

Advancements in Cancer

Adam Bradley
Megan P. Hall, Ph.D.
Greg Trento



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International Foundation
OF EMPLOYEE BENEFIT PLANS 

Speakers

Adam Bradley

Co-Founder

CancerNavigator

Washington, D.C.

Greg Trento

Senior Vice President, Client Services

Zenith American Solutions

Alameda, California

Megan P. Hall, Ph.D.

Distinguished Scientist and
Vice President of Medical
and Corporate Affairs

GRAIL

Menlo Park, California

2024 Labor Cancer Landscape

2024 New Diagnoses and Deaths

~ 60,000

Active union members will be diagnosed this year



~ 15,000

Will pass away from a cancer diagnosis

Cancer Risks for Union Members:



Substantial
Occupational
Cancer Risk

+



Higher
Smoking
Rates

+



Higher
Average
Age

It All Started with Chimney Sweeps

Setting the Scene

- ❖ England, early 1900s
- ❖ In the fog of industrialization
- ❖ Young men were recruited to clean chimneys



Spent shifts covered head to toe in soot



Soot contains Arsenic and Sulfur Dioxide, both carcinogenic substances

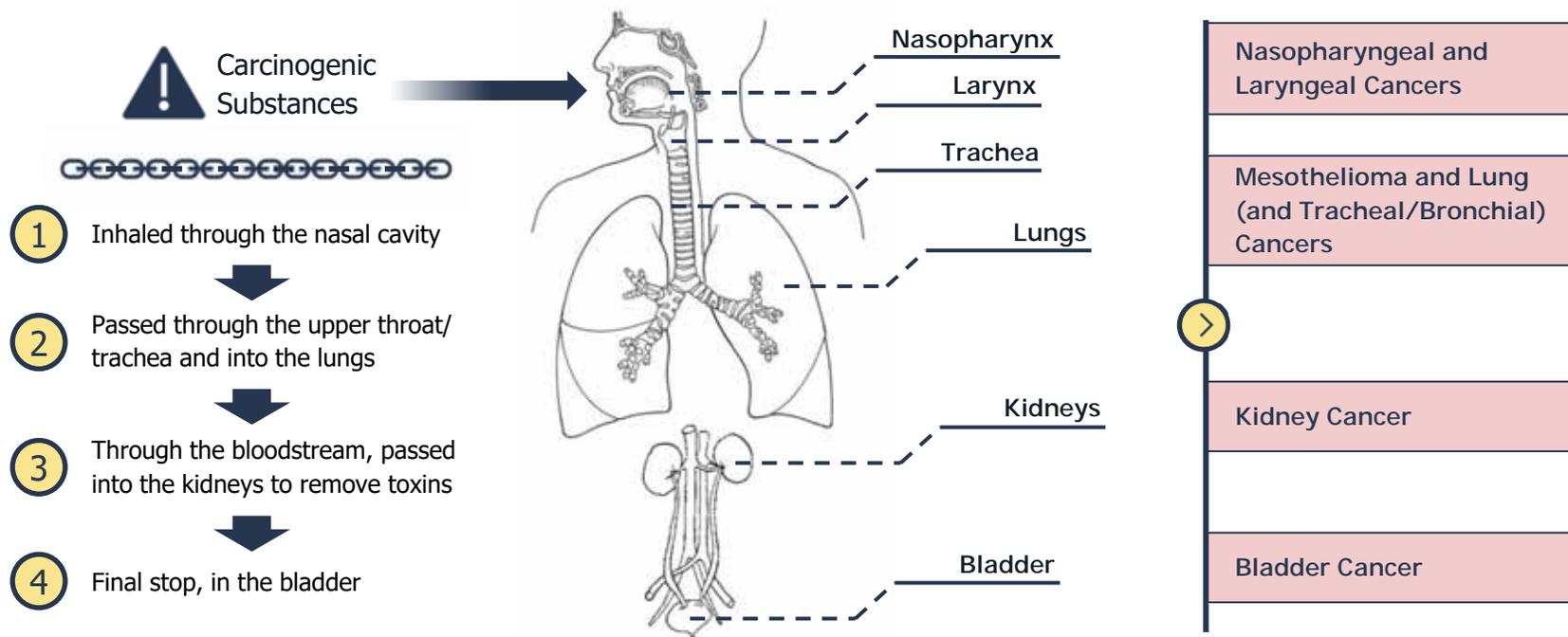


Many of these young men were Diagnosed with Scrotal Cancer



115x Greater risk of Scrotal Cancer.

Main Mechanism—Inhalation



Occupational Cancers are Still Prevalent

3 Important pieces of context

- ❖ Occupational cancer risk, definition: Any cancer risk someone has as a result of their work.
- ❖ The primary occupational cancer risk is exposure to chemicals and cancer-causing agents (carcinogens).
- ❖ Studies show between 2% and 8% of cancers in the U.S. are linked to occupational risks.

