

# Precision medicine and seamless IT

## Kettering Health’s personalized cancer prevention program

Detecting cancer in its early stages makes it easier to treat. Achieving early detection, however, is easier said than done. It requires at least two key elements:

1. The ability to accurately assess patients’ cancer risk to best personalize their care
2. The tools to effectively navigate individuals determined to be at high risk

When Kettering Health set out to launch its cancer prevention program, it recognized information technology’s central role in streamlining cancer risk assessment, care coordination, and patient management on a grand scale.

Today, the western Ohio health system uses Volpara® Risk Pathways™ software in its Epic® electronic health record (EHR) to enable providers across multiple disciplines to assess risk of developing cancer—breast, lung, ovarian, colon, and prostate—in any patient encounter.

Coordinating care between providers across primary care, OB/GYN, oncology, and imaging is now a seamless process. Kettering Health’s cancer prevention program has delivered on the promise of precision medicine. The numbers, below, are impressive.



Kettering Health Main Campus, Kettering, OH



By understanding who among the patient population is at high risk, Kettering Health is better positioned to provide effective, timely interventions.

2019 to 2023:



**95,000+**

Patients assessed for cancer risk

About 5.5% of a population of 1.7 million



**44,000+**

Patients identified as high-risk individuals

About 46% of evaluated patients, or about 2.6% of the entire patient population



**4,600+ women**  
**150+ men**

Patients aged 40 or under assessed for cancer risk



**56% women**  
**32% men**

Patients aged 40 or under found to be at elevated risk by at least one risk model



**1,552 women**

Patients found to be at elevated risk of developing breast cancer

## Program goals: precision care and prevention

Prevention and screening for early detection of disease are core tenets of a healthy lifestyle. The United States Preventive Services Task Force (USPSTF) publishes national guidelines to outline responsible use of resources to screen for specific diseases. Population health, however, is just that—concerned with the health of a population versus that of an individual patient.

Kettering Health, driven by the motto “Be Your Best,” is committed to empowering the best in each patient, and helping them make informed, educated, and personal health decisions.

According to Dr. Albert Bonnema, Chief Medical Information Officer at Kettering Health, not every single person is represented by the general population. “There are people who have specific genetic markers or family history or some other data about them that means the general population recommendation is not correct for them,” he says. “We are on the journey of personalized medicine, of precision medicine. We don’t want to over-treat and we don’t want to under-screen.”

Kettering Health’s status as an Accountable Care Organization (ACO), was also a factor in the transition to precision care by focusing on prevention rather than treatment alone. To do this successfully, Kettering Health established a governing committee (see below) and goals to guide its cancer prevention program:

- Maintain cancer risk assessment workflow and insight within Kettering Health’s EHR
- Seamlessly run multiple cancer risk assessments in any patient encounter
- Provide clinicians with visibility of risk score and guideline-driven recommendations
- Deploy tools in the EHR to assist management of high-risk patients
- Collect analytics to find gaps and opportunities for improvement
- Foster collaboration with physicians and patients to manage adherence to care pathways

## Kettering Health’s program steering committee

A team made up of the following roles meets monthly to discuss direction, care gaps, and innovation opportunities:

- Radiologist
- Oncologists
- OB/GYNs
- Information systems leadership
- Primary care physician
- Breast surgeons
- Medical informatics

Together, they track goals and milestones for Kettering Health’s transformation into a comprehensive cancer prevention leader.



# Fully integrated Epic experience

With its Epic EHR, Kettering Health has established a fully integrated experience for patients and clinicians:



## MyChart patient entry

Patients can conveniently complete risk questionnaires via MyChart or Welcome Kiosk, facilitating remote data entry.



## Epic data collection

Clinicians access risk assessment functionality within any encounter or rooming navigator, eliminating double data entry and minimizing time impact. Relevant risk factors within the EHR are interfaced with the Volpara risk engine. Other information, such as demographic data and medical or surgical history, is also included.



