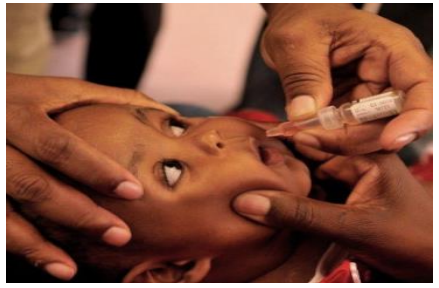

WEBINAR:
NATIONAL DEPARTMENT OF HEALTH NEWBORN GUIDELINES

EXAMINATION OF THE NEWBORN & NEWBORN SKIN CONDITIONS

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EXAMINATION OF THE NEWBORN:

Chapter Structure

- Introduction and general principles 
- Anthropometry and Growth Charts 
- Systematic “head to toe” approach 
- “Red flags” → Immediate Referral 

INTRODUCTION AND GENERAL PRINCIPALS

EMPHASISES
Comprehensive examination
Documentation
Hand hygiene
Optimal examination environment
Family-centered and respectful care
Engagement and communication

NEONATAL EXAMINATION:
EQUIPMENT

- ☐ GLOVES 
- ☐ ALCOHOL HAND RUB 
- ☐ STETHOSCOPE 
- ☐ OPHTHALMOSCOPE 
- ☐ TAPE MEASURE 
- ☐ TONGUE DEPRESSOR 

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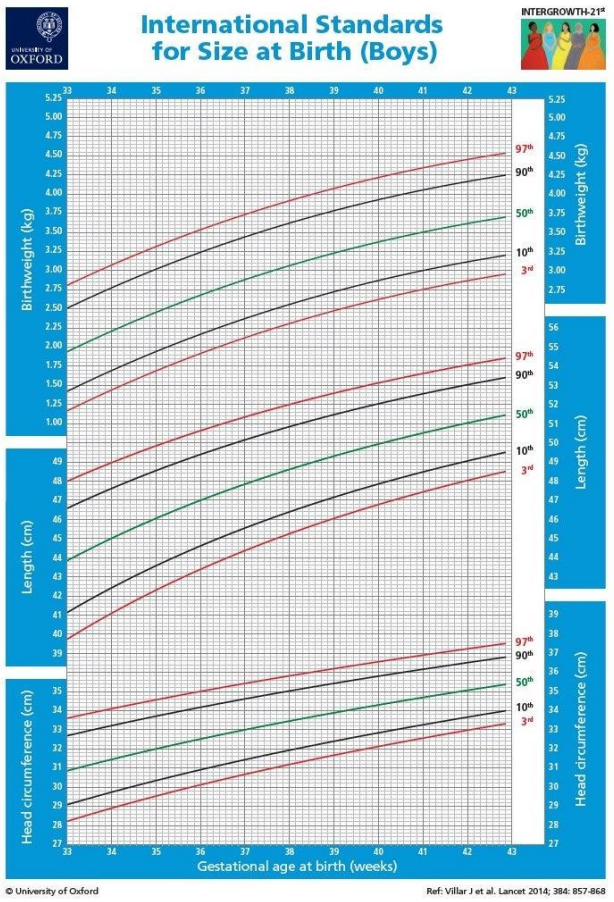
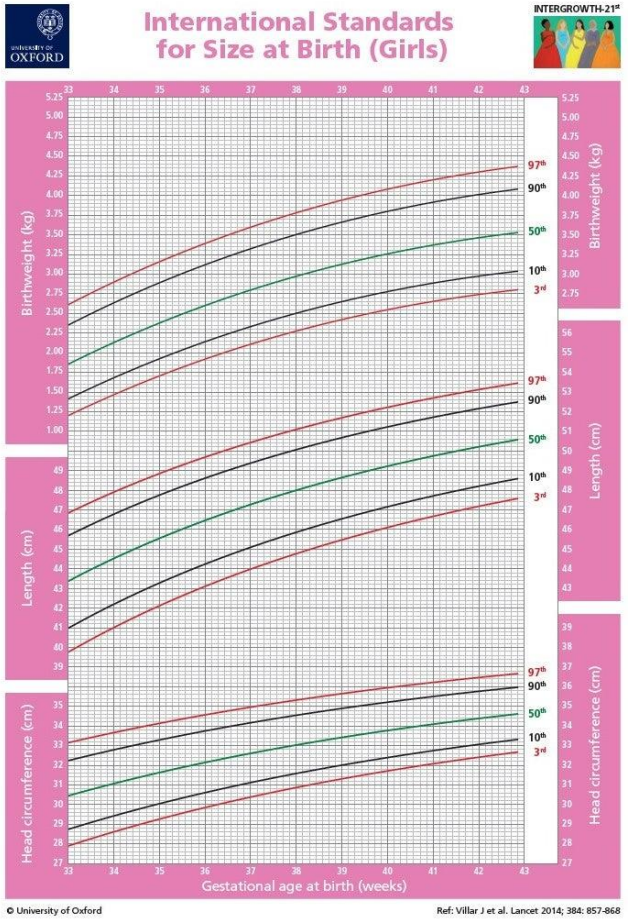
- Measurement techniques
- Weight, length, and head circumference
- Accurate plotting
- Intergrowth 21 growth charts

