CARE®

The Ambry CARE Program®

Revolutionizing High-Risk Patient Identification with Proactive, Patient-Centric Solutions

Are you ready to equip your healthcare team to give patients options that could be lifesaving?

Ambry Genetics®

The Problem

High-risk patients are being missed, and healthcare providers are in a nearly impossible position.

Patients who know they are at an increased risk for cancer may be able to take lifesaving action via increased screening and risk reduction measures. Multiple medical guidelines call for breast cancer and/or hereditary cancer risk assessment in primary care settings, including annual GYN visits, for every patient, every time.[1-4] However, many high-risk patients are being missed.

- **80%** of people with *BRCA*-related Breast and/or Ovarian Cancer syndrome may not know it.[5]
- **1 in 279** people have Lynch syndrome, the most common hereditary cause of colorectal cancer. >95% may not know it.[6,7]
- Males undergo hereditary cancer testing at lower rates than females – **half the rate** when they do not have cancer, and even lower when males and females with cancer are compared.[8]
- **93%** of female patients who qualify for high-risk breast MRI based on medical/family history do not have one.[9,10]

It would take a provider 8+ hours a day to provide just the USPSTF-recommended preventive services to their patients.[11] Competing demands make it difficult to thoroughly address each patient's needs within the limited time available during well visits in which most decisions about proactive care are made. Healthcare teams are in a nearly impossible position without the right technology and workflows to support them.

The Solution

The Ambry CARE Program® leverages digital health solutions to enable health systems to stratify patients by cancer risks, driving care that is proactive and patient-centric. This enables clinicians to make timely, evidenced-based medical decisions while benefiting from improved practice productivity.

CARE Features

Digital History Collection and Assessment

Suite of digital tools collect and analyze patient medical and family history and weigh against medical guidelines

Genetic Testing

Ordered through Ambry with just a few clicks for qualified individuals

Pre-Test Education

Explain how genetic screening or testing can guide personalized, proactive healthcare

Post-Test Genetic Counseling

Made available to all patients

Results Delivery

Results delivered to the provider, and in most cases, to the patient, using the CARE platform

Documentation

Transparency at each step, improving patient and provider experience

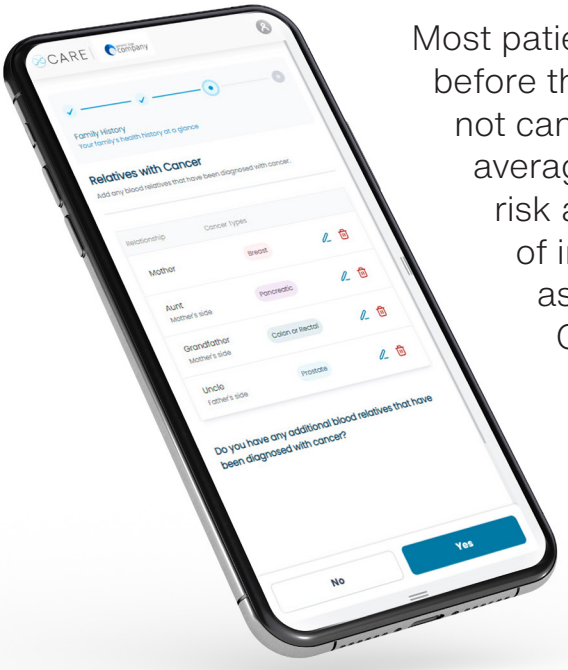
Medical/Family History Collection

A secure, HIPAA-compliant application collects and analyzes patients' medical and family history related to cancer risk factors prior to in-person visits.

Patients are sent an email/text inviting them to access the CARE platform and complete the medical/family history assessment.

This request is sent several days ahead of their visit, allowing them time to connect with relatives to discuss family history.

Reminders are sent to increase the likelihood of pre-visit assessment completion.



