

Professor Zubaida L. Farouk

Professional Profile

- Professor of Paediatrics, Bayero University Kano; Honorary Consultant Paediatrician, Aminu Kano Teaching Hospital.
- Over 20 years' experience in neonatal & child health, implementation science, medical education and health systems strengthening.
- National Coordinator, Comprehensive Newborn Care Course in Nigeria.
- WHO-certified mentor for Care of Small and Sick Newborns (SSNC).



Research, Qualifications & Impact

Highlights

- Research: implementation science, quality improvement, infection prevention, neonatal jaundice, prematurity and neonatal infections.
- Qualifications: MBBS, FWACP, MSc (Implementation Science, University of Maryland); Harvard Medical School Teaching Certificate; Fogarty Global Health Scholar.
- Leads nationally and internationally funded research translating evidence into policy and practice to improve maternal and newborn health across Nigeria and other LMICs.

Pre Test
5 Minutes

(ICSA) Project

North West States: Kaduna, Kano, Katsina, Kebbi, Sokoto

Newborn Danger Signs: Early¹ Recognition and Action for Survival

ICSA Learning Clinic -

Zubaida Farouk MBBS, MSc, FWACP
Professor of Paediatrics

Learning Objectives

By the end of this session, participants will be able to:

1. Identify key newborn danger signs during facility and community contacts
2. Prioritize urgent cases using a systematic triage approach
3. Initiate appropriate first-line management for sick newborns
4. Provide effective counselling to caregivers on when and where to seek care
5. Strengthen referral and follow-up practices for high-risk neonates

Expected Outcome: Participants will identify newborn danger signs earlier, make appropriate triage decisions, and provide clearer guidance to caregivers

Why Newborn Danger Signs Matter

Nigeria's Neonatal Mortality Crisis

NMR: 41 deaths per 1,000 live births—highest in sub-Saharan Africa

Global Burden: Among the largest contributors to neonatal deaths worldwide

Leading Causes: Prematurity, birth asphyxia, and sepsis account for >80% of neonatal deaths

The Challenge

Caregivers' perception on the causes and management of common neonatal illnesses in these communities

Key Barriers:

- Late recognition of danger signs
- Harmful traditional practices
- Delayed health-seeking behaviour

What Are Newborn Danger Signs?

Definition

A Danger Sign is a clinical indicator that a newborn is at high risk of death and requires urgent medical attention.

Why Newborns Are Vulnerable:

Immature immune system

Rapid deterioration

Subtle signs easily missed

The Golden Rule:

If detected early, the life of the baby can often be saved.

Key Message:

A newborn with a Danger Sign needs urgent action—not observation.

Seven Danger Signs of the Newborn

Danger Sign	What to Look For	Why It Is Dangerous	Immediate Action
Not Feeding Well	Unable to suck/swallow, weak suck, refuses feeds	Severe infection, hypoglycaemia, birth asphyxia or neurological impairment	Keep warm, assess ABC, check glucose if available, urgent referral
Fast Breathing	Respiratory rate ≥ 60 /min	Pneumonia, sepsis or respiratory distress	Assess breathing, oxygen if available, urgent referral
Severe Chest Indrawing	Marked inward movement of lower chest	Severe respiratory distress	Maintain airway, oxygen if available, urgent referral
Too Hot or Too Cold	Temperature $<35.5^{\circ}\text{C}$ or $>38^{\circ}\text{C}$	Sepsis or environmental exposure	Correct temperature, assess, refer
Convulsions	Repetitive jerking or seizures	Meningitis, HIE or hypoglycaemia	Protect airway, check glucose, urgent referral
No Movement or Lethargy	No spontaneous movement or response	Severe illness or CNS dysfunction	Stabilize and urgent referral
Yellow Skin or Eyes	Yellow skin/sclera especially palms/soles	Severe hyperbilirubinaemia risk	Assess bilirubin, phototherapy if indicated, urgent referral

Key message: Any newborn with one or more danger signs should be cons.

Take-Home:

Every newborn should be assessed for these signs in the first 90 minutes and a

Danger Sign 1 - Not Feeding Well

Not Feeding Well

What to Ask:

- "Have you put the baby to the breast?"
- "How is the baby suckling?"
- "Has the baby stopped feeding well?"

