

# Seizing the Transformative Opportunity of Multi-cancer Early Detection

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# About ITIF

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- The world's leading science and technology policy think tank.
- Supports policies driving global, innovation-based economic growth.
- Focuses on a host of issues at the intersection of technology innovation and public policy across several sectors:
  - Innovation and competitiveness
  - IT and data
  - Telecommunications
  - Trade and globalization
  - Manufacturing, life sciences, agricultural biotech, and energy



# The Promise of Multi-cancer Early Detection (MCED)

- Cancer remains an implacable enemy.
- MCED leverages emerging biotech/IT platforms into a new cancer-screening approach.
- Holds potential to screen for many more cancers and detect them at much earlier stages.
- Could largely transform cancer-detection from symptom- to screen-detected.
- Potentially significant health economic benefits.

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## Seizing the Transformative Opportunity of Multi-cancer Early Detection

STEPHEN EZELL | APRIL 2021

Blood-based multi-cancer early detection (MCED) technologies hold the promise to revolutionize America's cancer-screening paradigm, dramatically expanding the range of detectable cancers and identifying them at earlier stages when cancers are more treatable. Policymakers should provide a supportive regulatory and coverage environment.

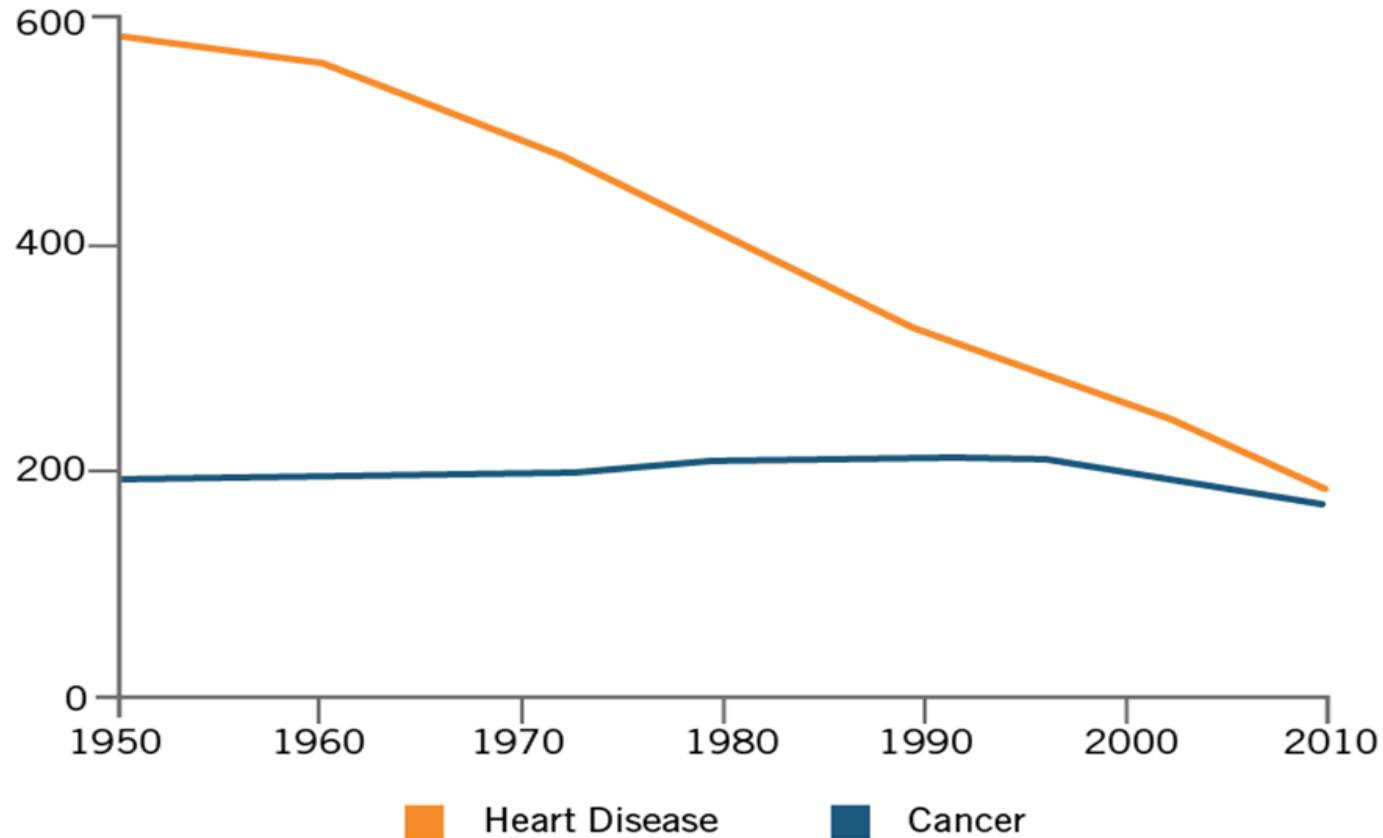
### KEY TAKEAWAYS

- Multi-cancer early detection approaches merge emerging biological and information technologies—including next-generation gene sequencing, artificial intelligence, and big data—in a revolutionary new approach to cancer detection.
- MCED can detect signals for dozens of different types of cancers with a very high rate of accuracy, a low false-positive rate, and the ability to trace the detected cancer to its likely tissue of origin with a high degree of confidence.
- MCED holds the potential, over time, to transform America's cancer-detection paradigm from one in which most cancers are detected when patients present symptomatically to one in which they can be screen-detected in advance.
- If U.S. enterprises are to lead in this fast-emerging, intensely globally competitive technology field—and if citizens are to enjoy the benefits—then policymakers will need to get the regulatory and coverage environment right.
- Congress should pass the Medicare Multi-Cancer Early Detection Screening Coverage Act, which authorizes the Centers for Medicare & Medicaid Services to use an evidence-based process to cover blood-based MCED tests.

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# The Need for a New Cancer-screening Approach

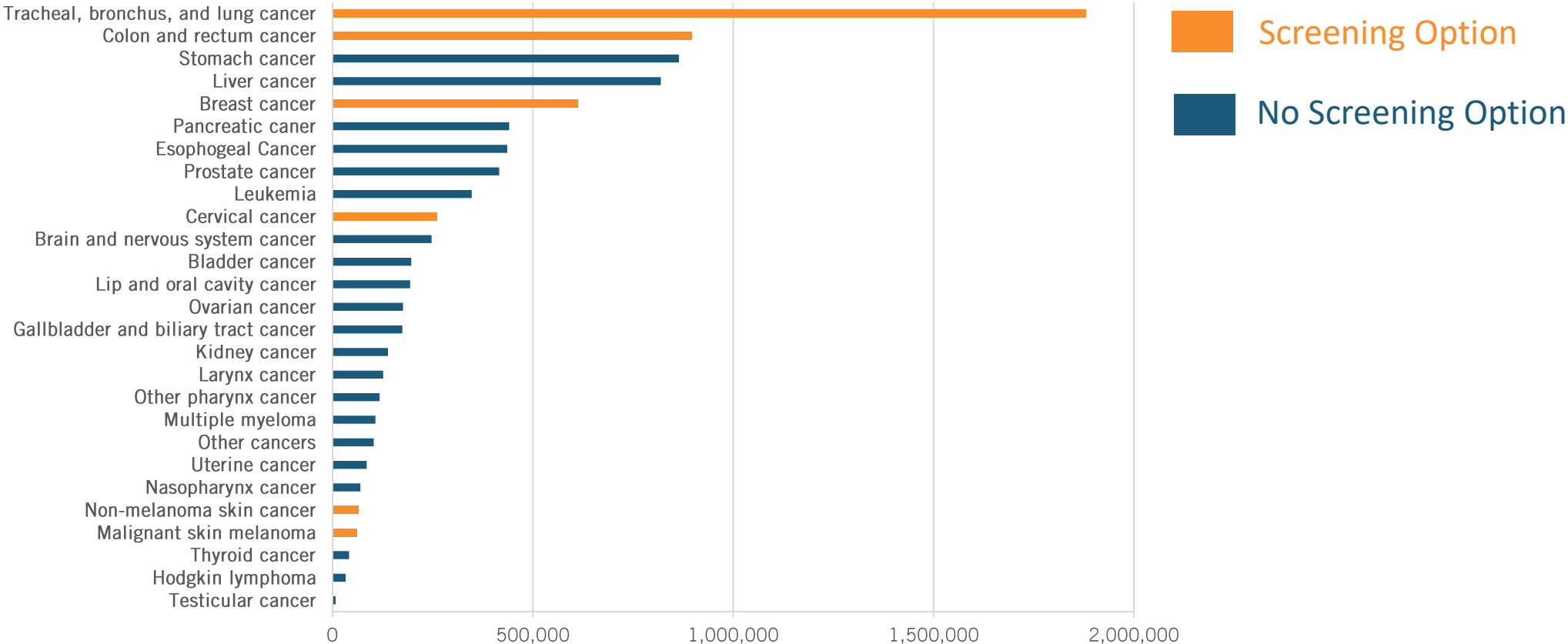
Age-adjusted Mortality Rate Per 100,000 Population



Source: Song et al., "Cancer Prevention: Molecular and Epidemiologic Consensus," *Science* Vol. 361, Issue 6409 (September 2018)