Most patients complete this assessment before their visits, and those who do not can easily complete it in-office. On average, 75% of patients complete their risk assessment with CARE.[12] 60% of individuals who complete the risk assessment are over age 50, and CARE sites also report improved access to cancer risk assessment for minority populations.[12,13]

Personalized Breast Cancer Risk Score

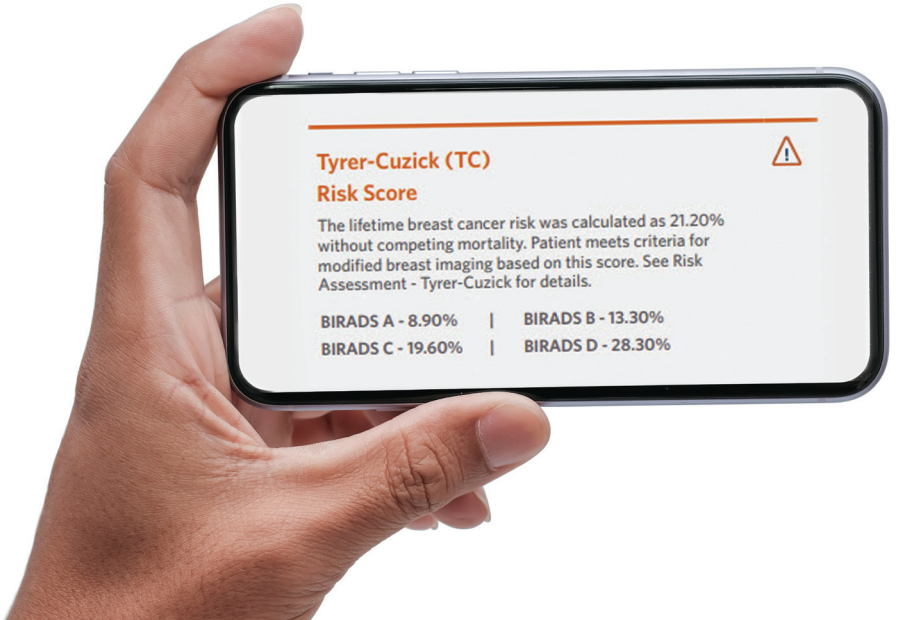
CARE's digital tools analyze medical and family history information to provide a patient's lifetime risk of developing breast cancer using the Tyrer-Cuzick (TC) score, regardless of whether they qualify for and/or undergo genetic testing.

This score can also be enhanced by accounting for:

- Breast density data
- Competing mortality
- Unaffected female relatives
- Genetic testing results

If the lifetime breast cancer risk is 20% or higher, increased breast cancer screening, including annual breast MRI, may be appropriate.[5] The goal is to detect breast cancer earlier, when it is easier to treat. In some cases, risk-reducing options may also be appropriate.

With CARE, the breast cancer risk score is a living score that is updated at each visit as new information is incorporated (e.g. updated medical and family history). This is crucial as guidelines recommend that this risk assessment be updated regularly.[14] Data from previous visits are also pulled in, saving time for patients and providers. On average 10% of patients will have a TC score >20%.*



Hereditary Cancer Risk Assessment and Testing

CARE's digital tools analyze medical history and family history and weigh this information against NCCN Clinical Practice Guidelines in Oncology (NCCN Guidelines®) to determine whether a patient meets criteria for hereditary cancer testing.[15,16]

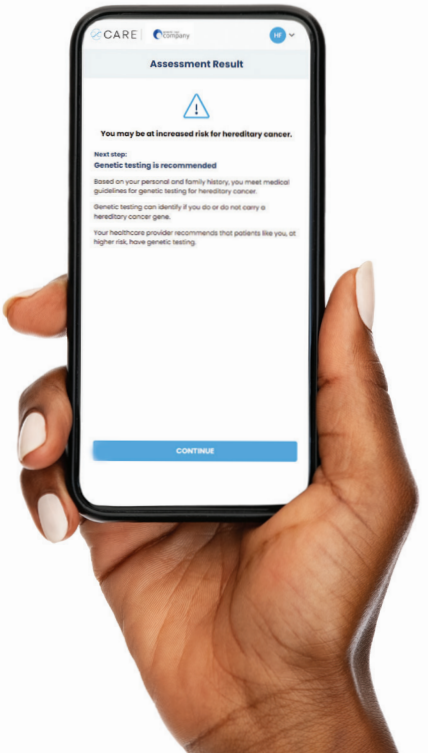
The CARE platform's logic has been validated, demonstrating 99.5% accuracy for hereditary cancer risk assessment.[17] CARE effectively identifies individuals meeting NCCN Guidelines® genetic testing criteria for:

- Hereditary breast, ovarian, pancreatic, and prostate cancers[15]
- Lynch syndrome (associated with colorectal, gynecologic, and other cancers)[16]
- Familial adenomatous polyposis (FAP, associated with colorectal polyps and cancer)[16]

Individuals with positive genetic test results, meaning they are found to have a pathogenic variant or mutation linked with hereditary cancer risk, may qualify for:

- Increased cancer screening (e.g. earlier mammograms or prostate cancer screening, addition of breast MRI, more frequent colonoscopies)[15,16]
- Options to reduce their risk (e.g. medications, risk-reducing procedures such as prophylactic mastectomy or hysterectomy)[15,16]

This information may also be important for family members who qualify for hereditary cancer testing given that the first-degree relatives of someone with a pathogenic variant or mutation each have a 50% risk of having the same variant.



