MAYO CLINIC LABORATORIES

# Test Definition: BFBL

Bilirubin, Body Fluid

## Overview

### Useful For

Evaluating peritoneal fluid or abdominal drain fluid as a screening test for bile leakage

May aid in the distinction between a transudative and an exudative pleural effusion

### Method Name

Photometric, Diazonium Salt

### NY State Available

No

## Specimen

### Specimen Type

Body Fluid

### Ordering Guidance

For bilirubin testing on urine specimens, order BILUR / Bilirubin, Random, Urine. Testing will be changed to BILUR if this test is ordered on urine specimens.

### Shipping Instructions

Ship specimen in amber vial to protect from light.

### Necessary Information

**1. Date and time of collection are required.**

**2. Specimen source is required**.

### Specimen Required

**Supplies:** Amber Frosted Tube, 5 mL (T915)

**Preferred Source:**

-Peritoneal fluid (peritoneal, abdominal, ascites, paracentesis)

-Pleural fluid (pleural, chest, thoracentesis)

-Drain fluid (drainage, Jackson Pratt [JP] drain)

-Pericardial fluid

**Acceptable Source:** Other body fluid, write in source name with source location (if appropriate)

**Collection Container/Tube:** Sterile container

**Submission Container/Tube:** Opaque, amber vial

**Specimen Volume:** 1 mL

**Collection Instructions:**

1. Centrifuge to remove any cellular material and transfer into an amber vial to protect from light.

2. Indicate the specimen source and source location on label.

### Specimen Minimum Volume

0.5 mL

### Reject Due To

| | |
|---|---|
| Gross hemolysis | Reject |
| Gross lipemia | Reject |
| Gross icterus | OK |
| Anticoagulant or additive<br>Amniotic fluid<br>Breast milk<br>Saliva<br>Sputum<br>Cerebrospinal fluid<br>Bronchoalveolar lavage (BAL)<br>Bronchial washings<br>Colostomy<br>Ostomy<br>Gastric secretions<br>Nasal secretions<br>Urine<br>Feces<br>Vitreous fluid<br>Synovial fluid | Reject |

### Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| Body Fluid | Frozen (preferred) | 70 days | LIGHT PROTECTED |
| | Refrigerated | 14 days | LIGHT PROTECTED |

## Clinical & Interpretive

### Clinical Information

Peritoneal fluid:

Bilirubin is typically measured in peritoneal fluid of patients with suspected bile duct leak or gallbladder perforation as a screening test prior to imaging or cholescintigraphy. If the value is higher than that of serum and is greater than 6 mg/dL, and the ascitic fluid amylase is not elevated (indicating upper intestinal perforation), it can be assumed that the gallbladder has perforated into the peritoneum (choleperitoneum) or either bowel or biliary perforation has occurred.(1) Furthermore, biliary leakage after laparoscopic cholecystectomy is the most common post-operative complication.(2) While endoscopy is a beneficial first-line treatment for the management of bile leaks there often are logistical issues which hinder the procedure from being performed rapidly. Post-cholecystectomy patients generally have a drain in place (particularly a Jackson Pratt [JP] drain) and may undergo bilirubin testing on the drain fluid as an objective assessment of a bile leak. A body fluid/serum bilirubin ratio of greater than 5 in a JP drain fluid is highly sensitive and specific for bile leak.(3)

Pleural fluid:
Measurement of bilirubin in pleural fluid has been investigated to aid in the differentiation of transudative and exudative effusions in pursuit of more specific biomarkers than traditional light criteria measuring total protein and lactate dehydrogenase. Bilirubin values tend to be higher in exudates than in transudates, although there is some overlap between groups which limits the usefulness of its measure.(4)

Other fluids:
Determination of body fluid bilirubin concentration can aid in the distinction between a transudative and an exudative fluid or identify the presence of bile in other fluid compartments.

## Reference Values

An interpretive report will be provided.

## Interpretation

Bilirubin may be measured in other fluids although the decision limits are not well defined in fluids other than pleural fluid. Fluid to serum bilirubin ratios are expected to be less than or equal to 1.0 and should be interpreted in conjunction with other clinical findings.

## Cautions

Bilirubin is photosensitive. Failure to protect from light may cause decreased results.

In very rare cases, gammopathy, in particular type IgM (Waldenstrom macroglobulinemia), may cause unreliable results.

Cyanokit (Hydroxocobalamin) may cause false low results.

## Clinical Reference

1. Runyon BA. Ascitic fluid bilirubin concentration as a key to choleperitoneum. J Clin Gastroenterol. 1987;9(5):543-545
2. Koch M, Garden OJ, Padbury R, et al. Bile leakage after hepatobiliary and pancreatic surgery: a definition and grading of severity by the International Study Group of Liver Surgery. Surgery 2011;149(5):680-688. doi:10.1016/j.surg.2010.12.002
3. Darwin P, Goldberg E, Uradomo L. Jackson Pratt drain fluid-to-serum bilirubin concentration ratio for the diagnosis of bile leaks. Gastrointest Endosc. 2010;71(1):99-104. doi:10.1016/j.gie.2009.08.015
4. Metintas M, Alatas O, Alatas F, Colak O, Ozdemir N, Erginel S. Comparative analysis of biochemical parameters for differentiation of pleural exudates from transudates Light's criteria, cholesterol, bilirubin, albumin gradient, alkaline phosphatase, creatine kinase, and uric acid. Clin Chim Acta. 1997;264(2):149-162. doi:10.1016/s0009-8981(97)00091-0

5. Block DR, Lasho MA, Donato, LJ, Meeusen JW. Establishing hemolysis, icterus, and lipemia interference limits for body fluid chemistry analytes measured on the Roche cobas instrument. AM J Clin Pathol. 2024:aqae040. doi: 10.1093/ajcp/aqae040

## Performance

### Method Description
Total bilirubin, in the presence of a suitable solubilizing agent, is coupled with 3,5-dichlorophenyl diazonium in a strongly acidic medium to produce azobilirubin. The intensity of the color of the azobilirubin produced is proportional to the total bilirubin concentration and is measured at 546/600 nm.(Package insert: Bilirubin Total Gen. 3. Roche Diagnostics; 01/2020)

### PDF Report
No

### Day(s) Performed
Monday through Saturday

### Report Available
Same day/1 to 2 days

### Specimen Retention Time
7 days

### Performing Laboratory Location
Mayo Clinic Jacksonville Clinical Lab

## Fees & Codes

### Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

### Test Classification
This test has been modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

### CPT Code Information
82247

## LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| BFBL | Bilirubin, BF | 1974-5 |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| FLD14 | Fluid Type: | 14725-6 |
| BRNBF | Bilirubin (BF) | 1974-5 |