

Essential Newborn Clinical Signs & Symptoms

REPUBLIC OF KENYA



MINISTRY OF HEALTH



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KENYA
PAEDIATRIC
ASSOCIATION

KEMRI | Wellcome Trust



Keprecon
Kenya Paediatric Research Consortium

Objectives

- Recognize and respond to problems and danger signs in the neonate
- Define key signs & symptoms of common, serious diseases
- Equip HCW with skills to make changes and improve care in health facilities
- Illustrate how to document the signs & symptoms

Introduction

- The well neonate can remain well and thrive with proper care and basic support.
- When families are empowered to know what is normal and what needs the immediate attention of a HCW, most neonatal complications can be averted

Introduction

- The well neonate is one who:
 1. Breathes well
 2. Maintains a normal temperature with thermal care
 3. Is able to feed by breast, cup or NGT/OGT
 4. Gains weight
 5. Does not have a Danger Sign

Why these Signs & Symptoms?

- Many neonates present with overlapping signs and symptoms of diseases
- A single diagnosis can be difficult, and may not be feasible especially in lower level health facilities with little or no laboratory tests and radiology support.
- Therefore, a more integrated approach to caring for newborns is needed to achieve better outcomes

Why these Signs & Symptoms?

They are;

- Observed commonly in common illnesses
- Help in the assessment of the nature and severity of illness
- Indicate risk of death
- Useful for monitoring progress
- Easy for everyone to observe and learn

