



# Specimen Collection Manual

*St. Luke's Laboratory*

# Specimen Collection Manual

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# Blood Specimen Collection

## Venipuncture

*This procedure describes best practices for collection of blood specimens by venipuncture, to include vacutainer, syringe, and butterfly systems.*

### PROCEDURE

1. Verify provider orders and refer to St. Luke's Comprehensive Test Directory for specimen requirements.
2. Perform patient identification including full patient name and date of birth.
3. Perform hand hygiene and use appropriate PPE.
4. Assemble supplies (vacutainer tubes, alcohol swab, tourniquet, and needle/vacutainer device).
5. Cleanse the site and apply the tourniquet.



6. Insert the needle smoothly at a 15-30 degree angle.
7. Place tubes in vacutainer following correct order of draw. (See page 9)
8. Mix specimen containers gently after removing from vacutainer system.
9. Release the tourniquet and remove the needle. Activate the safety device.
10. Apply pressure until bleeding stops and bandage the patient's arm.
11. Label all specimen containers with patient information (Name, date of birth), date and time of collection, and collectors' initials.
12. Dispose of all supplies in appropriate receptacles (including sharps containers), including tourniquets.

#### ➤ Helpful Hints:

- If using a syringe, or a butterfly device with syringe, after removing the needle from the patient's arm, add an adapter. Fill tubes according to order of draw, mixing gently as tubes are filled.
- If a transfusion is anticipated, specimen collection must occur at a St. Luke's hospital campus. Prenatal screening and ABO/RH testing do not require a signed transfusion request form.



# Blood Specimen Collection

## Order of Draw/Fill Chart

### Order of Draw / Fill for Multiple Tube Collections

| Closure Color   | Collection Tube                | Mix by Inverting |
|---|--------------------------------|------------------|
|    | Blood cultures                 | 8 to 10 times    |
|    | Na Citrate                     | 8 to 10 times    |
|   | Serum -<br>with clot activator | 5 to 10 times    |
|  | SST Gel                        | 8 to 10 times    |
|  | Li Heparin                     | 8 to 10 times    |
|  | Li Heparin Gel                 | 8 to 10 times    |
|  | EDTA                           | 8 to 10 times    |



# Blood Specimen Collection

## Blood Culture

*This procedure describes best practices for collection of blood specimens when blood cultures are ordered.*

### PROCEDURE

1. Verify provider orders and refer to St. Luke's Comprehensive Test Directory for specimen requirements.
2. Perform patient identification including full patient name and date of birth.
3. Perform hand hygiene and use appropriate PPE.
4. Assemble supplies (blood culture bottles, alcohol swab, chlorhexidine, tourniquet, and needle/vacutainer device).
5. Cleanse the site using chlorhexidine. Scrub vigorously for 30 seconds and allow to dry for 60 seconds. Do not touch the site after cleansing, if you do, you must clean site again. Apply the tourniquet.
6. Cleanse the top of each blood culture bottle with an alcohol prep pad. Leave pad on top of vial until blood is ready to be injected into bottle.
7. Insert the needle in patient's arm smoothly at a 15-30 degree angle.
8. Place blood culture bottles (and tubes if applicable) in vacutainer following correct order of draw.
9. Mix specimen containers gently after removing from vacutainer system.
10. Release the tourniquet and remove the needle. Activate the safety device.
11. Apply pressure until bleeding stops. Bandage the patient's arm.
12. Label all specimen containers with patient information (Name, date of birth), date and time of collection, and collectors' initials. Note draw site on the requisition or in Epic.
13. Dispose of all supplies in appropriate receptacles (including sharps containers), including tourniquets.