What to Assess:

- Observe breastfeeding
- Check for weak or absent suck
- Look for vomiting or regurgitation

Why It Matters:

"If the mother tells you that the baby was feeding well after birth but has stopped feeding well now—baby may have serious infection—baby has a danger sign."

Action: A baby not feeding well needs immediate assessment and possible referral.

Danger Sign 2 - Fast Breathing

Fast Breathing

Definition: Breathing rate ≥ 60 breaths per minute

How to Assess:

1. Wait for baby to be calm and quiet
2. Count breaths for one full minute
3. Repeat if elevated

If the Baby is Crying or Agitated:

...you will not be able to obtain an accurate count of the newborn's breaths.

Related Signs:

- Grunting (soft short noise when breathing out)
- Lower chest wall indrawing
- Nasal flaring
- Unusual breathing pattern

Action: Fast breathing = respiratory distress = urgent intervention needed.

Danger Sign 3 - Chest Indrawing

Chest Indrawing

What It Looks Like:

The lower chest wall goes inside when the baby is breathing in

Visual Assessment:

1. Ensure adequate light
2. Gently lift the baby's shirt
3. Observe for indrawing of the spaces:
 - Above the ribs
 - Between the ribs
 - Below the ribs

Why It's Serious:

"Respiratory distress occurs in up to 7% of neonates and is the leading cause of mortality in the early neonatal period (0–7 days). Such babies are 2 to 4 times more likely to die than those without respiratory distress."

Action: Chest indrawing + fast breathing = severe respiratory distress.

Chest Indrawing

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Danger Sign 4 - Temperature Abnormalities

Too Hot or Too Cold

Emergency Signs Requiring Urgent Action:

Condition	Axillary Temperature (°C)	Recommended Action
Severe Hypothermia	<32.0°C	Medical emergency. Rapid warming, assess ABCs, urgent referral.
Moderate Hypothermia	32.0–35.9°C	Urgent warming, monitor, assess for infection.
Cold Stress	36.0–36.4°C	Provide warmth, encourage breastfeeding, recheck temperature.
Normal	36.5–37.5°C	Continue routine newborn care.
Fever	>38.0°C	Medical emergency. Assess for sepsis and refer urgently.

Tactile Assessment

"Warm and pink feet indicate thermal comfort.
Cold feet + warm abdomen = cold stress. Cold
feet + cold abdomen = hypothermia."

Action: Any temperature $<35.5^{\circ}\text{C}$ or $>38^{\circ}\text{C}$ =
Emergency!

Danger Sign 5 - Convulsions

Convulsions

What to Look For:

- Repetitive jerking movements of limbs or face
- Continuous extension or flexion of arms and legs
- May be generalized, focal, or multifocal

Subtle Convulsions:

"Many a times, convulsions in newborns are subtle (e.g. staring, repetitive blinking of eyes, or re

Action: Convulsions = emergency—urgent assessment and treatment

Danger Sign 6 - No Movement

No Movement or Lethargy

What to Assess:

- Spontaneous movement: Are arms and legs moving?
- Response to stimulation: Does baby wake up?

Red Flags:

"If the baby cannot be wakened—baby has danger sign."

"If the baby wakes up a little, moves arms and legs a little but goes back to sleep—baby has danger sign."

Common Causes:

- Severe infection
- Hypoglycemia
- Hypoxia
- Metabolic disorders

Action: Lethargy and poor response to stimulation indicate serious illness.

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Danger Sign 7 - Yellow Skin/Eyes

Jaundice

What to Look For:

"Always look for this sign in natural light (daylight). It is difficult to see yellow eyes or skin in artificial light."

Assessment:

1. Eyes: Look at the white part of the eye
2. Skin: Gently press skin with thumb to blanch, remove and look for yellow colour

Why It Matters:

- May indicate serious underlying conditions
- Requires immediate assessment and treatment
- Can lead to kernicterus if untreated

Action: Any yellow colour = immediate evaluation for cause and severity.