ANTHROPOMETRY





EXAMINATION PROCESS

EXAMINATION FINDINGS → **IMMEDIATE DISCUSSION AND REFERRAL**

- Described in systems
- **What should I be looking for at birth?**
- **What do I do if I detect an abnormality?**
- **What abnormality is potentially urgent or threatening?**

EXAMINATION FINDINGS		IMMEDIATE DISCUSSION AND REFERRAL
General appearance Does baby look well or ill? Alert or lethargic? Normal cry? Skin colour. Skin rashes.	**GENERAL APPEARANCE** 	Acutely unwell. Dysmorphic features. Jaundice within first 24 hours of life. Central cyanosis. Pallor (pale skin). Petechiae (red, pin-point spots). Haemangioma (bright pink spongy lesion).
Inspect mouth, gums, tongue, frenulum & palate. In all babies, feel for posterior cleft with gloved finger. Jaw size.	**EARS,NOSE & THROAT (ENT)** 	**Potential airway compromise from facial anomalies:** Very small chin, large tongue, neck mass. Nasal obstruction. Cleft lip/palate. Natal teeth.

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EXAMINATION PROCESS

EXAMINATION PROCESS

Head shape & size.
Scalp swellings.
Fontanelles & sutures.
Neck swellings?

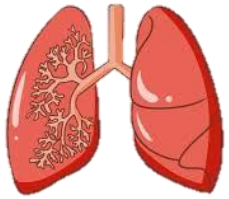
HEAD & NECK

Microcephaly (small head < 10th centile).
Macrocephaly (large head > 90th centile).
Head swellings: Sub-aponeurotic haemorrhage.
Cephalhaematoma.
Fused sutures.
Neck masses/webbed neck.

In every baby, test the red reflex. Refer to chapter on "Cataracts"for "How to test for the red reflex."

EYE

Hazy cornea/"white eye"/no red reflex.
Purulent conjunctivitis (eye discharge).



Shape, size, symmetry of chest.
Chest deformities?
Breast tissue, nipples.
Respiratory rate. Signs of respiratory distress.
Breath sounds.
Added sounds (wheezes & crackles).

CHEST

Respiratory distress.
Apnoeic episodes.

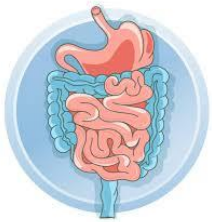
Apex beat:
Left 4th intercostal space lateral to mid-clavicular line = Normal.
Heart rate & pulses.
Thrills & heaves.
Heart sounds.
Presence of murmurs.

HEART

Shock.
Cardiac failure.
Weak/absent pulses.
Abnormal heart rate/murmur.
Irregular heart rate.

EXAMINATION PROCESS

EXAMINATION PROCESS



Size, shape, symmetry.
Placenta, umbilicus & umbilical cord.
Number of cord vessels:
2 umbilical arteries & 1 umbilical vein = Normal.
Enlarged liver, spleen?
Ballotable kidneys?
Palpable bladder? Other masses?
Bowel sounds and bruits?
Patency of anus.
Genitalia - in boys document if testes descended or not.
Examine hernia sites.

ABDOMEN

Enlarged organs.
Abdominal wall defects: Gastroschisis, omphalocoele.
Bile-stained vomiting.
Hernia's (especially if unable to reduce hernia or strangulated hernia).
Obstructed renal system (posterior urethral valves in boys).

