Section	Change
Throughout	Updated logos and color scheme. Minor changes to wording. Specified that dry ice for shipments must be pelleted. Updated footer to “Version (4.2025).”
3.1	Updated NCRAD contacts to remove Kaci Lacy and add Stephanie Steidel.
3.3	Added Juneteenth and Winter Break to NCRAD Holiday Observations.
5.1	Removed Fragile Labels from shipping kits and extra supply list.
5.2	Updated expected lead time for kit requests.
6.1	Updated Collection Tube Label example to new format. Updated Kit Number Label example to reflect update to 7-digit Kit Numbers.
7.1	Specified to completely fill styrofoam carton with dry ice for shipment, defined storage expectations for packaged frozen samples.
7.2	Specified shipping label placement.

Duke Memory Disorders Clinic

in collaboration with the

National Centralized Repository for Alzheimer's Disease and Related Dementias

Biospecimen Collection, Processing, and Shipment Manual of Procedures

Version 4.2025

TABLE OF CONTENTS

1.0 Abbreviations 4
2.0 Purpose 5
3.0 NCRAD Information 6
3.1 NCRAD Contacts 6
3.2 NCRAD Hours of Operation 6
3.3 NCRAD Holiday Observations 7
4.0 DMDC Laboratory Collection 8
4.1 Site Required Equipment 8
4.2 Biospecimens Sent to NCRAD 8
4.2.1 Biofluid Collection Schedule 8
4.2.2 Biofluid Collection Chart 9
5.0 Specimen Collection Kits, Shipping Kits, and Supplies 9
5.1 NCRAD Specimen Collection Kit Contents 10
5.2 Kit Supply to Study Sites 11
6.0 Blood Collection and Processing Procedures 12
6.1 Labeling Samples 12
6.2 Whole Blood Collection with 10 ml EDTA (Purple-Top) Tube for Plasma and Buffy Coat 14
7.0 Packaging & Shipping Instructions 19
7.1 Frozen Packaging Instructions 19
7.1.1 NCRAD Packaging Instructions – Frozen Shipments 20
7.2 Frozen Shipping Instructions 23
8.0 Data Queries and Reconciliation 25
9.0 Appendices 25
Appendix A: Rate of Centrifuge Worksheet 26
Appendix B: Blood Sample and Shipment Notification Form 27

1.0 Abbreviations

AD	Alzheimer's Disease
DNA	Deoxyribonucleic Acid
DMDC	Duke Memory Disorders Clinic
EDTA	Ethylene Diamine Tetra-acetic Acid
IATA	International Air Transport Association
NCRAD	National Centralized Repository for Alzheimer's Disease and Related Dementias
PHI	Protected Health Information
RBC	Red Blood Cells
RCF	Relative Centrifugal Force
RPM	Revolutions Per Minute

2.0 Purpose

The collection of biofluids is an important part of the Duke Memory Disorders Clinic (DMDC) study. The purpose of this manual is to provide study staff (PIs, study coordinators, phlebotomists) with instructions for collection and submission of biological samples for DMDC study visits. It includes instructions for biofluid submission to NCRAD located in Indianapolis at Indiana University.

The following samples will be sent to NCRAD:

- Plasma
- Buffy Coat (DNA Extraction)

This manual includes instructions for collection of blood, fractionation of blood from collection tubes, aliquoting, labeling, storage prior to shipping, and shipping to NCRAD.

These procedures are relevant to all study personnel responsible for processing specimens provided to NCRAD for the DMDC protocol.

3.0 NCRAD Information

3.1 NCRAD Contacts

Tatiana Foroud, PhD, Core Leader
Phone: 317-274-2218

Kelley Faber, MS, CCRC, Project Manager
Phone: 317-274-7360
Email: kelfaber@iu.edu

Stephanie Steidel, MS, Clinical Research Coordinator
Phone: 317-274-1685
Email: ssteidel@iu.edu

General NCRAD Contact Information
Phone: 1-800-526-2839 or 317-278-8413
Email: alzstudy@iu.edu
Website: www.ncrad.org

Sample Shipment Mailing Address
NCRAD
Indiana University School of Medicine
351 W. 10th St. TK-217
Indianapolis, IN 46202
Phone: 1-800-526-2839

3.2 NCRAD Hours of Operation

Indiana University business hours are from 8 AM to 5 PM Eastern Time, Monday through Friday.

Frozen samples must be shipped **Monday-Wednesday only**.

For packing and shipment details of samples, please refer to Section 7.0 of this protocol.

Check the weather report to make sure impending weather events (blizzards, hurricanes, etc.) will not impact the shipping or delivery of the samples.

