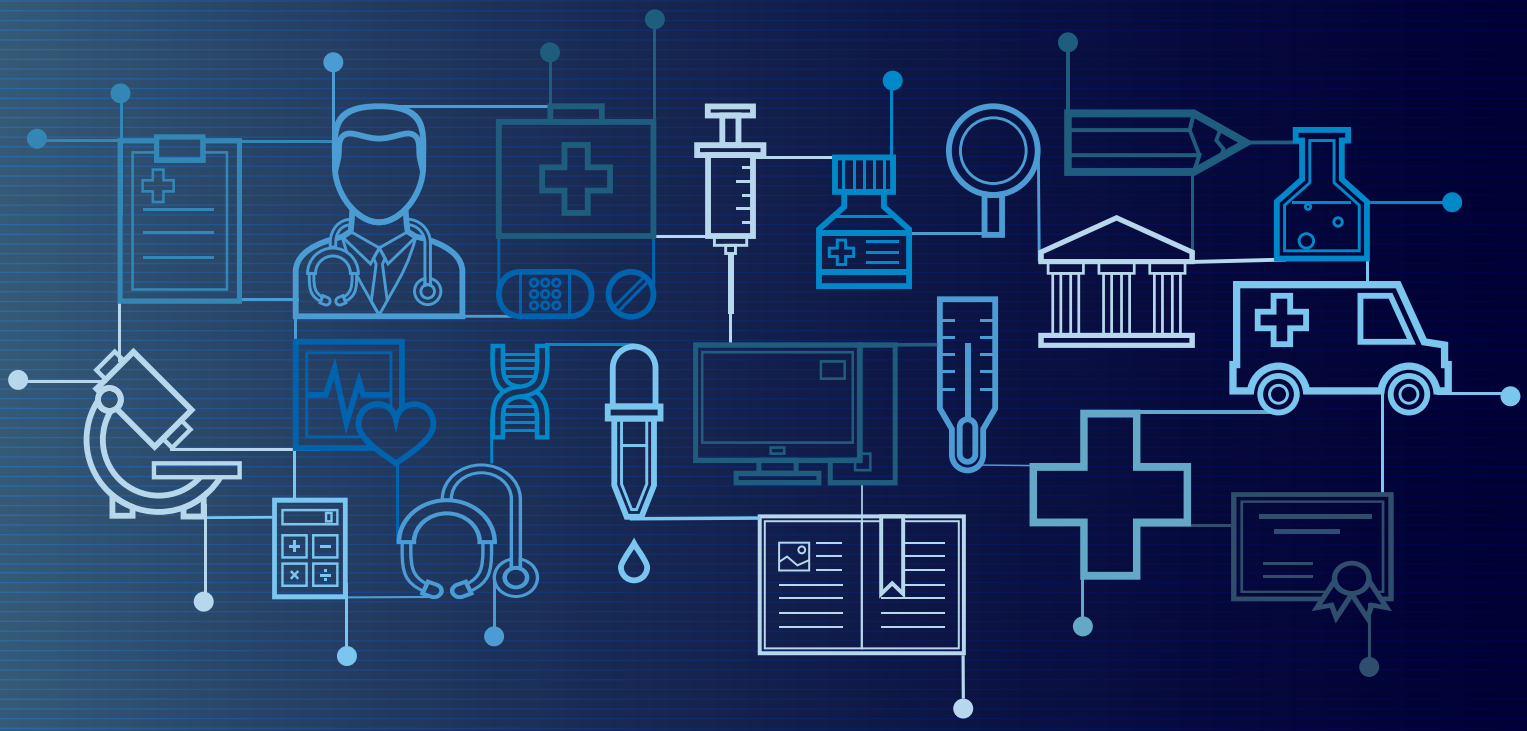
UNC | SCHOOL OF MEDICINE

Program for Precision Medicine in Health Care (PPMH)