## Cancer risk calculation

The risk engine, using the Tyrer-Cuzick v8 risk model and an objective breast density measure, generate cancer risk scores and recommendations based on the provided data.



## Model & guideline management

Kettering Health stays current with licensure and risk model changes, ensuring accurate risk assessments based on the latest data.



## Bidirectional results

Patient risk scores and recommendations are stored as discreet data in the EHR, promoting collaboration and informed decision-making. Patients can see educational and follow-up messages, such as prompts for genetic testing.



## Follow-up query

Epic data is used to generate registries, reports, letters, and follow-up procedures.

The seamless integration of risk assessment with the EHR is vital to the process. Kettering Health did not want anyone to feel like they are outside the EHR, in other applications. Describing the joining of Risk Pathways with Epic, Dr. Bonnema says, “What I like most about our implementation is the way in which we’ve integrated into the workflow: there’s no going back and forth between different tools.”

“Many of our clinical users are unaware that Volpara powers their Epic risk workflows. It’s that seamless.”

—Sally Grady, Director of Breast Imaging Services, Kettering Health

For Dr. Bonnema, “usability is the number-one characteristic” of successful IT tools. He points out that “the statistics are very clear: the more solutions you have for a user, the lower the likelihood of adoption and program success. When I’m reviewing a solution, my first question is cybersecurity, followed by whether it can be embedded in the patient and clinician workflow.” Seamless integration, with evidence and analytics, provides what he calls the “conditions for entry” for excellent decision support.

“The beauty of what we’ve done with our Risk Pathways integration is that the data integrity is there, the data transferability is there, the integration of the workflow is all in place.”

—Dr. Albert Bonnema, Chief Medical Information Officer, Kettering Health

# How risk assessment is woven into the fabric of Kettering Health's EHR

## DATA COLLECTION

- Conduct pre-appointment survey
- Map data from patient record
- Review, update, and import during visit

Models used:

- Tyrer-Cuzick v8
- Gail
- BRCAPRO™
- Claus
- MMRPro
- NCCN HBOPC
- NCCN® Lynch

## ASSESSMENT RESULTS

1. Risk calculations are triggered by clinicians in Epic
2. Patients at elevated risk are highlighted with a banner, triggering workflows for continuum of care
3. Cancer risk recommendations are included in the radiology report
4. Cancer risk assessment results are routed to the PCP and ordering provider of the mammogram via HL7
5. High-risk patients are added to registry for follow-up tracking and management