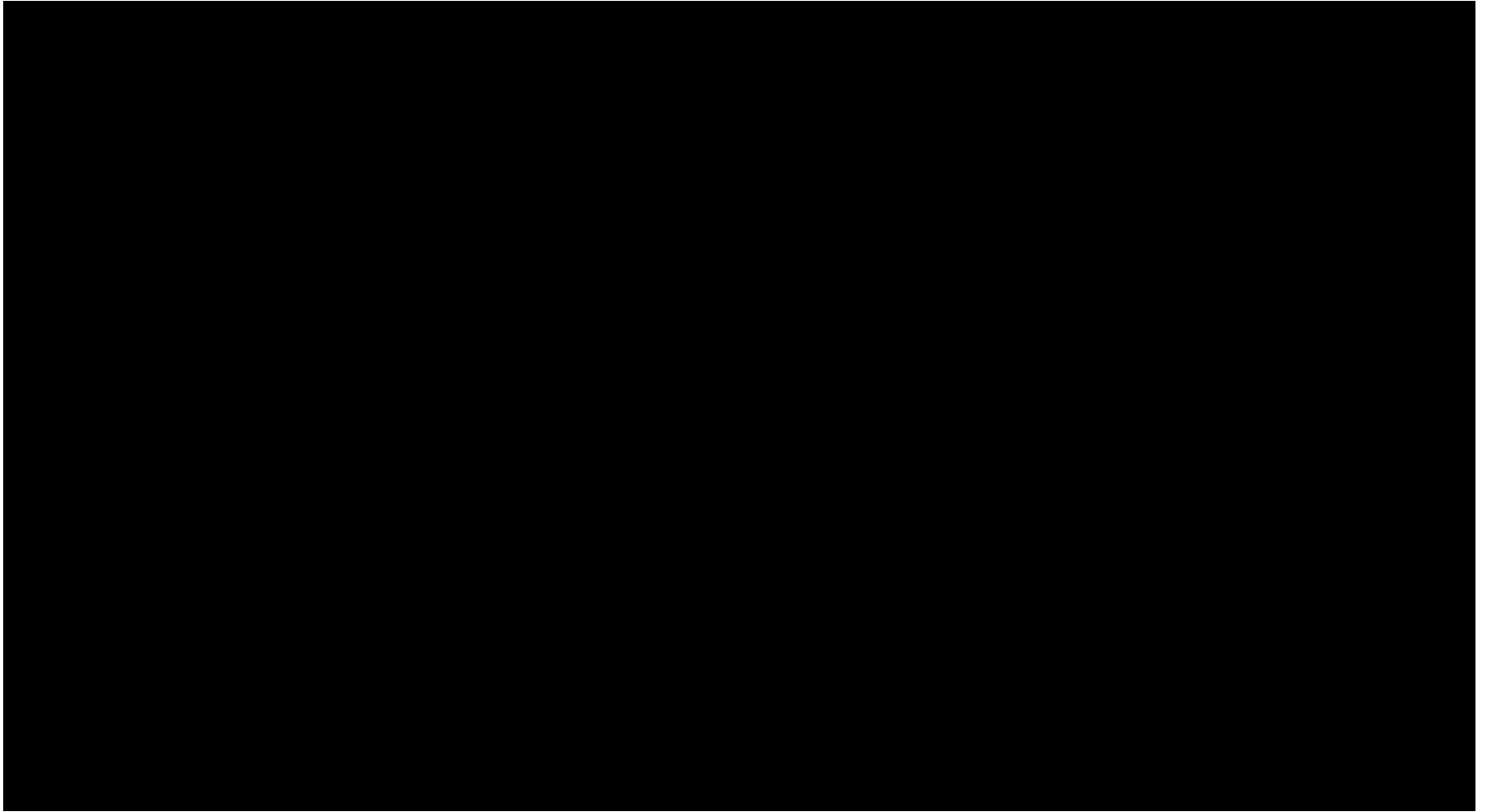
Age Considerations

- Age has an impact on the pattern of clinical presentation and is an important consideration in predicting severe illness
- Neonates <6 days of life are more likely to have conditions related to circumstances around birth e.g. Asphyxia, Jaundice and early onset infections (sepsis, pneumonia and meningitis)
- For infants 7–59 days of age, infection is the dominant clinical diagnosis with respiratory infections and diarrhoeal illness being the most common

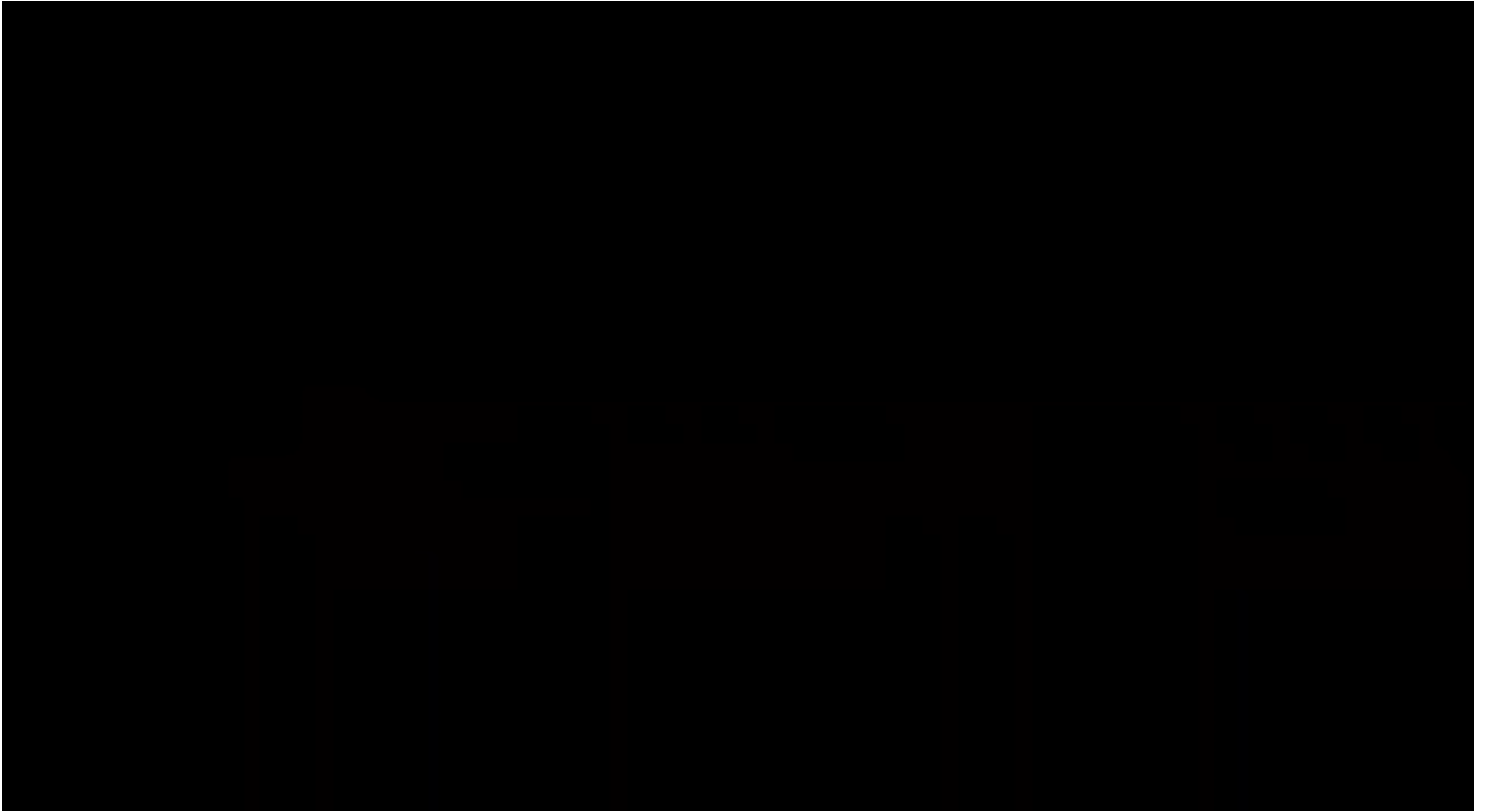
What are Danger Signs?