### ➤ Helpful Hints:

- A separate draw is not required for blood cultures. The only difference in this process from the general venipuncture are:
  - ✓ cleansing of site with chlorhexidine
  - ✓ cleaning top of the blood collection bottle with alcohol prep pad



| Bacterial Blood Culture Volume/Venipuncture   | Aerobic Vial Volume                               | Anaerobic Vial Volume                             |
|---|---|---|
| 16 - 20 ml  | Split equally between aerobic and anaerobic vials | Split equally between aerobic and anaerobic vials |
| 13 - 16 ml  | 8 ml  | 5 - 8 ml  |
| 10 - 12 ml  | 5 - 7 ml  | 5 ml  |
| 5 - 9 ml  | entire blood amount                               | 0   |
| <b>Bacterial Blood Culture Volume for Infants and Small Children / Venipuncture</b> |   |   |
| 1 - 3ml   | Pediatric Vial Volume                             |   |
|   | 1 - 3ml   |   |
| <b>Fungal or AFB Blood Culture Volume/Venipuncture</b>                              |   |   |
| 3 - 5 ml  | Myco F/Lytic vial                                 |   |
|   | 3 - 5 ml  |   |



# Blood Specimen Collection

## Finger Stick

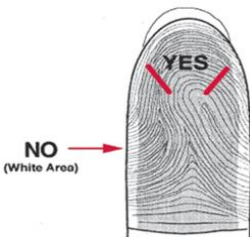
*This procedure describes best practices for collection of blood specimens by capillary puncture of the finger, commonly used for point-of-care testing.*

### PROCEDURE

1. Verify provider orders and refer to St. Luke's Comprehensive Test Directory for specimen requirements.
2. Perform patient identification including full patient name and date of birth.
3. Perform hand hygiene and use appropriate PPE.
4. Assemble supplies (microtainer/strip, alcohol swab, dry gauze, and retractable lancet device).



5. Cleanse the site.
6. Place the lancet onto the pad of the finger (index, ring, or middle) perpendicular to the fingerprint.



7. Puncture the site with the device.
8. Wipe away the first drop of blood with dry gauze.
9. Gently apply pressure to the tissue surrounding the puncture site.
10. Place blood onto strip or into microtainer following order of draw (see page 9).
11. Mix specimen containers gently after filling to at least the minimum volume line.
12. Apply pressure until bleeding stops. Bandage the patient's finger.
13. Label all specimen containers with patient information (Name, date of birth), date and time of collection, and collectors' initials.



14. Dispose of all supplies. Gauze, tourniquet, alcohol, can be disposed of in gray trash receptacles.









➤ **Helpful Hints:**

- To improve blood flow to the patient's hand, an approved heat pack may be applied. Place the heat pack on the finger and apply for 5-6 minutes.

**LabNotes Tip**

**BD Microtainer® Tubes with BD Microgard™ Closure**

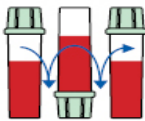
**Order of Draw**

| Catalog #/<br>Closure Color  | Additive                                      | Mix by<br>Inverting |
|--|---|---------------------|
| <br>365974 Lavender   | K <sub>2</sub> EDTA                           | 10x                 |
| <br>365965 Green      | Lithium Heparin                               | 10x                 |
| <br>365985 Mint Green | Lithium Heparin and Gel for plasma separation | 10x                 |
| <br>365987 Mint Green |   |                     |
| <br>365992 Grey       | NaF/<br>Na <sub>2</sub> EDTA                  | 10x                 |
| <br>365967 Gold     | Clot Activator and Gel for serum separation   | 5x                  |
| <br>365978 Gold     |   |                     |
| <br>365963 Red      | No additive                                   | 0x                  |

**Processing of Tubes**

**Why**

- Most tubes contain an additive or clot activator that needs to be mixed with the blood sample.
- Tubes with anticoagulants such as EDTA need to be mixed to ensure the specimen does not clot.



**How**

- Holding tube upright, gently invert 180° and back.
- Repeat movement as prescribed for each tube.

**When**

- Immediately after drawing.