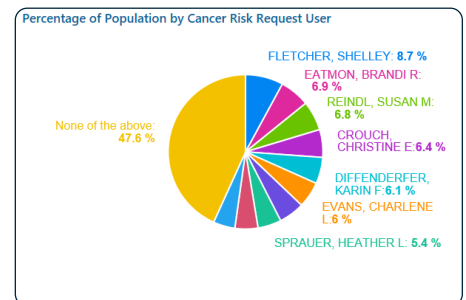
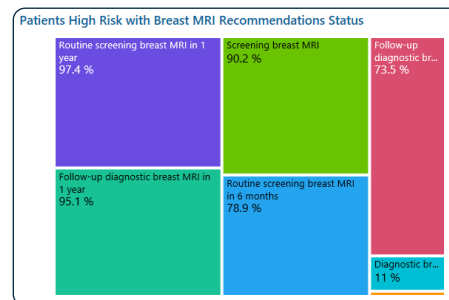
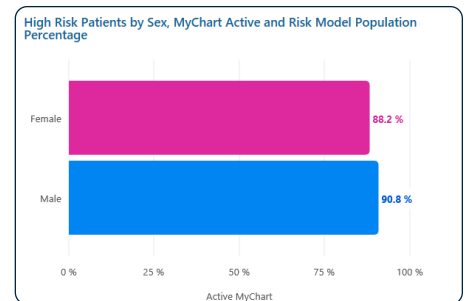
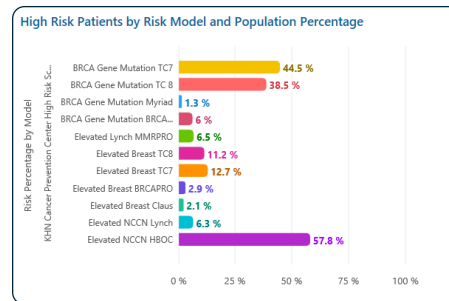
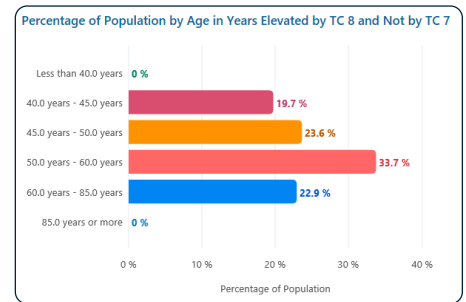
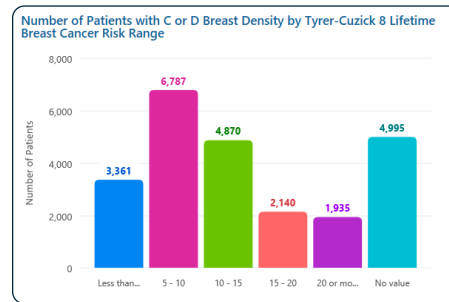
## PATIENT MANAGEMENT & RESULTS

1. **Follow-up worklist**  
Navigator tool used to track and manage patients
2. **Risk registry**  
Inclusion rules and metrics
3. **Analytics**  
Program success

# The power of analytics: monitoring and improving cancer prevention

By having discrete cancer risk scores integrated into its EHR, Kettering Health can measure the performance and impact of its cancer prevention program. This includes tracking the number of patients evaluated for cancer risk, the percentage of high-risk patients, usage of preventive measures such as breast MRI recommendations, and more. Patient demographics, age, race, and ethnic background were also used as measures for assessment.

## Cancer Risk Assessment Analytics Dashboard:

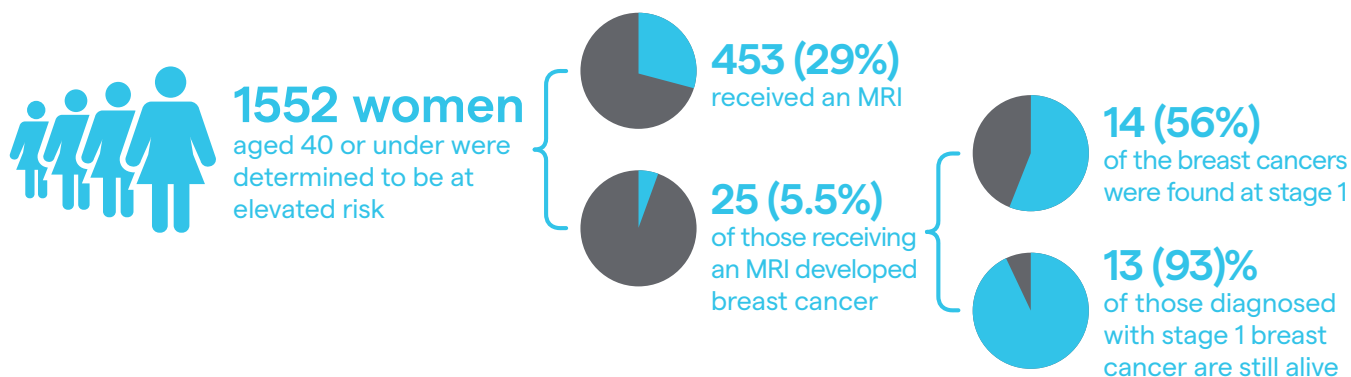


Charts courtesy of Kettering Health.