113 Known carcinogens



45 Linked to specific jobs



13 With special regulation

1. Arsenic
2. Asbestos*
3. Benzene
4. Beryllium
5. Cadmium
6. Chromium
7. Diesel Engine Exhaust*
8. Formaldehyde
9. Nickel
10. Polycyclic aromatic hydrocarbons
11. Silica*
12. Sulfuric acid
13. Trichloroethylene



Labor workers in many industries are exposed to these carcinogens:

- Firefighters
- Teamsters
- Electrical Workers
- Laborers
- Carpenters
- Operating Engineers
- Longshoremen
- Warehouse Workers
- Plumbers
- Etc.



These carcinogens are known to cause many types of cancer, but are most closely linked to **8**



Cancer Types:

1. Bladder
2. Kidney
3. Laryngeal
4. Leukemia
5. Lung
6. Mesothelioma
7. Nasopharyngeal
8. Ovarian



Many other occupational cancer risks: e.g., Night shift work, high stress levels, etc.

Your Largest Levers in Cancer

Key Insight: There are 2 central moments where interventions can save lives and contain costs



Catch It Early

Catching cancer early saves lives and can make cases much less expensive to treat



Reach The Right Care

There are large differences in outcomes depending on where a member goes for their care

“You only have to spend two days in my clinic to see a patient who will die or lose a limb because they did not get to the right sarcoma expert.”

- Orthopedic Oncologist, Academic Center.

Getting to the Right Expert Matters



Lung Cancer

44% fewer deaths

In 90 days after surgeries performed at teaching facilities¹



Multiple Myeloma

35% fewer deaths

Over the first year for patients treated at highest-volume centers²



Ovarian Cancer

53% fewer deaths

Over 5 years for stage I-II for patients treated by specialists³

¹ Impact of Teaching Facility Status and High-Volume Centers on Outcomes for Lung Cancer Resection: And Examination of 13,469 Surgical Patients.

² Association Between Treatment Facility Volume and Mortality of Patients with Multiple Myeloma.

³ Surgery by Consultant Gynecologic Oncologists Improves Survival in Patients with Ovarian Carcinoma.

Specific Expertise Required for Each Patient

Different
Answers for
Different Cancers



**~40% of Cancer Patients Fail to Reach
Centers Well-Equipped for their Care**

CancerNavigator, On One Slide

Supporting Cancer Patients in Their Hour of Need



Differentiated Cancer
by Cancer Expertise
and Data



Compassionate
Oncology Nurses

Learning 1: Union Members Want Excellent Care Close to Home

Proximity to Care Matters



Patients often have great care within a reasonable drive



Even when telemedicine is an option, patients prefer in-person appointments

Learning 2: Union Members Don't Want Apps

Members Do Not Want...

Another App or
Search Tool



Members Want...

1-1, Personalized Support
from an Expert



Learning 3: Union Members Need End-to-End Support

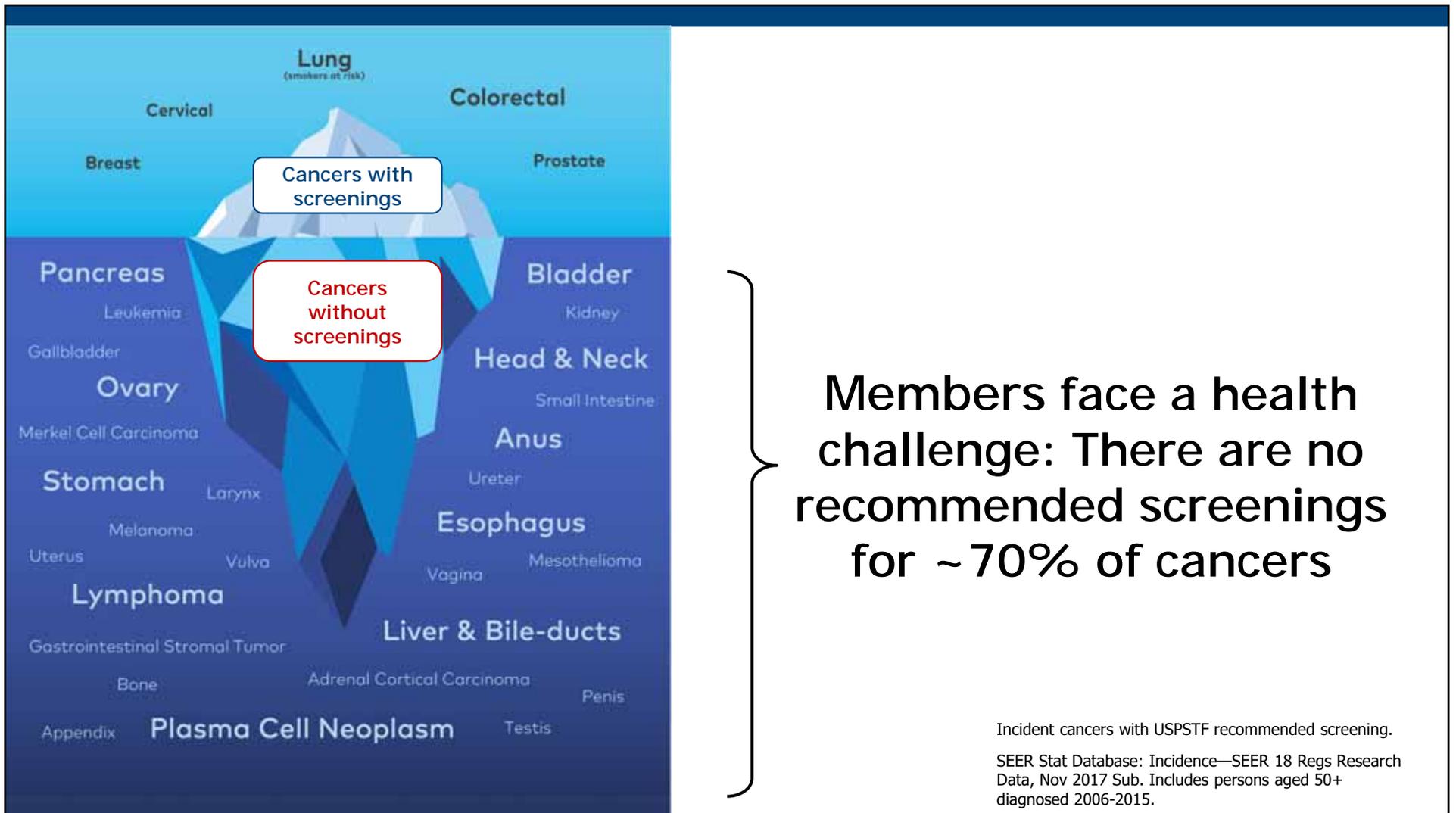
1,000+ Challenges and Struggles Members Face

