BLOOD LEAD SPECIMEN COLLECTION AND SHIPPING GUIDANCE

Indiana State Department of Health

550 West 16th Street, Suite B
Indianapolis, IN 46202

Version: 5.3.2020

Contents

I. The Capillary Procedure

1.) Identify patient

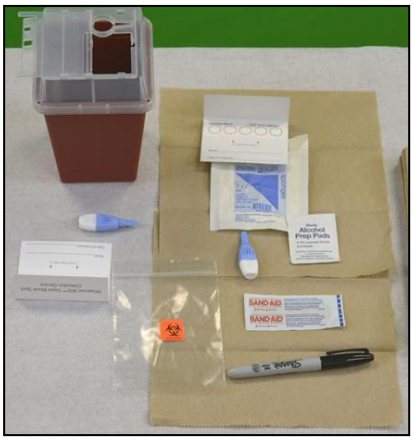
2.) Wash hands before opening equipment box

3.) Cover clean work surface with paper towels from dust-proof supply box

4.) Place the following items (Figure 1) on the paper towel for each child being tested:

- Gauze
- Alcohol wipe
- Lancet (blade style)
- Filter paper card
- Soap
- Powder-free gloves

Figure 1. Capillary collection supplies



A. Filter Paper Cards

1.) Completely label filter paper card (Figure 2) with:

   a. Child's full name
   b. NOTE: each card is labeled with a number, this number is the SPECIMEN NUMBER which is entered into LIMSNet

2.) Wash child's hands with soap/water; dry with non-recycled paper towel from dust free box

3.) Do not allow child to touch anything afterward to prevent contamination

4.) Open flap of filter paper card (Figure 3), lay on flat surface

   a. Do not touch any part of the filter paper or inside cover (shiny part) to avoid contamination
   b. Do not fold flap under the filter paper

5.) Puncture finger with lancet. Pinky side of ring finger is a good choice

6.) Wipe away first blood drop using gauze

Figure 2. Filter paper card for capillary collection

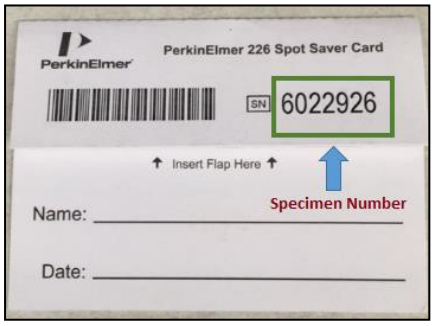
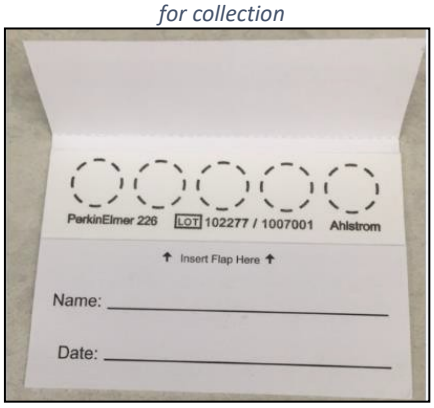


Figure 3. Opened filter paper card, ready for collection



7.) Turn patient's hand downward such that the finger is pointing toward the floor (Figure 4)

8.) Allow large drop to form at puncture site

9.) Allow blood drop to **free-fall** onto collection card allowing card to absorb blood until circle is full

NOTE: 1 free-falling drop of blood is approximately 50 µl of blood, which standardizes the test among all collectors. If you are touching the drop of blood to the filter paper card before it free falls, you are collecting LESS than 50µl of blood and your results will NOT be accurate

10.) Repeat until all circles have been filled (Figure 5)
NOTE: Minimum sample volume; 2 filled circles

11.) Place gauze over site and ask parent/guardian to hold pressure on the finger

12.) Cap microtainer tube and invert to mix specimen immediately to prevent clotting

Figure 4. Example of good collection technique

13.) Label tube with label created in step 1; show to parent/guardian for confirmation of correct information

14.) If necessary, bandage finger

15.) Place filter paper on a drying rack (Figure 6), with the blood drops facing the ceiling. Be sure to AVOID any contact with blood drops.