3.3 NCRAD Holiday Observations

Date	Holiday
January 1st	New Year's Day
3rd Monday in January	Martin Luther King, Jr Day
4th Monday in May	Memorial Day
June 19	Juneteenth
July 4	Independence Day
1st Monday in September	Labor Day
4th Thursday in November	Thanksgiving
4th Friday in November	Friday after Thanksgiving
December 25th	Christmas Day
December 26th – 31st	Winter Break

Please note that between December 24th and January 2nd, Indiana University will be open Monday through Friday for essential operations **ONLY** and will re-open for normal operations on January 2nd. If possible, biological specimens for submission to Indiana University should **NOT** be collected and shipped to Indiana University after the second week in December. Should it be necessary to ship blood samples for DNA extraction to Indiana University during this period, please contact the Indiana University staff before December 20th by e-mailing alzstudy@iu.edu, so that they can arrange to have staff available to process incoming samples. **Please see: https://ncrad.org/holiday_closures.html for additional information.**

- Please note that courier services may observe a different set of holidays.
- Please be sure to verify shipping dates with your courier prior to any holiday.
- **Weekend/holiday delivery must be arranged in advance with NCRAD staff.**

4.0 DMDC Laboratory Collection

4.1 Site Required Equipment

The following materials and equipment are necessary for the processing of specimens at the collection site and are to be **supplied by the local site**:

- Personal Protective Equipment: lab coat, nitrile/latex gloves, safety glasses
- Tourniquet
- Alcohol Prep Pad
- Gauze Pad
- Bandage
- Butterfly needles and hub
- Microcentrifuge tube rack
- Sharps bin and lid
- Wet Ice Bucket
- Wet ice
- Pelleted dry ice

In order to process samples consistently across all projects and ensure the highest quality samples possible, project sites must have access to the following equipment:

- Centrifuge capable of ≥ 2000 x g with refrigeration to 4°C
- -80°C Freezer

In order to ship specimens, you must provide:

- Pelleted dry ice (approximately 45 lbs per shipment)

4.2 Biospecimens Sent to NCRAD

Samples are to be submitted according to the shipping methods outlined in Section 7.0. Guidelines for the processing, storage location, and timing of sample collection are listed in the tables below.

4.2.1 Biofluid Collection Schedule

Biospecimen Collection Table

Biospecimen	Visit 1
Plasma	X
Buffy Coat (DNA)	X

Whole blood is collected in one 10 ml Purple-Top EDTA Tube for shipment to NCRAD. The 10 ml EDTA tube is processed locally into plasma and buffy coat fractions; they are then aliquoted, frozen at the study site, and shipped to NCRAD.

Consent forms must specify that any biological samples and de-identified clinical data may be shared with academic and/or industry collaborators through NCRAD. Recommended consent language can be found on the NCRAD website at: https://ncrad.org/recommended_consent_language.html. A copy of the consent form for each participant should be kept on file by the site investigator.

4.2.2 Biofluid Collection Chart

Collection Tube	Specimen Type	Aliquot Volume	Total Number of Aliquots	Shipping Temperature
1 EDTA (Purple-Top) Blood Collection Tube (10 ml)	Plasma	1.5 ml plasma aliquots	Up to 4	Frozen
	Buffy Coat	~1.0 ml buffy coat aliquots	1	Frozen

5.0 Specimen Collection Kits, Shipping Kits, and Supplies

NCRAD will provide: 1) Sample collection kits for research specimens to be stored at NCRAD, the Supplemental Supply Kit, and the Frozen Shipment Kit and 2) clinical lab supplies (with the exception of pelleted dry ice and equipment supplies listed in Section 4.1). The provided materials include blood tubes, boxes for plasma and buffy coat aliquots, as well as shipping labels to send materials to NCRAD. Kit number labels, Patient ID labels, collection tube labels, and cryovial labels will all be provided by NCRAD. Details regarding the kits are found in this Manual of Procedures. Collection tube and cryovial labels will be preprinted with study information specific to the type of sample being drawn. Ensure that all tubes are properly labeled during processing and at the time of shipment according to Section 6.1.

5.1 NCRAD Specimen Collection Kit Contents

Collection kits contain the following (for each participant) and provide the necessary supplies to collect samples from a given participant. Do not replace or supplement any of the tubes or kit components provided with your own supplies unless you have received approval from the NCRAD Study team to do so. *Please store all kits at room temperature until use.*

DMDC Blood Kit

Quantity	DMDC Blood Kit Components
1	EDTA (purple-top) blood collection tube (10 ml)
3	Cryovial (2.0 ml) with purple cap
1	Cryovial (2.0 ml) with blue cap
1	Cryovial (2.0 ml) with gray cap
1	Preprinted Collection Tube Label
5	Preprinted Cryovial Label
3	Preprinted Kit Number Label
2	Label for handwritten Patient ID
1	Cryovial box (holds up to 25 cryovials)

DMDC Supplemental Supply Kit

Quantity	DMDC Supplemental Supply Kit Components
2	EDTA (purple-top) blood collection tube (10 ml)
6	Cryovial (2.0 ml) with purple cap
2	Cryovial (2.0 ml) with blue cap
2	Cryovial (2.0 ml) with gray cap
5	Label for handwritten Patient ID
2	Cryovial box (holds up to 25 cryovials)
1	Plastic Biohazard bag with absorbent sheet (small)
1	Warning label packet: Dry Ice Shipping Label, UN3373 Label

NCRAD Frozen Shipping Supply Kit

Quantity	Frozen Shipping Kit Components for Blood-Based Biomarkers
8	Plastic Biohazard bag with absorbent sheet (small)
1	UPS airbill sleeve
1	Shipping box/Styrofoam container (large)
1	Warning label packet: Dry Ice Shipping Label, UN3373 Label

