

# Recognizing Illness in the Term Newborn

All newborns are at risk for illness, especially infections during the first few weeks of life. Symptoms of illness can be subtle and atypical. A newborn's condition can deteriorate rapidly. Frequent and repeated assessment of breathing, heart rate, colour, temperature and activity are essential to recognizing illness and taking action. Parents also need to know the warnings signs of illness. Prompt assessment by a professional and immediate treatment may be required.

|                               | Wellbeing   | Warning Signs of Illness  | Immediate Action  |
|-------------------------------|---|---|---|
| <b>Respiratory</b>            | <ul style="list-style-type: none"> <li>40 to 60 breaths per minute</li> </ul>   | <b>Respiratory Distress</b> <ul style="list-style-type: none"> <li>Laboured breathing, nasal flaring, sternal retraction, gasping, grunting, apnea, cough</li> <li>Respirations &gt;60 breaths per minute</li> <li>Cyanosis requiring oxygen</li> <li>Distress not improving while on oxygen</li> </ul>   | <p><b>Signs of newborn illness can be life threatening and require immediate action:</b></p> <ul style="list-style-type: none"> <li><b>Recognize warning signs</b></li> <li><b>Communicate – Call for help!</b></li> <li><b>Act – provide warmth, reposition, open airway, clear airway, stimulate, administer oxygen, take vital signs, measure glucose</b></li> <li><b>Resuscitate immediately if:</b> <ul style="list-style-type: none"> <li>ineffective breathing</li> <li>heart rate &lt;100 bpm</li> <li>central cyanosis</li> </ul> </li> <li><b>Consult or transport as required</b></li> <li><b>Consider antibiotics early</b></li> <li><b>Provide ongoing assessment and support, observational care</b></li> <li><b>Document treatment and response</b></li> <li><b>Arrange follow-up</b></li> </ul> <p><b>Assessment of newborns must occur frequently between birth and the first few weeks of life including but not limited to:</b></p> <ul style="list-style-type: none"> <li>at birth</li> <li>during the first hours of life</li> <li>at discharge from hospital</li> <li>community health nurse assessment</li> <li>professional assessment within 1 week after discharge</li> <li>parents/caregivers made aware of the signs of newborn illness and the need to promptly seek professional help when they recognize that the newborn is ill.</li> </ul> <p><b>The Acute Care of at-Risk Newborns (ACoRN)</b> is a systematic approach to the identification, management and stabilization of newborns who need assistance in the transition from fetal life, and who become unwell or are at risk of becoming unwell in the first few hours or days after birth. Health professionals caring for newborns should access the ACoRN resource.</p> <p><a href="http://www.acornprogram.ca">www.acornprogram.ca</a></p> |
| <b>Cardiovascular/ Colour</b> | <ul style="list-style-type: none"> <li>Regular heart rate of 100 to 160 bpm</li> <li>Pink skin and mucous membranes</li> <li>Warm extremities</li> <li>Brisk capillary refill</li> </ul>  | <b>Shock or Cyanosis</b> <ul style="list-style-type: none"> <li>Pale, mottled, grey skin</li> <li>Pink body with cyanotic extremities</li> <li>Central cyanosis (mucous membranes)</li> <li>Weak or rapid pulse, low BP</li> <li>Cold extremities or prolonged capillary refill (&gt;3 seconds)</li> </ul>  |   |
| <b>Neurological</b>           | <ul style="list-style-type: none"> <li>Normal tone, flexed</li> <li>Vigorous cry</li> <li>Sleep/wake cycles</li> <li>Responds to handling with eye opening and arousal</li> </ul>   | <b>Change in Activity</b> <ul style="list-style-type: none"> <li>Floppy or increased tone (hypotonic or hypertonic)</li> <li>Irritability or lethargy with abnormal or diminished response to handling</li> <li>Weak or high pitched cry, cries more than usual, bulging fontanelle</li> <li>Tremors, jitteriness or seizures</li> <li>Poor suck and swallow</li> </ul>   |   |
| <b>Glucose</b>                | <ul style="list-style-type: none"> <li>&gt;2.6 mmol/L</li> <li>Feeds well</li> </ul>  | <b>Hypoglycemia</b> <ul style="list-style-type: none"> <li>&lt;2.6 mmol/L</li> <li>Not feeding or feeding poorly</li> </ul>   |   |
| <b>Thermo-regulation</b>      | <ul style="list-style-type: none"> <li>It is not uncommon for newborns to have an unstable temperature in the first few hours of life</li> <li>Axillary temperature 36.3 °C to 37.2 °C</li> <li>Skin temperature 36.5 °C to 37.0 °C by servo-control probe</li> </ul> | <b>Temperature Instability</b> <ul style="list-style-type: none"> <li>Newborns with illness may present with temperature instability, or an abnormally low or abnormally high temperature.</li> <li>Temperature &lt;36.3 °C</li> <li>The upper threshold of normal temperature ranges between 37.3 °C and 38 °C by axilla. The temperature assessment must be considered in the full clinical context.</li> </ul> |   |
| <b>Feeding</b>                | <ul style="list-style-type: none"> <li>Ability to suck</li> <li>Coordinated suck and swallowing</li> <li>Wakes for feeds</li> <li>Satisfied with feeding</li> </ul>   | <b>Feeding Concerns</b> <ul style="list-style-type: none"> <li>Vomiting or inability to swallow</li> <li>Poor feeding</li> </ul>  |   |
| <b>Gastro-intestinal (GI)</b> | <ul style="list-style-type: none"> <li>Passed meconium within 24 hours of birth</li> <li>Good hydration – moist mucous membranes and good skin turgour</li> <li>Voided within 24 hours of birth</li> <li>Urine is clear, pale yellow</li> </ul>                       | <b>Suspected GI/GU Pathology</b> <ul style="list-style-type: none"> <li>No meconium passed within 24 hours</li> <li>Bloody stools, diarrhea</li> <li>Distended abdomen</li> <li>Vomiting, Bilious vomiting</li> <li>Has not voided within 24 hours of birth</li> <li>Number of wet diapers per day has decreased</li> <li>Urine is dark yellow</li> </ul>   |   |
| <b>Genito-urinary (GU)</b>    |   |   |   |
| <b>Skin</b>                   | <ul style="list-style-type: none"> <li>Skin is intact and smooth</li> </ul>   | <ul style="list-style-type: none"> <li>Petechiae</li> <li>Pustules</li> </ul>   |   |
| <b>Bilirubin</b>              | <ul style="list-style-type: none"> <li>No clinical evidence of jaundice</li> <li>TSB or TcB concentration within the normal range for age</li> </ul>  | <b>Hyperbilirubinemia</b> <ul style="list-style-type: none"> <li>Jaundice within 24 hours of birth</li> <li>Reappearance of jaundice</li> <li>Abnormal TSB or TcB level for age</li> </ul>  |   |
| <b>Umbilical Cord</b>         | <ul style="list-style-type: none"> <li>No redness or discharge</li> </ul>   | <b>Possible Omphalitis</b> <ul style="list-style-type: none"> <li>Redness or swelling extending into surrounding tissue</li> <li>Discharge or foul odour from cord</li> </ul>   |   |

