

Phosphatidylethanol (PEth) blood test—

Now available from Quest Diagnostics

Presented by:

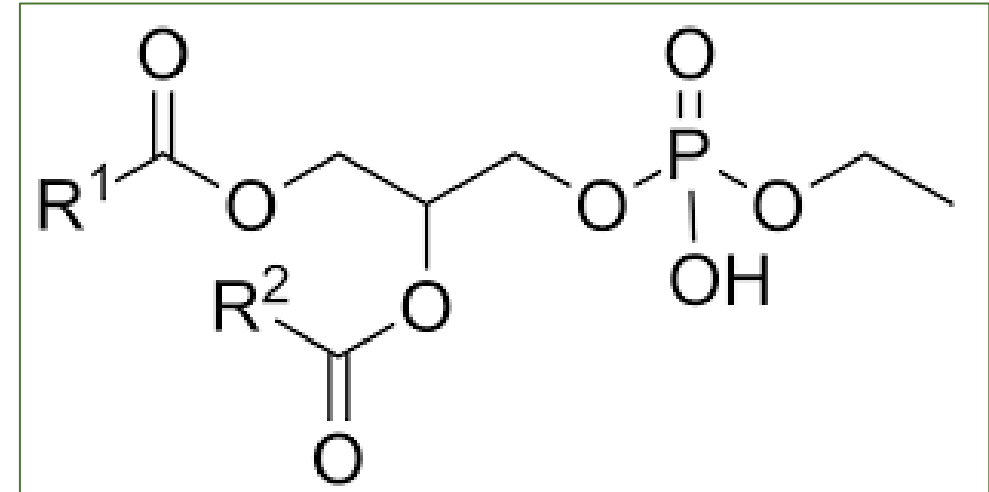
Dr Jeff Gudin, Pain Specialist, Quest Diagnostics Medical Consultant

Dr Jack Kain, Director, Medical Science Liaison, Quest Diagnostics

Introduction

Phosphatidylethanol (PEth) blood test

- Phosphatidylethanols (PEth) are abnormal phospholipids formed in the presence of ethanol (more commonly known as alcohol). PEth is formed in the presence of ethanol and bonds to the membrane of red blood cells
 - Phosphatidylethanols can remain in blood for as long as 4 weeks
- A Phosphatidylethanol (PEth) blood test measures the level of phosphatidylethanol, a direct alcohol biomarker found in human blood following alcohol consumption
 - The more alcohol that is consumed by an individual, the more PEth will be formed in the blood
- **A PEth blood test provides a longer window of detection (e.g., 1-2 weeks) and a more direct indication of alcohol consumption when compared to other alcohol metabolites, ethyl glucuronide (EtG) and ethyl sulfate (EtS) in urine.** Window of detection for PEth may be extended longer (e.g., 4 weeks) in chronic/excessive alcohol users
 - PEth blood testing is useful in detecting prolonged or heavy 'binge' drinking, when tested for regularly



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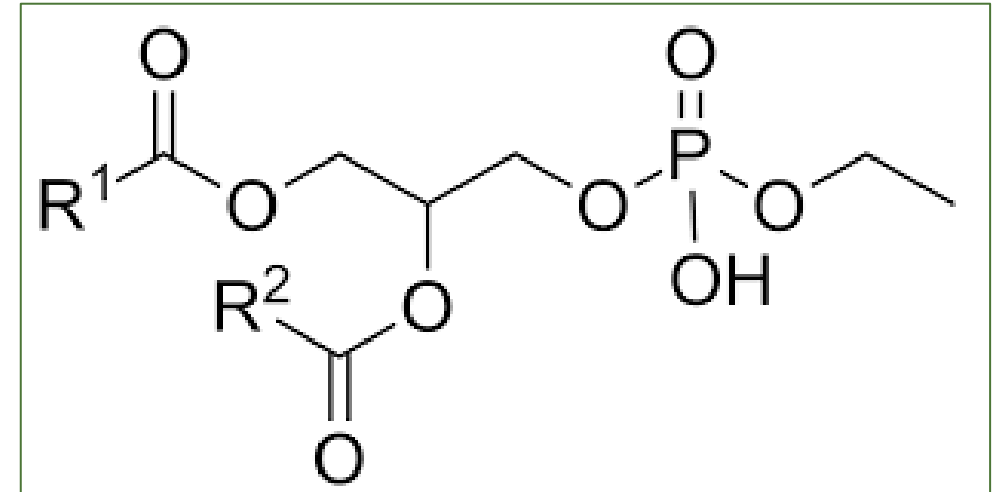
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Clinical Utility

