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Department of Health Research
Ministry of Health and Family Welfare, Government of India

INDIAN COUNCIL OF MEDICAL RESEARCH
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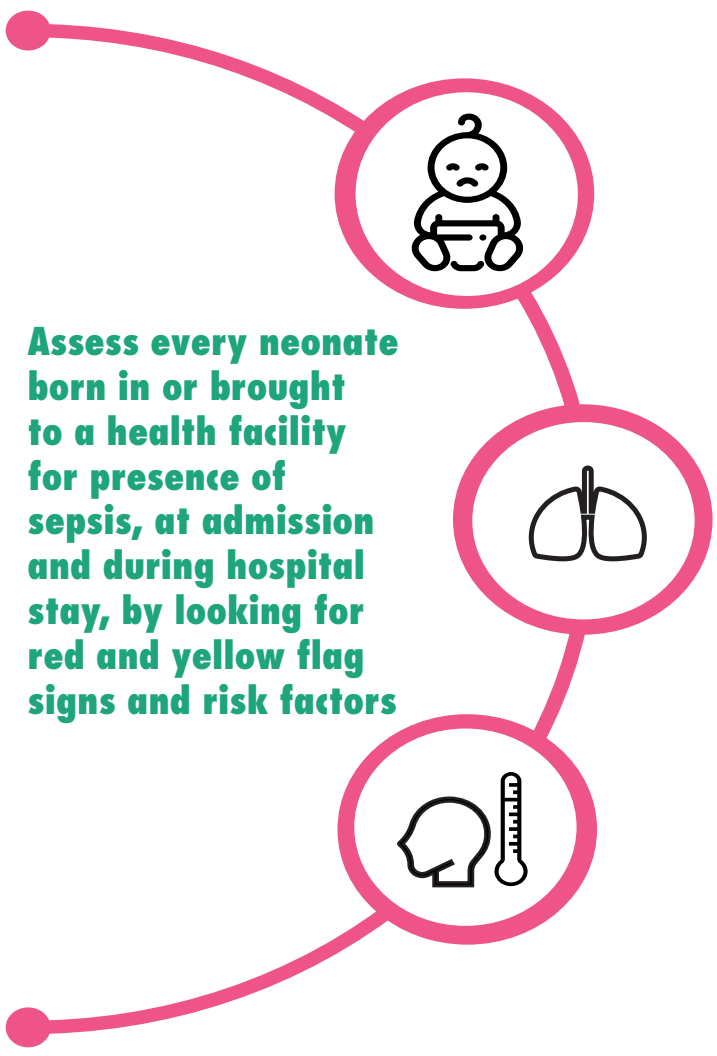
Standard Treatment Workflow (STW)

SEPSIS IN NEONATES

ICD-10-P36



Assess every neonate born in or brought to a health facility for presence of sepsis, at admission and during hospital stay, by looking for red and yellow flag signs and risk factors

RED FLAG SIGNS

- Shock
- Bleeding from multiple sites
- Hardening of skin so that it cannot be pinched off the underlying tissue or bone (look at cheeks and thighs)
- Respiratory distress onset more than 6 hrs after birth
- Respiratory distress needing intubation or Silverman's score >6
- If age of baby is less than 7 days and mother has foul smelling discharge or chorioamnionitis

YELLOW FLAG SIGNS

Seizures	Refusal to feed	HR>160 persisting for one hour despite normal temperature	Respiratory distress	Floppiness
Lethargy	Feed intolerance	New or increased apneic episodes	Fever or hypothermia not due to environmental temperature	

Any of the maternal risk factors: If age of baby is less than 7 days and mother has

Dai handling or unclean vaginal examination	Rupture of membranes ≥18 hrs	pPROM	Urinary tract infection	Diarrhea	Fever

HIGH PROBABILITY OF SEPSIS

Start treatment and investigate

- Any RED flag sign is present
- Two YELLOW signs/ maternal risk factors are present
- One YELLOW sign or maternal risk factor is present AND baby's gestation at birth is ≤ 32 weeks

- Admit in the NICU/SNCU
- Obtain blood sample for culture and sensitivity
- Start empirical antibiotics as per local/unit policy pending reports
- Provide supportive care and do appropriate laboratory investigations as indicated clinically (Chest X-ray, CBC, platelet count, RBS, serum electrolytes, renal functions)
- Perform lumbar puncture (LP) for CSF analysis when baby is hemodynamically stable

AT-RISK/SUSPECT SEPSIS

Observe

- One YELLOW sign or maternal risk factor is present AND
- Baby's gestation at birth is >32 weeks

- Keep baby under close observation for 48-72 hrs
- Start antibiotics if another yellow/ red sign appears during observation
- Obtain sample for blood culture and sensitivity before starting antibiotics
- Perform LP for CSF analysis if starting antibiotics or if the blood culture is positive

REVIEW AT 48 HRS

SIGNS OF SEPSIS DISAPPEARED AND CRP <12 MG/L

- Stop antibiotics
- Keep under observation till blood culture is reported as sterile after 48 hrs of incubation

SIGNS OF SEPSIS IMPROVING BUT STILL PRESENT

- Continue antibiotics
- Antibiotic duration based on blood culture and LP report

SIGNS OF SEPSIS WORSENED, OR A RED SIGN APPEARED AFTER STARTING TREATMENT

- Upgrade antibiotics as per antibiotic local/unit policy
- Antibiotic duration based on blood culture and LP report

If antibiotics are continued, review again at 5 days: If baby is now well from last 48 hrs, blood culture is sterile and CSF is normal: Stop antibiotics

If blood culture was not done, a negative CRP or Procalcitonin at 24-48 hrs after starting antibiotics, can help in early stopping of antibiotics

DURATION OF ANTIBIOTICS

CONDITION	DURATION
Pneumonia	5-7 DAYS
Sepsis with CRP >12 mg/L AND sterile blood culture AND normal CSF analysis	5-7 DAYS
Blood culture positive	10-14 DAYS
CSF suggestive of meningitis	21 DAYS

REMEMBER

Do not start antibiotics without indication. Clinical features in neonates are non-specific. Looking for alternative reasons for sickness and careful serial observations are important ways to avoid unnecessary use of antibiotics.

Believe a negative blood culture report and stop antibiotics if baby has recovered.

Main utility of both CRP and procalcitonin is to rule-out sepsis. A positive test may also be due to several non-infective conditions. Therefore, a positive CRP or procalcitonin should be interpreted carefully giving due weightage to clinical course of the baby.

ABBREVIATIONS

CBC: Complete blood count
CRP: C-reactive protein
CSF: Cerebrospinal fluid
LP: Lumbar puncture
NICU: Neonatal intensive care unit
pPROM: Preterm premature rupture of membranes
RBS: Random blood sugar
SNCU: Special newborn care unit

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PREVENT SEPSIS BY ENSURING HAND HYGIENE, ASEPSIS DURING PROCEDURES AND DILIGENT HOUSEKEEPING

This STW has been prepared by national experts of India with feasibility considerations for various levels of healthcare system in the country. These broad guidelines are advisory, and are based on expert opinions and available scientific evidence. There may be variations in the management of an individual patient based on his/her specific condition, as decided by the treating physician. There will be no indemnity for direct or indirect consequences. Kindly visit the website of DHR for more information: (**stw.icmr.org.in**) for more information.