**SO 7.03 PHTY Phenylalanine & Tyrosine Blood Spot Card**

**Home Collection and Reporting**

**Purpose:**

The purpose of this document is to describe the procedure for collecting, ordering and resulting Patient Home Collections of Phenylalanine & Tyrosine Dietary Screen reference lab testing.

**Policy Statements:**

This procedure applies to any laboratory technician, medical laboratory scientist, or Lab Information System (LIS) analyst preparing result reports following patient home collections of Phenylalanine & Tyrosine blood spot cards (test code **PHTY**).

**Principle:**

The Phenylalanine & Tyrosine (Test code: PHTY) assay is performed by MHealth Fairview University of Minnesota Medical Center Biochemical Genetics reference lab (UM). Acceptable specimens are blood collected by venipuncture in vacutainers or blood spots collected on filter paper by capillary puncture.

Patients that are being monitored by nurses and dieticians through the Children’s Minnesota genetics clinic and nutrition services can perform home collections using blood spot card kits. These specimens are mailed by the patient’s family directly to the testing reference lab. Results will be made available by UM through the Atlas interface system.

Children’s Minnesota Sendouts lab staff and LIS monitor the results from UM and follow the procedure below to complete the result interface process.

**Clinical Significance:**

Phenylalanine and tyrosine testing is useful to aid in diagnosing of phenylketonuria (PKU) and to monitor phenylalanine and tyrosine levels in PKU patients on low phenylalanine diets.

**Test Code and Worksheet:**

PHTY (U test code LAB3799) on worksheet UMA.

**Materials and Applications:**

Home collection kit:

* Lancet
* Alcohol wipe
* Whatman 903 filter paper
* UM Outreach requisition form - Additional copies of the requisition form can be found in [Lab Sharepoint Support Services - Referrals folder.](https://childrensmnorg.sharepoint.com/:f:/r/sites/Lab-admin/Shared%20Documents/Support%20Services%20-%20Referrals/REFERENCE%20LAB%20INFORMATION/U%20of%20MN%20Fairview?csf=1&web=1&e=GKvvJf)
* Plastic ziptop bag
* Return envelope

Reporting system requirements:

* Atlas login for report access
* Cerner Revenue Cycle access for creation of Non-patient encounter
* Teams access for Sendouts/LIS shared data and tracking
* SAM access for LIS accession modification
* Cerner PowerChart access for activating the Future-state lab order
* Sunquest access for order receiving and to confirm report completion

**Supply Management:**

Blood spot home specimen collection kits are provided by the University of Minnesota Physicians (UMP) Outreach program. The kit inventory is managed by Children’s Minnesota Sendouts Lab department. Orders can be placed by emailing laboutreach@umphysicians.umn.edu or by directly emailing the UMP Outreach project manager representative assigned to our account (ZA010).

Sendouts will supply the Children’s Genetic Dietary program with kits upon request.

**Special Safety Precautions:**

Avoid direct contact with potentially infected material by wearing appropriate PPE

All samples and reagents containing biological materials used for the assay must be considered as potentially able to transmit infectious agents. The specimens and waste must be handled with care and disposed of in compliance with the laboratory guidelines and the statutory provisions in force in each country.