With CARE, hereditary cancer testing can be coordinated through Ambry with just a few clicks.

Patient Education

It is crucial that patients have access to education related to genetic testing so they can make informed decisions.[18] However, not all healthcare providers have the time, knowledge, or resources to provide this education.[19] Patients also differ in the amount of information they want and need before making decisions about testing.

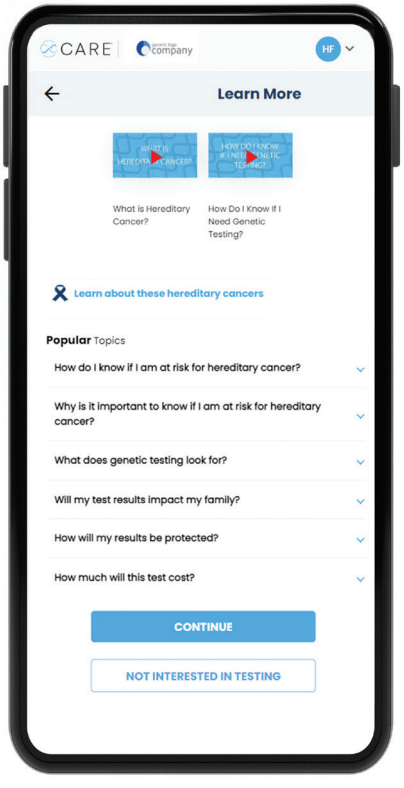
Patients can access and revisit education on a variety of topics within the CARE platform, including:

Genetics 101

Possible Test Results and Implications

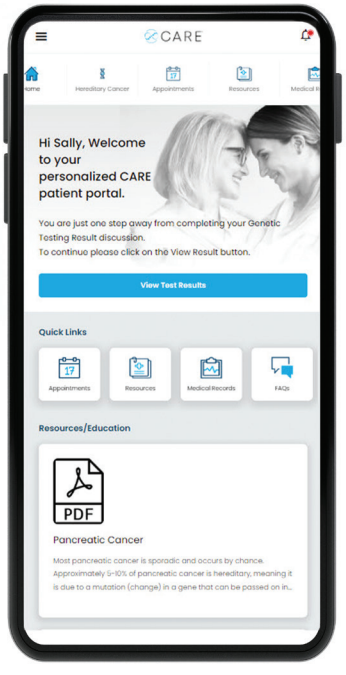
Genetic Information Non-Discrimination Act (GINA)

82% OF PATIENTS COMPLETE ALL PRETEST EDUCATION IN THE CARE PLATFORM.*



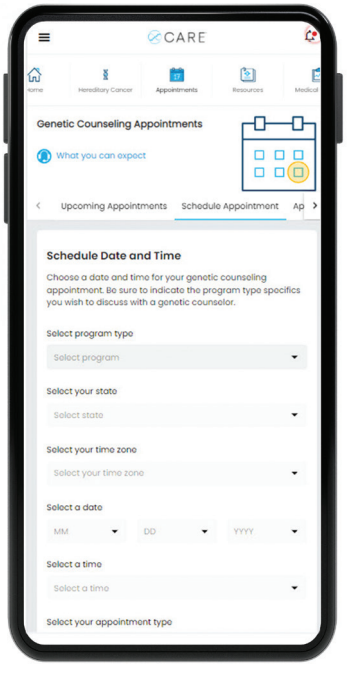
Return of Results

CARE can be used to return genetic test results to most patients, reducing the burden on busy healthcare teams.



Negative or variant of uncertain significant (VUS) results can be returned to patients via the CARE Patient Portal.

If test results are positive, CARE directs the patient to their provider for return of results and next steps. This process can be customized to meet the needs of the clinical setting and workflows.



When clinics opt to return results to patients via CARE, **79% of patients** access their return of result from the CARE platform, demonstrating that digital return of test results is feasible and that patients are accepting of this approach.[20]

Connection to Genetic Counseling

Genetic counselors are specially trained to interpret genetic test results in the context of patients' medical and family histories and to provide personalized education and counseling to support proactive healthcare plans for patients and their relatives.