**Consequences if not mixed**

- Tubes with anticoagulants will clot.
- BD SST™ tubes may not clot completely.
- Specimen will often need to be redrawn.



# Blood Specimen Collection

## Heel Stick

*This procedure describes best practices for collection of blood specimens by capillary puncture of the heel, commonly used for infants 12 months and younger.*

### PROCEDURE

1. Verify provider orders and refer to St. Luke's Comprehensive Test Directory for specimen requirements.
2. Perform patient identification including full patient name and date of birth
3. Perform hand hygiene and use appropriate PPE.
4. Assemble supplies (microtainer/strip, alcohol swab, dry gauze, heat pack, and retractable lancet device)



5. Warm the site using an approved heat pack for at least 3 minutes.
6. Cleanse the site.
7. Place the lancet onto the heel of the foot.
8. Puncture the site with the device.



9. Wipe away the first drop of blood with dry gauze.
10. Gently apply pressure to the tissue surrounding the puncture site.
11. Place blood into microtainer following order of draw. (See page 9)
12. Mix specimen containers gently after filling to at least the minimum volume line.
13. Apply pressure until bleeding stops. DO NOT APPLY BANDAGE.





14. Label all specimen containers with patient information (Name, date of birth), date and time of collection, and collector's initials.



15. Dispose of supplies. Gauze, tourniquet, can be disposed of in gray trash receptacles.

➤ **Helpful Hints:**

- Do not excessively milk (squeeze) the foot, it causes hemolysis and alters patient results.
- Avoid repeated use of the same site and areas with a hematoma.
- For PKU, completely saturate the 5 circles without touching the heel. Use of a plastic capillary tube would equal 1 circle. Complete appropriate paperwork.

**Good Specimens**





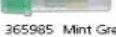

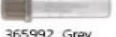



**Bad Specimen**



**LabNotes Tip**

**BD Microtainer® Tubes with BD Microgard™ Closure**

**Order of Draw**

| Catalog #/<br>Closure Color  | Additive                                      | Mix by<br>Inverting |
|--|---|---------------------|
| <br>365974 Lavender   | K <sub>2</sub> EDTA                           | 10x                 |
| <br>365965 Green      | Lithium Heparin                               | 10x                 |
| <br>365985 Mint Green | Lithium Heparin and Gel for plasma separation | 10x                 |
| <br>365987 Mint Green |   |                     |
| <br>365992 Grey       | NaF<br>Na <sub>2</sub> EDTA                   | 10x                 |
| <br>365967 Gold       | Clot Activator and Gel for serum separation   | 5x                  |
| <br>365978 Gold       |   |                     |
| <br>365963 Red        | No additive                                   | 0x                  |

**Processing of Tubes**

**Why**

- Most tubes contain an additive or clot activator that needs to be mixed with the blood sample.
- Tubes with anticoagulants such as EDTA need to be mixed to ensure the specimen does not clot.



**How**

- Holding tube upright, gently invert 180° and back.
- Repeat movement as prescribed for each tube.

**When**

- Immediately after drawing.

**Consequences if not mixed**

- Tubes with anticoagulants will clot.
- BD SST™ tubes may not clot completely.
- Specimen will often need to be redrawn.



# Microbiology Specimen Collection

## Throat Swab

*This procedure describes best practices for collection of throat specimens necessary for culture or point-of-care testing.*

### PROCEDURE

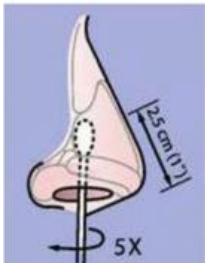
1. Verify provider orders.
2. Perform patient identification including full patient name and date of birth.
3. Perform hand hygiene and use appropriate PPE.
4. Gather appropriate swab and tongue blade, referencing St. Luke's Comprehensive Test Directory.
5. Collect the specimen by instructing the patient to tilt head backward, open mouth and say ahhhh, depress tongue with tongue blade, vigorously sweep between tonsillar pillars, without touching lips, teeth, tongue, and cheeks, and carefully remove swab without striking oral structures.
6. Immediately place swab into transport tube, breaking the applicator shaft at the pink breakpoint line. Screw on the cap.
7. Label specimen containers with patient information (Name, date of birth), date and time of collection, and collectors' initials.
8. Dispose of all supplies in gray trash receptacle.