- These are signs that the WHO and others have investigated for 30 years
- They give a sound evidence base for most common disorders of children
- Are included in the IMNCI and ETAT+ approach

Danger signs in Newborns



Danger signs in Small Babies



Danger signs in Newborns

- Poor feeding
- Fast breathing
- Chest indrawing
- Jaundice
- Lethargy/no movement
- Convulsions
- Hypothermia
- Fever

Other Signs Common

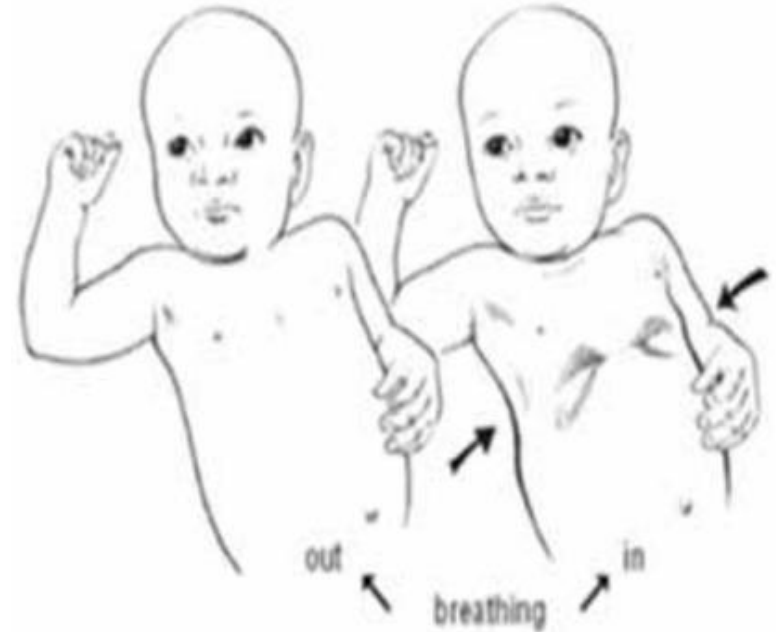
- Vomits everything
- Irritable or inconsolable
- Apnoea
- Pus and cellulitis at the umbilicus
- Skin pustules

Inability to Breast Feed



Lower Chest Wall Indrawing

- Its the inward movement of the lower 1/3 of bony structure of the chest wall when the newborn breathes in.
- Mild chest indrawing is 'normal' because the chest wall is soft
- Severe chest wall indrawing is serious (deep and easy to see) and is a sign of respiratory compromise or pneumonia.



