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American College of Medical Genetics and Genomics
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Reaffirmed
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ACT Sheet

ACMG website: bit.ly/3ZgZTEg

## Newborn Screening ACT Sheet

# [Absent/Reduced Biotinidase Activity]

## Biotinidase Deficiency

**Differential Diagnosis:** Biotinidase deficiency (profound or partial).

**Condition Description:** Biotinidase deficiency is caused by decreased activity of the enzyme biotinidase, which is responsible for recycling the vitamin biotin. This deficiency leads to decreased biotin levels and disrupts the activity of several biotin-requiring enzymes (carboxylases). Presentation in the neonatal period is rare.

***You Should Take the Following Actions:***

- Inform family of the newborn screening result.
- Ascertain clinical status (typically asymptomatic; rarely poor feeding, lethargy, hypotonia)
- Consult with pediatric metabolic specialist.
- Evaluate the newborn (poor feeding, lethargy, hypotonia).
- Initiate confirmatory/diagnostic testing and management, as recommended by the specialist.
- Provide family with basic information about biotinidase deficiency and its management.

- Report final diagnostic outcome to newborn screening program.

**Diagnostic Evaluation:** Serum biotinidase activity: Biotinidase activity is markedly reduced or absent in profound biotinindase deficiency, and partially reduced in partial biotinidase deficiency. Molecular genetic testing may be required to confirm the diagnosis.

**Clinical Considerations:** Neonates are usually asymptomatic but, when untreated, episodic hypoglycemia, lethargy, hypotonia can occur at any time from the neonatal period through childhood. Untreated profound biotinidase deficiency leads to developmental delay, seizures, alopecia, and hearing deficits. Patients with partial biotinidase deficiency are typically asymptomatic. Lifelong treatment with oral biotin treatment is highly effective.

### Additional Information:

How to Communicate Newborn Screening Results
Gene Reviews
Medline Plus
Condition Information for Families- HRSA Newborn Screening Clearinghouse

### Referral (local, state, regional, and national):

Find a Genetics Clinic Directory
Genetic Testing Registry

**February 2026: Update to the original ACT Sheet: Under Clinical Considerations: lifelong treatment with oral biotin was added.**

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