Individual Supplies

Quantities	Items Available upon request within the NCRAD kit module
By Request	EDTA (purple-top) blood collection tube (10 ml)
By Request	Cryovial box (holds up to 25 cryovials)
By Request	Cryovial (2.0 ml) with purple cap
By Request	Cryovial (2.0 ml) with blue cap
By Request	Cryovial (2.0 ml) with gray cap
By Request	UPS airbill sleeve
By Request	Shipping box/Styrofoam container (large)
By Request	Plastic Biohazard bag with absorbent sheet (small)
By Request	Disposable graduated transfer pipette (3 ml)
By Request	Warning label packet: Dry Ice Shipping Label UN3373 Label
By Request	UN3373 label
By Request	Dry ice shipping label
By Request	Fine Point Permanent Markers
By Request	Patient ID Labels

5.2 Kit Supply to Study Sites

Each site will be responsible for ordering and maintaining a steady supply of kits from NCRAD. We advise sites to keep a supply of each kit type available. Be sure to check your supplies and order additional materials before you run out or supplies expire so you are prepared for study visits. Please go to kits.iu.edu/dmdc to request additional kits and follow the prompts to request the desired supplies.

Please allow **THREE weeks** for kit orders to be processed and delivered.

6.0 Blood Collection and Processing Procedures

6.1 Labeling Samples

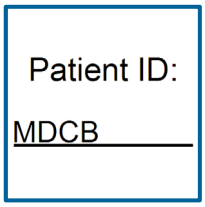
*****Important Note*****

In order to ensure the highest quality samples are collected, it is essential to follow the specific collection and shipment procedures detailed in the following pages. Please read the following instructions first before collecting any specimens. Have all your supplies and equipment out and prepared prior to drawing blood.

Label Type Summary

1. **Kit Number Label**
2. **Patient ID Label**
3. **Collection Tube Label**
4. **Cryovial Label**

Kit Number Labels tie together all specimens collected from one participant at one visit. They should be placed in the designated location on the Blood Sample and Shipment Notification Form, and on the lid of the cryobox for shipment to NCRAD.



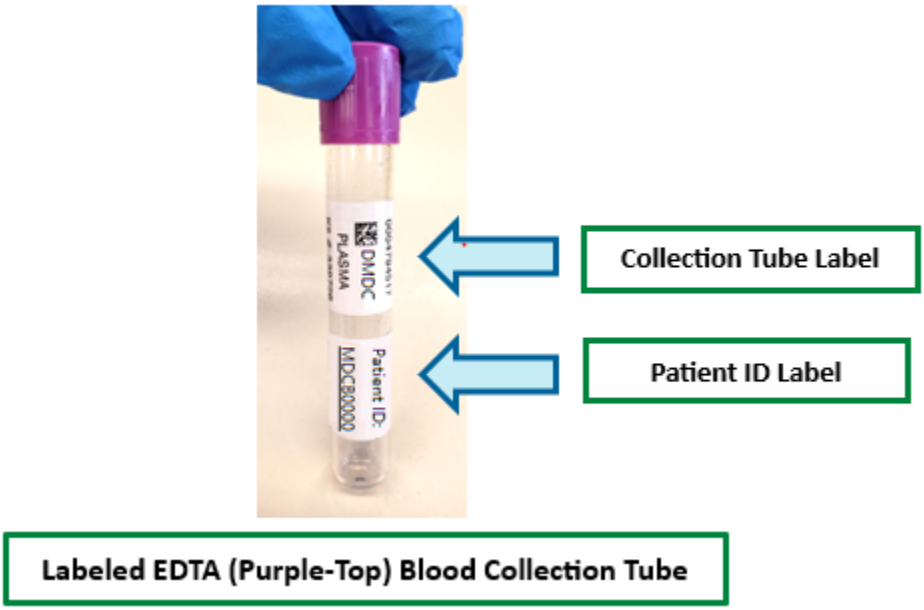
Patient ID Labels are used to document the individual's unique Patient ID. Place one label on the blood collection tube.

Place one **Collection Tube Label** on each blood collection tube.

Place one **Cryovial Label** on each cryovial.

Important Note

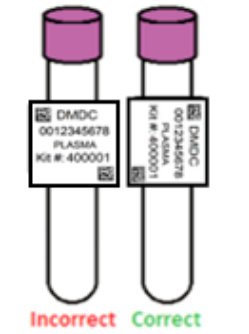
Each collection tube will have two labels: the collection tube label and the Site and PTID Label. Be sure to place labels in the same configuration consistently among tubes, with the barcoded label near the top of the tube and the handwritten Site and PTID label near the bottom.



In order to ensure the label adheres properly and remains on the tube, please follow these instructions:

- Place cryovial labels on **ALL** cryovials **BEFORE** sample collection. This should help to ensure the label properly adheres to the tube before exposure to moisture or different temperatures.
- Using a fine point permanent marker, fill-in and place the Patient ID label on the EDTA (purple-top) tube **BEFORE** sample collection. This label is placed on collection tubes in addition to the collection tube label.
- The collection tube labels contain a 2D barcode on the left-hand side of the label. Place this barcode toward the tube cap.
- Place label **horizontally** on the tube (wrapped around sideways if the tube is upright).

Take a moment to ensure the label is **completely adhered** to each tube. It may be helpful to roll the tube between your fingers after applying the label.



