Urine Glucose Tetrasaccharide Quantitation (HEX4)

**Test Code:** BHEX4  
**Turnaround time:** 10 days  
**CPT Codes:** 82542 x1, 82570 x1

### Condition Description

Pompe disease, also called glycogen storage disease type II (GSD-II), is an autosomal recessive disorder due to a deficiency of the lysosomal enzyme acid alpha-1,4-glucosidase (abbreviated GAA). The function of the GAA enzyme, also known as acid maltase, is to breakdown glycogen in the lysosome. Absent or reduced GAA activity results in accumulation of glycogen within the lysosome, particularly in muscle cells. GSD-II is divided into two forms; an infantile form and a juvenile/adult onset form. In individuals with the infantile form of Pompe disease there is less than 1% of normal enzymatic activity, whereas in the juvenile/adult onset form there is some residual enzymatic activity. In Pompe disease, affected infants are severely hypotonic and have cardiomegaly. In addition, patients may have an enlarged tongue. The disease is usually fatal within the first year of life due cardiorespiratory failure. The clinical presentation in the juvenile/adult onset form (onset after 12 months of age) is much more variable than in the Infantile form of Pompe disease. In this later onset form of the disease, patients generally suffer from slowly progressive proximal muscle weakness with progressive respiratory insufficiency. Unlike the infantile form, in the later onset form there is usually not cardiomegaly or cardiomyopathy.

Pompe disease can be suspected based on clinical findings, or more recently, abnormal newborn screening results. Diagnostic testing for Pompe disease usually involves enzyme analysis, in either leukocytes or dried blood spots, followed by molecular testing to confirm these results. Urine glucose tetrasaccharide levels can be measured to assist in diagnosis and to monitor the response to treatment, once initiated.

### Indications

Quantification of glucose tetrasaccharide may be indicated for individuals with a confirmed or suspected diagnosis of Pompe disease.

### Methodology

Liquid chromatography - tandem mass spectrometry

### Detection

Results should be correlated with clinical findings and the results of enzyme or molecular testing for Pompe disease.

### Reference Range

Age specific reference ranges are included in each report.

### Specimen Requirements

**Submit only 1 of the following specimen types**

**Type:** Urine

**Specimen Requirements:**
- Clean container without additives
- 1-5 ml
- Freeze sample. Fasting or first void sample is preferable.

**Specimen Collection and Shipping:**
- Ship frozen sample on dry ice with overnight delivery.

### Related Tests

- DW: Pompe disease: Acid alpha-glucosidase activity, leukocytes
- AN: Pompe disease: GAA sequencing
- NF: Pompe disease: GAA gene deletion / duplication