Phase One Overview • 2019–2026

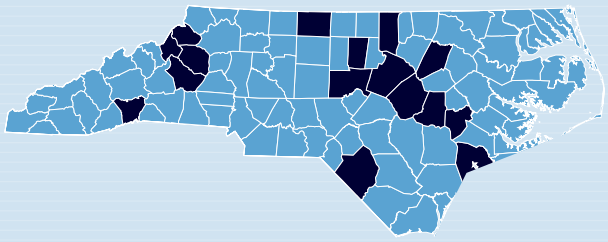


Program for Precision Medicine in Health Care

PPMH Snapshot

Impact on Clinical Care

The PPMH has enabled Genomics in the EHR across all 20 UNC Health campuses throughout North Carolina



UNC Health entities with EHR-integrated genomics workflow

This has led to an overall:

- **9** Genetic Labs Integrated
- **51,277** Orders Placed
- **222,865** Genetic Variants Found
- Impacting **37,736** patients
- Saving **~4,300** provider hours

PPMH Precision Health Genetic Screening (PHGS)

The PPMH PHGS screens for 3 conditions associated with 11 genes: **Hereditary Breast and Ovarian Cancer Syndrome**, **Lynch Syndrome**, and **Familial Hypercholesterolemia**

322
Completed Screenings

Positives	Negatives
16	306

- **7** unexpected positives without a concerning family history
- **9** positives aligned with a concerning family history

Impact on Research

Clinical Genomic Analysis (GENYSIS) Core Facility

The PPMH-supported GENYSIS Core Facility has conducted:

8 Research Studies across **5** School of Medicine Departments

resulting in

27 Clinical Reports returned to the Health Care System

PPMH Funding and Return on Investment

Since 2019, PPMH investigators have been directly granted **$32,256,000** in external funding and **$30,000** in internal funding

The PPMH has granted pilot awards to **12 investigators** across **9 departments**

totaling **$53,000** and leading to **$5,060,000** in external research dollars

GENYSIS clients have received **$673,000** in external funding and **$90,000** in internal funding to support projects that collaborated with the GENYSIS Core Facility

Impact on Education

As part of precision medicine education efforts, the PPMH has hosted:

60 Events **1,822** Total Participants

The PPMH has also supported:

263 Undergraduate Students, **2** Postdoctoral Scholars, and **3** Precision Medicine Scholar Staff and Faculty

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PART 1: **Introduction and History of the Program**

Planning for Precision Medicine in UNC's Forward Together Strategic Plan

In 2017-2018, the UNC School of Medicine defined an ambitious plan to position UNC as the nation's leading public school of medicine. Among the strategic initiatives was investment in Precision Medicine.

A broad range of faculty participated in a symposium led by Dr. Jonathan Berg, Bryson Distinguished Professor in Genetics and Medicine, on October 31st, 2017 to discuss advances in genomics, biomarkers, and computational tools. This initial workshop was followed with dedicated planning meetings in early 2018.

On July 16th, 2018, Dr. Jonathan Berg and Dr. Blossom Damania, Vice Dean for Research in the School of Medicine, presented a formal proposal on the Program for Precision Medicine in Health Care (PPMH) at the UNC Health board meeting and the program was approved shortly thereafter.