*Allow to dry for **AT LEAST 4 hours** away from direct sunlight or drafts from heat or air conditioning

Figure 6. Examples of acceptable and unacceptable specimens

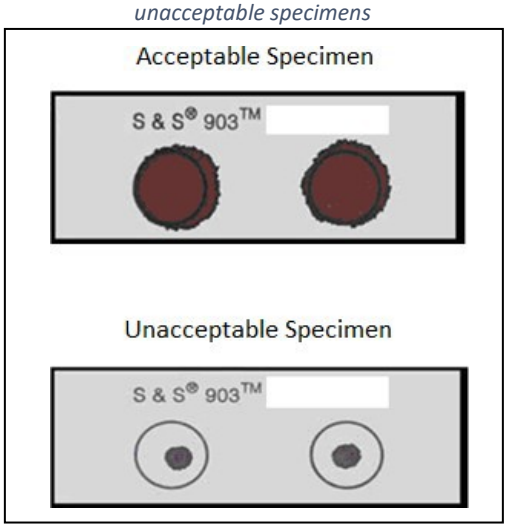
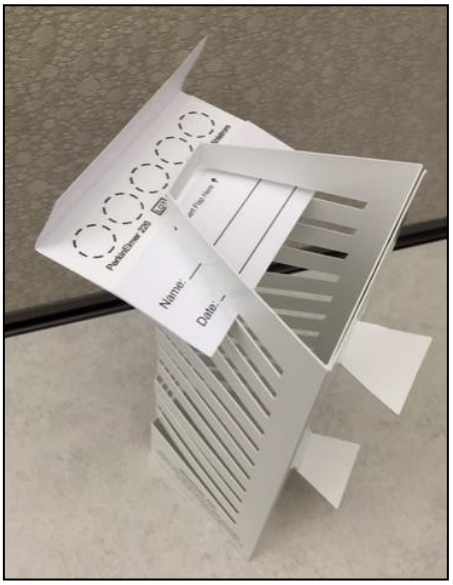


Figure 5. Drying rack with appropriately placed filter paper card



B. Microtainer Tubes

1.) Complete label for microtainer tube to include:

   a. Child's full name
   b. Date of Birth
   c. Date of collection

2.) Wash child's hands with soap/water; dry with paper towel from dust free box

3.) Don't let child touch anything afterward to prevent contamination

4.) Open cap of microtainer and lay on flat surface

5.) Puncture finger with lancet. Pinky side of ring finger is a good choice

6.) Wipe away first drop using gauze

7.) Turn patient's hand downward such that the finger is pointing toward the floor (Figure 7)

Figure 7. Allow blood drops to fall into mircrotainer tube without scraping the finger. NOTE: Scraping the finger could cause contamination.

8.) Allow large drop to form at puncture site

9.) Allow blood drops to fall into microtainer tubes without scraping finger

10.) Fill tube to first line (approximately 250 µL); do this within 2 minutes of puncture

11.) Place gauze over site and ask parent/guardian to hold finger

12.) Cap microtainer tube and invert immediately; this mixes the specimen to prevent clotting

13.) Label tube with label created in step 1; show to parent/guardian for confirmation of correct information

14.) If necessary, bandage finger

II. Venipuncture Procedure-Confirmatory

1.) Identify patient

2.) Wash hands, tie tourniquet 3-4 inches above site (If it rolls up, it's too tight!)

3.) Have patient clench fist. Palpate veins in antecubital area

4.) Loosen the tourniquet once a vein has been selected

5.) Assemble your equipment, this may also be completed in the beginning

6.) Tighten tourniquet again

7.) Relocate vein and cleanse with 70% isopropyl alcohol

8.) Allow alcohol to dry, less pain for patient this way

Collection Tubes
K2 EDTA preferred

9.) Place collection tube in tube holder (adapter); remove cap of needle

10.) Turn needle to bevel up position!

