Biotinidase Deficiency Screening Fact Sheet for Health Care Providers
Newborn Screening Program of the Oklahoma State Department of Health

What is the differential Diagnosis?
Biotinidase, multiple carboxylase deficiency, holocarboxylase synthetase-deficiency

What are the characteristics of Biotinidase disorders?
- Autosomal recessive genetic condition.
- Most infants are born to parents who are both unknowingly asymptomatic carriers and have NO known history biotinidase in their family.
- The estimated incidence of profound deficiency is approximately 1:112,000 live births and the incidence of partial deficiency is about 1:129,000. The incidence of combined profound and partial deficiency is about 1:60,000.
- Affected infants appear normal at birth, but usually develop symptoms between 7 days to several years of life.
- Newborns can present with no symptoms. Over time if untreated, biotinidase will quickly progress to metabolic ketoacidosis and organic aciduria. Symptoms include ataxia, hypotonia, lethargy, alopecia, dermatitis, seizures, developmental delay, vision problems/conjunctivitis, hearing loss, and breathing problems. The severity of symptoms may vary depending on the amount of dietary biotin intake.
- Lifelong treatment includes oral supplementation of free biotin.

What is the screening methodology for Biotinidase?
1. A fluorometric assay is performed on each filter paper.
2. Biotinidase acitivity is the primary analyte.

TABLE 1
In-range Biotinidase Newborn Screening Results

Primary Activity	Enzyme
Biotinidase	≥ 57 U

What is an in-range (normal) screen result for Biotinidase?
Biotinidase enzyme activity present is NOT consistent with Biotinidase deficiency. See Table 1.

What is an out-of-range (abnormal) screen for Biotinidase?
Biotinidase activity enzyme decreased or low requires further testing.

What screen results will require diagnostic testing?
All out-of-range biotinidase screens require immediate action.
The follow-up program will provide detailed guidance on required actions and an *Emergency Management Protocol* will be provided.

What are the follow-up needs?
The follow-up program will provide detailed guidance on needed actions. The following metabolic clinics have approved all recommendations:

Integris Pediatric Specialty Clinic, Inborn Error of Metabolism (IEM) Clinic
Geneticist pager: (405) 630-3794
OU Children's Physicians – Genetics Clinic
Page Operator: (405) 271-3636

What is my role in screening?
If you are listed as the infant's planned health care provider on the filter paper requisition, you are required by the *Newborn Screening Program Regulations* to initiate follow-up activities.