# Most Cancers Lack Recommended Screening Options

Global Cancer Fatalities, by Type, 2017

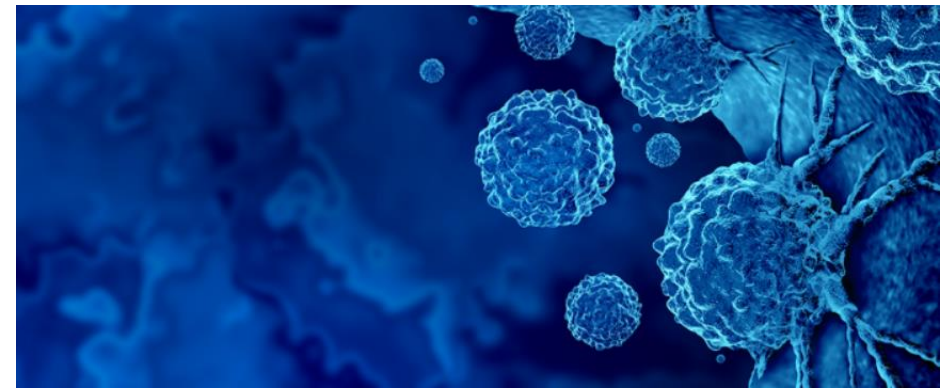


Source: Courtesy Dr. Bert Vogelstein, “Webinar on the Multi-Cancer Early Detection Screening Coverage Act”

# Potentially Significant Economic Benefits

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- Cancer: Second-most-costly disease in U.S.; 1% GDP.
- Treatment of metastatic cancer 2x as costly as non-metastatic.
- A 1% reduction in cancer mortality could deliver \$500 billion in net present benefits (a cure \$50 trillion).



# MCED Screening Benefits

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- Less-invasive screening.
- Help reduce racial and socioeconomic disparities.
- Help address the COVID-19-induced screening gap.

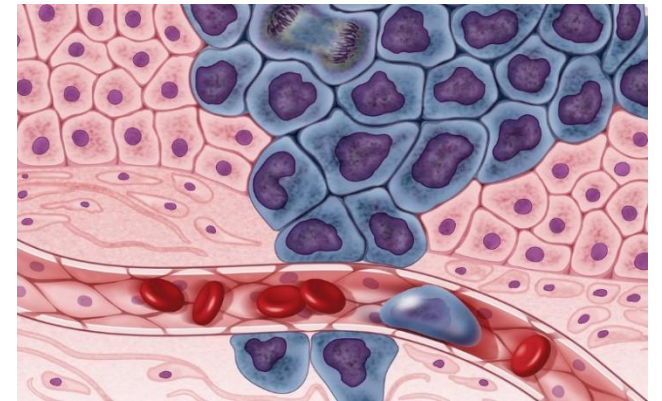


Source: Ezell, “Seizing the Transformative Opportunity of Multi-cancer Early Detection”

# Addressing Potential MCED Misgivings

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- Cancers with no or few therapeutic alternatives.
- Limiting incidences of false positives: over- vs. under-diagnosis.
- Significant increase in cancer detection would overwhelm the health care system/economy.



Source: Ezell, "Seizing the Transformative Opportunity of Multi-cancer Early Detection"



# Policy Recommendations

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- Congress should pass the Medicare Multi-cancer Early Detection Screening Coverage Act.
- The Biden administration/Congress should increase NIH funding, including for the Cancer Moonshot.
- Invest in America's biomedical STEM talent.

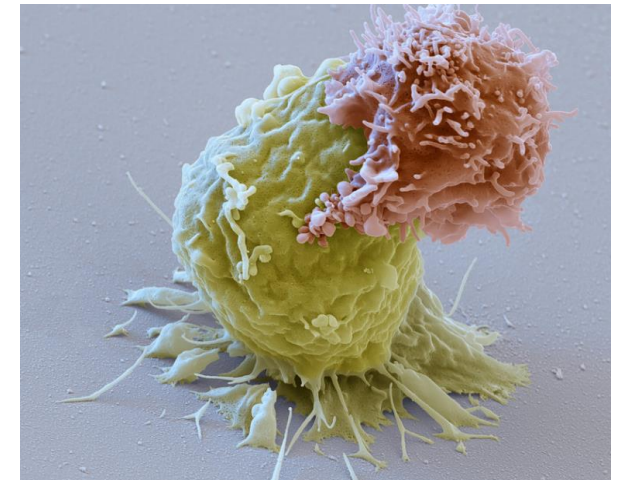


Image of a CAR-T cell (reddish) attacking a leukemia cell (green)

Source: Ezell, "Seizing the Transformative Opportunity of Multi-cancer Early Detection"

# Thank You!

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