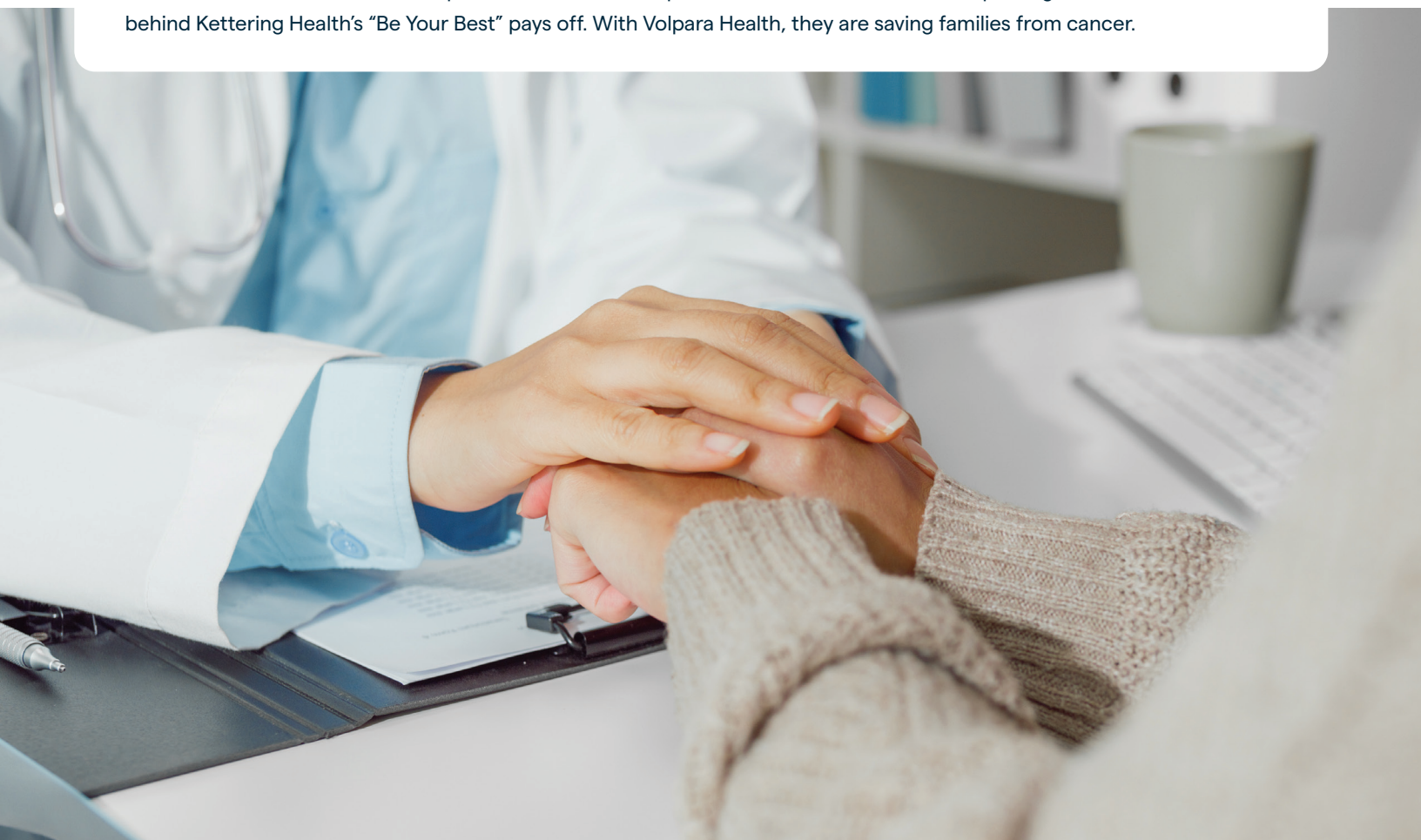


As Dr. Bonnema explains, having the data in your EHR is “so powerful” because you can use its analytics tool in collaboration with Risk Pathways to better understand your patient population. In the case of breast cancer, Kettering Health “can look specifically at patients that have dense breasts, a C or D breast density, and look at their Tyrer-Cuzick score range to determine whether they’re at high risk, with a breast density of 20 percent or more, which will lead to an MRI recommendation. Or, if they’re 20 percent or less, maybe in the 15 to 20, or 10 to 15 percent range, an ABUS might be an appropriate recommendation.” The integration also enables Kettering Health to see the percentage of the population that’s at high risk for a given issue (for example, *BRCA1/2* mutations), cancer, and risk model.

Kettering Health’s cancer prevention program has yielded significant achievements. Since its inception in May 2019, 1,552 women aged 40 or under were found to be at an elevated risk for breast cancer—nearly one third of those assessed. Of those women, **453, or 29 percent**, had MRI performed in Kettering Health’s network. And of those women:



These numbers are evidence that precision medicine coupled with seamless IT tools are improving outcomes. The effort behind Kettering Health’s “Be Your Best” pays off. With Volpara Health, they are saving families from cancer.