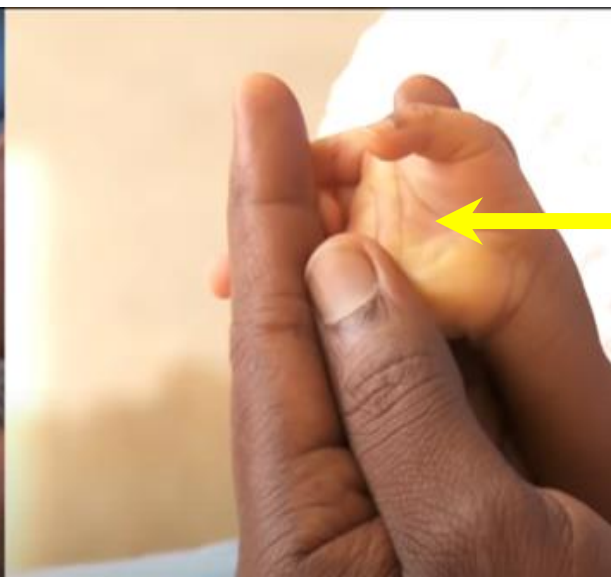
Have a lateral view of the chest when the baby breathes in

Jaundice



It is severe and of great concern if seen;

- In the 1st day of life
- In a sick baby
- Seen on the palms and soles



Movement

- Determine whether the newborn;
 1. Moves on his/her own
 2. Moves only when stimulated but then stops
 3. Does not move at all

An awake newborn will normally move his arms or legs or turn his head several times in a minute if you watch him closely

Convulsions

- The presentation of neonatal convulsions is varied/non-specific and targeted history taking is of utmost importance:
 - Ask the mother if the newborn has had convulsions during this current illness.
 - Clarify what she understands as convulsions and if possible ask her to demonstrate what she saw
 - Use words the mother understands e.g.” “Kushtuka”

Convulsions

- Can be obvious with rapid jerky movements with the arms and legs become stiff.
- May be subtle such as rhythmic twitching of the mouth or blinking of eyes, gazing, lip smacking, pallor
- Keep watching the baby as a similar convulsion may occur in your presence
- Newborn babies can have movements that can be mistaken for convulsions e.g jitteriness, tremors, startles

Jitteriness vs Convulsions

Clinical feature	Jitteriness	Convulsions
Abnormal gaze or eye movement	No	Yes
Predominant movement	Tremor, rapid, oscillatory	Clonic, jerking, tonic
Movements cease with passive flexion	Yes	No
Stimulus provoked movements	Yes	No
Conscious state/autonomic change	Awake or asleep	Altered

Tremors, Startle and Apnoea

- **Tremors:** Involuntary, rhythmic, periodic, mechanical oscillations of a body part. Usually settles on cuddling/holding the baby
- **Startle Reflex (Moro):** A neonate can be startled by a loud noise, sudden movement, when they feel like they are falling or other stimuli. They suddenly extend their arms and legs, arch their back, and then curl everything in again. The neonate may or may not cry when they do this.
- **Apnoea:** Pause in breathing for greater than 20 seconds. Common in preterms during active sleep. Are due to brainstem immaturity.

Capillary Refill Time



Irritability/Inconsolable

- This is when a baby is clearly distressed all the time or after any disturbances or handling and impossible to calm
- While it is not a symptom of any specific illness, most parents recognize that something might be wrong with the child even though other symptoms may not yet exist.

