe pre-eclampsia/eclampsia (2006)
Management of HIV in pregnancy (2004)
Management of genital herpes in pregnancy (2007)
Management of third- and fourth-degree perineal tears (2007)
Operative vaginal delivery (2005)
Perineal repair (2004)
Placenta praevia and placenta praevia accrete: diagnosis and management (2005)
Preterm prelabour rupture of the membranes (2006)
Shoulder dystocia (2005)
Small for gestational age fetus: investigation and management (2002)
Thromboembolic disease in pregnancy and puerperium (2007)
Thromboprophylaxis during pregnancy, labour and after vaginal delivery (2004)
Tocolytic drugs for women in preterm labour (2002)

Available at: www.rcog.org.uk/index.asp?PageID=1042

ROYAL COLLEGE OF MIDWIVES

Position statements

Normal childbirth
Commercial cord blood collection

Position papers

The use of water in labour and birth (2000)
Female genital mutilation (1998 reviewed 2005)
Intimate examinations of women (2006)

INTERCOLLEGIATE JOINT STATEMENTS

Immersion in water for labour and birth
Training and maintenance of skills for professionals responsible for resuscitation of babies at birth
Home birth
Caesarean section without health indications

Available at: www.rcm.org.uk

CEMACH

In addition to the above clinical guidelines, specific recommendations for improving clinical care contained in each report, which is published triennially.

Available at: www.cemach.org.uk

CNST

CNST specifies that local maternity units must have their own clinical guidelines available in the following 27 clinical areas:

1. accidental dural puncture (this may be within the epidural analgesia policy)
2. antepartum haemorrhage including placental abruption
3. breech presentation including version and selection for vaginal delivery (external cephalic version may also be found within the antenatal guidelines)
4. care of the newborn immediately after birth (including management of hypoglycaemia/ hypothermia)
5. definition and repair of perineal tear
6. diabetes
7. eclampsia
8. epidural analgesia
9. failed adult intubation
10. group B haemolytic streptococcus
11. induction of labour – to include augmentation and use of syntocinon and prostaglandins (NICE guideline 2001)
12. major haemoglobinopathy
13. management of a baby with meconium present at delivery
14. management of ectopic pregnancy (required also for the accident and emergency department)
15. management of reduced fetal movements
16. maternal death policy – for local management (accepted without references)
17. management of women who decline blood products
18. multiple pregnancy (including higher multiples)
19. prolapsed cord
20. prophylactic antibiotics for caesarean section
21. severe hypertension
22. severe postpartum haemorrhage
23. shoulder dystocia
24. thrombo-prophylaxis in caesarean section
25. unexplained intrapartum/postpartum collapse – including amniotic fluid embolism
26. vaginal birth with uterine scar/rupture of the uterus
27. water birth.

Full standards available at : www.nhsla.com/NR/rdonlyres/DBF69F15-A130–4D3C-99F7–5C5C8BF66ED1/0/CNSTMaternityClinicalRiskManagementStandardsApri12007website.pdf

Appendix 5
Data collection systems

Introduction

This appendix starts by describing the systems that are used to record data about birth and maternity care. It then summarises what is recorded about each type of event, showing the considerable duplication. Finally, it illustrates this further by listing the data items in the main data systems recording data about births and deaths in the perinatal period.

CIVIL REGISTRATION OF BIRTHS AND DEATHS

Civil registration systems data, held by the Office for National Statistics (ONS), include data recorded at birth and death registration in England and Wales. The events are registered by next of kin at local register offices. If the event is a stillbirth or death, the attending doctor issues a medical certificate to the next of kin to take to the register office. Population-based statistics are published annually on live and stillbirths and on deaths, including perinatal, infant and maternal deaths. Socio-demographic information about the parents is recorded at birth registration and some information about the characteristics of the deceased person is recorded at death registration. For any death of a person born since 1993, ONS links their death data to their birth data, enabling death data to be tabulated according to information recorded at birth, such as parents' ages and countries of birth. ONS publishes data for England and Wales at a national level on its website in *Birth statistics, Series FM1* and *Mortality statistics, perinatal and infant, Series DH3*. Data for local authority and NHS areas are fed back to local authorities and primary care trusts.