- PEth testing may be useful as a baseline test for identifying alcohol consumption in new patients, transplant candidates, post-transplant recipients, and/or patients who have not been monitored for alcohol consumption recently, but have been prescribed central nervous system depressants such as opioids, benzodiazepines, muscle relaxants, and sleep medications
 - Utilization most commonly in transplant programs (patients waiting on organs)
- One of the only direct ETOH (alcohol) markers
 - < 20 ng/mL: probable abstinence
 - >200 ng/mL: probable chronic drinking

Transplant patients

- According to the Annual Data Report, developed by the Scientific Research of Transplant Recipients (SRTR) and the Organ Procurement and Transport Network (OPTN), since the mid-2000s, there have been over 25,000 transplants per year in the US
- There are currently over 107,000 people on the national transplant waiting list
- Monitoring patients for addictive and harmful behaviors is a regular part of evaluations of transplant patients
 - The length of time that patients are required to be drug-free prior to a transplant varies by center, but patients are tested regularly
 - PEth testing in conjunction with other tools in the Quest Drug Monitoring portfolio can assist physicians with their evaluations



PEth Blood Test vs EtG/EtS Urine Test

- Longer window of detection: up to 4 weeks vs 72 hours for alcohol metabolites (EtG/EtS)
- Not impacted by Volatiles (Methanol, isopropanol, and acetone). Other biomarkers (like EtG/EtS) can be impacted by exposure to things like hand sanitizer and are less direct measures of alcohol consumption
- Alternative collection: As a blood test PEth testing can be performed on patients that may have difficulty providing a urine specimen to due physical limitations. (eg, transplant patients)

Benefits of PEth Blood Test vs EtG/EtS Urine Test

ETG/ETS

- Indirect biomarkers of ETOH exposure
- Both are detectable in urine and oral fluid by IA and LCMSMS
- EtS is more sensitive, but EtG is more specific for ETOH ingestion
 - Sensitivity/Specificity
 - EtS: 82%/86%
 - EtG: 76%/93%
- Detection window: 2-3 days
- Other causes for positives:
 - Dermal contact with excessive amount of ethanol (hand sanitizer)
 - Mouthwash, certain food (kombucha, any fermented food)
- Interpretation: moderate

Phosphatidylethanol (PEth)

- Long-term biomarker of ETOH exposure
- ETOH marker in blood
 - Forms within the RBC cell membrane
- Detectable for 2-4 weeks after drinking
 - T1/2 = 5-10 days
- Chronic drinking (multiple drinks/day, everyday)
- Will not pick up a single drink/casual drinking
- Measurement by LCMSMS only

Source: Schröck A, Pfäffli M, König E, Weinman W. Application of phosphatidylethanol (PEth) in whole blood in comparison to ethylglucuronide in hair (hEtG) in driving aptitude assessment (DAA). *Int J Legal Med.* 2016;130:1527–1533.doi:10.1007/s00414-016-1394-4

Specimen collection and specimen handling

Specimen Collection

Requisition	NA
Patient Preparation	None
Specimen Collection	2 mL whole blood collected in an EDTA (lavender-top) tube, minimum volume 0.5 mL
Specimen Collection Kit	EDTA (lavender-top) tube
PeopleSoft/Stock Clerk #	205334
Special Collection Restrictions	NA


Specimen Handling

Sample Preparation	Refrigerated (cold packs) room temperature within 5 days acceptable
Stability Requirements	Room Temperature: 5 days Refrigerated: 30 Days Frozen: 30 Days
Special Transport/Handling	NA
Special Rejection Criteria	Non-whole blood samples, non-EDTA (lavender-top) tube


Result Report

Report PEth 16:0/18:1 (POPEth) and PEth 16:0/18.2 (PLPEth)

Negative

		Report Status: Final TEST, CASE ONE	
Patient Information TEST, CASE ONE DOB: 06/06/1966 AGE: 56 Gender: M Phone: NG Patient ID: NG	Specimen Information Specimen: DB068123V Requisition: 0069042 Collected: 01/19/2023 / 09:00 EST Received: 01/19/2023 / 09:13 EST Reported: 01/19/2023 / 10:03 EST	Client Information Client #: 97502840 1234567 COLMENAR, ANTONIO B TEST CLIENT (NAME) Attn: TEST DEPARTMENT 1201 S COLLEGEVILLE RD COLLEGEVILLE, PA 19426	
Drug Monitoring Report			
Test Ordered	Result	Cutoff	Lab
DRUG MONITOR, PHOSPHATIDYLETHANOL, B			AMD
PEth 16:0/18:1 (POPEth)	NEGATIVE	20 ng/mL	
PEth 16:0/18:2 (PLPEth)	NEGATIVE	20 ng/mL	
PEth Comments: See LDT Notes			
HISTORICAL RESULTS			TCV
NOTES AND COMMENTS			
This drug testing is for medical treatment only. Analysis was performed as non-forensic testing and these results should be used only by healthcare providers to render diagnosis or treatment, or to monitor progress of medical conditions.			
LDT Notes: Confirmation tests were developed and their analytical performance characteristics have been determined by Quest Diagnostics. It has not been cleared or approved by the FDA. This assay has been validated pursuant to the CLIA regulations and is used for clinical purposes.			
Healthcare Providers needing Interpretation assistance, please contact us at 1.877.40.RXTOX (1.877.407.9869) M-F, 8am to 10pm EST			