Disability

D	Can breastfeed?		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Bulging fontanelle		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Irritable		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Tone	Normal <input type="checkbox"/>	Increased <input type="checkbox"/>	Reduced <input type="checkbox"/>

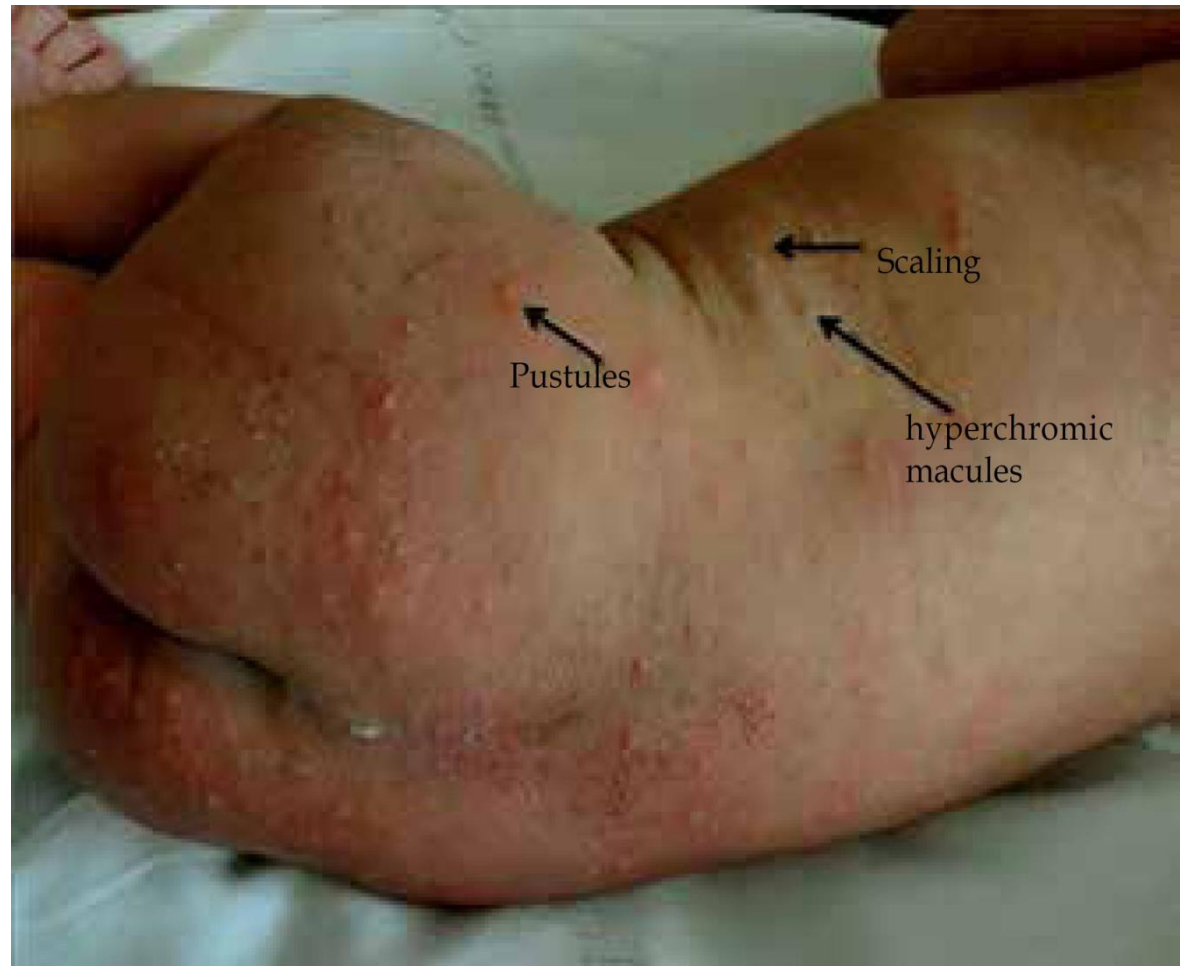
LOOK at the umbilicus – is it red or foul smelling or draining pus?