## MRSA Swab

*This procedure describes best practices for collection of MRSA nasal specimens.*

### PROCEDURE

1. Verify provider orders.
2. Perform patient identification including full patient name and date of birth
3. Perform hand hygiene and use appropriate PPE.
4. Gather appropriate swab, referencing St. Luke's Comprehensive Test Directory.
5. Collect the specimen by inserting the swab into the nostril, rotate the swab against the interior nares 5 times applying pressure. Repeat in the second nostril with the same swab.



6. Immediately place swab into transport tube, breaking the applicator shaft at the scored breakpoint line. Screw on the cap.



7. Label specimen containers with patient information (name, date of birth), date and time of collection, and collectors' initials.



# Microbiology Specimen Collection

## Sputum

*This procedure describes best practices for collection of sputum specimens for culture.*

### PROCEDURE

1. Verify provider orders and refer to St. Luke's Comprehensive Test Directory for specimen requirements.
  2. Perform patient identification including full patient name and date of birth.
  3. Perform hand hygiene and use appropriate PPE.
  4. Gather appropriate collection cup, referencing Sputum Specimen Collection
  5. Ask the patient to rinse their mouth. The patient should take three or four slow deep breaths and then cough after a full inhalation.
  6. Cap the container immediately after collection.
  7. Label specimen containers with patient information (name, date of birth) date and time of collection, and collector's initials.
  8. Dispose of all supplies in gray trash.
- **Helpful Hints:**
- Specimens with saliva or postnasal discharge will be rejected.
  - 2-3 tablespoons may be necessary if multiple tests are ordered



# Non-Blood Samples

## Urine/Fluids

*This procedure describes best practices for patient self-collection of samples.*

### PATIENT INSTRUCTIONS

Provide patients with written instruction sheet from Comprehensive Test Directory.

1. Clean Catch
2. Random urine collection for Chlamydia/GC testing (dirty catch):
3. Timed Urine Collection
4. Post-Vasectomy Semen
5. Stool Collection

### PROCEDURE: Prior to specimen collection

1. Verify provider orders.
2. Provide patient appropriate collection instructions including labeling information and collection kit.

### PROCEDURE: After specimen collection

1. Verify at the time of specimen drop off that it is labeled with patient name, date of birth and date of collection.
2. Verify provider orders. For 24-hour urine, ask for patient's height and weight and perform venipuncture if needed.

➤ **Helpful Hints:**

- Patient education/instructions for collection can be printed from [St. Luke's Comprehensive Test Directory](#).



# Specimen Processing

## Receiving, Storage, Packaging for Transport of Specimens

*This procedure describes best practices for packaging of specimens to testing sites while maintaining specimen integrity. Also describes best practices for processing blood specimens by centrifugation to maintain specimen integrity.*

### PROCEDURE

1. Verify provider orders and specimen requirements. Wear appropriate PPE when handling specimens.
  2. Make sure specimen is labeled with full patient name, date of birth, date/time of collection and collector's initials before transport.
  3. Verify if centrifugation is necessary before transport.
  4. Check specimen stability and temperature requirements. Aliquot if necessary.
  5. Maintain specimen at recommended temperature until transport.
  6. Non- Epic Clinics: Place all specimens from one individual patient into single biohazard bag. Prior to courier arrival, place all individual specimen bags with the same temperature requirements into one large biohazard bag.
  7. Epic Clinics: Create a tracking batch and place all specimens that are the same temperature on the list in one big bag.
- **Helpful Hints:**
- If testing has special requirements (short stability, special processing) referral and transport to a hospital campus is recommended.
  - Lawson order # for small specimen bags: 101432; Lawson order # for large specimen bags: 122263.