Triage: Emergency vs. Priority

Emergency Signs: Requires Immediate Life-Saving

The RED Approach

Immediate Actions for Sick Newborns

R - Warm Surface

Place newborn on a warm surface under a radiant warmer

E - Emergency Signs

Check for emergency signs and institute appropriate treatment

D - Diagnostics

Perform bedside diagnostics—check blood glucose & oxygen saturation

"Give priority to stabilizing the sick or small baby before assessing and treating the underlying cause of the problem."

Health care worker Assessment Guide

How to Assess a Newborn for Danger Signs Remember: Wash hands before touching each baby.

Case Scenarios for Discussion

Case Study 1: The Lethargic Baby

Baby A: 3-day-old, brought by mother who says "baby is sleeping too much and not waking up to feed."

- Temperature: 36.8°C
- Breathing rate: 52/min
- Weight: 2.8 kg

Question: Does this baby have a danger sign?

Answer: YES—not feeding well + lethargy = serious illness risk

Action: Assess further; possible referral needed

Case Study 2: The Baby with Fast Breathing

Baby B: 5-day-old, brought with "difficulty breathing."

- Temperature: 37.5°C
- Breathing rate: 68/min
- Chest: Lower chest indrawing

Question: What are the danger signs?

Answer: Fast breathing (68/min) + chest indrawing = severe respiratory distress

Action: Emergency—stabilize and refer urgently

Emergency signs

Emergency Sign	Immediate Action
Temperature <35.5°C	Warm the baby, stabilize, and refer urgently
Not breathing or gasping	Start neonatal resuscitation immediately
Severe respiratory distress	Support breathing and arrange urgent referral
Central cyanosis	Provide oxygen and immediate emergency care
Shock	Initiate IV fluids (where appropriate) and urgent referral
Convulsions / Unconsciousness	Treat seizures, stabilize, and refer immediately

Priority Signs: Needs Urgent Assessment

Priority Sign	Recommended Action
Temperature 35.5–36.4°C	Provide thermal care and reassess frequently
Poor feeding	Evaluate the cause and support feeding
Lethargy	Assess for serious illness and investigate promptly
Fast breathing (>60/min)	Evaluate for infection or respiratory disease

Systematic Assessment of the Sick Newborn

Step	Action	Assessment Question / What to Look For
1	Ask About Feeding	Has the baby stopped feeding well? Poor suck/refusal to feed.
2	Ask About Convulsions	Has the baby had convulsions or fits?
3	Assess Breathing	Count RR ≥ 60 /min; chest indrawing, grunting, apnoea.
4	Measure Temperature	Axillary temperature: $<35.5^{\circ}\text{C}$, $35.5\text{--}36.4^{\circ}\text{C}$, $>38^{\circ}\text{C}$.
5	Assess Consciousness	Easy to wake? Responds to stimulation?
6	Look for Signs of Infection	Cord, skin or eye redness, pus or discharge.
7	Look for Jaundice	Yellow skin/sclera, palms/soles, onset ≤ 24 hours
Key Message: Every sick newborn should undergo a systematic assessment to identify danger signs early and initiate prompt stabilization and referral.		

Health Care worker Misconceptions

Common Misconceptions About Neonatal Illnesses

Patterns of Health-Seeking

Delayed Care-Seeking:

Baby shows signs



Home remedies tried (first resort)



Symptoms persist (days pass)



Health facility visited (when symptoms worsen)

Why This Happens:

- Cultural beliefs and myths
- Feared adverse outcomes in hospitals
- Belief in faith healers
- Lack of money and transport

Key Finding:

"Only 16.9% of caregivers took their children to the hospital immediately after noticing jaundice."

Goal: Educate caregivers to act immediately when danger signs are noticed.

Key Message: Education is essential to dispel myths and promote early care-seeking.

Counselling Caregivers

Effective Communication with Caregivers

What to Say:

"Your baby has a danger sign. This means your baby is at risk of death."

"If a danger sign is detected early, the life of the baby can often be saved."

When to Counsel:

1. During ANC: Educate on newborn danger signs before delivery
2. At birth: Assess and educate on immediate care
3. During PNC: Assess for danger signs at every contact
4. When danger signs are identified: Explain urgency clearly

What to Counsel On:

- Recognising danger signs
- When to seek care—IMMEDIATELY
- Where to go—nearest facility
- Importance of referral if recommended

Key Message: Clear, simple communication saves newborn lives.