- Redness of the end of the umbilicus or pus draining from the umbilicus are signs of umbilical infection.
- Early recognition and treatment of an infected umbilicus are essential to prevent sepsis



LOOK for skin pustules. Are there pustules?

- Examine the skin on the entire body.
- Skin pustules are small raised spots or blisters which contain pus surrounded by redness



Using the Newborn Admission Record (NAR)

Infant's details

Name					Date of Admission	dd/mm/yyyy		IP No.		
DOB		Age	days	hrs	Sex	F <input type="checkbox"/>	M <input type="checkbox"/>	Indeterminate <input type="checkbox"/>	Gestation	wks
ROM	<18h <input type="checkbox"/>	>=18h <input type="checkbox"/>	unkn. <input type="checkbox"/>	Delivery	SVD <input type="checkbox"/>	CS <input type="checkbox"/>	Breech <input type="checkbox"/>	If CS, type	Elective <input type="checkbox"/>	Emergency <input type="checkbox"/>
					Forceps <input type="checkbox"/>		Vacuum <input type="checkbox"/>			
Multiple Delivery	Y <input type="checkbox"/>	N <input type="checkbox"/>	If YES number?	=				BVM Resus at birth?	Y <input type="checkbox"/>	N <input type="checkbox"/>
APGAR	1m	5m	10m	Born outside this facility?	Y <input type="checkbox"/>	N <input type="checkbox"/>	if Yes, born where?	Home/Roadside <input type="checkbox"/>	Other facility <input type="checkbox"/>	

Mother's details

Name					IP No.			Age			Parity	+	
Blood Grp	A <input type="checkbox"/>	B <input type="checkbox"/>	AB <input type="checkbox"/>	O <input type="checkbox"/>	unkn. <input type="checkbox"/>	Rhesus	Pos <input type="checkbox"/>	Neg <input type="checkbox"/>	unkn. <input type="checkbox"/>	VDRL	Pos <input type="checkbox"/>	Neg <input type="checkbox"/>	unkn. <input type="checkbox"/>
PMTCT Status	Pos <input type="checkbox"/>	Neg <input type="checkbox"/>	unkn. <input type="checkbox"/>	Mother ARVs	Y <input type="checkbox"/>	N <input type="checkbox"/>	Diabetes	Y <input type="checkbox"/>	N <input type="checkbox"/>	unkn. <input type="checkbox"/>			
Hypertension in Pregnancy	Y <input type="checkbox"/>	N <input type="checkbox"/>	unkn. <input type="checkbox"/>	APH	Y <input type="checkbox"/>	N <input type="checkbox"/>	Prolonged 2 nd Stage	Y <input type="checkbox"/>	N <input type="checkbox"/>	unkn. <input type="checkbox"/>			

Using the Newborn Admission Record (NAR)

History & Examination				
Vital Signs	Temp(⁰ c)		Resp Rate	bpm
			Pulse	/min
			0 ₂ Sat	%
Anthropometry	Birth wt		grams	Weight now
				grams
	Head circumference		cm	Length
				cm
<i>Time baby seen</i>			am/pm	Any other important history and family / social history?
Fever	Y <input type="checkbox"/>	N <input type="checkbox"/>		
Difficulty breathing	Y <input type="checkbox"/>	N <input type="checkbox"/>		
Difficulty feeding	Y <input type="checkbox"/>	N <input type="checkbox"/>		
Convulsions	Y <input type="checkbox"/>	N <input type="checkbox"/>		
Apnoea	Y <input type="checkbox"/>	N <input type="checkbox"/>		
Reduced/Absent movement	Y <input type="checkbox"/>	N <input type="checkbox"/>		
Bloody stool	Y <input type="checkbox"/>	N <input type="checkbox"/>		
Bilious Vomiting	Y <input type="checkbox"/>	N <input type="checkbox"/>		

Using the Newborn Admission Record (NAR)

