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GUIDELINES FOR COMPLETION OF ILL NEWBORN RECORD

The **Ill Newborn Record** was originally developed in 2003 and revised in 2009 by the Southwestern Ontario Perinatal Partnership (SWOPP) in an effort to assist staff in the assessment and management of newborn infants who are ill or at risk of becoming ill. The flow sheet format is designed to provide an efficient mechanism for systematic assessment and documentation of relevant findings. Key codes have been provided for ease of documentation and to reduce excessive narrative notation. This record may be particularly helpful in hospitals where caring for a newborn that is ill and requiring extra support is an infrequent event. The Ill Newborn Record will be of most assistance if used in conjunction with the care algorithms provided by the ACoRN (Acute Care of At-Risk Newborns) program.

RECORD FORMATS:

The Ill Newborn Record is available in two formats:

- the Ill Newborn Extended Record, which is a four panel fold out form including a flow sheet, lab values, fluid balance record and clinical progress record. It is identified as form #**200277**
- the Ill Newborn Record which is a double sided form with flow sheet on one side and lab values on the reverse. It is identified as form # **72333**

Additionally, the Neonatal Fluid Balance Record can be purchased individually as a single sided form identified as form #**200276**

HOSPITAL IDENTIFIER

The SWOPP logo is at the top left corner and space is provided for individual hospital names to be added.

PATIENT IDENTIFIER

Space is available in the top right corner for patient addressograph. The patient's name should be included on each side/panel of the form.

NEUROLOGICAL

Abnormal neurological signs may result from neurological, neuromuscular or systemic concerns. The infant will usually present with abnormalities of activity or tone. These abnormalities may be transient but they may be indicative of more serious problems. Prompt management may prevent or reduce long term morbidity.¹ Jitteriness or tremors can be stopped by holding the infant's limbs close to the body whereas the infants displaying clonic/myoclonic seizure activity will continue to have muscular contractions despite containment of the limbs. Seizure activity can also be manifested in the infant by:

- horizontal tonic deviation of the eyes
- repetitive blinking
- staring
- chewing, lip smacking or drooling
- bicycling

- apnea
- sudden tachycardia at rest or increased BP or decreased SaO₂
- posturing of a limb
- rhythmic slow movements
- asymmetric posturing of the trunk or neck

TEMPERATURE

It is recommended that the newborn infant's temperature be assessed with an electronic axillary thermometer. According to the ACoRN program, a normal axillary temperature is defined as a temperature between 36³-37² °C inclusive. Infants who are hypothermic/hyperthermic should have their temperature assessed q 15 – 30 min. until stable and maintained in a neutral thermal environment.¹ In addition to assessment of the infant's temperature, the temperature of the incubator or radiant warmer should be documented regularly as well as, the setting for the infant skin control probe (ISC).

CARDIOVASCULAR / RESPIRATORY

During the transition from intrauterine to extrauterine life, establishing and maintaining ventilation, oxygenation and thereby adequate cardiac function is crucial. Inability of the infant to achieve adequate ventilation is a primary cause of cardiovascular compromise. Once effective ventilation and oxygenation have been achieved, cardiovascular instability is most commonly due to decreased oxygen delivery to tissues as the result of one or more of the following:

- insufficient circulating blood volume
- poor heart muscle function (myocardial dysfunction)
- anatomical abnormalities of the heart and great vessels (cyanotic and acyanotic heart disease)
- abnormality of heart rhythm (tachyarrhythmia or bradyarrhythmia)³

While the frequency of assessment of the infant's vital signs should be individualized to the needs of the baby, it is reasonable to suggest that during the period of transition the infant's vitals signs should be assessed at least every hour for the first four hours or more often if necessary. It is recommended that infants who manifest signs of respiratory/cardiovascular compromise be assessed using a cardiorespiratory monitor if available. Additionally, the use of pulse oximetry is necessary whenever oxygen is being delivered.

HEART RATE

“The normal heart rate range is from 100 – 160 bpm but some term babies may have a resting heart rate as low as 80 bpm. Heart rates between 160 – 220 bpm may be seen when a baby is agitated or sick (sinus tachycardia). A heart rate > 220 almost always indicates an abnormal fast rhythm or tachyarrhythmia. Supraventricular tachycardia (SVT) is the most common tachyarrhythmia in babies.”⁴

BLOOD PRESSURE

An automated blood pressure cuff should be used to assess blood pressure. Remember to use an appropriate sized cuff. “A practical estimate of the normal lower limit of mean arterial blood pressure in mmHg at birth is the baby's gestation age in completed weeks.”⁵ (e.g. a 35 week neonate would have a Mean Arterial Pressure of ≥ 35 in the first day of life). Low blood pressure may be an indication of low circulating blood volume, low cardiac output or peripheral vasodilation.⁶

RESPIRATORY RATE

The normal newborn respiratory rate is 40 – 60 / minute. A respiratory rate > 60/minute usually indicates respiratory difficulty or distress.⁷

RESPIRATORY EFFORT

Use the key code to indicate the appropriate manifestations of laboured breathing