CONFIDENTIAL ENQUIRIES

Confidential enquiries collect data about defined categories of deaths or other adverse events. All maternal deaths are subject to detailed review undertaken by the Confidential Enquiry into Maternal and Child Health (CEMACH), with reports produced triennially. CEMACH also collects notification data on all late fetal, stillbirths and neonatal deaths in England, Wales and Northern Ireland and undertakes in-depth enquiries into defined sub-sets of stillbirths and neonatal deaths.

NHS ADMINISTRATIVE SYSTEMS

Many data about health care are generated as a by product of the administration of services. A number of administrative datasets contain data relevant to maternity and births.

Maternity Hospital Episode Statistics

Data on inpatient episodes in all NHS hospitals in England are brought together in the Hospital Episode Statistics (HES). Data on episodes of care in which one or more babies are born have a 'maternity tail' containing clinical data about the birth appended to the

standard core record for all episodes of admitted patient care. This contains the items in the maternity minimum dataset for England defined in the 1980s. (Steering Group on Health Services Information. *Supplement to the First and Fourth Reports to the Secretary of State.* London: HMSO, 1985.) Maternity statistics based on these data were published annually by the Department of Health until 2006, when this was transferred to the Information Centre for Health and Social Care. Since 2003/4, data about outpatient visits have been collected and are published by the Information Centre.

A new national Maternity Dataset was developed by the Information Centre for use within the NHS as part of the National Programme for IT. The proposed dataset aimed to address the current gaps in data collection about maternity and promote consistency in data collection at a national level. After a consultation in 2006, it was found that the Maternity Dataset, along with datasets developed for Child Health and Children's and Adolescent Mental Health Services were not on any release schedule for the Secondary Uses Service. They have therefore been put on hold.

The Secondary Uses Service

Up until the end of 2006, data were transmitted from hospital systems to HES via the NHS Wide Clearing Service. The Secondary Uses Service was implemented during 2006 and then superseded the NHS Wide Clearing Service. It receives commissioning datasets for various types of NHS care, currently from NHS trusts and in the future from the NHS spine. It is designed as a data warehouse from which admitted patient care records can be passed on to HES.

Payment by Results

It is intended that the data items needed for Payment by Results should be passed on from the Secondary Uses Service to relevant primary care trusts. In many trusts, these principles have yet to be realised in practice so ad hoc local systems have to be used for Payment by Results, meaning that staff have to enter the same data more than once.

Birth notification, NHS numbers for babies and child health systems

Primary care trusts (PCTs) in England maintain community child health systems at a local level. Currently, a number of different systems operate, and there is no national collection of community health data. In some PCTs, data from these systems are used for reporting against national and local indicators and targets.

To initiate the child's record, a subset of data held within hospital systems, generated from the maternity episode, is used to create a birth notification dataset. This is passed to the local child health system and initiates the child's record. In parallel, under the NHS Number for Babies system, NHS numbers are allocated to babies at birth and this, together with a small set of data is forwarded to child health systems throughout England and Wales.

Risk management systems

For specified adverse events, staff have to complete a form and pass it to the unit or hospital's risk manager. This information is used within the trust and reported to the National Patient Safety Agency, which operates the National Reporting and Learning System (NRLS). It is designed for anonymous reporting of patient safety errors and systems failures by health professionals in England and Wales. A patient safety incident is defined

as any unintended or unexpected incident which could have or did lead to harm for one or more patients receiving NHS care. Feedback is provided to NHS organisations and aggregated data are published in quarterly and other reports.

NHS organisations which belong to the NHS Litigation Authority's Clinical Negligence Scheme for Trusts have to prepare an extensive dossier of information in preparation the Scheme's inspections. Most of this information is not directly statistical.

