Packing and Shipping Category B

Overview/Background

In this scenario, the user is tasked with packing and next-day air shipping a Category B specimen of Salmonella during a nationwide outbreak and sending it to another laboratory for further evaluation. The user must properly triple package the specimen and safely transport it to the Specimen Receiving area for air shipping, then apply the proper marks and labels in the proper locations to the package and seal it. The Pack and Ship scenario is performed in the Core and Specimen Shipping & Receiving laboratories. For this scenario, the user will wear a gown, disposable mask, face shield, and gloves.

Objectives

- Properly triple pack the specimen
- Properly decontaminate the secondary packaging
- Properly mark, label, and seal the outer packaging

Objectives

- Lab/DIRTY area
- Packing/CLEAN area

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Gameplay Flow

1. Scenario Intro
2. Add specimen to Primary Receptacle tube
3. Place tube in bubble wrap container
4. Place absorbent pad in plastic container
5. Place bubble wrap container into a plastic container (Secondary Packaging)
6. Screw-on lid
7. Disinfectant Secondary Packaging
8. Add plastic container to the box (Outer/tertiary Packaging)
9. Add documentation INSIDE Outer Packaging
10. Seal outer package and add markings and labels
11. Move Outer Package to Shipping Area

Scenario Intro

Disclaimer: This training activity emphasizes CDC laboratory best practices and safety recommendations and is not designed to provide laboratory-specific processes and procedures. Please refer to your supervisor and laboratory's standard operating procedures for detailed guidance and site-specific equipment, location, and process recommendations.

The use of trade names and commercial sources in this training activity is for identification only. It does not imply endorsement by U.S. Department of Health and Human Services, the U.S. Public Health Service, or CDC.

Introduction: Correctly packing and shipping laboratory specimens is essential to public and clinical health laboratories. Mistakes are costly and can harm people, the specimen, or a patient's diagnosis. In this scenario, you will triple pack a Category B specimen for air shipment. Note this scenario does not certify you to pack and ship dangerous goods; only your employer can certify you. See CDC's eLearning course "Packing and Shipping Dangerous Goods: What the Laboratory Staff Must Know" for more information. Always follow your laboratory's SOP and risk assessment.

Task: In this scenario, you are dealing with specimens from three different patients. Your task is to retrieve the tubes, select an appropriate specimen, balance the load in the swinging bucket centrifuge, and centrifuge specimens.

Add Specimen to Primary Receptacle Tube

Step 1: Primary receptacles must be leakproof for liquids, shift proof for solids, and made of glass, metal, or plastic. Remove the primary receptacle tube lid.

Step 2: Place the specimen in the primary receptacle tube.

Note: If you drop a tube, you have potentially contaminated not only the specimen but also potentially contaminated the floor or benchtop. In this case, you would follow your SOP, inform your supervisor or safety officer, and complete a laboratory incident/near-miss report.

Step 3: Place and secure the lid on the primary receptacle tube.

Step 4: A leakproof seal must be provided on specimen tubes, such as a heat seal, skirted stopper, or metal crimp seal. Screw caps must be secured by positive means, such as with wax sealing tape. Seal the primary receptacle lid with parafilm tape.

Wrap Primary Receptacle

Step 5: Apply cushioning around the primary receptacle by wrapping the primary receptacle in bubble wrap. By including cushioning around the primary receptacle, you can reduce breakage, punctures, and leakage during transport. If you have multiple primary receptacles, they must be separated or individually wrapped to prevent breakage.

Note: If the primary receptacle is dropped, you have potentially contaminated not only the specimen but also potentially contaminated the floor or benchtop. In this case, you would need to consult your laboratory's SOPs and Risk Assessment for this type of incident.

Open Secondary Plastic Container

Step 6: The primary receptacle must be placed inside a watertight secondary package. These have been designed and constructed to assure that the specimen remains intact under conditions normally encountered during transport. The secondary package must also be marked with a biohazard symbol. Ensure you are using an acceptable secondary plastic package.

Step 7: Remove the lid from the secondary plastic package and place the lid face up

on the benchtop to avoid contamination.

Note: If the lid is placed face down, you have potentially contaminated not only the lid but also potentially contaminated the benchtop. In this case, you would need to consult your laboratory's SOPs and Risk Assessment for this type of incident.

Place Absorbent Pad in Plastic Container

Step 8: When packaging specimens containing liquid, you must include absorbent materials that can absorb the entire volume of the packed specimen. Place the absorbent material in the plastic container.

Place Bubble Wrap Container Into a Plastic Container (Secondary Packaging)

Step 9: Place the bubble wrapped container into the primary receptacle. If you drop the primary receptacle, pick it up and inspect it for any damage.

Note: If the primary receptacle was damaged, you would need to consult your laboratory's SOPs and Risk Assessment for this type of incident.

Step 10: Place and secure the lid to the top of the secondary packaging.