Shoulders & Limbs:
Examine clavicles, brachial plexus & digits.
Feet: Positional/fixed deformities or swellings.
Hips: Test for dislocatable or unstable hips.
Back & Spine: Alignment of spine. Skin changes. Skin defects.

MUSCULOSKELETAL

Fractured clavicle.
Brachial plexus injury.
(May be indicators of a traumatic delivery & possible hypoxia)
Syndactyly (fused digits).
Polydactyly (extra digits).
Club foot/feet (positional or fixed).
Spinal abnormalities: Abnormal curvature.
Open skin defect eg. meningomyelocoele.
Closed skin defect - tuft of hair, sinus, cleft or skin changes over lower back.
Hips: Unstable hips/dislocatable hips.

Level of consciousness.
Activity, range of spontaneous movement.
Tone - central & limb.
Reflexes: Moro, suck, grasp.
Abnormal movements or seizures.
Cranial nerves: facial asymmetry when crying.
Cerebellar signs - nystagmus?

BRAIN

Altered level of consciousness.
Weak/irritable/absent cry.
Absent/exaggerated reflexes.
Seizures. Abnormal movements.
Facial asymmetry or cranial nerve palsies.
Nystagmus.

Head swellings

EXAMINATION PROCESS

	Caput succedaneum	Chignon	Cephalohaematoma	Sub-aponeurotic haemorrhage
Site	Diffuse swelling over presenting part	Localised at site of vacuum application	Localised, usually over parietal bones, under periosteum. Extension limited by suture lines	Underneath cranial aponeurosis.
Cause	Prolonged engagement of fetal head in birth canal or vacuum extraction	Oedema and haemorrhage at vacuum site.	Haemorrhage often due to cephalo- pelvic disproportion.	Diffuse haemorrhage; may occur after vacuum extraction or poorly applied forceps
Onset	Present at birth	Present at birth.	Often only detected 6-12 hours after birth. Becomes progressively bigger over 1-2 days.	May be present at birth; swelling may increase during first 2 days.
Distinguishing features	Oedema and bruising over presenting part that crosses suture lines.	Usually, well-defined swelling with localised abrasions at periphery of swelling Overlying skin may be bruised.	Well defined fluctuant mass that does not cross suture lines. May increase in size after birth. May be bilateral but then a groove is present between the swellings. Overlying skin is normal.	Diffuse and at times significant haemorrhage. Crosses suture lines. Bluish discoloration of upper eyelids or behind ears. Skin normal.
Course	Disappears within 48 hours	Subsides within 5-7 days	Persists for 6-8 weeks	Gradual reabsorption of blood
Complications	Nil	Anaemia Infection Jaundice	Anaemia Jaundice Rarely, underlying skull fracture	Severe anaemia Shock Jaundice
Treatment	Nil	Local antiseptic to abrasions. Treat complications	No treatment Observe for complications	Resuscitation with packed red blood cells and other blood products if actively bleeding. May need emergency blood and additional dose of vitamin K Assess and treat for hypovolaemic shock first. Once stabilised refer to a centre with and on site blood bank (if possible)