CARE offers patients connection to genetic counseling via telehealth at no cost. With this service, patients can:

Schedule genetic counseling by phone at their convenience and with limited wait time

Avoid the burdens of traveling to an in-person provider

Access a certified genetic counselor who can help them understand their genetic test results and develop personalized, proactive healthcare plans for themselves and their families

Trust that genetic counselors are not influenced by any commercial factors as these services are provided by a third-party genetic counseling vendor

When CARE patients are offered a post-test telegenetic appointment, almost **80% schedule an appointment and complete their visit**.[20] As in the case of return of results, this demonstrates that connection to telehealth genetic counseling within CARE is effective and that patients are accepting of this approach.

Benefits for Patients

In summary, patients who are seen by healthcare teams leveraging The Ambry CARE Program® are enabled to:

1. Have more time and guidance for medical/family history collection, including the opportunity to involve family members for more accurate information
2. Receive and digest information in their own homes, on their own schedules
3. Access educational resources to better understand risks and genetic testing options
4. Receive personalized guidance via third-party telehealth genetic counseling at no cost
5. Have more informed discussions with their healthcare teams and take a more active role in their health and the health of their families
6. Receive updated breast cancer risk scores and hereditary risk assessments at return visits based on new information

CARE was built to meet the needs of today's patients

Patients want quality clinical care, and many prioritize convenient access that is powered by technology. In fact, 4 in 5 patients want access to technology that helps them manage their healthcare experience – it can boost satisfaction and retention.[21]

Digital health technologies have been shown to:[22]

- Improve accessibility to genetic health care
- Be well accepted by patients
- Provide education that is comprehended as well as or better than when received from a healthcare provider
- Result in the same or less distress than discussion of the same topics with a healthcare provider

The Ambry CARE Program® was developed with both the informational and experiential needs of patients in mind so that they can be engaged partners in their healthcare.

Benefits for Health Systems

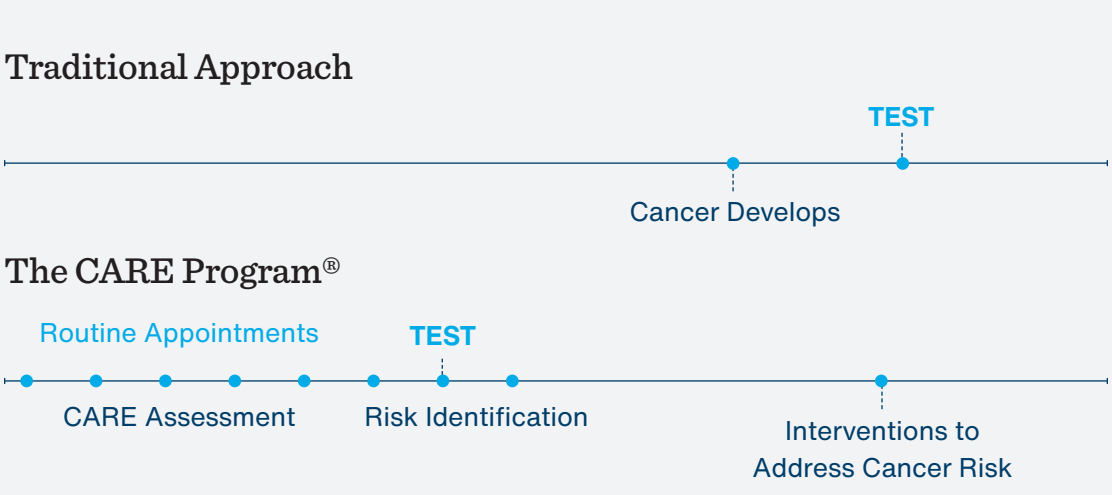
Healthcare systems leveraging The Ambry CARE Program® are empowered to meet their own goals and differentiate from competitors by:

1. Scaling high-risk patient identification (breast cancer and hereditary cancer) in accordance with evolving national guidelines and accreditation standards
2. Promoting equity by ensuring that patients receive consistent care from provider to provider, clinic to clinic, and site to site
3. Stratifying patient population by risk level at point-of-care so that in-house imaging, genetic counseling, and other high-risk services can be appropriately leveraged
4. Increasing clinic and provider productivity by utilizing digital tools in place of manual and in-person processes
5. Connecting patients to third-party genetic counselors via telehealth if in-house genetic expertise is unavailable or needs support with volume growth
6. Supporting continuity of care for patients moving from one clinic or provider to another. Patient information and care assessment results are available at all sites within the system.