- Understanding Your Diagnosis
- End of Life Wishes
- Wigs and Cold Caps
- Survivorship
- Manufacturer Drug Discounts
- Accessing Foundation Grants
- Keeping the House Clean
- Working Through The Disease
- Questions to Ask Your Doctor
- Organizing Transportation
- Fertility Support
- Asking for Accommodation
- Mental Health Struggles
- Managing Symptoms and Side Effects
- Disability Applications
- Exercise Guidance
- Navigating Your Benefits
- Smoking Cessation
- Nutrition and Food Selection
- Incontinence
- Talking to Your Children
- Intimacy Issues
- Peer Support Groups
- Convenient Chemo Scheduling

Our Mission Is to Detect Cancer Early, When It Can Be Cured



- Headquartered in Silicon Valley at the heart of the life sciences and technology industries.
- Formed in 2016 from a world-class team of leaders, scientists, clinicians, engineers and other experts.



Cancer Hits Union Members Especially Hard

While age is the most significant risk factor for cancer⁷, union members can face additional risk due to on-the-job hazards



CANCER'S TOLL ON UNION WORKERS

 STEELWORKERS IRONWORKERS	Lung cancer is 500% more common in industry retirees ¹
 FIREFIGHTERS	9% increase in cancer diagnosis ² 14% increase in cancer-related deaths ²
 ELECTRICIANS	are almost 16x more likely to develop mesothelioma than the general population ³
 LONGSHOREMEN	nearly 4X more likely to die of mesothelioma with a moderate level of asbestos exposure ⁴
 PLUMBERS	have a higher risk of asbestos exposure than the general population ⁵
 CARPENTERS	face most considerable asbestos exposure risk of all construction jobs ⁶

1. <https://www.lungcancercenter.com/who-lung-cancer-affects/iron-steel-industry/>

2. Daniels RD, et al. Mortality and cancer incidence in a pooled cohort of US firefighters from San Francisco, Chicago and Philadelphia (1950-2009). *Occup Environ Med.* 2014;71(6):388-97. doi:10.1136/oemed-2013-101662.

3. Gilham C, et al. Pleural mesothelioma and lung cancer risks in relation to occupational history and asbestos lung burden. *Occup Environ Med.* 2016;73(5):290-9. doi: 10.1136/oemed-2015-103074

4. Rusiecki J, et al. Mortality among Coast Guard Shipyard workers: A retrospective cohort study of specific exposures. *Arch Environ Occup Health.* 2018;73(1):4-18. doi: 10.1080/19338244.2017.1289891.

5. Burdett G, et al. Exposure of UK industrial plumbers to asbestos, Part I: Monitoring of exposure using personal passive samplers. *Ann Occup Hyg.* 2007 Mar;51(2):121-30. doi: 10.1093/annhyg/mel078.

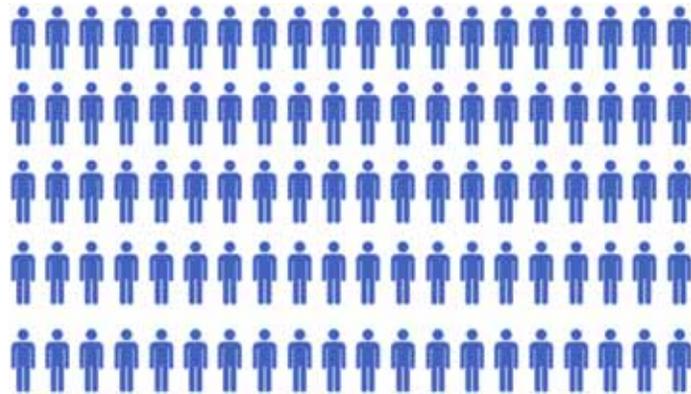
6. Rake C, et al. Occupational, domestic and environmental mesothelioma risks in the British population: a case-control study. *Br J Cancer.* 2009 Apr 7;100(7):1175-83. doi: 10.1038/sj.bjc.6604879.