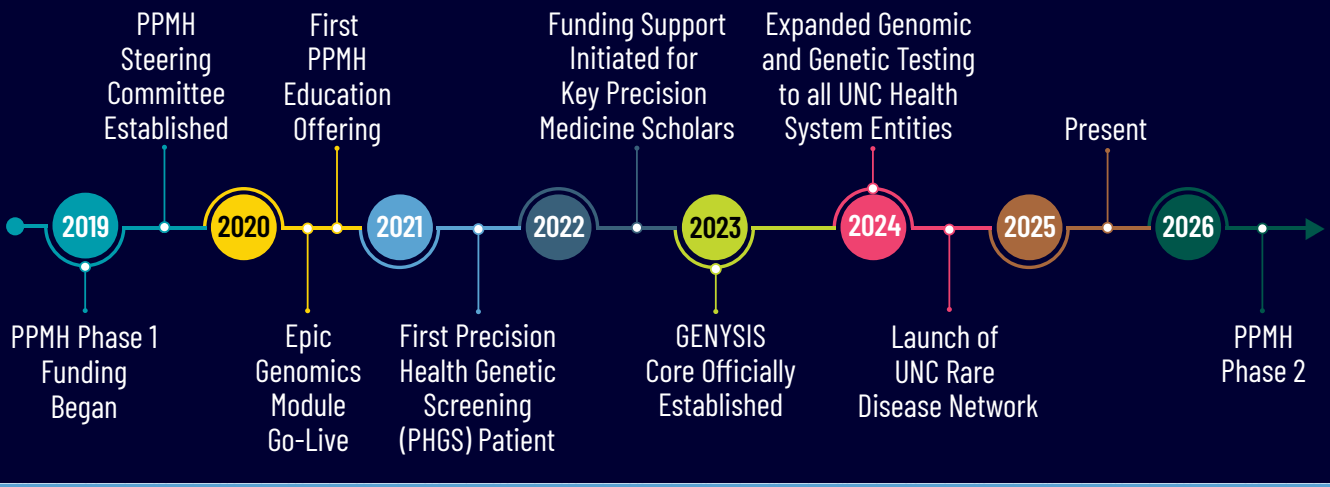
From Vision to Impact in Health Care

The PPMH was officially established in 2019 through a $10M investment from UNC Health to advance the goals of the School of Medicine strategic plan, Forward Together, in patient care, research, and education. The PPMH, led by Dr. Jonathan Berg, focuses on advances in science and technology that can be implemented in patient care and serves as a hub for precision medicine across the UNC School of Medicine and the broader University, fostering collaboration across disciplines.

Notable accomplishments include:

- **Computational tools for health care providers developed in partnership with UNC Health Enterprise Analytics and Data Sciences**
- **An adult genomic screening program targeting highly actionable conditions**
- **A research core facility that provides genomic analysis and result disclosure services**
- **Delivery of precision medicine education to medical students, residents, physicians, and allied health professionals across UNC's statewide hospital affiliates**

