Reducing Specimen Submission Errors

SWOG Biospecimen Bank
Hannah Brown
Overview of the Biopathology Center (BPC)

- The SWOG Biospecimen Bank is part of the Biopathology Center at The Abigail Wexner Research Institute at Nationwide Children’s Hospital

- Our operations are largely grant/contract supported

- We serve as the biorepository for several other major cooperative groups and organizations:
  - Children’s Oncology Group (COG)
  - NRG Oncology
  - GOG Foundation
  - SWOG
  - Sarcoma Alliance for Research through Collaboration (SARC)
  - Experimental Therapeutics Clinical Trials Network (ETCTN)
Specimen Receipt

• On an average day, the whole Bank receives 70-110 packages, which may contain upwards of 1,000 specimens!

• We receive several different specimen types:
  – Paraffin materials (FFPE blocks, slides)
  – Fresh blood, bone marrow, and urine
  – Frozen blood products and urine
  – Frozen tissue

• We can receive all specimen types Monday – Friday
  – Shipments of fresh blood, bone marrow, and urine may also be received on Saturday for immediate processing

• Accurate specimen submission is crucial to our day to day operations
Specimen Flow at the Bank

Specimens received at the Bank → Specimens accessioned into Bank database → Specimens processed and banked → Specimens marked as received in the STS

Sites are contacted the day of receipt → Information confirmed → Specimens processed and banked

Questions
# Common Specimen Quality Issues

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<th>Prevention</th>
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| Specimen that should be frozen arrived thawed or with insufficient dry ice | • Choose an appropriately-sized container (Goldilocks rule!)  
• Add dry ice to the bottom ~1/3, add the specimens, and then add dry ice to the top of the insulated container |
| Blood / bone marrow is hemolyzed                                      | • Gently invert tube 8 – 10 times after collection  
• Do not shake or vortex blood to mix with the anticoagulant                                                                                     |
| Blood / bone marrow is clotted                                        | • Thoroughly mix the specimen with anticoagulant in the tube immediately after collection  
• Gently invert tube 8 – 10 times after collection                                                                             |
| Specimen arrived in a cracked, broken, or leaking container           | • Do not freeze glass tubes – always use plastic collection tubes if submitting frozen specimens  
• Do not overfill cryovials (~1.5 mL liquid can be frozen in a 2-mL cryovial)  
• Package specimens carefully – if it rattles, don’t ship it!  
• Get friendly with bubble wrap – it’s both a good insulator and specimen protectant  
• Do not ship cracked, broken, or leaking specimens                                                                             |
| Incorrect specimen type received (e.g., protocol indicates to send whole blood, and blood arrives processed) | • Refer to the protocol  
• If the protocol is unclear – email the Bank                                                                                           |
# Common Shipment Issues

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| Missing Paperwork                  | • STS packing list is *always* required  
• Pathology reports are required for all formalin-fixed paraffin-embedded (FFPE) tissue submissions – including blocks, slides, and scrolls                                                                 |
| Missing information on specimen label | • Include all required labeling information on all specimens submitted  
• Refer to protocol for any protocol-specific labeling requirements                                                                                                                                 |
| STS Packing List does not match specimens | • All specimen labeling information (identifiers, collection date, etc.) must correspond with the information entered in the STS  
• The number of specimens (e.g., number of tubes, vials, glass slides, etc.) received must match the STS packing list                                                                                     |
| Insufficient dry ice               | • Include lots of dry ice *all year round*                                                                                                                                                              |
Specimen Labeling Requirements

Label all specimens with the following:
- SWOG patient #
- Patient Initials
- Date of specimen collection
- Specimen type (whole blood, serum, etc.)

Additional labeling for FFPE tissue blocks and slides
- Tissue type: Primary, Metastatic, Normal
- Surgical pathology ID (SPID or Accession #)
- Block Number (from pathology report)

Note: Any missing information will result in the Bank contacting the submitting institution, which can delay specimen processing, and may require a waiver.

We cannot assume any information!
Labeling Templates

- Specimen Labels, Avery 5160
- Every specimen submitted must be labeled!
Preparing the shipment...