7. National Cancer Institute. Age and Cancer Risk. <https://www.cancer.gov/about-cancer/causes-prevention/risk/age>

Detecting Cancer Early Can Dramatically Improve Cancer Survival

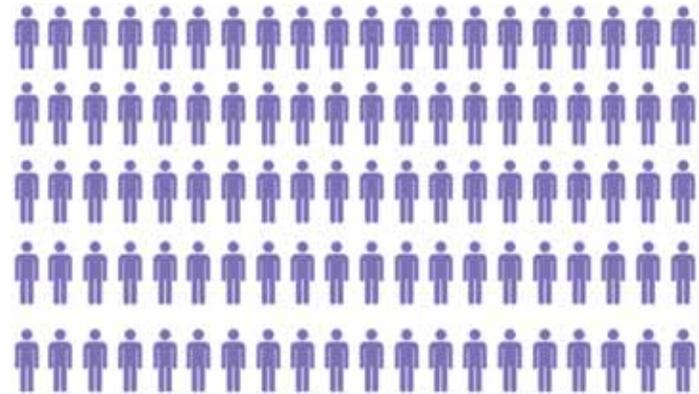
89%

Survival rate when
diagnosed EARLY



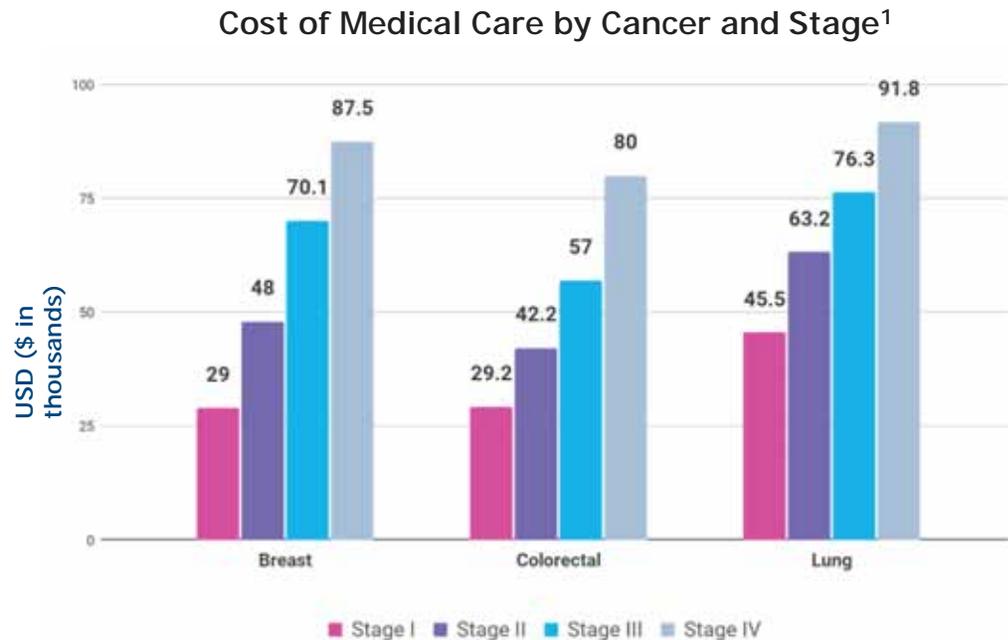
21%

Survival rate when
diagnosed LATE



Based on 5-year cancer-specific survival rates. Source: Surveillance, Epidemiology, and End Results (SEER) Program (www.seer.cancer.gov) SEER*Stat Database: Incidence—SEER 18 Regs Research Data, Nov 2018 Sub. Includes persons aged 50-79 diagnosed 2006-2015 "Early/Localized" includes invasive localized tumors that have not spread beyond organ of origin, "Late/Metastasized" includes invasive cancers that have metastasized beyond the organ of origin to other parts of the body. Data on file GA-2021-004.

There Are Significant Treatment Costs Associated With Late-Stage Cancer



**3X
more**

Treatment of late-stage cancer costs on average 3 times more than early stage²

1. Based on stage II and stage IV breast, colorectal, and lung cancer, and metastatic/non-metastatic pancreatic cancer: Banegas MO, et al. J Natl Compr Canc Netw. 2018;16(4):402-410, and Byfield S, et al. J Med Econ. 2013;16(12):1379-1386.

2. Reddy SR, Curr Med Res Opin. 2022;38(8):1285-1294. doi: 10.1080/03007995.2022.2047536.



Labor organizations
can help members
screen for
multiple cancers



INTRODUCING

Multi-cancer early detection (MCED)

A groundbreaking and potentially life-changing advancement in cancer screening:

- Screens for many deadly cancers, before symptoms appear.^{1,2,3}
- A proactive blood test that can be done annually.^{4,5,6}
- Screens for a “fingerprint” of 50+ cancers.²

The Galleri test is recommended for use in adults with an elevated risk for cancer, such as those 50 years or older.