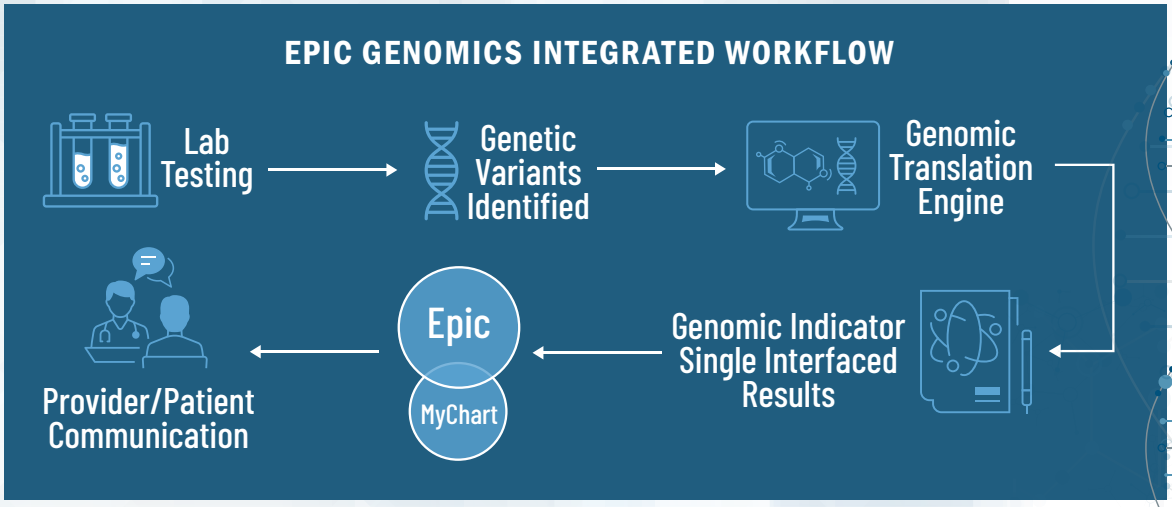
PPMH TIMELINE



PART 2: **Impact on Clinical Care**

Enabling Genomics in the Electronic Health Record

Genetic analysis is increasingly important for patient care, yet prior to the PPMH, genetic tests were challenging to order and results were difficult to find in UNC's instance of the Epic EHR. Through collaboration with the UNC Health Information Services Division (ISD), the PPMH has improved patient care by transforming the ability to track and utilize genetic information.



The **Epic Genomics Integrated Workflow** enables advanced capabilities including:

- Genetic data stored in discrete, structured fields
- Results displayed in the patient chart in addition to an attached PDF
- Automated import of results from external laboratories directly into the EHR
- Clinical Decision Support (CDS) tools that respond to genetic findings
- Longitudinal tracking of genetic information across time and clinical encounters
- Workflow tools to support population health management and care coordination

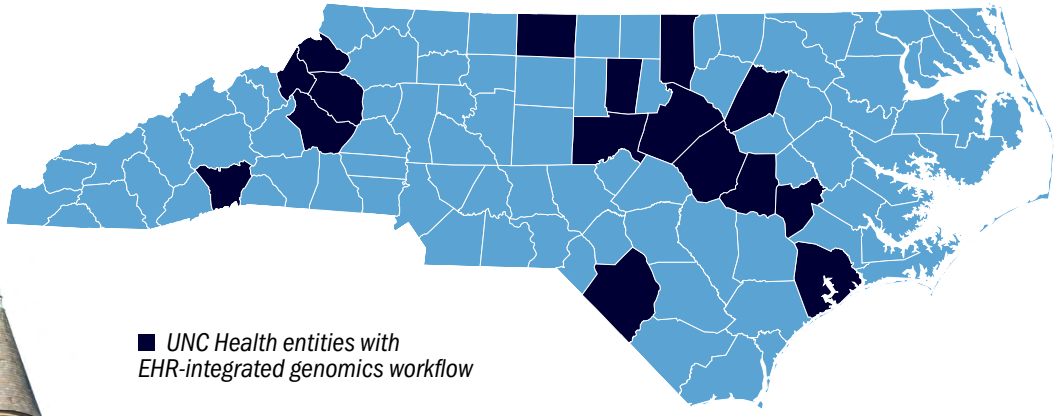
"The PPMH team has played a key role in advancing genomic testing across the UNC Health System. They've improved the testing interface, making the ordering process more streamlined and efficient for us as clinicians, and ensured patient results are easily accessible as discrete data. Without their involvement, key progress in implementing point-of-care genetic testing at UNC Rex would not be possible."