11.) Pull skin taut just below puncture site (less painful for patient)

12.) Insert needle <u>at 30° angle</u> (or less)

13.) Insert quickly, but not so fast you go through the vein

14.) **<u>Do not</u>** weave needle into vein (like IV start)!

15.) You only need the bevel of needle in the vein to successfully draw blood (passing through the vein will cause a hematoma, or bleeding under the skin)

16.) Push tube into adapter while pulling on lip edges of adapter to allow smooth insertion of rear needle into collection tube

17.) Allow tube to completely fill with blood.

18.) To remove tube: pull tube with fingers while pushing on adapter wings with thumb of same hand to allow smooth removal of collection tube from rear needle

19.) Remove tourniquet (can be removed during last tube; removing needle prior to removal of tourniquet can cause a hematoma)

20.) Place gauze over needle (without pushing down)

21.) Remove needle quickly, then put pressure with gauze

22.) Invert all tubes 5-7 times to mix

23.) If patient is competent enough, ask them to hold pressure while you label the tubes with the patient name, DOB, DOC, etc.

24.) Hold for 1-2 min. Do not bend arm; not helpful…not even recommended

25.) Once bleeding has stopped (**<u>and you have to check!</u>**), then apply bandage

26.) Checking to see if bleeding has stopped takes 5-10 seconds (application of bandage **<u>before</u>** bleeding has stopped can cause a hematoma)

III. Supplies

The Indiana State Department of Health (ISDH) Laboratories sends participating providers with collection supplies for capillary collection to include lancets, filter paper cards, alcohol prep pads, gauze and

bandages. In addition, the ISDH Containers Division at the laboratories will supply shipping containers for venipuncture confirmatory specimens. To order supplies, please go to https://www.in.gov/health/public-health-protection-and-laboratory-services/lead-and-healthy-homes-division/supply-order-form/.

IV. Shipping Blood Lead Specimens to ISDH

A. Filter Paper Shipping Instructions

1.) Place dried filter paper in zipper bags once dried.
2.) Each sample must be individually bagged

Up to 8-bagged samples may be placed into an envelope (Figure 9) for shipment to the ISDH Laboratories for testing.

Include LIMSNet Cover Sheet (Figure 10) with specimens.

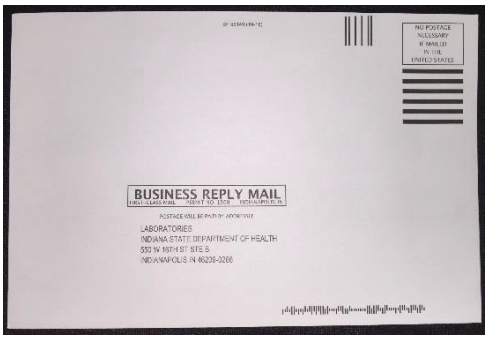


Figure 9. Pre-paid envelope for shipment to the ISDH Laboratories

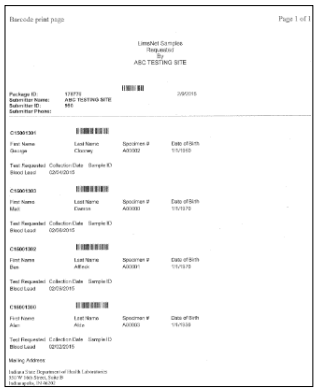


Figure 10. Example cover sheet; send to laboratory with

B. Capillary Microtainer Shipping Instructions

1.) Place completely labeled microtainer tubes in Styrofoam insert inside fiberboard box (Figure 11)
2.) Secure lid on fiberboard box
3.) Courier to ISDH Laboratory
4.) If NOT sending via courier
    a. Place completely labeled microtainer tubes in biohazard zipper baggie
    b. Place baggie in secondary container which meets USPS, UPS, or FedEx mailing requirements for Category B Infectious Substances
    c. Send to ISDH Laboratory at:
    550 W. 16th Street, Indianapolis, IN 46202
    "Attention: Blood Lead Laboratory"