COLOUR

Use the key code to indicate the appropriate colour finding. Observing the skin colour of an infant provides a sense of the amount of blood flowing to the skin, the amount of hemoglobin contained in the blood and the oxygen carrying capacity of the hemoglobin. **Pink** suggested that the blood is well oxygenated and the skin well perfused. **Pallor** or **mottled** skin implies poor skin perfusion due to decreased cardiac output and/or hypovolemia, or peripheral vasoconstriction. Pallor can also indicate a low hemoglobin.⁹ **Central cyanosis** may be an indicator of cardiac or respiratory dysfunction. “Cyanosis of respiratory origin is associated with respiratory distress and usually responds to oxygen therapy, Cyanosis of cardiac origin is strongly suggested when it occurs in the absence of respiratory distress and is unresponsive to 100% oxygen therapy.”⁸ A bluish discoloration of the hands and feet with a pink body, otherwise known as **acrocyanosis**, is common during the first few hours of life and is usually the result of poor peripheral circulation, or cold stress. It does not require oxygen therapy.¹⁰ **Jaundice** is indicative of hyperbilirubinemia and is abnormal in the first 24hours of life.

% OXYGEN

. Oxygen delivery is always charted in % and never ‘litres of flow’.

OXYGEN SATURATION (SAO₂)

The SaO₂ indicates how much oxygen is bound to hemoglobin in arterial blood. The target range of SaO₂ is 88-95% .

ACORN RESPIRATORY SCORE

The ACoRN Respiratory Score is a quick means of estimating the severity of respiratory distress. *The score is used in babies who are breathing spontaneously, including those being treated with CPAP. It is not utilized in babies who are receiving ventilation assistance.*¹¹ A laminated copy of the Respiratory Score should be kept with the ACoRN Respiratory Sequence in the newborn resuscitation area.

ACoRN RESPIRATORY SCORE

Score	0	1	2
Respiratory rate	40-60/minute	60-80/minute	>80/minute
Oxygen Requirement ¹	None	≤ 50%	> 50%
Retractions	None	Mild to moderate	Severe
Grunting	None	With stimulation	Continuous at rest
Breath sounds on auscultation	Easily heard throughout	Decreased	Barely heard
Prematurity	> 34 weeks	30-34 weeks	<30 weeks

Adapted FROM Downes JJ, Vidyasagar D, Boggs TR Jr, Morrow GM 3rd. Respiratory distress syndrome of newborn infants. I. New clinical scoring system (RDS score) with acid-base and blood-gas correlations. Clin Pediatr 1970;9(6):325-31

Mild respiratory distress

- Respiratory score < 5, starting at birth and lasting < 4 hours

Moderate respiratory distress

- Respiratory score of 5 – 8
- Mild respiratory distress (respiratory score < 5) but persisting over 4 hours
- Babies who were previously well but develop new respiratory distress

Severe respiratory distress

- Respiratory score > 8
- Babies with severe apnea or gasping
- Babies who are already receiving ventilation due to respiratory failure ¹²
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APNEA/BRADYCARDIA

- Apnea is defined as the cessation of respiration for ≥ 20 sec. and is usually accompanied by bradycardia (heart rate < 100 bpm), cyanosis and decreased tone. Infants with apnea/bradycardia often require manual stimulation or bag/mask ventilation to recover.

LAB VALUES

Results of common blood tests are recorded on the reverse side/second panel of the chart form. Normal values have been included for reference.

NEONATAL FLUID BALANCE (FOUND ON EXTENDED FORMAT OF RECORD ONLY)

Care is taken to keep accurate record of the intake and output, keeping the intake on the first day of life in the 60-80ml/kg/day range. If an intravenous line is used, the solution of choice is D10W. Intravenous and central lines should be assessed at least hourly. Use the key code to

describe the appropriate findings. When using the single page format of the Ill Newborn Record, a Neonatal Fluid Balance sheet is not included. Neonatal fluid balance can be documented on your hospital's own Fluid Balance Record.

MEDICATIONS

Whenever medications are administered they should be noted on the hospital medication record or Neonatal Resuscitation Record as appropriate. Medications administered in the IV solution should be noted on the Neonatal Fluid Balance Record under IV Solution

SIGNATURES

Space is left on the bottom of the front page and the Neonatal Fluid Balance Record for signatures, initials and printed names of caregivers.

CLINICAL PROGRESS RECORD

The clinical progress record is used in the extended format when space for additional narrative note is required. If more space is required, the hospital's own clinical progress notes can be added. When using the single page format of the Ill Newborn Record, a Clinical Progress Record is not included; the hospital's own progress record should be used for additional narrative documentation.

REFERENCES

1. Acute Care of At-Risk Newborns (ACoRN). Solimano, A. et al. (eds.) Vancouver, 2005. 5-3.
2. ACoRN, 8-3,5,8.
3. ACoRN, 4-3
4. ACoRN, 4 - 4
5. ACoRN, 4 – 3
6. ACoRN, 4 – 4
7. ACoRN, 3 – 6
8. ACoRN, 4 – 7
9. ACoRN, 4 – 8
10. ACoRN, 2 – 4
11. ACoRN, 3 – 7
12. ACoRN, 3 - 8