How Much Do You Want to Know? The Peril and Promise of an MCD-driven Future

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Disclosures

I have no disclosures related to this presentation.

Today's Talk

1. Challenges (perils)
2. Opportunities (promise)
3. NCI Cancer Screening Research Network (CSRN)
4. An MCD-driven future

THE PRESIDENT AND FIRST LADY'S

CANCER MOONSHOT

ENDING CANCER AS WE KNOW IT

Goals of the reignited Cancer Moonshot

- Reduce U.S. cancer mortality rate by 50% by 2047
- Improve the experience of people and their families living with and surviving cancer

What do we currently know about MCD tests?

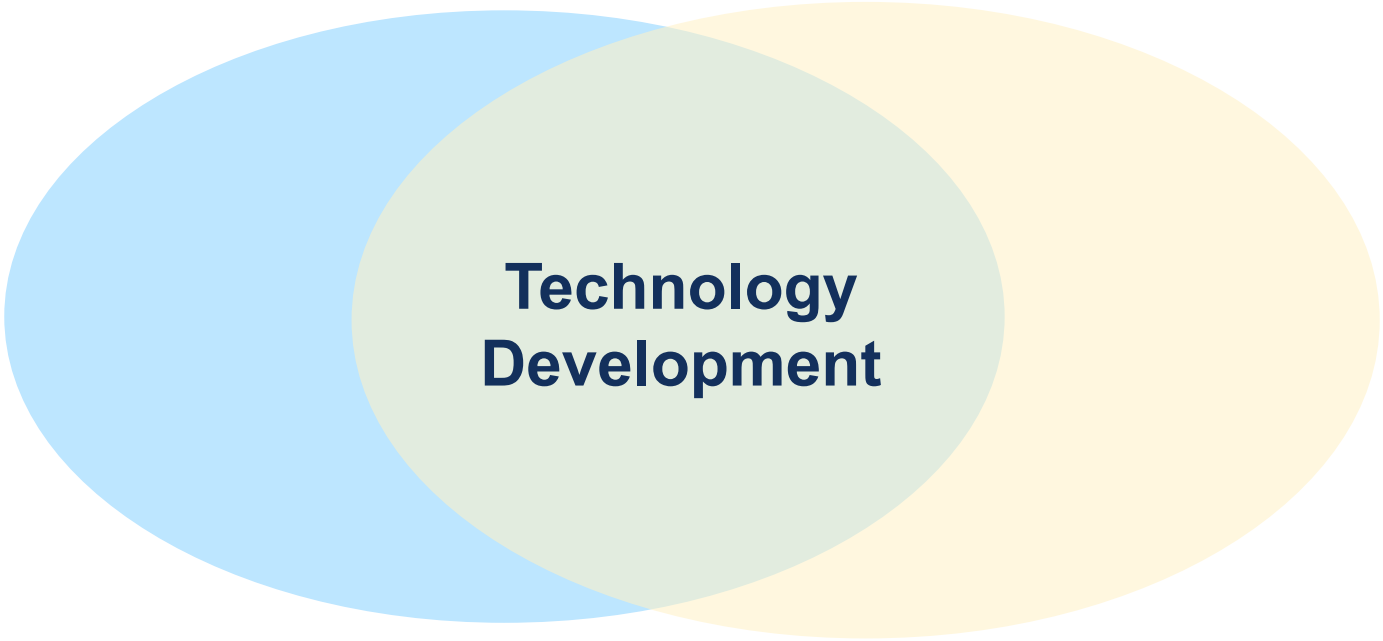
Current knowledge on MCD tests focuses on **diagnostic performance** (≠ improved outcomes)

Clinical utility of widespread implementation of MCD testing is **unknown**

MCD tests present **novel implementation challenges**

Important distinction: Screening vs. early detection

SCREENING:
Checking for cancer in patients with no symptoms



EARLY DETECTION:
Finding cancer in its earliest stages, often in patients with symptoms

Early detection is necessary but not sufficient *for a technology to be an effective cancer screening tool*

What do we NOT know about MCD tests?

- How effective will these tests be in the **real world**?
- Who will define the **populations** that will benefit from MCD testing, and how and when can/should they access them?
  - Which test is best for which individuals (“precision early detection”)?
  - At what intervals should they be used i.e., what is the reassurance following a negative test?
- How can we **use** MCD tests?
  - e.g., redefine tumor staging, risk assessment, care experience
- What are the **psychological and social impacts** of MCD testing?
- How will MCD tests **influence practice and care** delivery?
- What will MCD tests mean for the **patient experience**?