Figure 11. Microtainer transport box

C. Blood Tubes Shipping Instructions

1. Packaging (Figure 12) consists of the following components: primary receptacles (individual blood tubes not currently provided by ISDH Laboratories), secondary packaging (materials used toprotect primary blood tubes), and outer packaging (polystyrene foam-insulated, corrugated fiberboard shipper)
2. Place labeled venous tube in a leak proof container or baggie
3. Place enough absorbent material to soak up all the liquid. Paper towels or tissues are both appropriate
4. Place baggie with specimens into an outer shipping box. Add cover sheet to the box
5. Place enough cushioning material inside the box to hold specimens in place
6. Seal shipping box and add appropriate shipping label
7. **DO NOT** place biohazard symbol on the outside of the container; it should be placed on the secondary container
8. Follow appropriate shipping regulations for UN3373 Category B infectious substances

***UPS, USPS, FEDEX are all available to ship the specimens to the ISDH Laboratories at:

550 W. 16th Street, Suite B
Indianapolis, IN 46202_
ATTENTION: Blood Lead Laboratory

9. For shipping multiple specimens together, please notify our laboratory to make arrangements for multi-specimen shippers (Figures 13 and 14)

Figure 12. Mailing shipper for venipuncture specimens

Figure 13. Secondary container for multiple venipuncture specimens

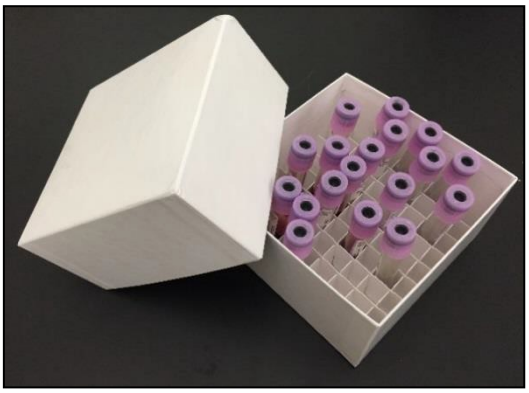


Figure 14. Example shipping container for multiple venipuncture specimens

V. Specimen Ordering in LIMSNet

A. https://eportal.isdh.in.gov/LIMSNET/Login.aspx

Use **Internet Explorer** when logging into LIMSNet.

If you have trouble logging in (Figure 15), click on the *Forget Your Password?* link, this command will email you a temporary password. Keep in mind, your password must be changed every 3 months, otherwise it becomes invalid.

The temporary password is long and contains many symbols, so it is better to copy and paste the password, rather than typing it in.

If you do not receive an email in your inbox, check your spam folder.

If you still can't find it, call our help desk at 317-921-5506. If you cannot reach a live person, leave us an email at LIMSAppSupport@isdh.in.gov

Announcements are posted right below login information to update you on any changes to LIMSNet.

Be sure to take a look at the LIMSNet Training Manual. This link is on the bottom of the webpage.

