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Chapter 1

The Newborn and Infant Physical Examination Standards and Competencies

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Optimum maternal health and positive developmental outcomes for babies depend on practitioners who can provide consistency in standards of care on the basis of current best evidence, and on those who are competent and professionally accountable within their role (DH 2007b).

Thirteen years ago, Sackett et al. provided us with perhaps the most articulate and certainly, in the present time, one of the most cited definitions of evidence-based medicine:

> *Evidence based medicine is the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research.*
>
> Sackett et al. 1996, p. 71

A more recent definition has been provided by the Skills For Health organisation:

> *The best current research information available based on a systematic analysis of the effectiveness of a treatment, service or other intervention and its use, in order to produce the best outcome, result or effect for the individual. In the absence of independent, large scale research, the evidence base may be derived from smaller scale work or locally agreed good practice.*
>
> http://www.skillsforhealth.org.uk/∼/media/Resource-Library/PDF/glossary09.ashx

The impact of evidence-based interventions in health care can best be demonstrated through the latest figures from the Centre for Maternal and Child Enquiries (CMACE) (formerly Confidential Enquiry into Maternal and Child Health). For the first time since 2000, the figures show that there is a significant fall in the stillbirth rate from 5.7 per 1,000 births in 2002–2004 to 5.2 per 1,000 births in 2007 and the lowest neonatal death rate since 2000 (3.3 per 1,000 live births in 2007). Similar improvements in the stillbirth and neonatal death rates are demonstrated among twins (CMACE 2009). It is hoped that

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these encouraging findings indicate the start of a downward trend, reflecting the previous government's commitment to 'reduce inequalities in health outcomes by 10% by 2010 as measured by infant mortality and life expectancy at birth' (DH 2007a, p. 1).

The CMACE review has highlighted evidence of inequalities in health between different populations and different geographic areas of the country. Currently, significant progress is being made in understanding the causes of inequalities in infant mortality by identifying local delivery challenges and quantifying the effect of evidence-based interventions on health outcomes.

All health care professionals, and in particular midwives, who perform the newborn examination have an important part to play in this exercise. Frontline staff, who perform the examination of the newborn, are in an ideal position to influence health choices made by women and their families to help ensure good maternal health and, in the longer term, optimum life chances of newborn babies. Newborn screening has the potential to prevent infant deaths by detecting certain congenital anomalies or conditions that contribute to long-term illness (DH 2007a). Moreover, it can provide a valuable opportunity to advise women on health promotion issues such as nutrition and feeding smoking, sudden unexpected death in infancy and immunisation programmes.

Since the last independent review of maternity services in 1995–1996 by the Audit Commission (1997), the Department of Health has published the *National Service Framework for Children, Young People and Maternity Services* (DH 2004a). This highlighted that high-quality maternity care can ensure a healthy start for the baby and help mothers and fathers become skilled parents. The document also set out a 10-year programme for improvement. In April 2004, the NHS Quality Improvement Scotland published *Best Practice Statement: Routine Examination of the Newborn* (NHS QIS 2004) in response to a review, undertaken by the Framework for Maternity Services in Scotland (Scottish Executive Health Department 2001) and a report of the Expert Group on Acute Maternity Services in Scotland (EGAMS) (Scottish Executive 2002). Both documents identified the need for practice development for midwives within the area of examination of the newborn. At this stage, neither Scotland nor England had nationally agreed evidence-based guidelines for professionals undertaking the routine examination.

More recently, the Royal College of Obstetricians and Gynaecologists and the National Institute for Health and Clinical Excellence (NICE) have provided expert clinical guidance in all aspects of provision of maternity care (NICE 2006, RCOG 2008). Other government initiatives have provided the platform for changes in the way NHS staff work, to reduce waiting times and deliver modern patient-centred care. These initiatives include the following: *Making a Difference* (DH 1999); *The National Plan for the New NHS* (DH 2000); *European Working Time Directive* (DH 2002) and the *NHS Changing Workforce Programme* (DH 2003). The resulting reduction in junior doctors' hours has contributed to the need for different ways of working to provide maternity care, namely, that team midwifery and more specialised services may need to be concentrated in fewer facilities. At the same time, midwifery services will need to be strengthened in the community which, it may be said, is the most appropriate setting for straightforward low-risk women (DH 2008).

Alongside this, a change in professional boundaries has been inevitable and midwives have undertaken additional training to enhance their traditional roles (DH 2000). With

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regard to examination of the newborn, many midwives view this as a natural extension of their traditional role (Lomax and Evans 2005).

