

Ethyl Glucuronide, Umbilical Cord Tissue, Qualitative

Indications for Ordering

- Detect prenatal exposure to alcohol in umbilical cord tissue for infants
 - Born to mothers with
 - High risk (eg, history of alcohol/drug use, sex worker, sexually transmitted infection)
 - Little or no prenatal care
 - Unexplained placental abruption or premature labor
 - Previous children with fetal alcohol syndrome (FAS), fetal alcohol effects (FAE), or alcohol-related birth defects
 - Born with
 - Unexplained neurological complications
 - Unexpected intrauterine growth retardation
 - Evidence of drug withdrawal symptoms (eg, neonatal abstinence syndrome [NAS])
 - Physiological characteristics of FAS (ie, dysmorphic facial features, growth deficits, and CNS problems)
 - Birth defects
- Order as an alternative to meconium screening or when meconium is not available

Test Description

Qualitative liquid chromatography-tandem mass spectrometry (LC-MS/MS)

Tests to Consider

Primary test

[Ethyl Glucuronide, Umbilical Cord Tissue, Qualitative 3000443](#)

- Detect and document maternal alcohol use during the last trimester of pregnancy
- Qualitative detection of ethyl glucuronide, a metabolite of alcohol/ethanol
- Confirmation testing usually not required due to analytical specificity of mass spectrometry

Related tests, performed by independent methods

Tests recommended for detection of drug-exposed newborns

- [Drug Detection Panel, Umbilical Cord Tissue, Qualitative 2006621](#)
- [Marijuana Metabolite, Umbilical Cord Tissue, Qualitative 3000256](#)
- [Drugs of Abuse Panel, Meconium – Screen with Reflex to Confirmation/Quantitation 0092516](#)

Tests recommended for detection of acute ethanol use/exposure with other specimen types (maternal or neonate)

- [Ethyl Glucuronide Screen Only, Urine 2012695](#)
- [Ethyl Glucuronide Screen with Reflex to Confirmation, Urine 2007912](#)
- [Ethyl Glucuronide and Ethyl Sulfate, Urine, Quantitative 2007909](#)
- [Ethanol, Serum or Plasma – Medical 0090120](#)

Tests recommended for detection of chronic ethanol use/exposure with other specimen types (maternal or neonate)

- [Carbohydrate Deficient Transferrin for Alcohol Use 0070412](#)
- [Phosphatidylethanol \(PEth\) 2012130](#)

Disease Overview Screening/Detection

- Identification of in utero alcohol exposure may aid in early diagnosis of adverse outcomes known as fetal alcohol spectrum disorders (FASD)
 - May help to identify maternal substance use disorder
 - May facilitate timely follow-up and effective management of long-term (social and medical) needs for the exposed newborns and mothers
 - Actual time window for detecting alcohol exposure is unknown, but is thought to represent approximately the last trimester
 - Acute ethanol exposure is not predicted by umbilical cord tissue testing
- Ethyl glucuronide
 - Direct metabolite of ethanol
 - Window of detection is longer than ethanol
 - Good biomarker of alcohol use in pregnancy
- Umbilical cord tissue testing may be preferable to meconium due to
 - Ease of collection of a larger volume of specimen
 - Reduced turnaround time if specimen is sent to the laboratory on the day of birth

Test Interpretation

Sensitivity/specificity

- Clinical sensitivity – consistent with detection of ethanol metabolite(s) observed in meconium testing, but may not correlate with maternal urine results
- Clinical specificity – high
 - Mass spectrometric method reduces false positives and the need for confirmatory testing

Results

- Detected – ethanol metabolite detected in umbilical cord tissue
 - Does not insinuate impairment and may not affect outcomes for the infant
- Not detected – ethanol metabolite absent in umbilical cord tissue
 - Does not exclude the possibility that the mother used alcohol during pregnancy

Limitations

- Detection of ethyl glucuronide in umbilical cord tissue is intended to reflect maternal alcohol use during pregnancy
 - Pattern and frequency of alcohol used by the mother cannot be determined by this test
 - False positive results may be caused by post-collection production/synthesis of ethyl glucuronide
- A negative result does not exclude the possibility that a mother used alcohol during pregnancy
- Detection of ethyl glucuronide in umbilical cord tissue depends on extent of maternal alcohol use, as well as ethyl glucuronide stability during sample storage and/or transport, variability in ethyl glucuronide formation and placental transfer of ethanol and its metabolites, and the performance of the analytical method
- Minimum reporting limits are established for ethyl glucuronide, but quantitation of detected analyte is not performed
- Although not likely, incidental exposure from ethanol-containing products (ie, hand sanitizers, wipes, mouthwash) may be detected when used directly on the umbilical cord specimen or nearby during sample collection
- Interpretive questions should be directed to the laboratory