Benefits for Providers

Healthcare providers leveraging The Ambry CARE Program® are enabled to improve the quality of care they provide to patients by:

1. Consistently and efficiently collecting and analyzing patient medical and family history before appointments
2. Automatically assessing breast cancer risk to determine whether high-risk screening is warranted
3. Identifying patients and families who qualify for hereditary cancer testing using the latest NCCN guidelines[15,16]
4. Implementing tailored cancer screening and risk reduction plans that are guideline-concordant, shifting from reactive to proactive medicine
5. Providing patient-centric care via patient education, informed consent support, and connection to genetic counseling
6. Spending more time on meaningful conversations with patients with the help of automated workflows



CARE was built to meet the needs of today's healthcare teams

Ambry understands that technology alone is not the answer. Successfully scaling high-risk patient identification requires people, processes, and technology.

People

- CARE leverages an effective suite of digital health tools, but the real value is the people we empower.
- We will help you identify, train, and engage the right teams to implement and support your high-risk program.

Processes

- CARE was designed to fit in a variety of settings and workflows, and to make them even better.
- Our experienced team will provide best practices for building, scaling, and maintaining your high-risk program.

Technology

- CARE employs secure, sophisticated technology, and supports interoperability by integrating with the other technologies on which you depend.
- There are a variety of integration levels depending on your system or clinic's needs. Some options include:

  Patient-Initiated Assessment (PIA):
  - QR code-enabled patient access to site's CARE assessment

  Outbound Schedule File:
  - Schedule file delivery to Ambry from site's EHR, including key demographic information
  - Ambry pushes CARE assessments to patients

  Bi-Directional EHR Integration:
  - Data are sent to and from site EHR to include full capabilities of CARE into EHR:
    - CARE assessment
    - CARE clinical summary (TC score and quantification for genetic testing)
    - Genetic test orders
    - Genetic test results

Population Health Initiatives Powered by CARE Insights

The Ambry CARE Program® empowers health systems to build, scale, and continually improve population health initiatives by compliantly providing access to data and insights.

Patient-level data support personalized care and understanding of potential clinical outcomes

Clinic-level data enable clinics to measure and track their performance in high-risk patient identification (e.g. patient assessment completion rate, documentation of testing decisions)

Health system-level data enable the assessment of the success of population health initiatives powered by CARE and provide insights into downstream clinical impact. These data may also be leveraged to support research.

CARE ecosystem data, meaning data across CARE partners, can be provided securely and compliantly to our partners to support research initiatives

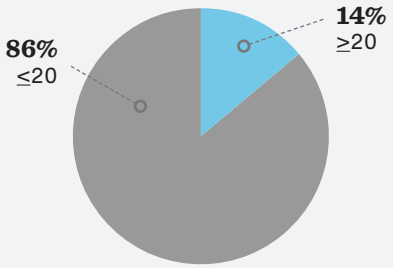
Examples of Available CARE Data

Patients Meeting NCCN Criteria

Breakdown of patients with completed risk assessments by NCCN criteria status

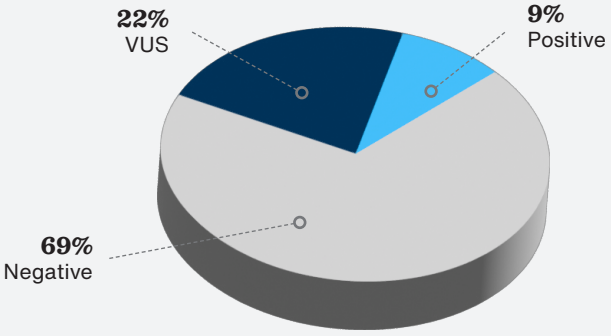
Patients with Elevated Breast Cancer Risk Score

Breakdown of patients by lifetime Tyrer-Cuzick Score (elevated if >/= 20%)



Hereditary Cancer Test Results

Breakdown of genetic test result types across population



Partner to Make Proactive Healthcare a Reality for Your Patients

The Ambry CARE Program® supports providers and patients at every step to enable high-risk patient identification at scale.

Healthcare systems and teams have screened more than 1.5 million patients with the help of CARE.

Revolutionizing Proactive Care at Scale

HCA Healthcare's Success with The Ambry CARE Program®

The Challenge

Identifying individuals at increased cancer risk is crucial for risk reduction and early diagnosis. However, access to genetic testing and counseling for cancer risk is often limited and primarily facilitated through referrals from non-genetics providers. Most patients at increased risk for breast cancer who qualify for breast MRI are also unaware of their status and therefore miss the opportunity to undergo high-risk surveillance. Most patients receive their routine care in a community care setting, but community hospitals face the challenge of democratizing access to proactive care and precision medicine.