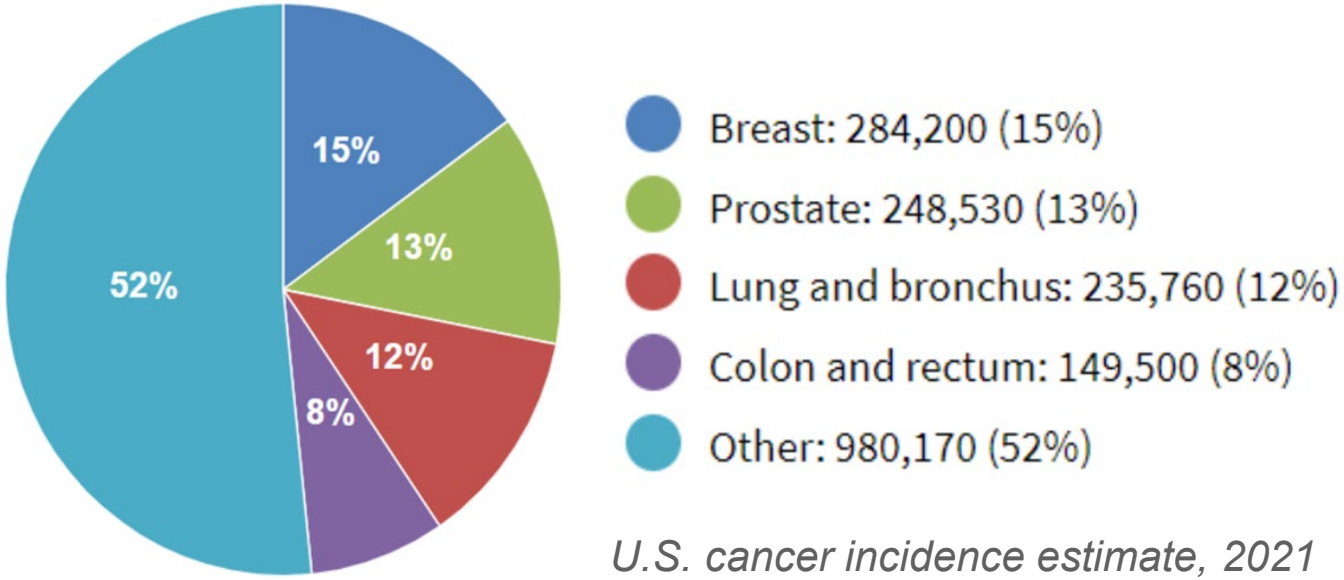
What are the potential perils of MCD tests?

- **False positives**: Test is positive, but patient does NOT have cancer
- **Unnecessary invasive procedures** and complications
- **False negatives**: Test is negative, but patient DOES have cancer
- **Disrupting standard-of-care** cancer screening after (negative) MCD tests
- **Exacerbating** (rather than improving) **disparities**
- **Overdiagnosis** of indolent (slow-growing) cancers

Cancer screening exists for only a few organ sites

Screening tests exist for some of the most common cancers in the U.S.

- Breast, cervix, colon
- Lung (in high-risk individuals)
- Prostate (on an individual basis)



U.S. cancer incidence estimate, 2021

***But… more than half of cancer deaths** are from cancer types with **no validated screening tests**.*

From 1975 to 2020, 8 out 10 lung, breast, colorectal, cervical, and prostate cancer deaths averted were due to cancer prevention and control interventions (in press)

What is the potential promise of MCD tests?

- Screening for cancers **without a screening test**
  - Elucidating the natural history of these cancers
- May potentially **detect cancers that are difficult to identify** at an early stage
- Can potentially identify multiple cancers with a single test, **saving time and minimizing medical procedures**
- **Less invasive** method may be more acceptable to patients than other more invasive forms of screening

What is the NCI Cancer Screening Research Network?

Goal of the network:

