

ARUP is an enterprise of the University of Utah and its Department of Pathology.

Quantity Not Sufficient for Testing

Common Root Causes

As a reference laboratory, ARUP Laboratories, Inc. receives more than 30,000 specimens from across the United States daily. Quality is of utmost importance at ARUP. Accuracy and clarity of laboratory reports, appropriateness of samples, labeling, transport conditions, and assay precision are continually monitored. Only a small percentage of tests are cancelled; one reason a test may be cancelled is that the volume received was not sufficient for testing. Whenever a specimen volume is deemed unsuitable for testing, ARUP will immediately notify clients of the problem. Listed below are some of the more common reasons why ARUP may not be able to perform an ordered test on a particular specimen.

For additional information, please contact our client services which is staffed 24 hours a day, seven days a week (clientservices@aruplab.com or (800) 522-2787).

Compromised specimen – Specimen received was compromised during shipping, receiving, or test preparation process. One or more of the following events occurred.

- Specimen was shipped in a non-approved container. A container must be capable of withstanding pressure differentials of 95 kPa or greater.
- Specimen leaked during delivery or thaw.
 - Cap was not tightly seated (eg, Cap was not tightened, specimen was shipped in a vacutainer whose stopper had been removed and resealed, or incorrect cap was placed on the tube.).
 - Parafilm was used to seal the tube (eg, Instead of a cap or to further seal a capped tube, parafilm was used. Parafilm contracts and expands during pressure and temperature changes and may loosen a cap.).
 - Sealed tube cracked (eg, Because a shipping rack was not used, dry ice blocks or other heavy contents cracked or broke the specimen tube during shipping.).
 - In some cases it may not be clear why the specimen leaked.

See [Specimen Handling and Collection Transport](#) requirements for the appropriate container type, volume, and special handling requirements. Specimens may be rejected if any of the requirements for these processes are not met.

Insufficient Specimen Volume – Specimen received was less than the minimum published volume.

- The volume listed in the ARUP [Laboratory Test Directory](#) is the minimum volume required. If less than the minimum volume is received, ARUP may reject the specimen for testing.

Depleted Specimen Volume – ARUP received the published minimum volume; however, that volume was depleted during the testing process. One or more of the following events occurred:

- ARUP needed to repeat the test to ensure that the results were correct.
 - A technical error may have occurred during the first round of testing which required that the test be run again.
 - The clinical picture, including the results of related tests, did not match the initial result of this test and the test was repeated to verify the results.
- The client ordered a group test.

- A group requires several component tests be performed. The specimen volume sent was insufficient to perform all of the component tests.
- The client requested that several different tests be performed on one specimen.
 - To meet this requirement, the specimen is divided among test tubes and sent to different sections of the lab. However, in the process of dividing the specimen, the volume can be decreased and at times depleted.
- The specimen was sent to a referral laboratory who required a larger specimen volume.
 - When ARUP can not perform a test due to temporary instrumentation or reagent difficulties, ARUP sends the specimen to another laboratory to be performed. Sometimes, the referral laboratory requires more specimen volume than ARUP does.
- Due to an ARUP handling error, insufficient sample volume remained to complete the correct test.

Troubleshooting

ARUP will:

- Immediately notify clients of insufficient or depleted specimen volumes.
- Attempt to locate additional specimen collected on the same day at the same time.
 - Sometimes, ARUP will dilute a specimen to increase the usable volume; however, dilution is not a viable option for all tests.
- Continually monitor assay performances and recommend changes in laboratory processes when indicated.

ARUP recommends:

- Clients review and comply with the specimen volumes required for each test in the ARUP [Laboratory Test Directory](#).