Strengthening Referral Pathways

Ensuring Timely Referral

Before Referral:

1. Stabilize baby (warmth, breathing support)
2. Establish IV access if needed
3. Document findings and referral reason
4. Communicate with receiving facility
5. Ensure transport arrangements

During Referral:

1. Keep baby warm
2. Continue monitoring (breathing, temperature)
3. Maintain IV fluids
4. Call ahead to receiving facility

Facilitator's Role:

➤ "Initiate immediate PHC-level management, and facilitate prompt referral and caregiver follow-up."

Key Take-Home Messages

For Health Workers:

1. Assess for Danger Signs at every contact
 - First 90 minutes after birth
 - Every postnatal contact
 - Any time a baby appears sick
2. Act Immediately
 - Danger signs = Urgent action
 - Stabilize before referral
 - Do not delay
3. Document and Follow Up
 - Record all assessments
 - Ensure referral completion
 - Track outcomes

For Caregivers:

1. Recognize danger signs
2. Seek care immediately
3. Follow referral advice

Remember: A baby with a Danger Sign is at risk of death. Early detection and action save lives.

References

1. National Guidelines for Newborn Care—Federal Ministry of Health Nigeria
2. WHO Newborn Care Guidelines
3. Integrated Child Survival Advocacy (ICSA) Learning Clinic Facilitator Notes
4. Chime OH, et al. "Caregivers perception of common neonatal illnesses and their management among rural dwellers in Enugu state, Nigeria." *BMC Public Health
5. Newborn Stabilization Unit Training Participants' Module—National Health Mission (India)
6. Home Based Maternal and Newborn Care Facilitator Module for Clinical Practice

Additional Resources

- ICSA Learning Clinic digital platform
- National Newborn Care Guidelines
- WHO Pocket Book for Neonatal Care

Post Test
5 Minutes

Pre-Test / Post-Test: Danger Signs Recognition in the Newborn

- **Instructions**
- Answer all questions.
- 1. Which is NOT a WHO newborn danger sign? A Poor feeding B Convulsions C Weight loss D Fast breathing
- 2. Fast breathing is: A >40 B >50 C ≥ 60 D ≥ 80 breaths/min
- 3. Severe hypothermia is: A <36.5 B <35.5 C <32 D >38°C
- 4. Convulsing newborn: A Observe B Feed C Stabilize and refer D Send home
- 5. Chest indrawing indicates: A Respiratory distress B Normal C Hunger D Crying
- 6. Baby not breathing: A Refer B Start resuscitation C Antibiotics D Feed
- 7. Poor feeding may indicate: A Sepsis B Hypoglycaemia C Serious illness D All
- 8. Jaundice <24h is: A Normal B Emergency C Observe D Ignore
- 9. Central cyanosis suggests: A Normal B Hypoxaemia C Hunger D Cold stress
- 10. Correct cord care: A Herbs B Ash C Keep clean and dry D Toothpaste

- **True/False**

- ☐ True ☐ False Fast breathing is a danger sign.
- ☐ True ☐ False Any newborn with one danger sign needs urgent assessment.
- ☐ True ☐ False Poor feeding may indicate severe illness.
- ☐ True ☐ False Herbs should be applied to the cord.
- ☐ True ☐ False Jitteriness cannot be stopped by holding the limb.

Marking Scheme: Pre-Test / Post-Test

Danger Signs Recognition in the Newborn

Section A: Multiple Choice Questions (10 Marks)

Question	Correct Answer	Marks
1	C. Weight loss	1
2	C. ≥ 60 breaths/min	1
3	C. $< 32^{\circ}\text{C}$	1
4	C. Stabilize and urgently refer	1
5	A. Respiratory distress	1
6	B. Start neonatal resuscitation	1
7	D. All of the above	1
8	B. Emergency	1
9	B. Serious hypoxaemia	1
10	C. Keep the cord clean and dry	1

Section B: True / False (5 Marks)

Scoring Guide

Maximum score: 15 marks

13–15: Excellent knowledge

10–12: Good knowledge

7–9: Fair knowledge—needs reinforcement

<7: Requires additional training and mentoring.

Question	Answer	Marks
11	True	1
12	False	1
13	True	1
14	False	1
15	False	1