General Examination				
Skin		Bruising <input type="checkbox"/> Rash <input type="checkbox"/> Pustules <input type="checkbox"/> Mottling <input type="checkbox"/> Normal <input type="checkbox"/>		
Jaundice		None <input type="checkbox"/>	+ <input type="checkbox"/>	+++ <input type="checkbox"/>
A	Cry	Normal <input type="checkbox"/>	Weak/Absent <input type="checkbox"/>	High pitched <input type="checkbox"/>
	Central Cyanosis		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Indrawing		None/mild <input type="checkbox"/>	Severe <input type="checkbox"/>
	Grunting		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Good bilateral air entry		Y <input type="checkbox"/>	N <input type="checkbox"/>
B	Crackles		Y <input type="checkbox"/>	N <input type="checkbox"/>
C	Cap Refill (Sternal)		secs	
	Pallor/Anaemia	None <input type="checkbox"/>	+ <input type="checkbox"/>	+++ <input type="checkbox"/>
	Murmur		Y <input type="checkbox"/>	N <input type="checkbox"/>
	<i>If murmur is YES, describe in free text</i>			

Using the Newborn Admission Record (NAR)

D	Can breastfeed?		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Bulging fontanelle		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Irritable		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Tone	Normal <input type="checkbox"/> Increased <input type="checkbox"/> Reduced <input type="checkbox"/>		
Abd.	Distension		Y <input type="checkbox"/>	N <input type="checkbox"/>
	Umbilicus	Clean <input type="checkbox"/> Local pus <input type="checkbox"/> Pus+red skin <input type="checkbox"/> Others <input type="checkbox"/>		

Birth defects? Y N if YES tick and describe

- Major GI Abnormality Neurotube defects/spina bifida
- Hydrocephalus Limb abnormalities
- Cleft lip/palate Birth Injury/abnormalities
- Microcephaly

Using the Newborn Admission Record (NAR)

Investigations ordered-(record subsequent tests and all results in medical record)

Glucose	<input type="checkbox"/> Y	<input type="checkbox"/> N = _____	mmol/l	Bilirubin	<input type="checkbox"/> Y	<input type="checkbox"/> N = _____	µmol/l / mg/dl
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List other Investigations ordered

Admission Diagnoses-Select ONE primary diagnosis (tick box indicating "1") and ANY secondary diagnoses (tick box indicating "2")

Birth asphyxia			Multiple Delivery	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Other diagnoses (name below and indicate if primary diagnosis or secondary)		
Severe/Encephalopathy	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Newborn RDS	<input type="checkbox"/> 1	<input type="checkbox"/> 2		<input type="checkbox"/> 1	<input type="checkbox"/> 2
Mild/Moderate	<input type="checkbox"/>		Jaundice	<input type="checkbox"/> 1	<input type="checkbox"/> 2		<input type="checkbox"/> 1	<input type="checkbox"/> 2
Preterm	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Meningitis	<input type="checkbox"/> 1	<input type="checkbox"/> 2		<input type="checkbox"/> 1	<input type="checkbox"/> 2
Neonatal sepsis	<input type="checkbox"/> 1	<input type="checkbox"/> 2	Birth Wt <2kg	<input type="checkbox"/> 1	<input type="checkbox"/> 2		<input type="checkbox"/> 1	<input type="checkbox"/> 2
Meconium aspiration	<input type="checkbox"/> 1	<input type="checkbox"/> 2					<input type="checkbox"/> 1	<input type="checkbox"/> 2

<u>Clinician Name & Sign</u>	Time am / pm	Date dd/mm/yyyy
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Using Other Records

- The Newborn Unit transfer form
- The Newborn Unit Exit Form
- The Comprehensive Newborn Monitoring Chart

Questions

Summary

1. Many newborns will remain well and thrive with proper care and basic support.
2. For the sick newborn it is important to recognize key danger signs and other signs of illness needing immediate treatment
3. Simple symptoms and signs will help guide basic treatment in 80-90% of new-born infants admitted.
4. A common approach to interpreting clinical signs helps clinical communication.
5. Always be on the look out for additional important signs
6. Remember documentation: What is not documented is assumed not done!