- Verify that **all specimen labels** include **all required information** listed in the protocol (if applicable), or include all requirements on the SWOG Biospecimen Resources webpage (see Helpful Sites)

- Verify that the information on **STS packing list matches the specimens**
  - Double check specimen label information (e.g., collection dates)
  - Ensure that the number of specimens matches the number on the STS packing list (e.g., if sending 2 10-mL tubes of blood, quantity = 2, not 20)

- Confirm that all **required paperwork** is included
  - STS Packing List
  - Redacted Pathology Report (FFPE tissue only)
    - Do *not* remove surgical pathology ID (SPID), block number, collection date, diagnosis, results, gross description, or other information about the specimen
    - Additional guidelines will be posted to the SWOG website
  - Confirm that the registration number is included on all paperwork
Shipping Considerations

• Batching specimen shipments – unless otherwise stated in the protocol, frozen specimens or FFPE tissues (blocks, slides, or scrolls) may be batched. As a general guideline, do not include more than 5 patients in one shipment.
  – Package each patient’s specimens separately
  – If there are multiple time points per patient, then include fewer than 5 patients in the shipment.

• Pack specimens according to the season
  – Frozen Specimens: ALWAYS include plenty of dry ice to prevent specimens from thawing
  – Warmer months (around April – September):
    • Ambient specimens: Include a cold pack (not frozen!), unless otherwise stated in the protocol and/or kit instructions (e.g., cfDNA Streck tubes)
  – Colder months (around October – March):
    • Ambient specimens: Insulate well (e.g., bubble wrap) to prevent specimens from freezing

• Specimens shipped FedEx Priority Overnight arrive to the Bank at the beginning of the day – other carriers or shipping methods may delay receipt.
When Errors are Received at the Bank

• 484 cases received had errors that were unable to be resolved on the same day of receipt

• What happens when errors are present in the submission?
  – Call and e-mail for follow up
    • Template e-mail subject:
      SWOG Biospecimen Bank - [STUDY] - ACTION REQUIRED **secure**
  – If a timely response is not received, the case will remain “pending” and become part of that statistic
  – May delay processing of the sample
    • May also delay the shipment being marked as usable in the SpeckTrack System
  – RAVE Query
Block Returns

• Submitting Slides vs. Submitting Blocks
  – If the block can only be submitted on a short term basis and the study does not have a set end date, check to see if the study allows for slides to be submitted instead.
  – The SWOG Biospecimen Bank does not pay for the return of specimens
    • Institution’s FedEx account number must be provided

• Request permission
  – Dr. James Rae (jimmyrae@med.umich.edu)
  – Is the return for patient care, or because the pathology department is requesting a return of materials?

• Complete the Specimen Return Request form
  – Can be obtained by reaching out to BPCBank@nationwidechildrens.org
  – Specimens can only be returned to the submitting institution
  – Please ensure all provided identifiers for the specimen match our records (registration number, surgical pathology ID, collection date, block number, etc.)
  – Please include documentation of permission to return when submitting completed request form.
Helpful Sites

SWOG Biospecimen Processing and Submission Procedures

- General SWOG specimen submission guidelines, links to labeling templates, and more!
- [https://www.swog.org/clinical-trials/biospecimen-resources/biospecimen-processing-and-submission-procedures](https://www.swog.org/clinical-trials/biospecimen-resources/biospecimen-processing-and-submission-procedures)

BPC Kit Management

- Order biospecimen collection kits (when provided, refer to protocol) – select SWOG sponsor group
- Users must be registered
- [https://ricapps.nationwidechildrens.org/KitManagement](https://ricapps.nationwidechildrens.org/KitManagement)
Contact Information

Solid Tissue, Myeloma & Lymphoma Division

SWOG Biospecimen Bank #201
614-722-2865
bpcbank@nationwidechildrens.org

SWOG Biospecimen Bank
Nationwide Children’s Hospital
700 Children’s Drive, WA1340
Columbus, Ohio 43205

Leukemia Division

SWOG Biospecimen Bank #200
614-722-2866
mglab@nationwidechildrens.org

SWOG Biospecimen Bank
Nationwide Children’s Hospital
575 Children’s Crossroad, WB2255
Columbus, Ohio 43215
Questions?