Collection Tube Label Diagram

Cryovial Label Diagram

6.2 Whole Blood Collection with 10 ml EDTA (Purple-Top) Tube for Plasma and Buffy Coat

1. Store empty EDTA tubes at room temperature, 64°F - 77°F (18 °C – 25 °C) before use.

2. Set centrifuge to 4°C to pre-chill before use.

3. Place completed Patient ID Label and preprinted **PLASMA** Collection Tube Label on the Purple-Top EDTA Tube. Place preprinted **PLASMA** Cryovial Labels on the three 2 ml cryovials with purple caps and one 2 ml cryovial with blue cap (if necessary, for residual). Place preprinted **BUFFY COAT** Cryovial Label on the 2 ml cryovial with gray cap.

4. Using a blood collection set and a holder, collect blood into the **EDTA (Purple-Top) Blood Collection Tube (10 ml)** using your institution's recommended procedure for standard venipuncture technique.

   The following techniques shall be used to prevent possible backflow:
   a. Place participant's arm in a downward position.
   b. Hold tube in a vertical position, below the participant’s arm during blood collection.
   c. Release tourniquet as soon as blood starts to flow into the last collection tube.
   d. Make sure tube additives do not touch stopper or end of the needle during venipuncture.

5. Allow at least 10 seconds for a complete blood draw to take place in each tube. **Ensure that the blood has stopped flowing into the tube before removing the tube from the holder.** The tube with its vacuum is designed to draw 10 ml of blood into the tube.
    a. If complications arise during the blood draw, please note the difficulties on the Blood Sample and Shipment Notification Form (Appendix B). Do not attempt to draw an additional EDTA tube at this time. Process blood obtained in existing EDTA tube.

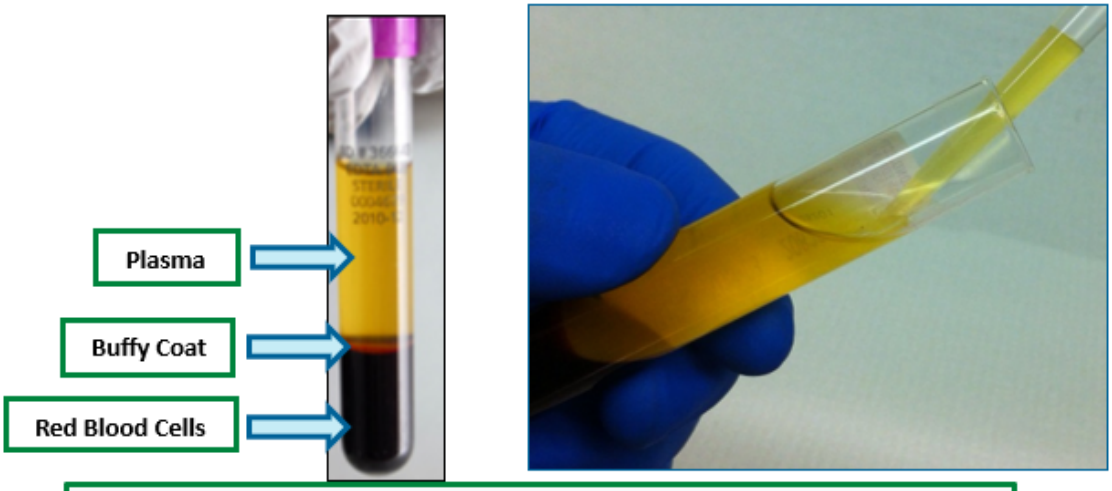
6. Immediately after blood collection, gently invert/mix (180 degree turns) the EDTA tube 8-10 times.

7. Immediately after inverting the EDTA tube, place it on wet ice until centrifugation begins.

8. Centrifuge balanced tubes for 10 minutes at 2000 x g at 4°C. **It is critical that the tubes be centrifuged at the appropriate speed and temperature to ensure proper plasma separation (see worksheet in Appendix A to calculate equivalent RPM for spin at 2000 x g).**
    a. While centrifuging, remember to record all times, temperatures and spin rates on the Blood Sample and Shipment Notification Form.
    b. Record original volume drawn for each tube in spaces provided on the Blood Sample and Shipment Notification Form.
    c. Plasma samples need to be spun, aliquoted, and placed in the freezer within 2 hours from the time of collection.
    d. Record time aliquoted on the Blood Sample and Shipment Notification Form.

9. Remove the plasma by tilting the tube and placing the pipette tip along the lower side of the wall being careful not to agitate the packed red blood cells at the bottom of the collection tube.