## Centrifuge Operation

### PROCEDURE

1. Check specimen requirements before centrifuging.
  2. Verify specimen is clotted before centrifuging.
  3. Make sure the centrifuge is balanced properly.
  4. Close the lid and press start or go.
  5. Verify the rotor has stopped completely before removing specimens.
  6. Remove all specimens and place upright in rack until transported to testing location.
- **Helpful Hints:**
- Refer to the owner's manual for centrifuge speed and time.



## Aliquoting

### PROCEDURE

1. Determine if aliquoting of the specimens is needed.
  2. Wear appropriate PPE for aliquoting.
  3. Verify the specimen is appropriate for desired test.
  4. Consult the Comprehensive Test Directory for the amount needed and stability.
  5. Aliquot into the appropriate container and carefully approximate the volume.
  6. Label with patient full name, date of birth, and date/time of collection and collector's initials cap tightly.
- **Helpful Hints:**
- Reprint of label may be required.
  - Some tests require special aliquot tubes (heavy metals, light protected).

## Add-On Testing

***This procedure describes best practice for adding tests to a previously collected specimen.***

### PROCEDURE

1. Fax completed add-on request form to customer service at (208) 381-8870. Physician signature is required to add tests to previously collected specimens.
  2. Do not duplicate the add-on request in EPIC.
  3. Customer service will add on test(s) if possible. If unable to add on, customer service will contact the requesting clinic or physician.
- **Helpful Hints:**
- Check Comprehensive Test Directory for stability to add on.
  - Specimens are kept refrigerated for 7 days at the Core Laboratory. Please contact the laboratory with any add-on questions.

## Order Requisition

***Requisition is available in the Comprehensive Test Directory***



# General Guidelines

## STAT Courier

*This procedure provides information on STAT testing requests.*

### PROCEDURE

1. Assess the need for STAT testing and refer to your site's STAT workflow.
2. Collect the specimen and process according to protocol.
3. If courier pick up is needed, call SL dispatch: 381-2506.

#### STAT Tests: Offered for courier services

|  |  |  |
|--|--|--|
| • BNP  |  | Gram stain                                     |
| • Body Fluid cell count w/ manual differential |  | Neonatal, bilirubin                            |
| • CBC w/ manual differential                   |  | PT/PTT   |
| • C. Difficile                                 |  | Serum pregnancy (qualitative and quantitative) |
| • Chemistry panel (CMP, BMP, Lytes, Glucose)   |  | Troponin I                                     |
| • D-dimer                                      |  | UA Microscopic                                 |
| • Digoxin                                      |  |  |

➤ **Helpful Hints:**

- St. Luke's Dispatch: (208) 381-2506.
- Do not call for a courier until sample is packaged and ready for transport.

## Routine Courier Pick-Ups (lab specimens only)

### PROCEDURE

1. Collect patient sample.
2. Package sample maintain appropriate temperature and be sure it is ready for transport.
3. Call St. Luke's Dispatch at 381-2506 to request pickup.
4. St. Luke's dispatch will send appropriate courier to pick up sample (pickup will be same day).

## Supply Ordering

*This procedure describes the process for ordering lab supplies.*

### PROCEDURE

1. Most specimen collection supplies are orderable through MyBC/Lawson for St. Luke's Clinics.
2. Non-St. Luke's Clinics may obtain supplies used for testing at a St. Luke's facility by faxing a supply request form.
3. Specialty tubes may be obtained from the Core Laboratory by contacting (208) 381-8854, or by faxing the Supply Request form to (208) 381-8879.

➤ **Helpful Hints:**

- Specialty tubes may take some time to be ordered and delivered. Please plan accordingly.
- It is important to maintain your inventory and check expiration dates.