Leveraging CARE

Sarah Cannon, the Cancer Institute of HCA Healthcare, aimed to make proactive care a reality for their patients but recognized that effective protocols would require organizational buy-in, resources, and involvement of various stakeholders.

Sarah Cannon leveraged The Ambry CARE Program® (CARE), including consultation by Ambry's team of experts, to standardize screening protocols, resulting in[12]:

- Strong patience acceptance: 75% of patients completed the CARE assessment.
- Recognition that many patients qualify for genetic testing and/or increased surveillance: Approximately 1 in 3 patients were candidates for hereditary cancer testing or for breast MRI based on TC score.
- Personalized and proactive care: 8% of patients had a change in clinical management (e.g. breast MRI based on Tyrer-Cuzick score or more frequent colonoscopy based on positive genetic test results).

HCA Healthcare's experience shows that CARE can support proactive, patient-centric care at scale, including across large health systems.

CASE EXAMPLE

Unlocking Precision Care

Revolutionizing Breast Cancer Risk Identification and Personalized Management in Breast and Imaging Centers

The Challenge

Identifying individuals at increased risk of breast cancer is critical for reducing cancer incidence and maximizing the chance for early diagnosis.

Breast and imaging centers are ideal sites for patient identification, as they provide services to a high volume of patients and often have availability of high-risk surveillance and diagnostic tools, as well as connection to risk-reducing options.

However, current strategies face challenges, including:

- Complex and dynamic landscape of genetic testing criteria
- Lack of systematic frameworks within healthcare settings to allow for consistent performance of risk assessments
- Difficulties in performing comprehensive risk assessments.

Leveraging CARE

Recognizing both the challenge and the opportunity of high-risk assessment, The Ambry CARE Program® was introduced to several breast and imaging centers, and outcomes over 2 years were studied.

These sites benefited from the universal patient access, standardized workflows, and scalability enabled by CARE, resulting in:[23]

- Standardized risk assessment: 250,000 female patients underwent high-risk screening.
- Increased risk identification and personalized management: approximately 1 in 10 female patients received an updated cancer risk management plan. 13% had elevated TC scores and qualified for breast MRI. ~42% of positive genetic test results had an impact on breast management recommendations.

These data show that with CARE, breast and imaging centers can provide universal patient access and increased high-risk patient identification, which they can often respond to with in-house services.

TriHealth's Digital Transformation

Boosting Genetic Counseling Referrals and Personalizing Patient Management through Collaboration and Technology

The Challenge

Health systems with in-house genetic counseling and/or high-risk breast programs are uniquely suited to provide a continuum of care to patients from high-risk identification to downstream counseling and management.

However, many health systems struggle to consistently and equitably perform and scale cancer risk assessment so that those who most need these services can access them.

Leveraging CARE

TriHealth, a community hospital in Cincinnati, Ohio, aligned across clinical teams to implement CARE strategically:

- System-wide implementation: The TriHealth genetic counseling team engaged the Women's Service Line leadership to ensure the adoption of CARE across the organization, promoting standardization.
- EHR integration: Integration of breast cancer risk scores and clinical decision support into the EHR addressed knowledge gaps and systemic barriers.

As a result of this approach[13,24]:

- Over 2 years, 8,352 (~77% of the 10,869 invited) completed the CARE assessment.
- 22% met NCCN Guidelines criteria for genetic testing, resulting in 591 referrals to genetic counseling and 241 in-office genetic tests. This represented a 635% increase in referrals to cancer genetic counseling compared to baseline.
- 19% met criteria for breast MRI, leading to 592 referrals to the high-risk breast program. This represented an 870% increase in referrals to the high-risk breast program compared to baseline.
- There was a significant increase in identification of Black patients who qualified for hereditary cancer testing and/or were at increased risk of breast cancer. When comparing the referral of Black patients to genetic counseling and high-risk breast clinics in the 30 months before and 28 months after launch of the CARE Program, there were over 1000% and 750% increases in referrals to both clinics, respectively (6 patients compared to 70, 4 patients compared to 30, respectively).

This experience shows the transformative potential of CARE in improving cancer risk assessment and access to proactive care services, especially when combined with the collaboration of clinical teams and prioritization of EHR integration. A standardized approach to high-risk screening can be especially helpful when working to ensure equitable access to high-risk services.

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