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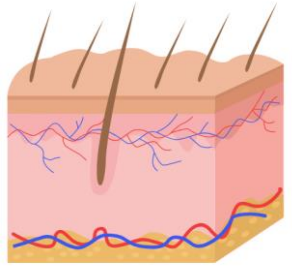
Reflex	Method of eliciting	Response	Disappearance
PALMAR GRASP REFLEX	Examiner places a finger in the baby's open palm.	Baby closes hand around the finger and tightens the grip if the examiner attempts to withdraw the finger. Well established by 32 weeks GA.	4-6 months of age
PLANTAR GRASP REFLEX	Examiner places a finger under baby's toes.	Baby flexes the toes downwards to "grasp" the finger. Well established by 32 weeks GA.	4-6 months of age
ROOTING REFLEX	Examiner strokes the baby's cheek	Baby turns their head toward the side that is stroked and makes sucking motions; develops from 28 weeks' GA.	4-6 months of age
STEPPING/PLACING REFLEXES	Stimulate the dorsum of the foot by bringing it in contact with the edge of a table or couch.	Baby appears to take steps or dance when held upright with his or her feet touching a solid surface. Appears at 32 weeks GA.	4-6 months of age
MORO REFLEX	The examiner holds the baby supine in their arms, then drops the baby's head slightly but suddenly.	This leads to the baby extending and abducting the arms, with the palms open, sometimes crying, followed by pulling of the arms and legs back toward the body. Appears at 32 weeks GA.	4-6 months of age
SUCKING REFLEX	Examiner places a gloved finger in the baby's mouth, or the baby is offered the mother's breast.	When the roof of the baby's mouth is touched, the baby will start to suck. Strong sucking response in the term baby with a weaker response in the preterm baby. Suck becomes well-coordinated with swallowing from 34 to 35 weeks' GA.	Becomes a voluntary response
ASYMMETRICAL TONIC NECK REFLEX	With the baby relaxed and lying supine (lying on their back) with the spine and head aligned, the head is turned slowly to one side.	Baby extends the arm on the side towards which the head has been turned while flexing the arm on the opposite side (fencing posture). Appears at 35 weeks' GA.	7 months of age

EXAMINATION PROCESS

NEWBORN SKIN CONDITIONS

Structure



- Color Changes
- Hormonal Changes
- Physiological
- Developmental
- Vascular
- Vesico-Pustular Lesions
- Pathological/Requiring Treatment

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NEWBORN SKIN:
Colour Changes

A to Z

Conditions	Description	Couse/Complications	Treatment
Colour changes			
Acrocyanosis	Isolated peripheral cyanosis of hands and feet.	Benign, usually related to low ambient temperature	Skin to skin Cover baby up Warm room Mitten and booties
Central Cyanosis	Bluish of greyish colour of the skin, nails, lips or around the eyes	Always pathological. Commonest causes are cardiac and respiratory.	Stabilise and treat underlying cause
Ecchymosis/Bruising	Bluish discoloration of skin form broken blood vessels into the skin	Usually after traumatic delivery or tissued intravenous (IV) lines. Bruising on eyelids and behind ears may be seen in severe subaponeurotic haemorrhages.	Babies with subamponeurotic haemorrhage must be assessed and treated for hypovolaemic shock. Once stablised refer to a centre with a neonatal intensive care unit.
Jaundice	Yellow discolouration of the skin and sclera (white area) of the eyes	Common in term and preterm babies. Pathological if appears < 24 hours of life or if prolonged,	Refer to Jaundice chapter
Meconium-Staining	Greenish staining of skin, nails and umbilicus in presence of meconium-stained liquor	Resolves in a few days	No treatment
Pallor	Pale discolouration of skin and mucous membrane	May be seen with asphyxia, shock and anaemia	Treat underlying cause
Plethora	Deep red appearance of skin and mucosa	May be seen in polycythaemia	Usually, no treatment needed.

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Hormonal changes			
Genital hyperpigmentation	Physiological melanin pigmentation common in darker skins	Faded by 2 years of age	No treatment needed.
Seborrheic dermatitis (cradle cap)	Greasy scales on a babies scalp usually; may involve eyebrows, face, behind the ears and may extend to nappy area.	Usually asymptomatic and clears spontaneously in few months. May occasionally get infected	Mild shampoo and soft brush to remove scales. Consult paediatrician or dermatologist if severe.
Physiological			
Congenital dermal melanocytosis (mongolian spot)	Irregular area of flat blue-grey pigmentation commonly seen over lower spine, back, buttocks, and shoulders	Usually disappears at 4 years of age.	None
Cutis marmorata	Mottling of the skin caused by dilation of capillaries and venules. Usually when exposed to low temperatures.	Can last minutes to hours. Resolves with warming. Can sometimes be associated with septicaemia or vascular abnormalities	Treatment septicaemic if present.
Eyelid oedema	Swelling of eyelids due to increased pressure during birth.	Resolves in a few days.	No treatment needed
Harlequin colour change	Benign condition often observed in preterm infants. Sudden, brief change of skin colour bordered by midline, with one half pink (lower) and other pale (upper).	Transient, thought to be due to immaturity of the hypothalamic control of peripheral vascular tone.	None
Lanugo	Fine soft hair that covers the face and body, more commonly in preterm babies	Shed in the first few days or weeks after birth.	No treatment needed
Milia Benign	White pin-point spots over the bridge of the nose, chin, or cheek	White pin-point spots over the bridge of the nose, chin, or cheek	No treatment needed
Miliaria (heat rash) benign	Erythematous papules mainly in skin folds, due to obstruction of sweat glands	Resolves spontaneously in few days	Avoid excessive heat.
Preterm skin	Skin of extreme preterm babies is thin, deep red in colour, gelatinous, and prone to bleeding and bruising.		Attention to skin care important to avoid abrasions and pain
Skin desquamation	Peeling, parchment-like skin, more common in post-term babies.	May continue for a few weeks. *Peeling of palms and soles only, usually due to congenital syphilis	Can apply emulsifying ointment to skin.
Vernix caseosa	Thick, waxy white substance that covers the skin. May be absent in extreme premature babies.	Protective biofilm which facilitates extrauterine adaptation.	No need to rub or wash it off.