The Galleri test does not detect a signal for all cancers and not all cancers can be detected in the blood. False positive and false negative results do occur. The Galleri test identifies DNA in the bloodstream shed by cancer cells and does not predict future genetic risk for cancer. Galleri should be used in addition to healthcare provider recommended screening tests. Galleri is available by prescription only.

1. American Cancer Society. Cancer facts & figures 2022. <https://www.cancer.org/research/cancer-facts-statistics/all-cancer-facts-figures/cancer-facts-figures-2022.html> [GRAIL, LLC. Data on file: GA-2021-0065].
2. Klein EA, Richards D, Cohn A, et al. Clinical validation of a targeted methylation-based multi-cancer early detection test using an independent validation set. *Ann Oncol.* 2021 Sep;32(9):1167-77. doi: 10.1016/j.annonc.2021.05.806 3. Schrag D, Beer TM, McDonnell CH, et al. Blood-based tests for multi-cancer early detection (PATHFINDER): a prospective cohort study. *Lancet.* 2023;402:1251-1260. doi: 10.1016/S0140-6736(23)01700-2. 4. Patel A. Methylated DNA biomarkers and incident cancer in the American Cancer Society (ACS) Cancer Prevention Study-3 (CPS-3) cohort. American Society of Clinical Oncology (ASCO) Annual Meeting; 2023 Jun 2-6. <https://meetings.asco.org/abstracts-presentations/218486>. 5. Sasieni P, Clarke CA, Hubbell E. Impact of MCED screening interval on reduction in late-stage cancer diagnosis and mortality. *European Society for Medical Oncology (ESMO) Virtual Congress* [poster]; 2021 Sep 16-21. 6. Schwartzberg L, Broder MS, Allawadhi S, et al. Impact of early detection on cancer curability: A modified Delphi panel study. *PLOS ONE.* 2022 Dec 21;17(12):e0279227. doi:10.1371/journal.pone.0279227. 7. US Preventive Services Task Force. A, B, C grade recommendations, cancer, screenings. [cited 2023 Oct 23]. https://www.uspreventiveservicestaskforce.org/uspstf/topic_search_results

MCED Is Built on a Strong Network of Clinical Study Institutions



GRAIL is conducting multiple studies with over 380,000 participants enrolled to-date as part of its clinical development program



Galleri was made commercially available in June 2021.

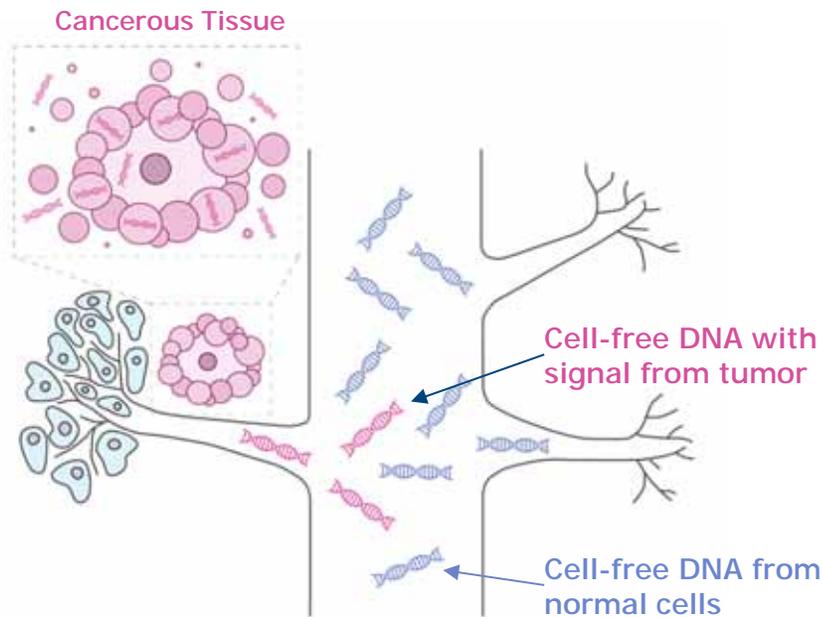
Clinical Study Institutions



Memorial Sloan Kettering
Cancer Alliance



Using Machine Learning and AI, MCED Can Detect a “Fingerprint” of Cancer in the Blood and Predict Its Origin



Cancers growing in the body shed DNA into the bloodstream.^{2,3,4}



MCED identifies DNA in the bloodstream shed by cancer cells.^{2,5}



Using artificial intelligence and machine learning, the MCED test predicts the cancer's origin.

The Galleri test does not detect a signal for all cancers, and not all cancers can be detected in the blood. False positive and false negative results do occur. The Galleri test looks for a signal associated with active cancer and does not predict future genetic risk for cancer. Galleri should be used in addition to healthcare provider recommended screening tests. Galleri is available by prescription only.

*In the PATHFINDER study, "Cancer Signal Origin" (CSO) prediction accuracy was 88% for participants with a cancer diagnosis among study participants with Cancer Signal Detected test result.

