

# PAEDIATRIC & CHILD HEALTH - RACP

## Examination of the Newborn

The Paediatrics & Child Health Division has produced this document as a guide to the minimum standards required for the examination of well newborn infants.

## INTRODUCTION

Every newborn baby requires a full and detailed physical examination with the examination findings recorded and appropriately conveyed to parents. The newborn examination is essential in attempting to determine the integrity of various organ systems and their ability to adapt successfully to extrauterine life. Examination may reveal potentially correctable defects that may significantly interfere with normal development. It is incumbent upon every maternity unit to maintain clear and accountable records of newborn examination.

Although routine biochemical newborn screening may be performed at a similar time as newborn examination and needs to be discussed with the family, this document refers solely to the process of newborn examination and not to biochemical screening or auditory screening.

## WHO SHOULD PERFORM THE EXAMINATION ?

- The examination must be performed (or supervised) by a practitioner appropriately trained in the skills required to perform newborn examinations.
- Skills should be practised and maintained to a satisfactory level.
- Appropriate referral should be made where there are questionable or abnormal findings.
- Responsibility for newborn examination within maternity units must be clear.
- Resources for newborn examination must be provided by health services.

## TIMING OF THE NEWBORN EXAMINATION

There are three periods for consideration:

1. The baby should have a brief examination within the first few minutes of life. Care must be taken to not unnecessarily expose the infant to inappropriate cold stress. Attention should be given to the presence of appropriate signs of successful transition to the extra-uterine environment, correct sex determination and presence or otherwise of significant congenital abnormalities. The healthy infant should then be allowed time to be with parents.
2. A full and detailed examination should be performed within the first 48 hours of life. Preferably this examination should be in the presence of at least one parent and the findings recorded and explained<sup>1</sup>.
3. A follow up examination should be performed later in the first week (which may be in a setting other than hospital). This examination may not be as detailed as the first full examination, but focus given to current status and possible evolution of signs. Hence, nutritional status, cardiac examination (with reducing pulmonary pressures), abdominal examination (food tolerance) jaundice assessment and hip examination are all relevant and should be reassessed.

One study<sup>2</sup> found an abnormality in 8.8% of babies on first full examination and in a further 4.4% of babies (0.5% with "important" abnormalities) on subsequent examination.

A further examination of the baby should also be performed, usually at around six weeks, which may be the point of hand over to the well child provider.

## CONTENT OF THE FULL AND DETAILED CLINICAL EXAMINATION

Information pertaining to the maternal medical and obstetric history, including drug (prescribed and recreational) intake and infection swabs must be available. Family history, social history and history of the pregnancy, labour and delivery are all relevant to the full neonatal examination.

### **A SYSTEMATIC EXAMINATION SHOULD INCLUDE THE FOLLOWING:**

**Growth and nutritional status:** Weight, length and head circumference should be recorded and plotted on appropriate centile charts. Nutritional status should be clinically assessed and if necessary reconciled with growth charts.

**Gestational assessment:** If examination suggests discrepancy with known dates, a formal gestational assessment could be performed (e.g. Ballard assessment)<sup>3</sup>.

**Skin:** Examination for evidence of trauma, perfusion, anaemia, congenital skin or subcutaneous lesions or oedema.

**Neurological:** Assessment of posture, irritability, behaviour, muscle tone, movements, cry and primitive reflexes (Moro, grasp, suck). Neonatal withdrawal symptoms should be assessed with an appropriate rating scale.

**Respiratory:** Colour, respiratory effort (rate, retraction, grunt, nasal flare), mediastinal shift, auscultation.

**Cardiac:** Assessment of colour, pulses (brachial and femoral) precordial lift, heart sounds, murmurs.

**Abdomen:** Shape, umbilicus (including number of umbilical arteries), organomegaly, genitalia, hypospadias or other possible ambiguity (such as bilateral undescended testes), anus (site, patency)

**Periphery:** Digits, hands, feet, legs, arms.

**Hips:** To test for stability<sup>4</sup> - stabilise pelvis and examine one hip at a time. Test initially whether the hip is dislocated then whether dislocatable. Unstable hips should be referred promptly. Hip examination technique is simple but difficult to learn and should be practised on specific teaching mannequins<sup>5</sup>. Most, if not all babies at risk of developing full dislocation are clinically detectable in the neonatal period<sup>5</sup>.

**Spine:** Scoliosis, tumours, dermatological markers of spinal dysraphism.

**Head and neck:** Head shape, fontanelles, cranial sutures, face, lips, palate, nose, choani, direct fundoscopy, eyes, ears, neck masses, thyroid. Excessive secretions may indicate oesophageal atresia.

It is recognised that some congenital cataracts may be missed by newborn examination, in one retrospective study the rate of detection was only 35 %<sup>6</sup>. Although good training is likely to improve pick up, it is considered unlikely that detection will reach 100%<sup>7</sup>. For this reason high-risk infants require referral for specialist review regardless of findings on newborn screening examination<sup>8</sup>. Also of note cleft palate may be missed by palpation alone<sup>7</sup> and a combination of direct vision of posterior palate and palpation is recommended.

## RECENT DEVELOPMENTS

Oxygen saturation monitoring, if used in combination with careful examination, has been suggested to improve the detection of congenital cardiac disease but is not sensitive enough on its own<sup>9</sup>.

## COMMUNICATION WITH PARENTS AND FURTHER MANAGEMENT

The newborn examination must be performed with skill, diligence and empathy. To do otherwise may unnecessarily expose the baby and family to adverse outcome.

The results of the examination should be communicated to the parents in a clear way and time should be allowed to discuss relevant parenting and health education issues. This may include immunisation and reducing the risk of Sudden Infant Death Syndrome.

Appropriate discharge planning and referral should be made dependent upon the many factors contained in the history and newborn examination. Further testing may need to be organised for high-risk infants and for all infants ongoing routine care including immunisations should be arranged.

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