A growing body of evidence suggests that midwives are ideal candidates to undertake this enhanced role; however, the literature does indicate that a practitioner who is adequately trained, experienced, skilled and competent is more important than professional background and that the standard quality and content of the examination should be consistent throughout the United Kingdom (Wolke et al. 2002a, 2002b, Townsend et al. 2004, Williamson et al. 2005, Hall and Elliman 2006).

Until recently, there has been no national guidance on the standards and competencies necessary to define 'good practice' within the NHS. Development of practice guidelines help guarantee a high level of quality and consistency, but they must be informed and underpinned by current research based evidence and must be applied using an individualised approach. There is no place for ritualistic, outdated, task-orientated practice in today's maternity services. Mothers and babies should have access to a practitioner who provides a flexible but informed attitude to care, designed to meet their individual needs (DH 2004b). Above all, midwives must be committed to this concept as difficult as this may be against the backdrop of a service which is still dealing with large numbers of hospital-based low-risk women.

The government believes that by liberating the potential of staff, the NHS can shape its services around the needs of the patient. *Vision 2000: Executive Summary* (RCM 2000) calls on midwives to actively respond to initiatives that ensure high-quality, evidenced-based, cost-effective care. The summary emphasises the need for the service to uphold the philosophy of pregnancy and childbirth as a normal process, reducing the need for unnecessary medicalisation of low-risk pregnancy and birth. This concept also applies to the neonatal unit environment for the discharge of the healthy low birth weight infant and highlights the need to ensure clinical excellence through robust professional development opportunities. This can be achieved by flexible and creative service planning supported by appropriate educational programmes teaching advanced clinical skills. Through such educational programmes as examination of the newborn, midwives have the opportunity to increase autonomy and maximise continuity of carer.

Recently, the UK National Screening Committee launched the national standards for the newborn infant examination. This was part of a wider announcement on the Child Health Promotion Programme (CHPP). The document *The Child Health Promotion Programme, Pregnancy and the First Five Years of Life* (DH 2008) is an update of standard one of the *National Service Framework for Children, Young People and Maternity Services* and sets the context for neonatal examinations. The Child Health Promotion Programme has now been superseded by The Healthy Child Programme (HCP) (DH 2009). This guide is for primary care trusts, local authorities, practice-based commissioners and providers of services in pregnancy and the first year of life. The update has been written in order to provide a response to the ever-changing needs of vulnerable children and families, to raise awareness of the HCP and to support local delivery of an integrated service to meet the standards set.

The standards set out within the UK Screening Committee's document, *Newborn and Infant Physical Examination* (NIPE) (UK National Screening Committee 2008), are intended to raise the quality of the examinations, which can then be monitored against

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an agreed benchmark. Achieving these standards across the United Kingdom will ensure consistency in screening processes. These documents are also complemented by the clinical guidelines for the newborn examination contained within the National Institute for Clinical Excellence, *Routine Postnatal Care of Women and Their Babies* (NICE 2006). The numbers of national quality standards are being expanded by NICE and will continue to provide information on current clinical evidence and best practice.

The newborn and infant physical examination standards and competencies

> *Screening is a public health service in which members of a defined population – who do not necessarily perceive they are at risk of, or are already affected by, a disease or its complications – are asked a question or offered a test, to identify those individuals who are more likely to be helped than harmed by further tests or treatment to reduce the risk of a disease or its complications.*
>
> UK National Screening Committee cited in DH (2009, p. 21)

HCP (DH 2009) is an update of CHPP (DH 2008). The CHPP is underpinned by a strong evidence base as set out in *Health for All Children* (Hall and Elliman 2006) which, in turn, was complemented by guidance from the National Institute of Clinical Excellence (NICE 2006). Together, these documents set the context for the newborn examination concentrating on pathways standards and competencies for the screening process.

At the same time, development of nationally agreed standards for education and audit for all health care professionals undertaking examination of the newborn would underpin practice. The HCP has set out a schedule for screening which includes the recommendation that the newborn receives an immediate physical examination after birth accompanied by a hearing test (UK National Newborn Screening Programme 2008) within 4–5 weeks. They stipulate that a subsequent more detailed examination should be carried out within the first 72 hours following birth. Along with a general examination, this process will involve cardiac and respiratory assessment, a clinical examination for developmental dysplasia of the hips, and an eye check. In addition, the testes of male newborns will be examined.