## Risk factors: (Be aware that newborns may become ill in the absence of risk factors)

| Maternal  | Labour and Delivery  | Fetal/Newborn   |
|---|--|---|
| <ul style="list-style-type: none"> <li>Infectious issues: Group B Streptococcus carrier, premature rupture of membranes, fever, chorioamnionitis, HIV, Herpes, Syphilis, Hepatitis B, urinary tract infection, influenza</li> <li>Alcohol, drugs or tobacco use</li> <li>Chronic conditions: hypertension, diabetes, etc</li> <li>Rh isoimmunization</li> </ul> | <ul style="list-style-type: none"> <li>Difficult birth</li> <li>Operative or assisted vaginal delivery</li> <li>Analgesia administered during labour</li> <li>Prolonged rupture of membranes &gt;18 hours</li> <li>Foul smelling amniotic fluid</li> <li>Meconium</li> </ul> | <ul style="list-style-type: none"> <li>Low Apgar score &lt;4 at 1 min, &lt;7 at 5 min</li> <li>Low cord pH (&lt;7.25)</li> <li>Birth trauma</li> <li>Newborns who required resuscitation</li> <li>Preterm newborns &lt;37 weeks gestation</li> <li>Post-term newborns &gt;41 weeks gestation</li> <li>SGA or low birth weight &lt;2500 gms</li> <li>LGA or macrosomia &gt;4200 gms</li> </ul> |