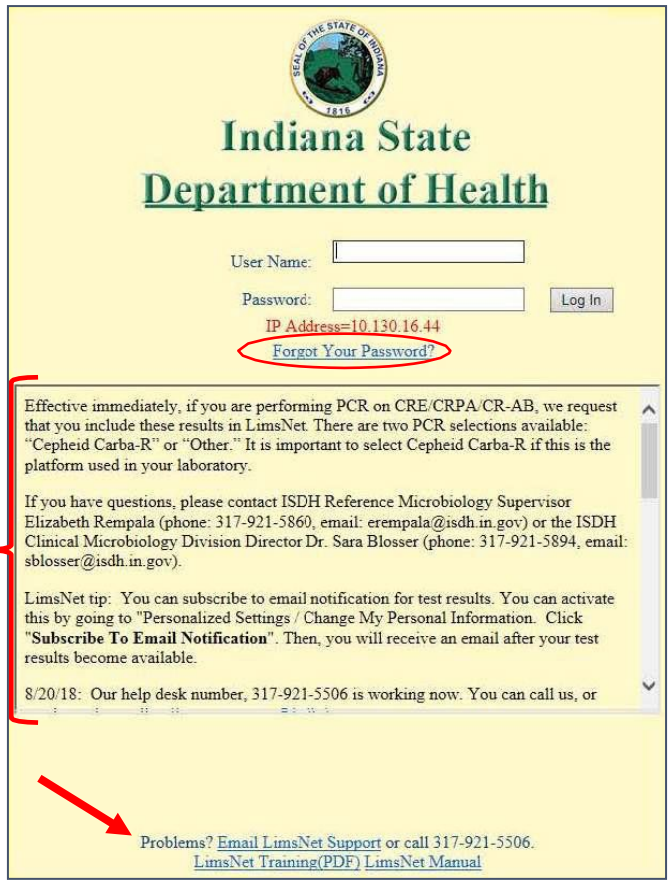


Figure 15. LIMSNet Log-in Screen

A. Entering New Test Request

Log new test, located on the top left (Figure 16).

Enter all the information marked with a red asterisk.

Click on the **save** button on the bottom of the page. You should get a message indicating the form has been successfully saved. If not, there is missing information or some error in entry! Please scroll up to review the form.