Bloodspot screening for conditions such as phenylketonuria, hypothyroidism, cystic fibrosis and medium chain acyl-coA dehydrogenise deficiency should take place within 8 days of birth. An additional baby review by 14 days has been suggested by the HCP to include a reappraisal of such things as infant feeding, promotion of sensitive parenting, promotion of child development, assessing maternal mental health and advice about Sudden Infant Death Syndrome (DH 2009). A full examination is then recommended at 6–8 weeks. At present, the 6–8-week examination is usually carried out by the general practitioner within the community setting (Davies and McDonald 2008).

The NIPE Standards and Competencies document (UK National Screening Committee 2008) applies to all who currently practise the newborn and the 6–8-week examination, in addition to those undergoing training.

The standards cover the core elements of the physical examination and mainly relate to timeliness of the examination and any subsequent assessments. Review of these standards

is seen as an ongoing process, and criteria for other important aspects of the examination may be examined in the future by representatives of the UK National Screening Committee. National implementation of the standards will depend on various factors such as local organisational structures, geography and current ways of working. Above all, it is important that there is evidence that these standards are being achieved nationally. The UK National Screening Standards and Competencies will be incorporated into the relevant chapters throughout this book.

The generic process map (Figure 1.1) and generic standards (Figures 1.2 and 1.3) set out the general framework for the examinations. Action to be taken on identification of a potential anomaly will vary depending on condition. The flow chart sets out the

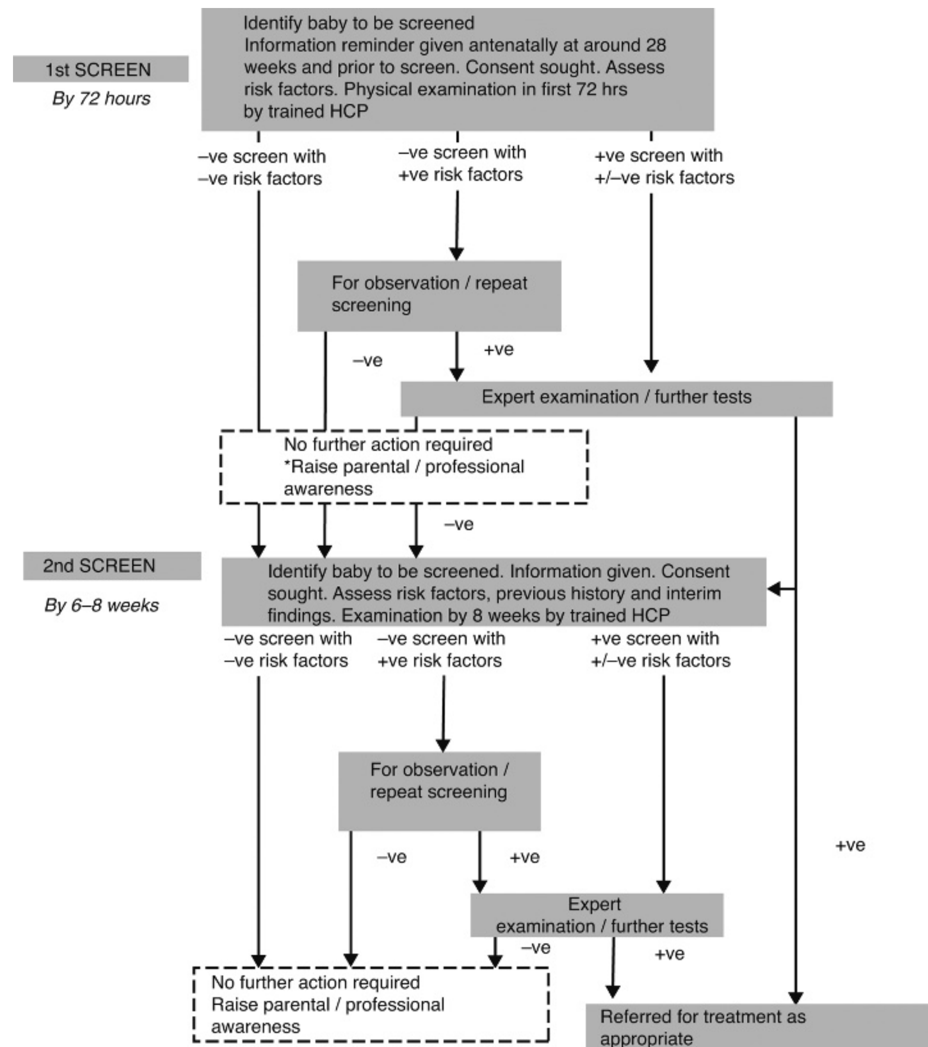

Figure 1.1 The overall process for the newborn and 6–8-week examinations. (Reproduced with kind permission of the UK National Screening Committee.)