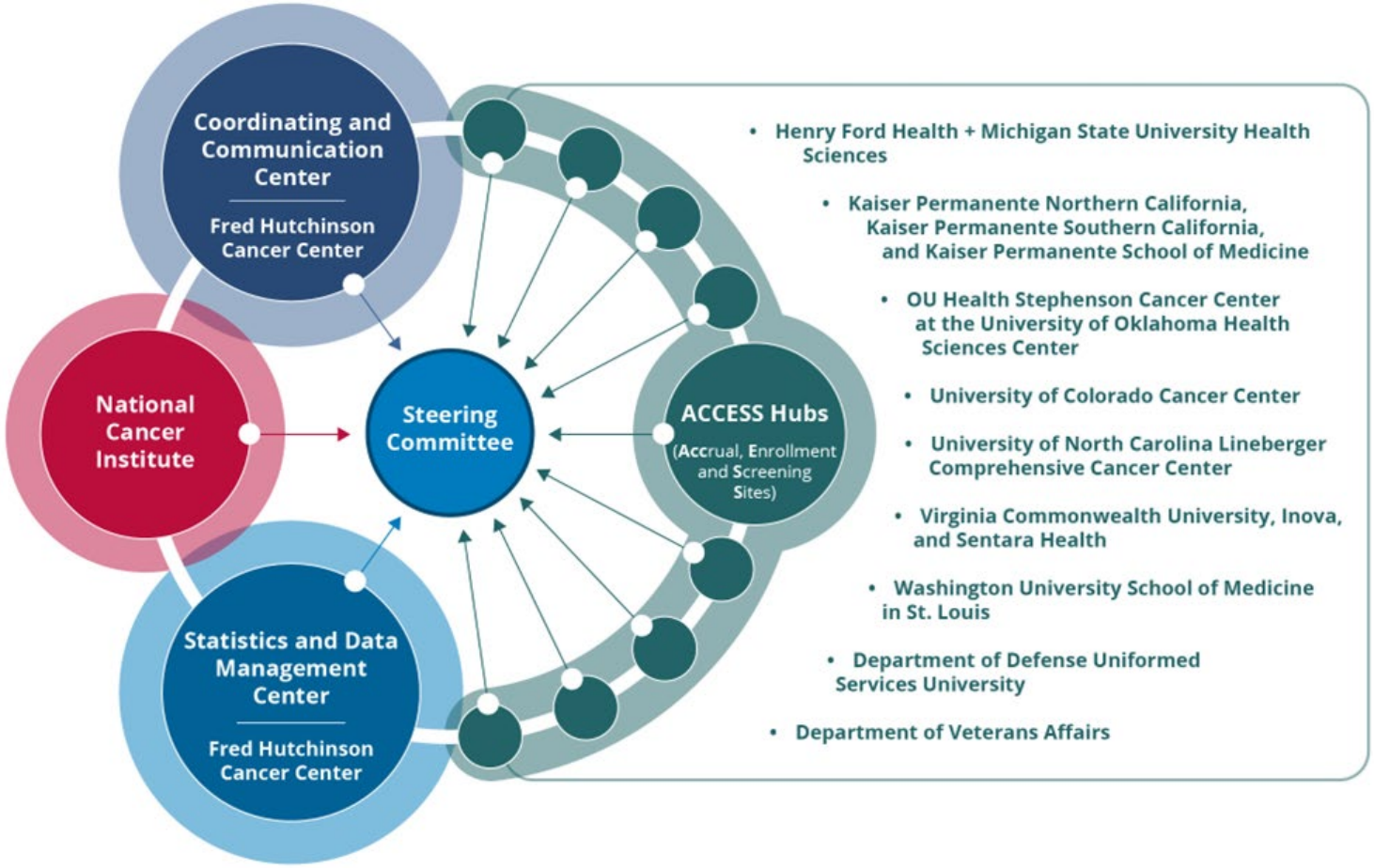
- To evaluate novel screening technologies in diverse, representative populations

Goal of Vanguard, the first CSRN Study:

- CSRN will launch the Vanguard (pilot) study on MCDs in 2025 – to address the feasibility of RCT for these tests

Goal of RCT for MCDs:

- To **understand whether, and how best to use, MCD tests** to screen for multiple cancer types and reduce cancer mortality.



Vanguard Study (pilot and feasibility study)

Randomization

Control Arm

MCD 1 Arm

MCD 2 Arm

All Arms Offered Standard of Care Cancer Screenings

Interventions

\+ **No Additional Tests Control Arm**

\+ **MCD 1 Tests for Cancers A, B and C**

\+ **MCD 2 Tests for Cancers C, D and E**

Est. 8,000 people per arm

Objectives of Vanguard Study

- Assess participant willingness for randomization
- Determine adherence to testing and diagnostic follow-up
- Evaluate feasibility of protocol-defined diagnostic workflows
- Determine reliability and timeliness of blood specimen testing and return by MCD companies
- Identify facilitators and barriers to recruitment/retention/compliance of diverse participant groups

Cancer Screening Research Network activities

CSRN launched (February 2024)