Positive

		Report Status: Final TEST, CASE TWO	
Patient Information TEST, CASE TWO DOB: 07/07/1977 AGE: 45 Gender: F Phone: NG Patient ID: NG	Specimen Information Specimen: DB068124V Requisition: 0069043 Collected: 01/19/2023 / 09:00 EST Received: 01/19/2023 / 09:14 EST Reported: 01/19/2023 / 10:03 EST	Client Information Client #: 97502840 1234567 COLMENAR, ANTONIO B TEST CLIENT (NAME) Attn: TEST DEPARTMENT 1201 S COLLEGEVILLE RD COLLEGEVILLE, PA 19426	
Drug Monitoring Report			
Test Ordered	Result	Cutoff	Lab
DRUG MONITOR, PHOSPHATIDYLETHANOL, B			AMD
PEth 16:0/18:1 (POPEth)	71	20 ng/mL	
PEth 16:0/18:2 (PLPEth)	91	20 ng/mL	
PEth Comments: See LDT Notes			
HISTORICAL RESULTS			TCV
NOTES AND COMMENTS			
This drug testing is for medical treatment only. Analysis was performed as non-forensic testing and these results should be used only by healthcare providers to render diagnosis or treatment, or to monitor progress of medical conditions.			
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Test Code: 12198 Drug Monitoring Phosphatidylethanol; turnaround time: 3-5 days

Powering Actionable Insights with Quest Diagnostics Clinical Drug Monitoring

An industry leader in laboratory diagnostics and information services, committed to responsible drug testing

- **Comprehensive Menu**—Prescription drugs used in treatment of chronic pain, ADHD, anxiety, depression, substance use disorder, other controlled medications, and substances of abuse; Plus, diagnostic services for Infectious Diseases, CV, Women's Health, and general diagnostic tests, to meet diverse patient needs
- **Performance Testing**—High-sensitivity, low cut-off levels designed to detect drugs at typical dosage levels. Both urine and oral fluid testing options to meet your sample requirements
- **Reporting & Data**—Optional medMATCH® result interpretation: “Inconsistent” when results do not match prescriptions provided by clinician. Quarterly local / practice-level data and analytics utilizing our industry leading database
- **Connectivity & Service**—Exceptional service and efficiency that aligns with your workflow, connectivity with over 600 EMR systems
- **Expert Support**—Industry-leading toxicology experts to answer questions on test selection and results interpretation
 - 1.877.40.RX.TOX (1.877.407.9869)
- **The right price**—In-network for >90% of lives nationwide and preferred lab network status with major health plans. Our best practices include presumptive testing and confirmation of positives with definitive testing, to help minimize over-testing while providing the right level of information needed to make informed decisions



- **Thank you for joining us today!**

Appendix

Phosphatidylethanol (PEth) blood test— *Now available from Quest Diagnostics*

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Dr Jeff Gudin, EVP Medical Affairs, Quest Diagnostics

Dr Jack Kain, Director, Medical Science Liaison, Quest Diagnostics



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- ✓ **Alternative collection:** As a blood test PEth testing can be performed on patients that may have difficulty providing a urine specimen to due physical limitations. (e.g., transplant patients)