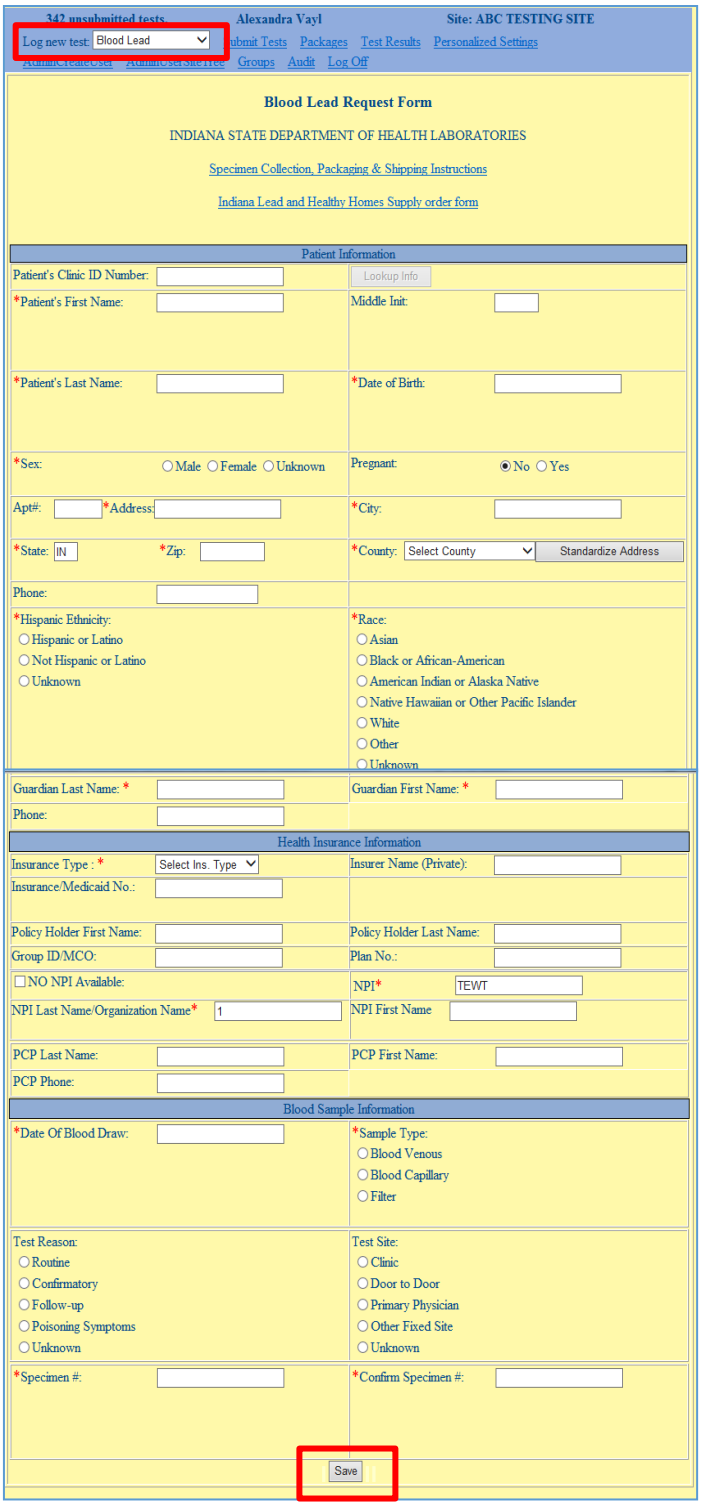


Figure 16. Blood Lead requisition form

B. Marking Specimens to Ship to Laboratory

Once the form has been successfully saved:

a. Click on ***Submit Tests*** at the top of the screen (Figure 17). There you will see the saved entry or entries ready to ship

b. Select the specimens you wish to ship (remember-5 per envelope please)

c. Click on ***Mark as Shipped*** at the bottom of the screen; a window should pop up with the cover page containing the package ID and corresponding barcodes for you to print and **send with your specimens**

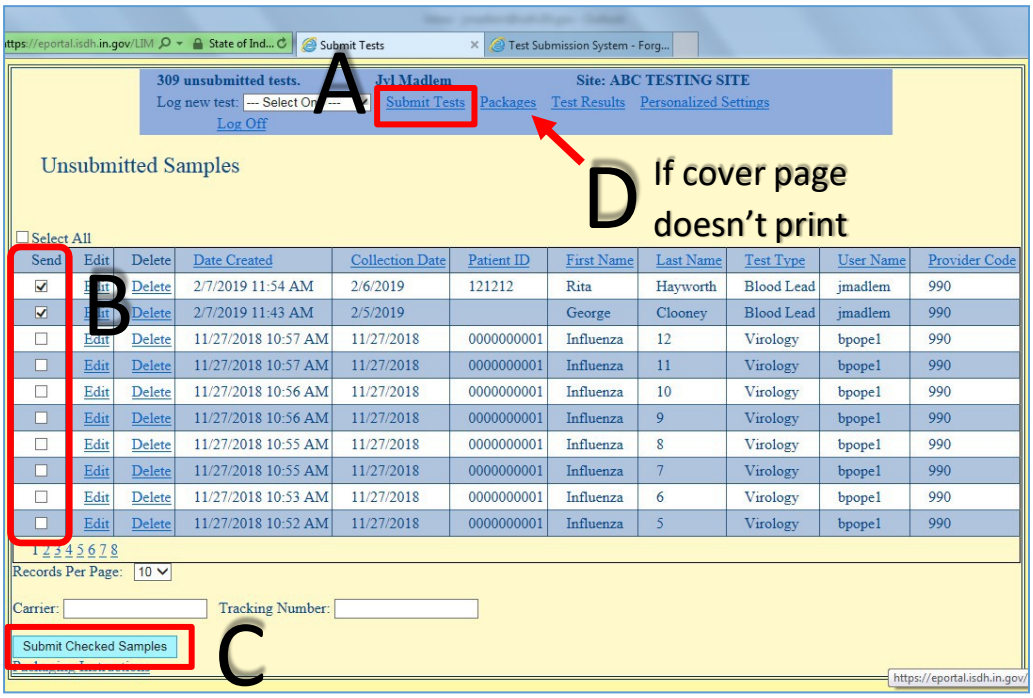


Figure 17. Submit Tests screen

NOTE: If your pop-up blocker is on, this cover page window will not open; you may do one of two things:

d. Click on ***Packages*** (**D above**), which will direct you to a link to the cover page on the far right

i. Package ID 209114 in Figure 16 on the following page; to print the corresponding cover page, click the cover page link to the far right