Aggregated returns

Hospitals and primary care trusts throughout England are also required to submit aggregated data, often on a quarterly basis, to the Information Centre, or in some cases, the Department of Health. This is then published on their websites.

Among the aggregated statistical returns sent to the Department of Health by local trusts is return KH03 which contains annual average data on bed availability and occupancy by sector and ward type. Maternity is shown as a separate sector and also as a ward type. Neonatal intensive care and other general and acute wards for neonates and children are two other relevant ward types. Data are published for England as a whole, for strategic health authorities and for individual hospital and primary care trusts. As these data are regarded as management information, they are still compiled by the Department of Health.

Medical and non-medical workforce censuses

The Information Centre also conducts annual medical and non-medical workforce censuses, which provide some data about staff employed in the NHS on 30 September. Periodic surveys are also undertaken to identify staff shortages. Statistics derived from these are published by the Information Centre on its website.

SURVEYS

A number of surveys relevant to maternity are undertaken in England on a regular basis, notably the five-yearly Infant Feeding Survey and occasional maternity care surveys.

Infant feeding survey

The Infant Feeding Survey, conducted at five-yearly intervals, asks about parents' background and about smoking and drinking in addition to more detailed questions about how babies are fed. It covers all four countries of the United Kingdom.

Recorded delivery

Recorded Delivery: a national survey of women's experience of maternity care was undertaken in 2006 by the National Perinatal Epidemiology Unit and filled a gap in knowledge about this subject. It was undertaken on a population basis and comparisons were made with the survey *First Class Delivery: a national survey of women's experience of maternity care*, undertaken by the Audit Commission and the National Perinatal Epidemiology Unit in 1995. Surveys were then undertaken of women receiving care in each maternity unit in England, using a similar but shorter questionnaire. The results of these have been published by trust on the website of the Healthcare Commission, which commissioned this work.

SPECIALIST REGISTERS

A large number of local and some national registers are relevant to pregnancy and its outcome.

National Congenital Anomaly System

The National Congenital Anomaly System includes data on live and stillbirths diagnosed with one or more of a defined set of major fetal anomalies such as Down Syndrome and spina bifida. Participation in contributing data to this register is voluntary. About half of England and Wales is covered by local congenital anomaly registers which share their data with ONS. In the rest of the country, congenital anomalies should be notified directly to ONS using form SD56, but there is considerable under-reporting.

Notification of Abortion under the 1967 Act

Under the 1967 Abortion Act, terminations of pregnancy must be notified to the Chief Medical Officers of England and Wales. The Department of Health compiles an annual bulletin of statistics derived from these notifications.

Human Fertilisation and Embryology Authority Register

The Human Fertilisation and Embryology Authority register contains data about procedures undertaken in the United Kingdom under the Human Fertilisation and Embryology Act and their outcomes. The collection of these data is mandatory. Most published data relate to individual clinics.

RECORD LINKAGE

ONS routinely links the deaths of babies, children and young people born from 1993 onward to their birth registration data to enable fuller analyses of infant mortality data. Initial analyses are based on deaths occurring in a calendar year, known as the death cohort. Subsequent analyses relate to deaths among children born in a given calendar year, known as the birth cohort. Analyses of both types are published in *Mortality Statistics, Series DH3*.

A recent project has demonstrated successful linkage of ONS birth registration data with data from the NHS Numbers for Babies system. This provided data about gestational age and preterm birth at a national level for the first time and the linkage will be undertaken routinely in the future. Permission has been obtained to explore the potential for linking the Maternity Hospital Episode Statistics and birth registration data and funds are now being sought for this project. This would enable a linkage between the clinical data collected in Maternity HES and the socio-demographic data recorded at birth registration.

The ONS Longitudinal Study, which links together data about births, deaths and cancer registrations for a one per cent sample of the population, has been under way since 1971.