# Elevating cancer prevention through IT

By integrating Volpara Health Risk Pathways into its EHR, Kettering Health successfully streamlined cancer risk assessment, management, and follow-up. The solution's ability to seamlessly embed within the EHR, provide accurate risk assessments, and facilitate data-driven insights highlights its pivotal role in achieving precision care. Through seamless interoperability,

data-driven insights, and collaboration among clinicians, Kettering Health has made remarkable strides in its mission to detect and prevent cancer early. Kettering Health's story serves as an inspiring example of how technology and collaborative care can shape the future of cancer prevention.

## Four lessons to apply to your program



### 1. Provider awareness

Providers were unaware of risk tools within Epic, leading to the use of alternative tools that caused data integrity issues. Volpara streamlined data transfer within the EHR and preserved accuracy. *Identify subject-matter experts and stakeholders early.*



### 2. Risk discrepancies

Use of other tools resulted in risk score discrepancies due to varying models and thresholds. Volpara provided consistent results and eliminated uncertainty. *Establish a standard methodology for model use to create consistency of care and reliable metrics.*



### 3. Education and transparency

Kettering Health educated providers about the risk models and thresholds used, ensuring transparency and consistent understanding. *Provide continuing education for your staff and clinicians on the importance of documenting patient history prior to risk assessment.*