**Procedure:**

1. **Order** 
   1. The patient’s provider enters a Future status order in the Children’s Electronic Health Record (e.g., Cerner PowerChart).
   2. The provider must ensure that there are adequate Future orders for every home collection, ideally the same number of Future (On Hold) orders as the number of collection kits provided to the patient.
2. **Collection**
   1. The clinical team provides the patient’s family with the collection kit/s. The requisitions forms will ideally have the patient’s information completed prior to giving them to the patient.
   2. The patient’s family performs a ‘heel or finger stick’ capillary puncture and fills the blood spot card filter paper according to the instructions provided on the requisition form and the nurse/dietician. The interval and frequency of collection is to be determined by the clinical team.
   3. The patient’s family completes the collection date and time on the requisition form.
3. **Specimen delivery**
   1. The patient’s family mails the dried blood spot card and requisition directly to University of Minnesota Medical Center East Bank Specimen Receiving.
4. **Testing**
   1. The MHealth Fairview Biochemical Genetics Lab performs testing. See the Lab Test Directory for expected turnaround time.
5. **Resulting**
   1. Results post to UM **Atlas**, the intermediate application between MHealth Fairview’s EHR/LIS and Children’s Minnesota LIS.
   2. Children’s MN lab systems will receive the information about results being completed in two ways:
      1. **LIS** receives an HRP error message: Accession number format is invalid. After investigating using HSSR and determining it is due to LAB3799^TYROSINE AND PHENYLALANINE testing, LIS adds Patient Name, MRN (either Fairview or Children’s), error date and initials.
      2. **Sendouts** prints and assesses all UM Atlas reports according to standard departmental practice. See [SO 4.10 Atlas Order Entry for University of MN](https://starnet.childrenshc.org/References/labsop/ss/reflab/so-4.10-atlas-order-entry-for-university-of-mn.pdf) for further details.
   3. **Sendouts** identifies a result report for PHTY (LAB3799).
      1. If Sendouts determines that the result has not interfaced with/completed an active Sunquest order (i.e., the collection was performed remotely), proceed as below.
   4. **Sendouts** verifies that there is a Future PHTY order in Cerner PowerChart.
   5. **Sendouts** logs into Cerner RevCycle to create a Non-Patient Ref Lab encounter per procedure [SO 1.20 Creating Encounters for Remote Collections](https://starnet.childrenshc.org/References/labsop/ss/admin/so-1.20-creating-encounters-for-remote-collections.pdf) and [SO 1.21 Tipsheet for Creating or Editing a Reg Patient OP Ref Lab Encounter](https://starnet.childrenshc.org/References/labsop/ss/admin/so-1.21-tipsheet-for-creating-or-editing-a-reg-patient-op-ref-lab-encounter.pdf)
   6. **Sendouts** activates the Future PHTY order from Cerner PowerChart
   7. **Sendouts** receives the PHTY order in Sunquest GUI Gen Lab
   8. **\*Sendouts** checks the tracking spreadsheet for the patient’s information. If not yet documented, Sendouts enters the patient name, MRN, order accession number, collection date, report date, and tech initials on the tracking Excel file found in the [Teams LIS/Sendouts PHTY Tracking channel.](https://childrensmnorg.sharepoint.com/:x:/r/sites/msteams_6688f0/Shared%20Documents/PHTY%20tracking/PHTY%20Tracking.xlsx?d=w618c40ed21494374a211d863540b493e&csf=1&web=1&e=YSvOPr)
   9. **\*LIS** checks the tracking spreadsheet for the patient’s information. If not yet documented, LIS either enters the patient name and MRN and/or gathers the data from the tracking log and corrects the accession number and MRN, if needed, in SAM (interface 22) and retransmits result. If Sendouts has not yet documented their part from h. above, LIS checks back at a later time for the accession number.
   10. **LIS** confirms the Sunquest order completed and documents the date of result transmission on the tracking spreadsheet.

*\*****NOTE****: Either Sendouts or LIS might document the patient on the tracking spreadsheet first. Both departments should be aware and ensure they are not adding a duplicate patient entry.*

**Interpretation/Results/Alert/Values:**

See the [Lab Test Directory entry for PHTY](https://www.childrensmn.org/References/Lab/chemistry/phenylalanine-tyrosine-blood-or-blood-spot.pdf)

**Limitations:**

This procedure does **not** apply to blood specimens collected via venipuncture into vacutainers at a Children’s Minnesota location. Such specimens would follow standard ordering, receiving, transport, and resulting procedures.

**Reference Intervals:**

See the [Lab Test Directory entry for PHTY](https://www.childrensmn.org/References/Lab/chemistry/phenylalanine-tyrosine-blood-or-blood-spot.pdf)

**Result Reporting:**

See Procedure Step 5 above.

There is no critical value defined for this assay.

**References:**

[MHealth Fairview Lab Catalog](https://childrensmnorg.sharepoint.com/:x:/r/sites/msteams_6688f0/Shared%20Documents/PHTY%20tracking/PHTY%20Tracking.xlsx?d=w618c40ed21494374a211d863540b493e&csf=1&web=1&e=YSvOPr)

[Children’s Minnesota Lab Test Directory](https://www.childrensmn.org/References/Lab/chemistry/phenylalanine-tyrosine-blood-or-blood-spot.pdf)

**Training Plan/Competency Assessment:**

1. Employee will read the procedure.
2. Employee will observe the procedure.
3. Employee will perform the procedure under supervision.

**Historical Record:**

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| **Version** | **Written/Revised by:** | **Effective Date:** | **Summary of Revisions** |
| 1 | Sandra Tekmen | 9/9/2024 | Initial Version |