Summary table

System	Coverage	Person completing/ reporting data	Recipient of data	Status	Purpose	Publication/ feedback
All episodes of care, including births						
Local electronic patient record/ maternity system	All episodes of care, including births	Clinical and medical record staff	Hospital/trust electronic patient record system	Compulsory, in theory	Individual records required for clinical and administrative purposes	Systems vary widely in the extent to which aggregated data can be analysed
Hospital Episode Statistics (HES)	All episodes of care, including births on hospital system	Hospital/trust EPR system	HES via Secondary Uses Service	Data excluded if not on hospital system	Produce national statistics. Maternity tail data are missing for about a quarter of delivery episodes	National and local data published on Information Centre website in a Statistical Bulletin
Payment by Results	All episodes of care, including births	Should be Secondary Uses Service, but often parallel returns completed by clinical staff	Primary care trusts	Compulsory	Needed for payment for care	
Births						
Civil registration	All live and stillbirths	Parents or other next of kin. Medical staff provide a medical certificate for stillbirths	Local registrar of births and deaths	Statutory	To provide an identity document for legal purposes	National data published by ONS in Birth statistics, Series FM1 and local data fed back to local authorities and PCTs in VS tables
NHS numbers for babies birth notification	All live and stillbirths		Central issuing system, then child health system and ONS	Statutory	To issue NHS numbers to newborn babies	Limited dataset. Not published but data now passed to ONS for linkage with birth registration and derivation of data for publication
'Traditional' birth notification	All live and stillbirths	Midwife or other birth attendant	Director of public health at PCT. In practice, child health system	Mandatory where operated	To provide child health services with information about newborn babies	Data not routinely published but used locally by PCTs

Termination of pregnancy						
Abortion notification	All terminations of pregnancy under the 1967 Act	Doctor who terminated pregnancy	Chief Medical Officer of country where termination took place	Statutory	To monitor working of the Act. If termination takes place on grounds of fetal anomaly after 24 weeks of pregnancy, it should also be registered as a stillbirth	National and local data published by the Department of Health
Deaths						
Civil registration	All deaths	Parents or next of kin. Medical staff provide a medical certificate	Local registrar of births and deaths	Statutory	To provide a legal proof of death	National data published by ONS in Mortaity statistics, Series DH and local data fed back to local authorities and PCTs in vital statistics tables
CEMACH Perinatal Death Notification Form	All fetal deaths after 22 weeks of pregnancy or weighing 400g or over if the gestational age is unknown and all neonatal deaths	Local co-ordinator	CEMACH regional co-ordinator and then to CEMAC central office	Voluntary	To monitor stillbirths and neonatal deaths. Considerable overlap with stillbirth and neonatal death registration	National report published by CEMACH and aggregated data fed back to trusts. More clinical data than ONS but less detailed analyses
CEMACH Maternal Death Form	All maternal deaths identified directly from death certificates and selected maternal deaths identified by record linkage	Clinical staff involved in the care of the woman	CEMACH	Required under the Public Health Act	To enable panels to assess the factors associated with the death	Aggregated data for the United Kingdom published triennially by CEMACH

Congenital anomalies						
National Congenital Anomaly System	Specified congenital anomalies in babies born in areas without congenital anomalies registers	Relevant clinical staff	National Congenital Anomaly System	Voluntary	To monitor trends and variations in congenital anomalies	Data published annually by ONS
Local congenital anomalies registers	Specified congenital anomalies in babies born in areas with congenital anomalies registers	Relevant clinical staff	Staff responsible for operating the register. Apart from the West Midlands, registers share an agreed subset of data with The National Congenital Anomalies System	Voluntary	To monitor trends and variations in congenital anomalies	Data published annually by ONS. In addition, local registers make their own arrangements for publications
Patient safety incidents						
Local risk management systems	Patient safety incidents specified by trust risk managers	Relevant clinical staff	Trust risk managers. Standard data passed on to the National Reporting and Learning System	Required within trust	Monitor patient safety incidents	Fed back within trust. National reports published by NPSA
National Reporting and Learning System		Any member of staff, NHS organisation or member of the public can report an incident anonymously	National Patient Safety Agency	Voluntary and anonymous	Monitor patient safety incidents	National reports published by NPSA

Data items recorded in key data collection systems

CIVIL REGISTRATION

ONS birth registration data

Data fields available in birth registration records are listed below. Entries in italics indicate fields that are derived from the information recorded.