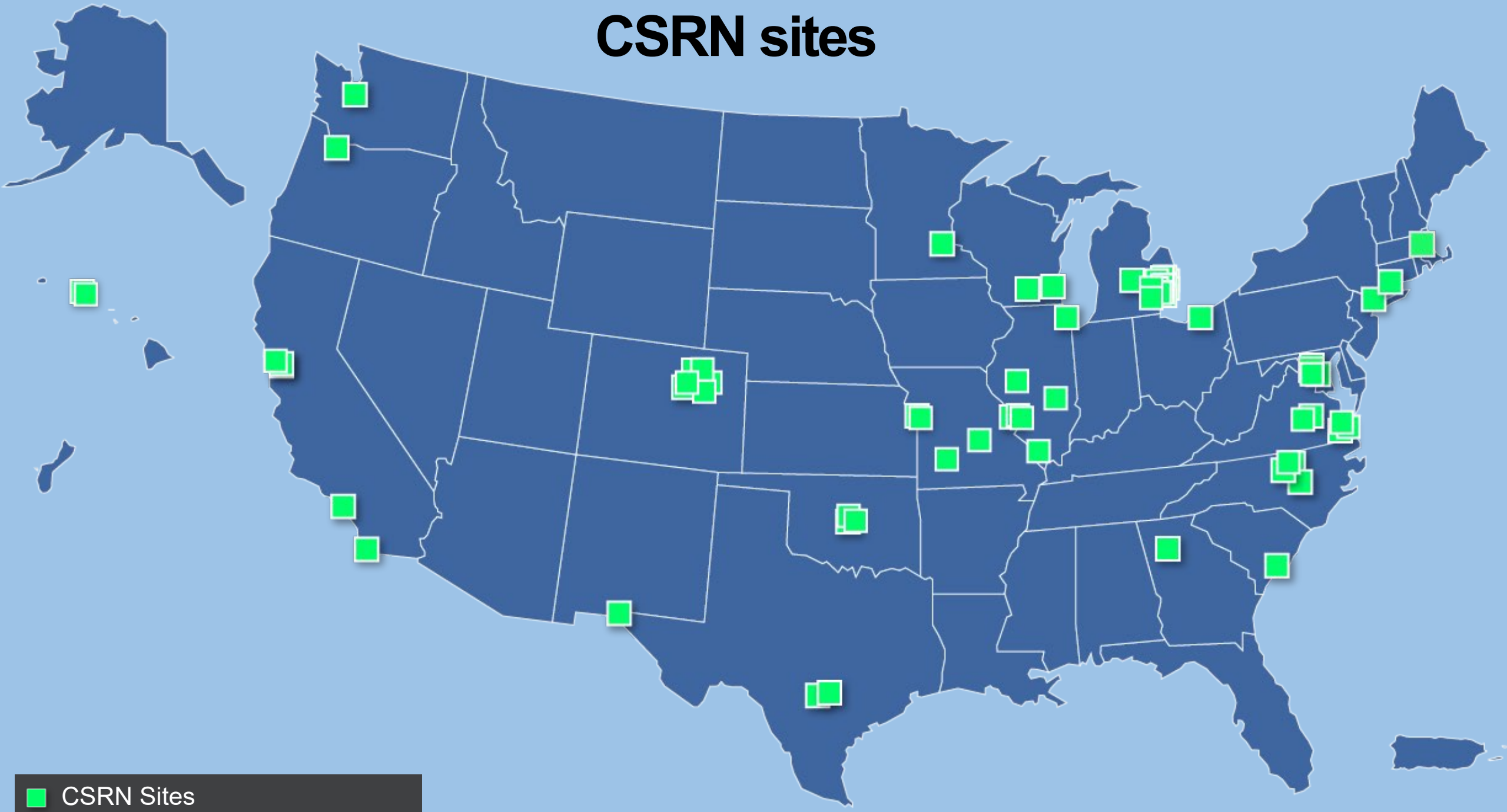
Engaging MCD developers in collaborating and participating in the large feasibility study (Vanguard Study)

Developing Vanguard Study protocol and logistics (to launch in 2025)

Successful recruitment of diverse trial participants

NCI is collaborating with other federal agencies (e.g., FDA, CMS, VA, DOD, others)

CSRN sites



National Cancer Plan

4 Health-centric Goals

- Prevent Cancer
- Detect Cancers Early
- Develop Effective Treatments
- Deliver Optimal Care

4 Empowering Goals

- Maximize Data Utility
- Eliminate Inequities
- Optimize the Workforce
- Engage Every Person

An MCD-driven future must ensure that MCD tests contribute to the success of these goals – especially the ones highlighted.

Conclusions and key takeaways

There are **more questions than answers** about MCD testing currently.

There is **a lot of critical research left** to do before we can answer the most pressing questions around MCD testing.

We need more **urgency around building understanding** these technologies (building a robust evidence base) before exploring clinical applications.

Everyone has a role in ensuring a future where use of MCD testing is safe, evidence-based, and leads to **improved health outcomes and lives saved**.

NCI MCD Clinical Trial Team

- Philip Castle
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- Sarah Temkin

Thank You!

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