Screw-on Lid

Step 11: The outer packaging can become contaminated if the packing process is completed in a contaminated area, so let's decontaminate the surface of the container and then take it to the clean zone over by the door. Apply disinfectant to paper towels, wipe down the package, and dispose of the paper towels in the biohazardous waste container.

***Note**:* Disinfectant and contact time are subject to the manufacturer's instructions and your laboratory's SOP and risk assessment. In addition, all waste and biowaste needs to be properly disposed of according to your laboratory's SOP.

Decontaminate Secondary Package

Step 12: Doff and dispose your potentially dirty gloves into the waste container.

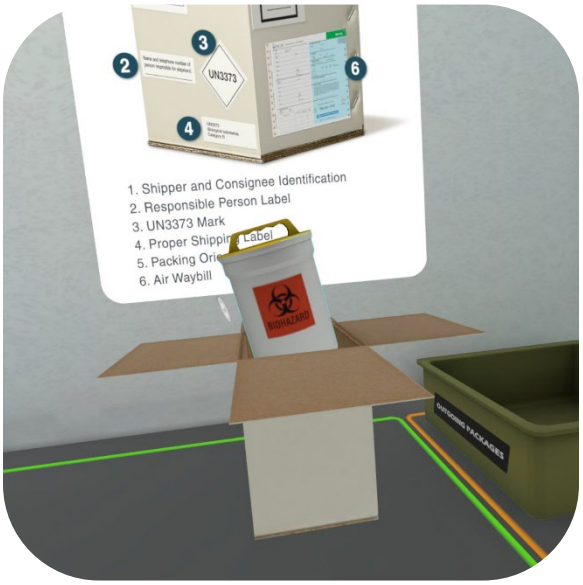
Step 13: Move the secondary package over to the “Clean” zone. The “Clean” zone is where the secondary packaging is placed into the outer packaging, and the marking, labeling, and documentation is completed.

Note: Disinfectant and contact time are subject to the manufacturer’s instructions, and your laboratory's SOP and risk assessment. In addition, all waste and biowaste needs to be properly disposed of according to your laboratory’s SOP.

Add Secondary Container to Outer Packaging

Step 14: Seal the secondary package.

Step 15: The outer packaging must be constructed so there will be no release of hazardous material into the environment during transport, and depending on regulations, what/where/how you are shipping, the outer package will require different marks and labels. Place the secondary package inside the outer packaging.



Note: Disinfectant and contact time are subject to the manufacturer's instructions, and your laboratory's SOP and risk assessment. In addition, all waste and biowaste needs to be properly disposed of according to your laboratory's SOP.

Add Documentation INSIDE Outer Packaging

Step 16: In this scenario, it has been determined that this specimen is Category B being shipped by air. For that reason, you will need to include an itemized list of contents INSIDE the outer package. Place the item list of contents inside the outer packaging and seal the outer packaging.

Add Markings and Labels OUTSIDE the Box

Step 17: On the outside of the outer packaging, you must affix the following labels to their proper location.

- Air Waybill
- Name and Address of the shipper and recipient
- Name and telephone number of the responsible person
- Packing orientation arrows – Please note: Orientation arrows are not required for Cat B substances. Orientation labels are required for Cat A substances containing more than 50 mL of liquid.
- UN3373 mark
- Proper shipping label (Biological substances, Category B)

Step 18: The last thing to do is to place the outer package in the “Outgoing” area.

Complete: Good job. You have completed the Pack and Ship Scenario.

Scenario References and Acknowledgements

1. Occupational Safety and Health Administration. Bloodborne Pathogens Title 29 CFR 1910.1030. Updated May 14, 2019. Accessed November 17, 2023. https://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030

2. US Department of Transportation. Hazardous Materials Regulations (HMR) Title 49 CFR Parts 10-185). Updated November 13, 2023. Accessed November 17, 2023. https://www.ecfr.gov/current/title-49

3. United States Postal Service. Publication 52, Hazardous, Restricted, and Perishable Mail. Updated February 9, 2023. Accessed November 17, 2023. https://pe.usps.com/text/pub52/welcome.htm

4. Federal Express. Hazardous Materials (FedEx Ground): How to Ship Service Guide. Updated 2023. Accessed November 17, 2023. https://www.fedex.com/en-us/service-guide/hazardous-materials/how-to-ship.html

5. United Parcel Service. Infectious Substances. Updated 2023. Accessed November 17, 2023. https://www.ups.com/us/en/support/shipping-support/shipping-special-care-regulated-items.page

6. Centers for Disease Control and Prevention. Packing and Shipping Dangerous

Goods: What the laboratory staff must know. *OneLab Reach elearning course*. Updated 2023. Accessed November 17, 2023. https://reach.cdc.gov/course/packing-and-shipping-dangerous-goods-what-laboratory-staff-must-know

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