### 4. Partnership with IT

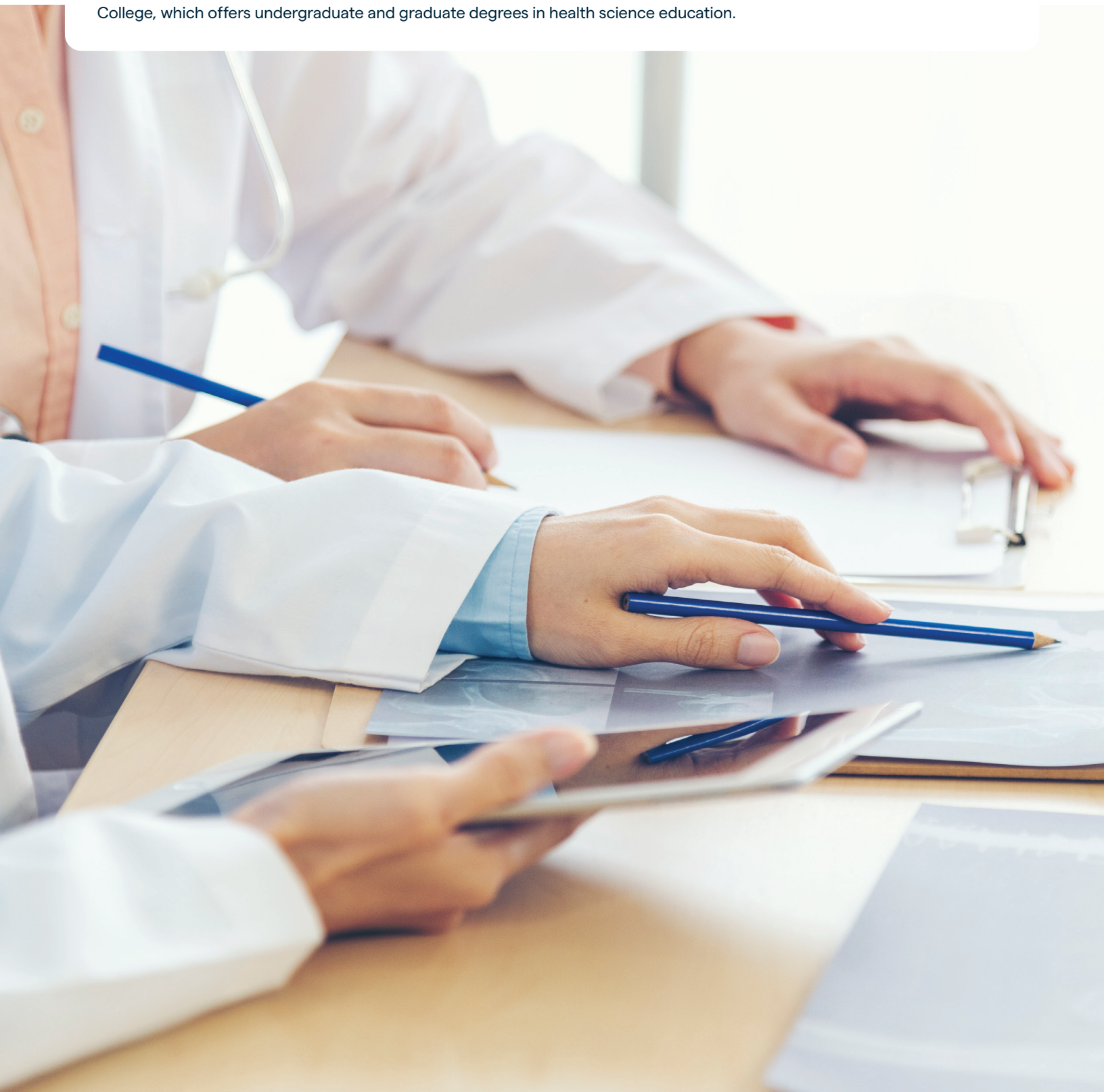
Kettering Health focused on making iterative technology changes and small, progressive improvements. *Use analytical tools effectively to enhance and develop your program.*

“We’ve been doing this since 2019. The journey is not necessarily quick, but by sharing the lessons we learned, we can help others get there quicker.”

—Dr. Albert Bonnema, Chief Medical Information Officer, Kettering Health

## About Kettering Health

Kettering Health is a prominent healthcare institution dedicated to improving the health and well-being of western Ohio. With 15 medical centers and more than 120 outpatient locations, Kettering Health boasts over 1,800 board-certified providers, including over 700 employed by the Kettering Health Medical Group. It also administrates the fully accredited Kettering College, which offers undergraduate and graduate degrees in health science education.





## About Volpara Risk Pathways

Volpara Risk Pathways software has been used by more than 1,000 providers across the United States to identify, manage, and improve outcomes for patients at elevated risk for developing cancer. Risk Pathways is used to conduct more than three million cancer risk assessments each year and can be deployed stand-alone or fully integrated with electronic health record systems, mammography reporting systems, and genetic laboratories. Volpara's comprehensive Professional Services offering helps customers maximize the value of their high-risk cancer assessment programs.

Our Professional Services team features experienced professionals who previously managed their own programs. They bring decades of expertise in supporting leading clinical sites around the world, skillfulness and dedication that can help programs at each step and empower them to keep pace with rapidly changing risk assessment and genetic landscapes.

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