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Standard		Standard	
ST1a	Timeliness of *offer/screen for newborn examination for babies	Core	95% babies screened by 72 hours after birth
		Developmental	All babies screened by 72 hours after birth

Standard		Standard	
ST1b	Timeliness of conveying initial results/concerns	Core	All results conveyed immediately to parent(s) following examination and results entered in the Personal Child Health Record (PCHR - Red Book)

* Both terms have been included as an offer assumes that the screen will take place immediately after the offer.

Figure 1.2 Generic components: newborn examination. (Reproduced with kind permission of the UK National Screening Committee.)

general framework for the examinations. Details, such as risk factors and action to be taken on identification of a potential anomaly, will vary depending on the condition being sought. The standards are divided into core defined by the UK National Screening Committee as 'expected level of performance to deliver and acceptable level of quality' and developmental as 'a level of performance that delivers enhanced quality' (UK National Screening Committee 2008, p. 9).

Ideally, parents should be given information on the newborn examination at around 28 weeks of pregnancy in both verbal and written forms. This should be repeated before the actual examination takes place. Parents need to understand the rationale for the examination; they need to be informed that there are some conditions which cannot be detected at the initial examination and may develop later. Practitioners need to emphasise that the screening process is a continuous process and encourage parents to work together with health professionals to assess growth and development and to detect abnormalities (UK National Screening Committee 2008).

Standard		Standard	
ST1c	Timeliness of offer/screen for 6–8-week examination for all babies	Core	Under Discussion
		Developmental	Under Discussion

Standard		Standard	
ST1d	Timeliness of conveying initial results/concerns	Core	All results conveyed immediately to parent(s) following examination and results entered in PCHR

Figure 1.3 Generic components: 6–8-week examination. (Reproduced with kind permission of UK National Screening Committee.)

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The following sets out the components of the general physical examination as outlined by the UK National Screening Committee:

- A review of the medical history including family history, maternal, antenatal and perinatal history, infant, fetal and neonatal history including any previously plotted birth-weight and head circumference.
- A review of parental concerns.
- Feeding.
- Ensure relevant information is available to health care professionals.
- Initial communication.
  Give relevant information to parents before the examination together with an opportunity to discuss the forthcoming screens.
- Whether the baby has passed meconium and urine (and the nature of the urine stream in a boy).
- Observe the baby's appearance including colour, breathing, behaviour, activity and posture.
- Examine fontanelle(s), face, nose, mouth including palate, ears, neck and general symmetry of head, vault, sutures, fontanelles and facial features.
- Check eyes – opacities and 'red reflex'.
- Examine the neck and clavicles, limbs, hands, feet and digits, assessing proportions and symmetry.
- Cardiovascular system – heart rate, rhythm and sounds, murmurs and femoral pulse volume.
- Respiratory system – effort rate and lung sounds.
- Abdomen – shape and palpate to identify any organomegaly. Check condition of the umbilical cord.
- Genitalia and anus. Check anus for patency. Check genitalia for form and undescended testicles in males.
- Spine – inspect and palpate bony structures and integrity of skin.
- Skin – note the colour and texture of the skin as well as any birthmarks or rashes.
- Central nervous system – observe tone, behaviour, movements, posture and elicit newborn reflexes *only* if concerned.
- Hips – check symmetry of the limbs and skin folds. Perform Barlow and Ortolani's manoeuvres.
- Cry – note sound of baby's cry.
- Measurement of weight and head circumference.
- Further communication.
  - Parents of babies who are referred should be given a full explanation of the reason for and timescale of referral.
  - Record details, including time and age of baby at examination, location of examination, problems identified, referrals made, health care professionals involved and discussions with parents in Personal Child Health Record.
  - Confirm findings with parents and allow time for discussion.

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The competencies at a glance

The UK Screening Committee NIPE document uses the following definition of competency:

> *Professional competence is based on the initial diploma, the implementation of effective continuing education, a minimal professional activity and a regular peer review process.*
>
> Matillon et al. 2005, p. 293

The committee believe that the definition reflects accountability aspects as well as the necessary knowledge and skills to carry out a procedure. In addition, this definition recognises the need for each individual to be responsible for their own professional development and appraisal requirements in order to maintain registration. Health care professionals performing the examination should be appropriately trained, meet the core competencies and remain regularly updated (UK National Screening Committee 2008, NIPE document).

The competencies presented in the NIPE document have been mapped to the NHS Key Skills Framework and the Skills for Health Maternity Care of the Newborn Completed Framework and are intended to be used as a guide. Competencies 1–6 are set out below together with the relevant benchmark activity for each competency. The committee recommend that for more detail, the Skills for Health website should be used – http://www.skillsforhealth.org.uk/.

