

TITLE

NEWBORN BLOOD SPOT SCREENING: NEONATAL INTENSIVE CARE UNIT

SCOPE

Provincial

DOCUMENT

HCS-32-04

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Newborn Blood Spot Screening Policy (#HCS-32)

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NOTE: The first appearance of terms in bold in the body of this document (except titles) are defined terms – please refer to the Definitions section.

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OBJECTIVES

- To outline a recommended course of action when collecting a **sample** or repeat sample for infants in a neonatal intensive care unit (NICU) or special care nursery.
- To ensure a sample is collected for infants in a NICU or special care nursery between 24 and 72 hours and as close to 24 hours as possible.
- To ensure **sample collection** for infants in a NICU or special care nursery is not delayed in sick or preterm infants, regardless of feeding practices, unless there is a **Physician refusal** for clinical reasons.

APPLICABILITY

Compliance with this document is required by all Alberta Health Services employees, members of the medical and midwifery staffs, students, volunteers, and other persons acting on behalf of Alberta Health Services (including contracted service providers as necessary).

ELEMENTS**1. Sample Collection**

- 1.1 Infants in a NICU or special care nursery shall have a sample collected between 24 and 72 hours of age and as close to 24 hours as possible in accordance with the Alberta Health Services (AHS) *Newborn Blood Spot Screening Sample Collection Procedure* (see the **Alberta Newborn Screening Program [ANSP]**)

[formerly the Newborn Metabolic Screening (NMS) Program] staff education resource *NICU/SCN Essentials*).

- a) If the infant requires a blood transfusion all attempts shall be made to collect an initial sample before an infant receives a blood transfusion, regardless if collection is before 24 hours of age.
 - b) Collection of the initial sample shall not be delayed in sick or preterm infants, regardless of feeding practices, unless there is a Physician refusal for clinical reasons.
- 1.2 Special attention shall be paid to accuracy and legibility when filling out the following fields on the **requisition card** as they may significantly affect the interpretation of screen results:
- a) birth weight;
 - b) gestational age;
 - c) feeding type; and
 - d) blood transfusions.
- 1.3 The following exceptions may be made when following the *AHS Newborn Blood Spot Screening Sample Collection Procedure* to collect the blood spots:
- a) medically stable preterm infant's heels shall be poked using a lancet specially designed for preterm infants in accordance with zone-specific or facility-specific practices;
 - b) the puncture site may be cleansed with a skin disinfectant in accordance with Zone-specific or facility-specific practices; and
 - c) at the discretion of the **most responsible health practitioner (MRHP)**, medically fragile infants may have blood spots collected from an arterial line and/or venipuncture. Reasonable efforts shall be made to ensure the line is clear of intravenous fluids, heparin, antibiotics and any other extraneous substances in order to prevent contamination of the blood spots.

2. Repeat Sample Collection for Low Birth Weight Infants

- 2.1 For infants weighing less than 2000 grams at birth, a repeat sample shall be collected between 21 and 28 days of age in order to support the detection of congenital hypothyroidism or congenital adrenal hyperplasia in low birth weight infants.
- a) The MRHP may consult with the **Alberta Newborn Screening Laboratory (formerly the NMS Laboratory)** regarding the repeat

sample based on the infant's clinical status, screen results and previous sample collections.

3. Repeat Sample Collection for Preterm Infants

3.1 For infants less than 37 weeks gestational age, a repeat sample may be required to be collected between 21-28 days after birth in order to support the detection of severe combined immunodeficiency and sickle cell disease in preterm infants.

- a) The ANSP coordination team shall send out notifications when these repeat sample collections are required.

4. Repeat Sample Collection for Infants with Borderline Results or Inadequate Results

4.1 For infants with **borderline results** or **inadequate results** reported, a repeat sample shall be collected within 96 hours of receiving communication from **zone public health nursing services** that a repeat sample collection is needed.

- a) In the case of multiple birth sets (e.g., twins, triplets) the repeat sample shall be collected on all multiples in the set, in accordance with AHS *Newborn Blood Spot Screening Follow-up Procedure*.
- b) Collection of the repeat sample shall not be delayed in sick or preterm infants, regardless of feeding practices.
- c) The MRHP may consult with the Alberta Newborn Screening Laboratory for direction on whether a repeat sample is required for borderline results or inadequate results based on the infant's clinical status, screen results and previous sample collections.

4.2 Infants in a NICU or special care nursery with a screen result indicating "possible total parenteral nutrition effect" shall have a repeat sample collected after total parenteral nutrition has been discontinued for at least 24 hours.

DEFINITIONS

Alberta Newborn Screening Laboratory (formerly the Newborn Metabolic Screening Laboratory) means the Alberta Health Services designated laboratory for newborn blood spot screening located at the University of Alberta Hospital.

Alberta Newborn Screening Program (formerly the Newborn Metabolic Screening Program) means an organized population-based newborn blood spot screening program delivered by Alberta Health Services.

Borderline result means a screen result that is neither positive nor negative and requires follow-up through repeat sample collection.

Inadequate result means the screen results showed that the sample was not adequate for adequate analysis.

Most responsible health practitioner means the health practitioner who has responsibility and accountability for the specific treatment/procedure(s) provided to a patient and who is authorized by Alberta Health Services to perform the duties required to fulfill the delivery of such a treatment/procedure(s) within the scope of their practice.

Physician refusal within the Alberta Newborn Screening Program means the physician does not allow a sample collection on an infant for clinical reasons (i.e., the infant is medically unstable).

Requisition card means the Alberta Newborn Screening Program requisition consisting of an area for the infant's blood spots and an area for health information.

Sample means the blood spots and health information collected on the requisition card for the purpose of newborn blood spot screening.

Sample collection means the process of completing the requisition card and poking the infant's heel to obtain the blood spots for the purpose of newborn blood spot screening.

Zone public health nursing services means the public health nursing services responsible for providing newborn blood spot screening services at the zone level.

REFERENCES

- Alberta Health Services Governance Documents:
 - *Newborn Blood Spot Screening Policy (#HCS-32)*
 - *Newborn Blood Spot Screening Sample Collection Procedure (#HCS-32-02)*
- Alberta Health Services Resources:
 - *NICU/SCN Essentials*

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