10. Each EDTA tube should yield, on average, 4-5 ml of plasma. Aliquot 1.5 ml plasma per cryovial. Be sure to only place **plasma** in cryovials with purple caps and labeled with **PLASMA** labels**.** Place residual plasma (<1.5 ml) in the blue-capped cryovial. **If a residual aliquot (<1.5 ml) is created, document the specimen number and volume on the Blood Sample and Shipment Notification Form.**

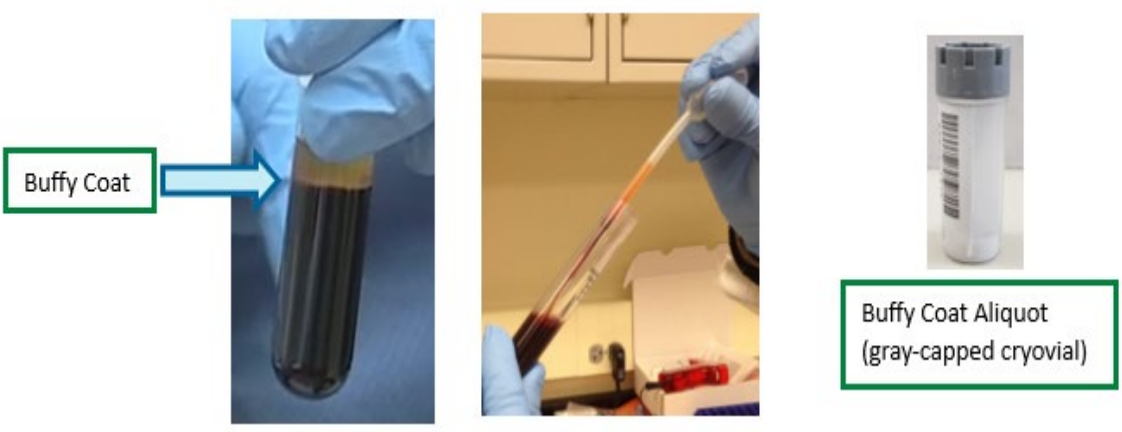


NOTE: When pipetting plasma from the EDTA tube into the 2 ml cryovials, be very careful to pipette the plasma top layer only, leaving the buffy coat and the red blood cell layers untouched.

11. Place the labeled cryovials in the 25 cell cryobox. Depending on availability of pelleted dry ice and timing of getting samples to the -80°C freezer, follow one of the two options below:
    a. **Freezing samples within 1 hour of collection**
        i. Order pelleted dry ice to be kept at processing facility. Place cryobox of samples on pelleted dry ice to freeze samples. Leave samples on pelleted dry ice to transport to -80°C freezer.
    b. **Freezing samples within 2 hours of collection**
        i. No need to freeze samples before placing in -80°C freezer so long as samples are placed in -80°C freezer within 2 hours of collection.
        ii. If unable to place samples in -80°C freezer within 2 hours of collection, place cryobox of samples on pelleted dry ice to freeze samples and keep samples on pelleted dry ice to transport to -80°C freezer.

12. **Transfer samples to -80°C Freezer when possible**. Store all samples at **-80°C until shipped** to NCRAD on pelleted dry ice. Record time aliquots placed in freezer and storage temperature of freezer on Blood Sample Shipment and Notification Form.

13. After plasma has been removed from the EDTA (Purple-Top) Blood Collection Tubes (10 ml), aliquot the buffy coat layer (in the top layer of cells, the buffy coat is mixed with RBCs-see figure) from one EDTA tube into a labeled, gray-capped cryovial using a micropipette. The buffy coat aliquot is expected to have a reddish color from the RBCs.