NEWBORN SKIN:

Hormonal Changes & Physiological Rashes

NEWBORN SKIN:
Vascular & Vesicopustular Lesions

Vascular			
Salmon patch or naevus simplex (stork bite/angel kiss) Benign	Pink, flat, irregularly shaped patch that blanches easily, found over the nape, the glabella (forehead between the eyes), and the eyelids.	Fades in first 2 years.	No treatment needed.
Naevus flammeus or port wine stain	Flat, purplish-reddish birthmarks. Usually unilateral. Can appear anywhere but usually on face, neck, arms, legs	Tend to grow, become darker and thicker as the baby grows. May be associated with a syndrome such as Sturge-Weber.	May be referred to dermatology for treatment for cosmetic reasons. Specialist referral if associated neurological signs. Babies should be followed up in the first 18 months of life to review for associated features of neurocutaneous syndrome.
Neonatal vesico-pustular lesions			
Erythema toxicum neonatorum Benign	Small white, occasionally vesiculo- pustular papules on an erythematous (red) base appearing on face, trunk, and limbs	Appear on 2nd to 3rd day after birth and disappear within 1-2 weeks.	No treatment needed
Transient neonatal pustular melanosis Benign	Small flaccid and superficial vesico- pustules, which rapidly scale off and form hyperpigmented macules.	Fade over a few weeks.	No treatment needed

Pathological			
Napkin dermatitis	Erythematous tender macules and papules in areas of contact with nappy, sparing the skin folds.	Worsened by infrequent nappy changes or diarrhoea.	Barrier cream. Keep nappy open to allow skin to dry.
Candida dermatitis and thrush	Erythematous papules and plaques with whitish scales, and satellite pustules; includes the creases. White sticky plaques on a reddened oral mucosa (thrush).	May progress from contact napkin dermatitis.	Topical anti-fungal ointment. Oral antifungal suspension.
Petechiae	Pinpoint, purple non-blanching spots because of bleeding under the skin.	May be caused by infections (bacterial and fungal), trauma, medications, infiltrative diseases, and congenital skin abnormalities.	Treat underlying condition.
Pustules	Pus-filled patches, up to 1 cm in diameter anywhere on the body; may have surrounding erythema and inflammation.	Commonly due to infection Staphylococcus aureus) but can be non-infectious. May rupture and form moist erosions with scaly edges, or form honey-coloured crusted plaques.	Treat underlying condition.
Vesicles	Small blisters containing clear fluid	Widespread rash with clustered vesicles and small punched-out ulcers. May indicate herpes simplex virus infection	Treat underlying condition.
Blueberry muffin	Multiple blue/purple marks or nodules in the skin, typically on the face, neck, and trunk	Commonly found in congenital infections such as rubella	Treat underlying condition.
Neurocutaneous lesions	Café- au-lait spots (coffee-coloured lesions	Hemifacial haemangioma over trigeminal nerve distribution.	Multidisciplinary specialist care depending on cause.
	Neurofibromas (soft flat topped, elevated dome-shaped tumours)		
	Angiofibromas (benign small skin- coloured growths)		
	Shagreen patch (leathery patch around sacral region)		
	Ash-leaf macules (hypopigmented spots on trunk and lower legs)		
	Hemifacial haemangioma over trigeminal nerve distribution		

THANK YOU AND QUESTIONS?