The following covers the basic competencies 1–6 (adapted from UK National Screening Committee 2008, NIPE document). These competencies will be mapped into the relevant chapters in order to act as a benchmark for practice.

Competency 1

- **Determines the relationship between antenatal and intrapartum events that may impact on the newborn's health status, and subsequent events that may impact on the 6–8-week infant.**
- Obtains a comprehensive maternal and neonatal health history at the newborn examination from the maternal/infant notes and discussion with the mother and clinical staff and subsequently analyses the data collected to inform the assessment process at each examination.
- Applies knowledge of normal development and the physiological changes at birth in order to recognise and manage deviations from normal appropriately.
- Demonstrates personal professional competence by choosing to undertake the examination or refer to a more appropriately qualified member of staff.
- Collects appropriate equipment and documentation to undertake and record the process.

Competency 2

- **Ensures the environment is conducive to effective and safe examination.**
- Ensures parent's physical and emotional status is commensurate with effective communication.

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- Ensures infant's physical status is commensurate with an effective examination.
- Enables effective communication of sensitive and confidential information between parent and examiner.
- Ensures the baby's safety and comfort – before and during assessment.
- Ensures the baby's safety and comfort on completion of assessment.

Competency 3

- **Facilitates effective informed decision-making.**
- Ensures parent/infant's physical and emotional status is commensurate to effective communication and examination.
- Explains reasons for undertaking examination and provides an overview of the examination process.
- Determines the parent's understanding of the nature of the examination.
- Elicits parent's views of health/wellness status and identifies any anxieties.
- Ensures the parent is aware of benefits and limitations of the physical examination and screening tests in general.
- Obtains permission to undertake the examination in accordance with trust policy/standards of professional practice.
- Draws upon professional and legal codes/guidance for practice to make an informed decision regarding the appropriateness and timeliness of the examination and to support dialogue with the parent(s).
- Provides any supplementary information, e.g. leaflets where appropriate.

Competency 4

- **Utilises a holistic, systematic approach to comprehensively examine the neonate/infant.**
- Involves the parent(s) in the examination and sensitively responds to any questions posed at a level appropriate to their need.
- Uses assessment skills of inspection, auscultation, percussion and palpation to inform decision-making.
- Undertakes observational assessment of infants' status at rest.
- Determines gestational age in newborn examination.
- Completes base line observations for newborn examination and at 6–8 weeks.
- Determines developmental progress in 6–8-week examination.
- Completes a systematic head to toe physical examination of the infant in accordance with current recommendations.
- Demonstrates and applies knowledge of normal and abnormal development to determine the baby's wellness/altered health status.
- Relates assessment findings to, history, underlying pathology or physiological changes.
- Ensures the examination incorporates all screening activities in accordance with recent national recommendations, which currently include: eyes, heart, hips and genitalia.
- *If appropriate, may incorporate first immunisations.*
- Discusses health promotion issues relevant to the families socio-economic situation.
- Utilises best available evidence to inform analysis of findings.

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- Distinguishes between abnormal/normal development/presentations and prioritises actions accordingly.
- Utilises communication systems to elicit support from unit personnel should an emergency arise and assistance is required.
- Safely and appropriately initiates resuscitation if the baby or parent suddenly collapses.
- Works within limitation of own professional competence and actively seeks assistance when these limits are reached.

Competency 5

- **Effectively and sensitively records and communicates findings to parents and relevant professionals.**
- Informs unit staff of any significant findings and seeks assistance from other health care professionals if advice or confirmation of findings is required.
- Ensures details of the examination are correctly and concisely documented in accordance with unit/trust policy.
- Sensitively communicates the outcome of the examination and the need for any referral, to the parent.
- Provides information on the referral process and possible outcome.
- Contacts appropriate personnel and ensures all relevant information is documented and/or communicated verbally to inform referral.
- Ensures organisation of any follow-up appointments following newborn examination is in place prior to the baby's discharge home.
- Collaborates effectively and courteously with all unit/referral personnel, ensuring relevant information is communicated to facilitate optimum family support.
- Ensures relevant information is communicated to health care professionals who will support the family in the community.
- Ensures parents have relevant information of support services available to them after discharge home.

Competency 6

- **Maintain and further develop professional competence in examination of the newborn/6–8-week infant.**
- Be regularly assessed by a senior practitioner.
- Undertake directed study or attend workshops to update knowledge/skills.
- Utilise IT and other resources to facilitate professional development of self and others.

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