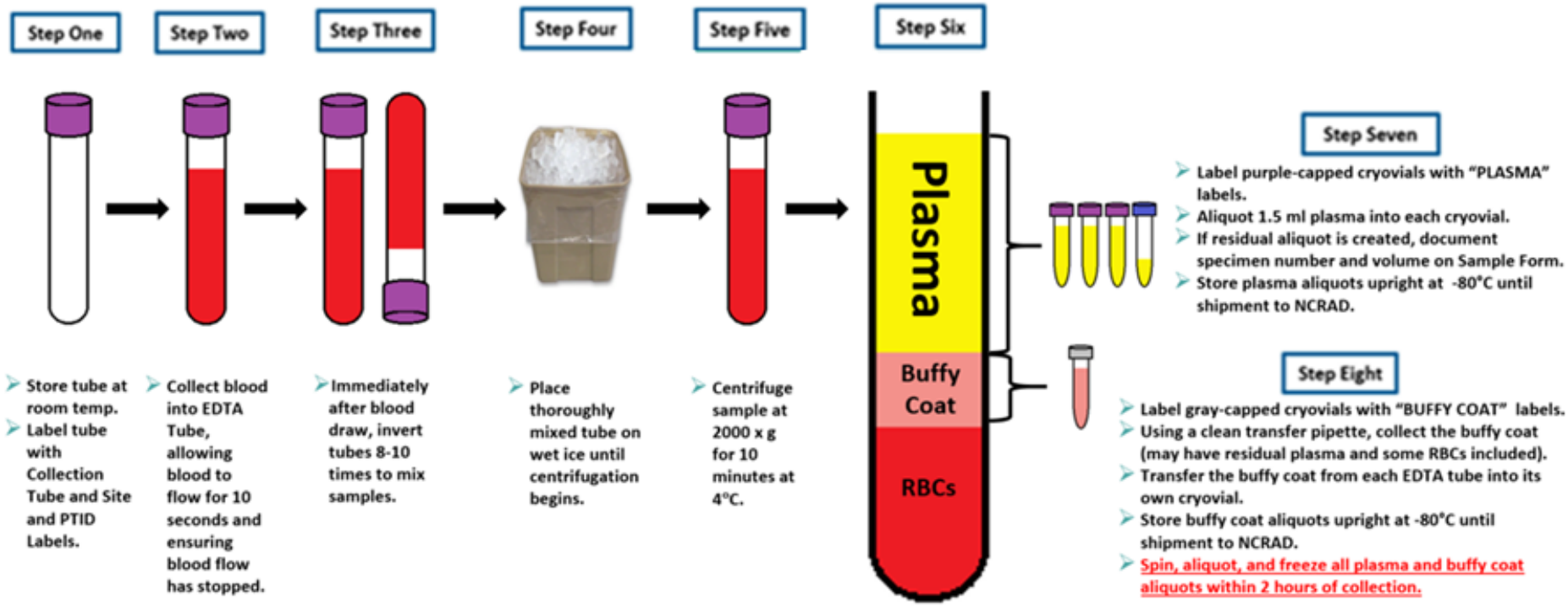


14. Dispose of collection tube with red blood cell pellet according to your site's guidelines for disposing of biomedical waste.

15. Record the specimen number and volumes of the EDTA tube and corresponding buffy coat sample on the Blood Sample Shipment and Notification Form.

16. Place the labeled cryovials in the 25 cell cryobox and place on pelleted dry ice. Each cryobox will contain the samples from one participant. **Transfer to -80°C Freezer when possible.** Store all samples at -80°C until shipped to NCRAD on pelleted dry ice. Record time aliquots placed in freezer and storage temperature of freezer on Blood Sample and Shipment Notification Form.

Plasma and Buffy Coat Preparation EDTA Purple-Top Tube (10 ml)



Check expiration date of tubes/supplies before collection to make sure tubes are not expired!

7.0 Packaging & Shipping Instructions

ALL study personnel responsible for shipping should be certified in biospecimen shipping. If you have difficulty finding biospecimen shipping training, please notify a NCRAD coordinator.

In addition to tracking and reconciliation of samples, the condition and amount of samples received are tracked by NCRAD for each sample type. Investigators and clinical coordinators for each project are responsible to ensure the requested amounts of each fluid are collected to the best of their ability and that frozen samples are packed with sufficient amounts of pelleted dry ice to avoid thawing in the shipment process.

7.1 Frozen Packaging Instructions

The most important issue for shipping is to maintain the temperature of the samples. The frozen samples must never thaw; not even the outside of the tubes should be allowed to defrost. This is best accomplished by making sure the Styrofoam container is filled completely with pelleted dry ice.

*****Important Note*****

FROZEN SAMPLES MUST BE SHIPPED MONDAY-WEDNESDAY ONLY!

Specimens being shipped to NCRAD should be considered as Category B UN3373 specimens and as such must be tripled packaged and compliant with IATA Packing Instructions 650. *See the Latest Edition of the IATA Regulations for complete documentation.*

Triple packaging consists of a primary receptacle(s), a secondary packaging, and a rigid outer packaging. The primary receptacles must be packed in secondary packaging in such a way that, under normal conditions of transport, they cannot break, be punctured, or leak their contents into the secondary packaging. Secondary packaging must be secured in outer packaging with suitable cushioning material. Any leakage of the contents must not compromise the integrity of the cushioning material or of the outer packaging.

***** Packing and Labeling Guidelines *****

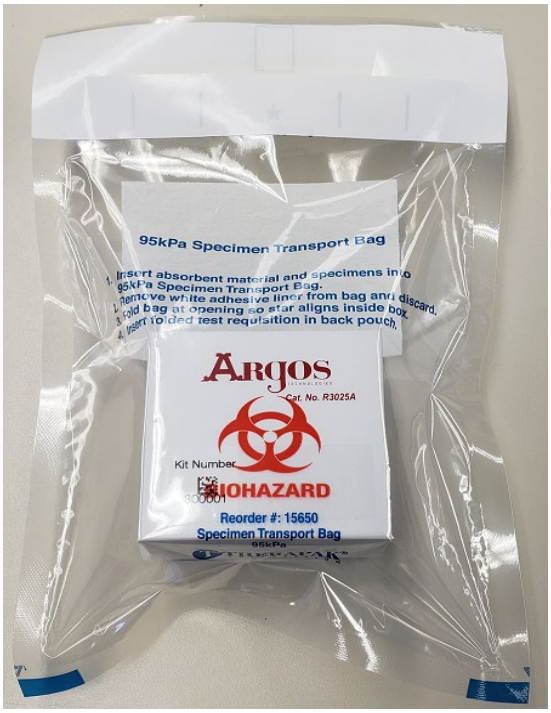
- The primary receptacle (cryovial) must be leak proof and must not contain more than 1L total.
- The secondary packaging (biohazard bag) must be leak proof and if multiple blood tubes are placed in a single secondary packaging, they must be either individually wrapped or separated to prevent direct contact with adjacent blood tubes.
- Absorbent material must be placed between the primary receptacle and the secondary packaging. The absorbent material should be of sufficient quantity in order to absorb the entire contents of the specimens being shipped. Examples of absorbent material are paper towels, absorbent pads, cotton balls, or cellulose wadding.
- A shipping manifest of specimens being shipped must be included between the secondary and outer packaging.
- The outer shipping container must display the following labels:
  - ✓ Sender's name and address
  - ✓ Recipient's name and address
  - ✓ Responsible Person
  - ✓ The words "Biological Substance, Category B"
  - ✓ UN3373
  - ✓ UPS Dry Ice label and net weight of dry ice contained

7.1.1 NCRAD Packaging Instructions – Frozen Shipments

1. Contact UPS to confirm service is available and schedule package to be picked up.

2. Notify NCRAD of shipment by emailing NCRAD coordinators at alzstudy@iu.edu. Attach the following to the email:
   a. Completed Sample Form (Appendix B) to the email notification (email NCRAD coordinator prior to shipment to receive sample form).
   b. If email is unavailable please call NCRAD at 1-800-526-2839 or 317-278-8413 and do not ship until you've contacted and notified NCRAD coordinators about the shipment in advance.