1. Schrag D, Beer TM, McDonnell CH, et al. Blood-based tests for multi-cancer early detection (PATHFINDER): a prospective cohort study. *Lancet*. 2023;402:1251-1260. doi:10.1016/S0140-6736(23)01700-2. 2. Klein EA, Richards D, Cohn A, et al. Clinical validation of a targeted methylation-based multi-cancer early detection test using an independent validation set. *Ann Oncol*. 2021 Sep;32(9):1167-77. doi: 10.1016/j.annonc.2021.05.806. 3. Liu MC, Oxnard GR, Klein EA, et al. Sensitive and specific multi-cancer detection and localization using methylation signatures in cell-free DNA. *Ann Oncol*. 2020 Mar 30;31(6):745-59. doi: 10.1016/j.annonc.2020.02.011. 4. Thierry AR, El Messaoudi S, Gahan PB, et al. Origins, structures, and functions of circulating DNA in oncology. *Cancer Metastasis Rev*. 2016 Jul 8;35:347-76. doi:10.1007/s10555-016-9629-x. 5. Ofman JJ, Hall MP, Aravanis AM. GRAIL and the quest for earlier multi-cancer detection. *Nature Portfolio*. 2020 Mar 25. <https://www.nature.com/articles/d42473-020-00079-y>

Care Landscape Overview

Preventive

What could help predict or prevent future cancer?

Cancer risk factor mitigation



Genetic risk testing*



Proactive

Do I have cancer today and can I find it early enough to act?



Single-screening for active cancers
Mammography, colonoscopy, etc.

*Galleri detects a signal associated with active cancer, while genomic risk assessments measure lifelong risk based on DNA information.

Reactive

I've already been diagnosed with cancer. What can be done now?

Medical opinion for diagnosis and treatment



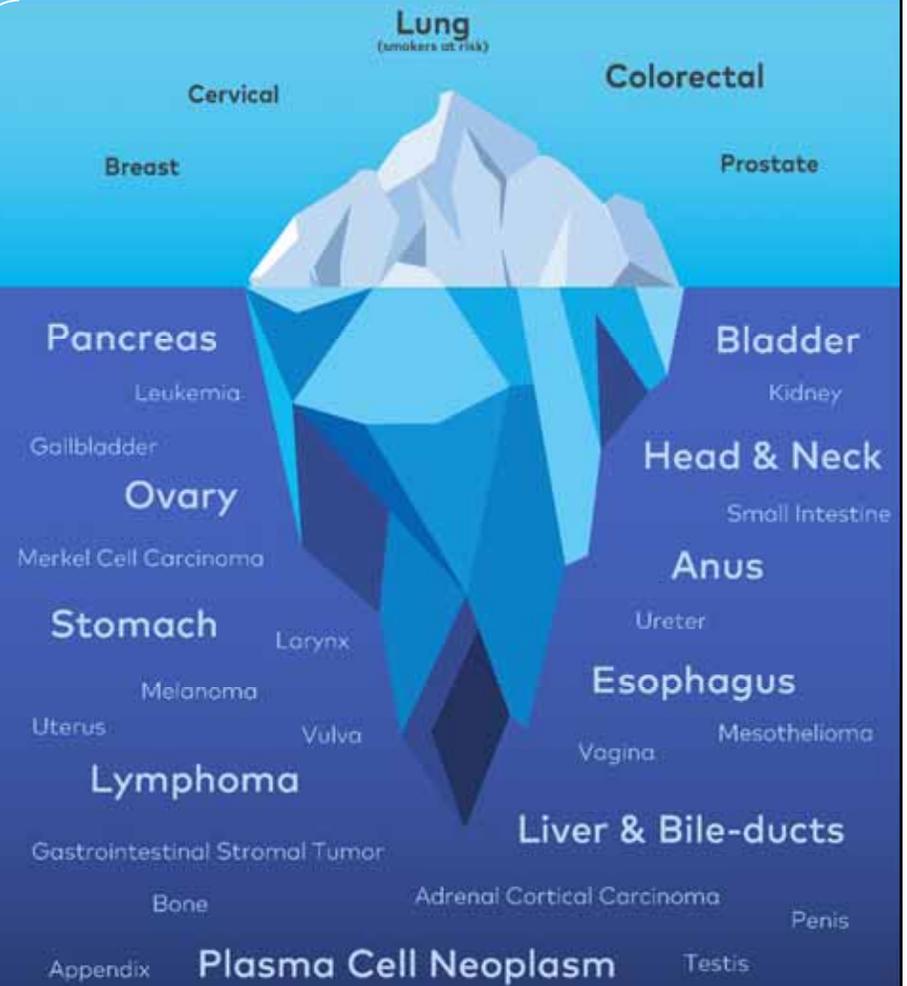
Galleri does not detect a signal for all cancers and not all cancers can be detected in the blood. False positive and false negative results do occur. The Galleri test should be used in addition to healthcare provider recommended screening tests, such as: mammography, colonoscopy, PSA, or cervical cancer screening.

Galleri is recommended for use in adults with elevated risk for cancer, such as those aged 50 or older. Technology/benefits listing is not an exhaustive list by category. They are examples for reference purposes.

Screens for a “fingerprint” of 50+ cancers,¹ including many with no recommended screening today²

The Galleri test does not detect a signal for all cancers and not all cancers can be detected in the blood. False positive and false negative results do occur. Galleri should be used in addition to healthcare provider recommended screening tests.