Birthweight	
Cause of death	Stillbirths only
Duration of pregnancy	Stillbirths only up to 2004, but *see* later
Date of birth	
Plurality	
Birth order	*Multiple births only*
Time of birth	Multiple births only
Place of birth	Usual name and address of hospital or other establishment, or private dwelling
Place of birth categories	*NHS hospital, non-NHS hospital, at home, elsewhere*
Sex of child	
Birthplace of parents	
Mother's country of birth	*Grouped into categories below*
Mother's usual address	
Mother's area of residence	*Derived from postcode*
Occupation of mother	
Industry and employment status of mother	Where occupation is recorded
Socio-economic classification of mother	*Defined by occupation, where occupation recorded*
Occupation of father	Where name is entered on register
Industry and employment status of father	*Where name is entered on register*
Socio-economic classification of father defined by occupation	*Where name is entered on register*
Father's date of birth	Where name is entered on register
Father's age	*Where name is entered on register*
Mother's date of birth	
Mother's age	
Date of parents' marriage	If married
Duration of parents' marriage	*If married*
Whether the mother has been married more than once	If married
Number of previous children by her current husband and any former husband	a) born alive and b) stillborn, if married

ONS death registration data

Information recorded on death certificates and in death registration data is as follows, with derived variables shown in italics.

Usual residence of deceased	
Area of residence	*Derived from postcode*
Date of birth	
Date of death	
Age	Derived from date of birth and date of death
Sex	
Occupation of parent, if child	Usually the father
Occupational and employment status of parent	*Based on occupation*
Socio-economic classification of parent	*Based on occupation*
Causes of death	
Underlying cause of death	
Main diseases or conditions in fetus/infant	Stillbirths and neonatal deaths only
Other diseases or conditions in fetus/infant	Stillbirths and neonatal deaths only
Main maternal diseases or conditions affecting infant/fetus	Stillbirths and neonatal deaths only
Other maternal diseases or conditions affecting infant/fetus	Stillbirths and neonatal deaths only
Other relevant causes	Stillbirths and neonatal deaths only

ADMINISTRATIVE SYSTEMS

HES DATA: SELECTED CORE FIELDS AND MATERNITY TAIL FIELDS

Patient	Maternity tail data items
Ethnic origin (ethnos) NHS Number (newnhsno)	Anaesthetic given during labour or delivery (delpren)
Postcode of patient (homeadd) Sex of patient (sex)	Anaesthetic given post-labour or delivery (delposn)
	Antenatal days of stay (antedur)
Admissions	Baby sequence number (babyseq)
Date of admission (admidate)	Baby's age in days (neodur)
Method of admission (admimeth)	Birth date (baby) (dobbaby)
Source of admission (admisorc)	Birth order (birordr)
Waiting time (elecdur)	Birth weight (birweit)
	Change of delivery place (delchan)
Discharges	Delivery method (delmeth)
Date of discharge (disdate)	Delivery place (actual) (delplac)
Destination on discharge (disdest)	Delivery place (intended) (delintn)
Method of discharge (dismeth)	First antenatal assessment date (anadate)
Clinical	Gestation period in weeks at first antenatal assessment (anagest)
Date of operation (opdte_nn)	Length of gestation (gestat)
Diagnosis (diag_nn)	Live or still birth (birstat)
Main operation – three characters (oper3)	Method to induce labour (delonse)
Main specialty (mainspef)	Mother's age at delivery (matage)
Operation codes (oper_nn)	Mother's date of birth (motdob)
Primary diagnosis – four characters (diag4)	Mother's date of birth check flag (motdob_cfl)
	Neonatel level of care (neocare)
Geographical	Number of babies (numbaby)
Census output area, 2001 (oacode)	Number of baby tails (numtailb)
County of residence (rescty)	Number of previous pregnancies (numpreg)
Lower super output area (soal)	Postnatal stay (postdur)
Ordnance survey grid reference (gridlink)	Resuscitation method (biresus)
Patient's primary care trust of residence (respct)	Sex of baby (sexbaby) Status of person conducting delivery (delstat)
Primary care trust of treatment (pcttreat)	
Site code of treatment (sitetret)	
Organisation	**Augmented/critical care period**
Primary care trust of responsibility (pctcode)	Augmented care location (acploc)
Provider type (protype)	Augmented care period start date (acpstar)
	High-dependency care level (depdays)
Healthcare resource groups	Intensive care level days (intdays)
Dominant procedure (domproc)	Augmented care period end date (acpend)
Healthcare resource group (HES generated) (hrg_n.n)	
NHS-generated HRG code (hrgnhs)	