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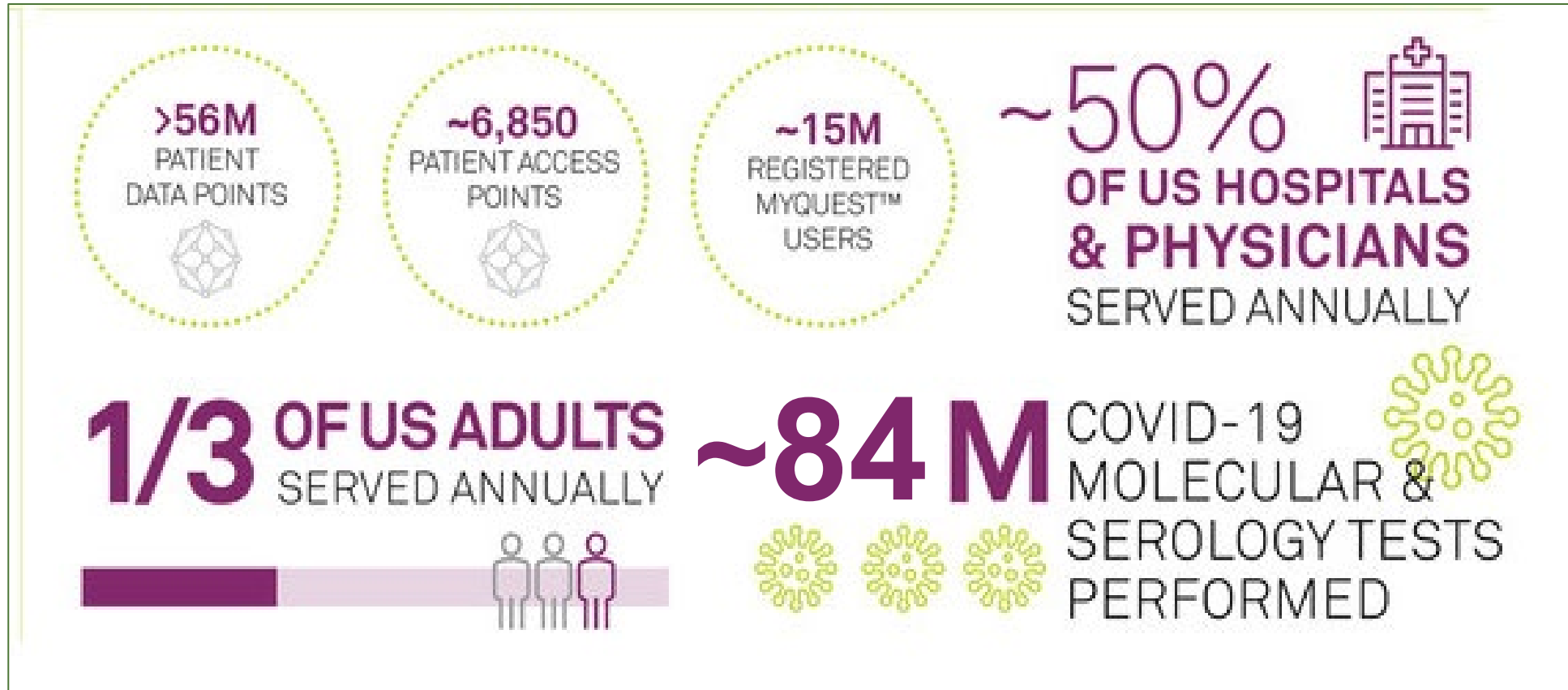
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Test	Detection Window	Significance
Blood Alcohol Concentration (BAC)	< 12 hour from drinking cessation/exposure	Acute Alcohol Consumption
Oral Fluid Ethyl Sulfate (EtS)	< 24 hour from drinking cessation/exposure (Moore 2010, Quest data)	Short term direct biomarker
Urine Ethyl Glucuronide (EtG) & Ethyl Sulfate (EtS)	1-3 days from drinking cessation/exposure, up to 5 days in alcohol dependent patients undergoing detoxification (Helander 2009, Quest FAQs)	Short term direct biomarker
Whole Blood Phosphatidylethanol (PEth)	2-4 weeks from drinking cessation/exposure	Long term biomarker of chronic alcohol consumption

Source: Ulwelling W, Smith K. The PEth blood test in the security environment: what it is; why it is important; and interpretative guidelines. 2018;63(6):1634-1640.doi:10.1111/1556-4029.13874

Quest Diagnostics empowers better health through diagnostic insights



Why Quest?

Quest Diagnostics is far more than a lab. We're an industry leader in laboratory diagnostics and information services with clinical experts, resources, and services to help you meet your patients' needs. With Quest, you can be confident you'll have the insights you need to better the health of your patients and your practice.



Health plan access. Broad health plan coverage with most major insurers makes testing more accessible and can encourage adherence



Convenient testing locations. Our expansive network of more than 2,250 nationwide Patient Service Centers makes it easier for patients to follow through with testing



Complete diagnostic menu. Our comprehensive menu of tests—from routine to specialized—was built with your varied needs and those of your patients in mind



Options for underserved patients. We offer a patient assistance program to help ensure that uninsured patients receive care, with each case handled personally



Seamless EHR integration. Manage all your lab testing needs with the comprehensive Quanam® Lab Services Manager platform; exceptional service and connectivity with over 800 EHR systems



Access to expertise. With more than 650 MDs and PhDs, and dozens of genetic counselors, our team is available for consultation on test selection and results interpretation

Lab testing from routine to specialty

Whether you need basic testing as part of an annual wellness visit, or specialty testing, you can get it all with Quest Diagnostics Drug Monitoring. Our comprehensive menu helps you order the right test for the right patient at the right time, to help you make the right decisions for your patients' care