3. Place the cryovial boxes containing frozen samples into biohazard bags (one cryovial box per biohazard bag, see following picture).



4. As the cryovial box is placed in the plastic biohazard bag, do NOT remove the absorbent material found in the bag. Seal according to the instructions on the bag.

5. Place approximately 2-3 inches of pelleted dry ice in the bottom of the Styrofoam shipping container.

6. Place the biohazard bags into the provided Styrofoam-lined shipping container on top of the pelleted dry ice. The frozen shipper can hold up to eight 25 cell cryoboxes in biohazard bags. Please ensure that cryovial boxes are placed so the cryovials are upright in the shipping container.

7. Fully cover the biohazard bags containing the cryovial boxes tubes with approximately 2 inches of pelleted dry ice.

8. After the samples have been placed into the shipping container, completely fill the inner Styrofoam with dry ice pellets to ensure the frozen state of the specimens during transit.

9. The inner Styrofoam shipping container must contain approximately 45 lbs (or 20 kg) of pelleted dry ice. The pelleted dry ice should entirely fill the inner box and be placed on top of the biohazard bags to ensure the frozen state of the specimens.

10. Replace the lid on the Styrofoam carton. Place the completed Blood Sample and Shipment Notification Form in the package on top of the Styrofoam lid for each patient specimen, and close and seal the outer cardboard shipping carton with packing tape.

11. Complete the UPS Dry Ice Label with the following information:
    a. Net weight of dry ice in kg (must match amount on the airbill)
    b. Do not cover any part of this label with other stickers, including preprinted address labels.

12. Apply all provided warning labels and the UPS return airbill to the outside of package, taking care not to overlap labels.

*****Important Note*****

Complete the required fields on the UPS Dry Ice label or UPS may reject or return your package.

13. If possible, hold packaged samples in -80°C freezer until time of UPS pick-up/drop-off. If storage in a -80°C freezer until UPS pick-up is not possible, package samples no more than 4 hours before the expected pick-up time.

14. Specimens should be sent to the below address via UPS Next Day Air. Frozen shipments should be sent Monday through Wednesday to avoid shipping delays on Thursday or Friday.

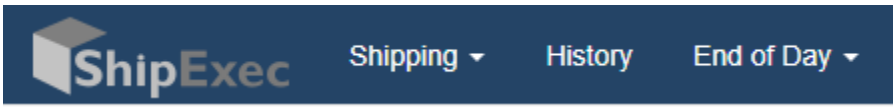
    NCRAD
    Indiana University School of Medicine
    351 W. 10th St. TK-217
    Indianapolis, IN 46202

15. Use UPS tracking to ensure the delivery occurs as scheduled and is received by NCRAD. Please notify NCRAD by email (alzstudy@iu.edu) that a shipment has been sent and include the UPS tracking number in your email.

7.2 Frozen Shipping Instructions

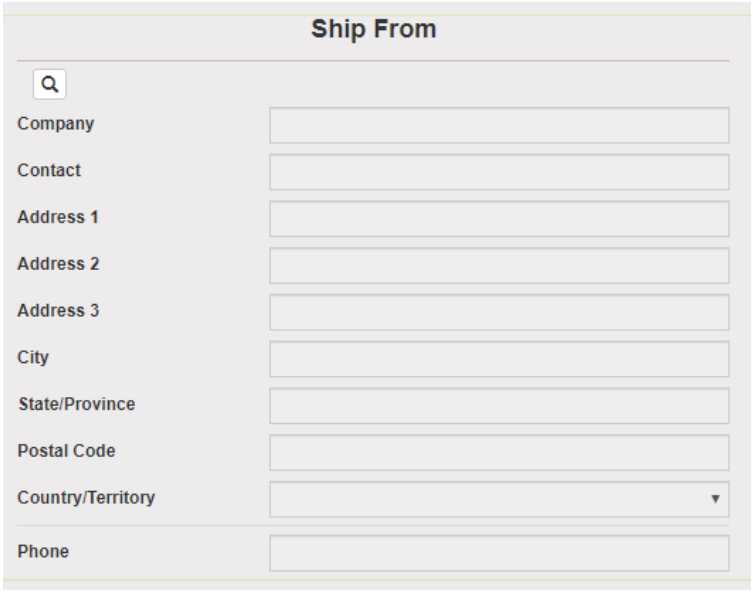
1. Log into the ShipExec Thin Client at kits.iu.edu/UPS.
    a. If a new user or contact needs access, please reach out to your study contact for access.

2. Click “Shipping” at the top of the page and select “Shipping and Rating”.



3. Select your study from the “Study Group” drop down on the right side of the main screen. Choosing your study will automatically filter the address book to only addresses within this study.