DATA ITEMS IN THE IC (HES) OUTPATIENT DATASET

Mandatory	Optional
Patient identifier details	**Patient socio-demographic details**
Local Patient ID	Carer support indicator
NHS Number	Ethnic group (ONS 2001 Classification)
Birth date	Marital status
Postcode of usual address	Sex
Organisation code (PCT)	
	ICD diagnosis
Consultant	Diagnosis scheme in use
Consultant code	Primary diagnosis (ICD)
Main speciality code	Secondary diagnosis
Treatment function	
	Read diagnostic details
Attendance	Diagnosis scheme in use
Attended or did not attend	Primary diagnosis (read)
First attendance	Secondary diagnosis (read)
Medical staff type seeing patient	
Operation status	**Read procedure details**
Outcome of attendance	Procedures scheme in use
	Primary procedure code
Location	Procedure (2-12)
Location class	
Site code (of treatment)	**OPCS procedure details**
Organisation code type	Procedure scheme in use
	Primary procedure (OPCS)
GP	Procedure (OPCS) (2-12)
Code of referring or registered GMP	
	GP practice
Referral details	Code of GP practice (registered GMP)
Priority type	Organisation code type
Service type requested	
Source of referral for out-patients	**Healthcare Resource Group**
Referral request received date	HRG code
	HRG code-version number
Missed Appointment Details	
Last DNA or patient cancelled date	

NHS NUMBERS FOR BABIES AND BIRTH NOTIFICATION DATA

The NHS Numbers for Babies scheme was set up in 2002 to issue a NHS number at birth to all babies born in England. Data fields included in the NN4B birth notification are listed below.

NN4B BIRTH NOTIFICATION DATA FIELDS

Baby's NHS number
Birth date
Delivery time
Sex
Live or stillbirth
Birth weight
Gestation length
Number of births in this confinement
Birth order
Suspected congenital anomaly
Ethnic category
Baby's usual postcode
Organisation code (of place of birth)
Delivery place type code
Mother NHS number
Mother birth date
National GP code
NHS organisation code for the person notifying the birth

NATIONAL CONGENITAL ANOMALY SYSTEM

DATA ITEMS COLLECTED ON FORM SD56, CONGENITAL ANOMALIES

Child	Mother/father
NHS number	Mother's address, including postcode
Area in which baby was born	Area of usual residence
Place of birth	Date of birth/age
Date of birth	Date of last menstrual period
Sex	Mother's occupation
Live or stillbirth	Father's occupation
Single or multiple birth	Number and outcome of previous pregnancies
Estimated gestation	
Birthweight	**Details of the anomaly(s)**
	Detailed text description of the anomaly(s)

Appendix 6
National and regional bodies of relevance to maternity safety

The following are some of the national and regional bodies whose work may impact on maternity services.

National

Healthcare Commission
NHS Litigation Authority
National Patient Safety Agency
Royal Colleges (RCM, RCOG, RCA, RCPCH, RCPsych, RCGP, RCP)
Nursing and Midwifery Council
General Medical Council
Confidential Enquiries into Maternal and Child Health
National Institute for Health and Clinical Excellence
Department of Health

Regional

Strategic health authorities
Primary care trusts
Local supervising authorities

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