1. Klein E, Richards D, Cohn A, et al. Clinical validation of a targeted methylation-based multi-cancer early detection test using an independent validation set. *Ann Oncol.* 2021;32(9):1167–1177.
 US Preventive Services Task Force. A,B,C grade recommendations, cancer, screenings. [cited 2023 Oct 23].
https://www.uspreventiveservicestaskforce.org/uspstf/topic_search_results



MCED's Performance Characteristics Allow for Dependable, Impactful and Actionable Results for Members

DEPENDABLE

0.5%
false positive rate¹

(found in study participants without cancer)

IMPACTFUL

68%
sensitivity

(in cancers responsible for 2 of 3 US cancer deaths; stages I-III.² Overall test sensitivity was 51.5%)

ACTIONABLE

89%
accuracy¹

(in predicting cancer signal origin, found in study participants with cancer)

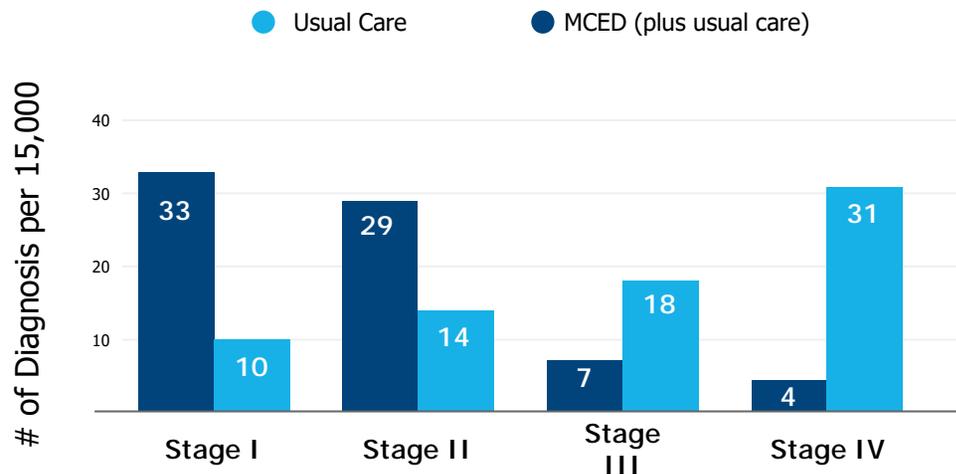
The Galleri test does not detect a signal for all cancers and not all cancers can be detected in the blood. False positive and false negative results do occur.

*The group of cancers responsible for two-thirds of annual US cancer deaths included anus, bladder, colon/rectum, esophagus, head and neck, liver/bile-duct, lung, lymphoma, ovary, pancreas, plasma cell neoplasm, and stomach.

In the Circulating Cell-free Genome Atlas sub-study (CCGA3), a prospective, case-controlled, observational study that included cancer (n=2823) and non-cancer (n=1254) participants without a history of cancer, a Cancer Signal Origin (CSO) prediction accuracy was 88.7% for cancer participants with a cancer signal detected

1. Klein EA, Richards D, Cohn A, et al. Clinical validation of a targeted methylation-based multi-cancer early detection test using an independent validation set. *Ann Oncol.* 2021;32(9):1167-1177. Doi: 10.1016/j.annonc.2021.05.806. 2. American Cancer Society. *Cancer Facts & Figures 2021*. Atlanta: American Cancer Society; 2021.

MCED Has the Potential to Shift Cancer Detection to Earlier Stages Based on Modeled Data¹



Data on stage-specific incidence and 5-year survival of all invasive cancers in people aged 50–79 years diagnosed between 2006–2015

Performance of MCED test in a state-transition model (interception model) when added to usual care. Galleri does not detect all cancers. Not all cancers can be detected in the blood. False positive and false negative results do occur.

By identifying cancers earlier, modeled data shows that the MCED, when added to usual care, could help employers via:

- 50% reduction in the proportion of cases diagnosed in Stage III and Stage IV¹
- 26% reduction in 5-year cancer-related mortality¹

1: Hubbell E, et al. Cancer Epidemiol Biomarkers Prev. 2021;30(3):460-468. DOI: 10.1158/1055-9965.EPI-20-1134.



**The MCED Test Experience:
Large Construction
Health and Trust Fund**

Dedication to Members' Health

- About the fund
 - The largest construction trades labor union in the U.S with a membership of 40,000
 - Operates across California, Nevada, Utah, and Hawaii.
 - Members include heavy equipment operators, surveyors, mechanics, inspectors, miners, public employees, state workers
- Increased cancer risk among members
 - Members face regular exposure to hazardous materials such as diesel exhaust, asbestos and chemicals, plus long hours in environments with poor air quality

Simplifying the Process to Increase Access to Galleri

Onsite events

Onsite blood draws at each of the fund's 14 districts:

- Coincide with quarterly meetings
- Encourages and facilitates participation in the benefit

Onsite Rx

GRAIL + US Wellness created a special program for fund members that:

- Allows them to request an Rx and receive the test onsite*
- Ensures easier access and convenience for members

Telehealth

Phone-based test ordering offered to meet unique member needs:

- Pilot program allows tests to be conveniently requested by phone vs requiring web-based engagement*

* Galleri is available by prescription only

The Galleri Experience

1

Awareness and Education



- Mailers sent to members
- Phone ordering pilot program
- Onsite events and telehealth for ease of access

2

Eligibility Verification and Test Request



Once member requests test, healthcare provider prescribes if appropriate and conforms with union-determined eligibility

3

Kit Delivery and Blood Draw



Blood draw events held in each of the fund's 14 districts

- 384 tests ordered
- Tests available onsite

4

Return of Results to Provider

Sample Test Report



Members who have participated in the test have received either a Cancer Signal Detected or No Cancer Signal Detected Results

5

Positive Signal Support



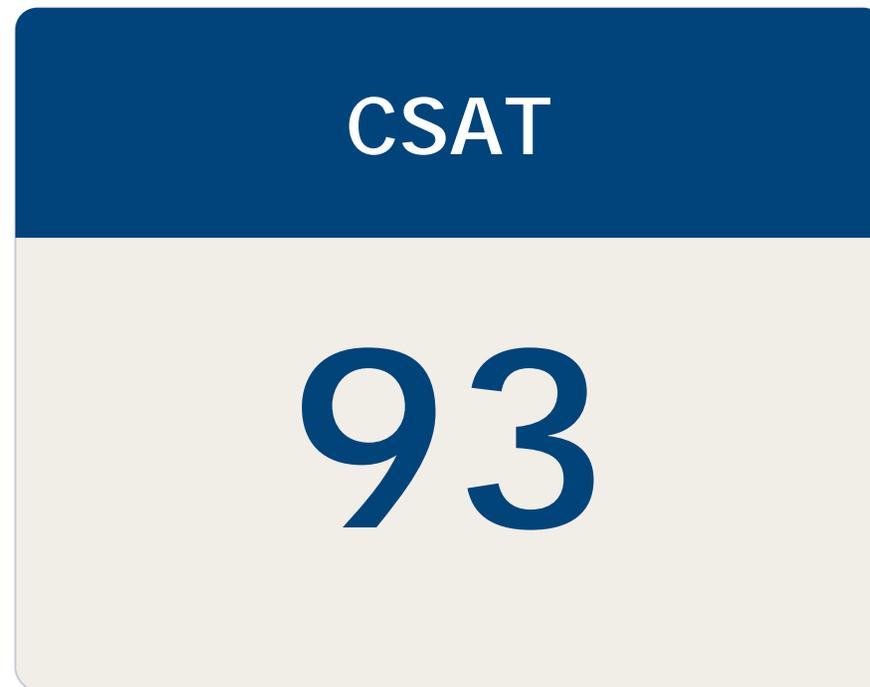
Members who receive a cancer signal detected result have access to a GRAIL Patient Advocate and other navigation resources

Galleri is a screening test and does not diagnose cancer. Diagnostic testing is needed to confirm cancer. If a cancer signal is detected, Galleri can predict the tissue type or organ associated with the signal to help healthcare providers determine next steps.

The Galleri test does not detect a signal for all cancers and not all cancers can be detected in the blood.

False positive and false negative results do occur. Galleri should be used in addition to healthcare provider recommended screening tests.

The Fund Has Experienced High Member Satisfaction With the Galleri Test Since December of 2023



CSAT: customer satisfaction

Member Feedback on Galleri Has Been Positive



- Members have expressed surprise and gratitude, appreciating the fund's willingness to invest in a test like Galleri for both themselves and their spouses.
- The fund has seen a notable rise in member attendance at quarterly meetings, attributing this success largely to offering the Galleri test during the meetings.

**Your Feedback Is Important.
Please Scan This QR Code.**



Session Evaluation

Important Safety Information

The Galleri® test is recommended for use in adults with an elevated risk for cancer, such as those aged 50 or older. The Galleri test does not detect a signal for all cancers and should be used in addition to routine cancer screening tests recommended by a healthcare provider. Galleri is intended to detect cancer signals and predict where in the body the cancer signal is located. Use of Galleri is not recommended in individuals who are pregnant, 21 years old or younger, or undergoing active cancer treatment.

Results should be interpreted by a healthcare provider in the context of medical history, clinical signs and symptoms. A test result of "No Cancer Signal Detected" does not rule out cancer. A test result of "Cancer Signal Detected" requires confirmatory diagnostic evaluation by medically established procedures (e.g. imaging) to confirm cancer.

If cancer is not confirmed with further testing, it could mean that cancer is not present or testing was insufficient to detect cancer, including due to the cancer being located in a different part of the body. False-positive (a cancer signal detected when cancer is not present) and false-negative (a cancer signal not detected when cancer is present) test results do occur. Rx only.

Laboratory/Test Information

GRAIL's clinical laboratory is certified under the Clinical Laboratory Improvement Amendments of 1988 (CLIA) and accredited by the College of American Pathologists (CAP). The Galleri test was developed, and its performance characteristics were determined by GRAIL. The Galleri test has not been cleared or approved by the Food and Drug Administration. GRAIL's clinical laboratory is regulated under CLIA to perform high-complexity testing. The Galleri test is intended for clinical purposes.