4. Click on the magnifying glass icon in the “Ship From” section to search for your shipping address.
    a. Search by Company (site), Contact (name), or Address 1 (first line of your site’s street address). Click Search.
    b. Click Select to the left of the correct contact information.



5. Verify that both the shipping information AND study reference are correct for this shipment.
    a. If wrong study contact or study reference, click Reset in the bottom right of the screen to research for the correct information.

6. Enter Package Information
    a. Frozen shipments
        i. Enter the total weight of your package in the “Weight” field.
        ii. Enter the dry ice weight in the “Dry Ice Weight” field.
        iii. If the “Dry Ice Weight” field is higher than the “Weight” field, you will receive an error message after clicking Ship and need to reenter these values.
    b. Click Ship in the bottom right of the page when complete.

7. If your site does not already have a daily UPS pickup, you can schedule one here.
    a. Click the blue Pickup Request button. Enter the earliest pickup time and latest pickup time in 24-hr format.
    b. Give a name & phone number of someone who the UPS driver can call if having issues finding the package
    c. Give the Floor and Room Number (if needed) to be as descriptive as possible where this package needs to be picked up from. Click Save.

8. Print the airbill that is automatically downloaded.
    a. To reprint airbill, click History at the top left of the page.
        i. Shipments created from the user that day will automatically populate. If shipments from a previous day need to be located, search by ship date.
        ii. Locate the correct shipment, and click on the printer icon to the left of the tracking number under “Action” to reprint the airbill
        iii. Click print icon on right side of the tracking number line.

9. Fold airbill, and place inside plastic UPS sleeve.

10. Peel the back off of the UPS sleeve and stick the sleeve to the package top. Ensure that sleeve does not cover any warning labels (e.g. dry ice label) or overlap taped seams.

8.0 Data Queries and Reconciliation

Sample and Shipment Notification forms must be completed on the day that samples are collected or before sample shipment because they include information that will be used to reconcile sample collection and receipt, as well as information essential to future analyses. Additional discrepancies may be sent directly to the Center staff to reconcile.

Data queries or discrepancies with samples shipped and received at NCRAD may result from:

- Incorrect samples collected and shipped
- Damaged or incorrectly prepared samples
- Unlabeled samples, samples labeled with incomplete information, or mislabeled samples
- Discrepant information documented on the Blood Sample and Shipment Notification Form.

9.0 Appendices

Appendix A: Rate of Centrifuge Worksheet
Appendix B: Blood Sample and Shipment Notification Form

Appendix A: Rate of Centrifuge Worksheet

Please complete and return this form by email to the NCRAD Project Manager if you have any questions regarding sample processing. The correct RPM will be sent back to you.

Submitter Information

Name: **Site:**
Submitter e-mail:

Centrifuge Information

Please answer the following questions about your centrifuge.

Centrifuge Type

Fixed Angle Rotor: ☐ Swing Bucket Rotor: ☐

Radius of Rotation (mm):

Determine the centrifuge's radius of rotation (in mm) by measuring distance from the center of the centrifuge spindle to the bottom of the device when inserted into the rotor (if measuring a swing bucket rotor, measure to the middle of the bucket).

Calculating RPM from G-Force:

$$RCF = \left(\frac{RPM}{1{,}000}\right)^2 \times r \times 1.118 \quad \Rightarrow \quad RPM = \sqrt{\frac{RCF}{r \times 1.118}} \times 1{,}000$$

RCF = Relative Centrifugal Force (G-Force)
RPM = Rotational Speed (revolutions per minute)
R= Centrifugal radius in mm = distance from the center of the turning axis to the bottom of centrifuge

Comments:

Please send this form to NCRAD Study Coordinator at alzstudy@iu.edu

Appendix B: Blood Sample and Shipment Notification Form

Please email the form on or prior to the date of shipment.

To: Kelley Faber Email: alzstudy@iu.edu Phone: 1-800-526-2839

From:_____ **UPS tracking #:**_____

Phone:_____ **Email:**_____

Study: Duke Memory Disorders Clinic (DMDC)

Patient ID: MDCB_____

Sex: ☐M ☐F **Year of Birth:** _____

KIT BARCODE

Blood Collection:

Date of Draw: _____ [MMDDYY]	Time of Draw: _____ [HHMM]
Date participant last ate: _____ [MMDDYY]	Time participant last ate: _____ [HHMM]

Blood Processing:

Plasma & Buffy Coat (EDTA Tube)

EDTA specimen number **(Last four digits):**	_____	Original blood volume of EDTA:	_____ mL
Time spin started:	_____ [HHMM]	Duration of centrifuge:	_____ mins
Temp of centrifuge:	_____ °C	Rate of centrifuge:	_____ x g
Time aliquoted:	_____ [HHMM]	Number of 1.5 mL plasma aliquots created (purple cap, up to 3):	_____
If applicable, volume of residual plasma aliquot (less than 1.5 mL in blue cap):	_____ mL	If applicable, specimen number of residual plasma aliquot **(Last four digits)**:	_____
Buffy coat specimen number **(Last four digits):**	_____	Buffy coat volume:	_____ mL
Time aliquots frozen:	_____ [HHMM]	Storage temperature of freezer:	_____ °C

Notes:_____