- Don't forget to send cover page with specimens

OR: Turn off your pop-up blocker

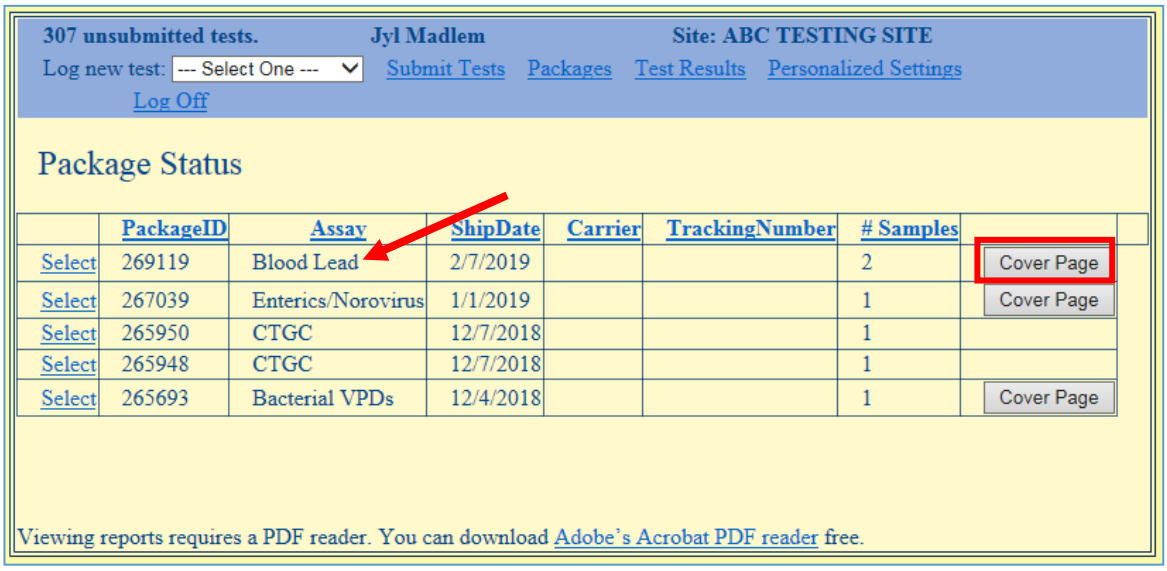


Figure 18. Packages screen; used to select cover page to print if pop-up fails

You're now ready to ship your specimens to the ISDH Laboratories at:

550 West 16th Street, Indianapolis, IN 46292; ATTENTION: Blood Lead Laboratory

VI. Contact Information

Case Management: Teresa Kirby - tkirby@isdh.in.gov 317.233.8606
Lyland Murphy Ward - lmurphyward@isdh.in.gov 317.233.1356

Chemistry Division Director: Mary Hagerman, MS - mhagerma@isdh.in.gov 317.921.5553

Laboratory Program Advisor: Jyl Madlem, MS, MT(AMT) - jmadlem@isdh.in.gov 317.475.4177

Lead and Healthy Homes Division Data Processing Operator: Kari Horsley - khorsley@isdh.in.gov 317.233.1296 for info on how to get started

LIMSNet Help Desk: LIMSAppSupport@isdh.in.gov 317.921.5506

Testing Supplies: https://www.in.gov/health/public-health-protection-and-laboratory-services/lead-and-healthy-homes-division/supply-order-form/; containers@isdh.in.gov 317.921.5875

VIII. Revision History

A. Section No./Changes	B. Date	C. Reason for Change
NOTE: earlier changes to this document were grammatical in nature	Various	Various / JM
V.A. LimsNet url updated	3/13/2030	Link to LimsNet has been changed.