OFRI LEITNER, GENETIC COUNSELOR • UNC HEALTH REX

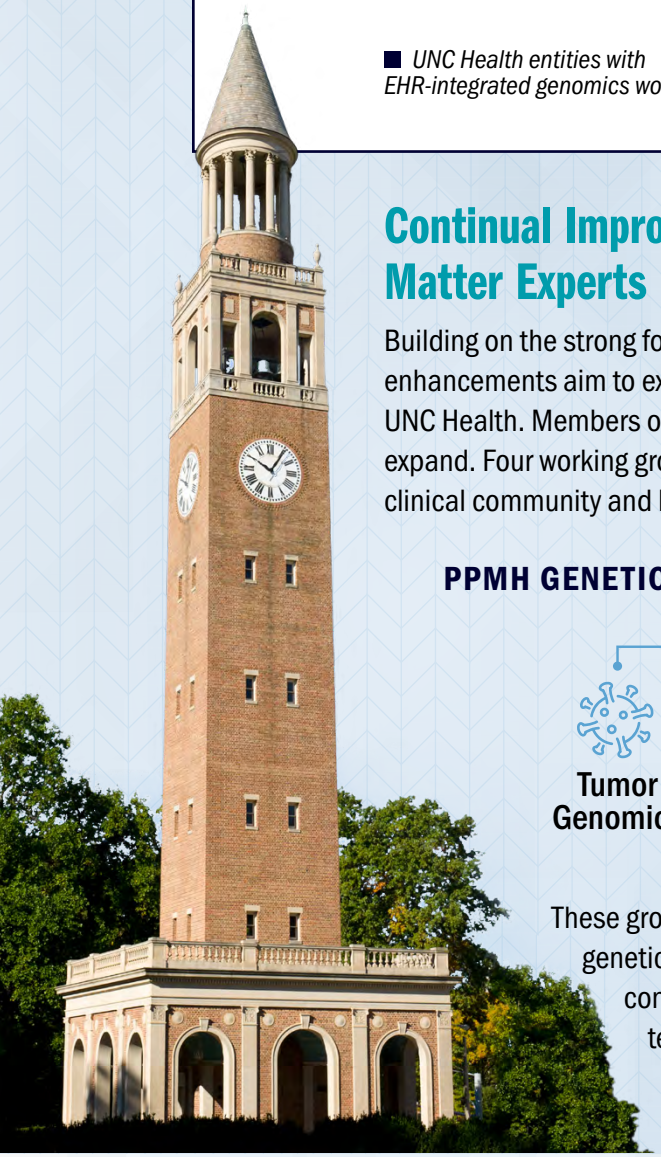
Systemwide Expansion of Genomics Tools

The PPMH led an enterprise-wide rollout of the Epic genomics workflow to the 12 UNC Health entities outside the UNC Medical Center. This expansion ensured that all providers across the UNC Health system can access the same cutting-edge genomic tools to support patient care.

UNC HEALTH GENOMICS-ENABLED EHR: STATEWIDE EXPANSION LED BY THE PPMH



■ *UNC Health entities with EHR-integrated genomics workflow*



Continual Improvement through Engagement with Subject Matter Experts

Building on the strong foundation of the implemented Epic Genomics workflow, ongoing enhancements aim to expand its functionality and adapt to evolving clinical needs across UNC Health. Members of the PPMH engage with lab vendors and add new tests as options expand. Four working groups aligned with key genetic testing domains engage with the clinical community and bring subject matter expertise:

PPMH GENETIC TESTING CLINICAL EXPERTISE WORKING GROUPS

These groups focus on the ongoing implementation and integration of genetic testing within Epic, including developing workflows and facilitating consistent, streamlined decisions around lab integration and available testing options.

THE PPMH INTEGRATION OF GENOMICS INTO THE UNC HEALTH EHR HAS LED TO OVERALL:

9 Genetic Labs Integrated

51,277 Orders Placed

222,865 Genetic Variants Found

Impacting **37,736** patients

Saving **~4,300** provider hours

The organization-wide deployment of interfaced genetic testing led by the PPMH has created a large amount of discrete genetic data that will continue to grow over time, improving clinical care and driving unparalleled research opportunities.

"Having my neurology patients' genetic data on hand and easily accessible improves my clinical practice. It enables me to quickly find patients with certain genetic neuromuscular conditions and ensure they are getting cutting-edge treatments. The PPMH has not just improved clinical processes and workflows but has elevated the level of care we can provide our patients."

REBECCA TRAUB, MD • UNC NEUROLOGY

Advancing Pharmacogenomics to Improve Clinical Care

As part of an ongoing PPMH effort to integrate pharmacogenomics into routine practice at UNC, the foundation for the implementation of a pilot multi-gene panel testing has been developed, aiming to improve medication safety and establishing a framework for personalized therapy across UNC Health.

As part of the multi-gene pilot, genomic decision support has been developed for:

50 distinct variants in **14** genes, including

141 best practice advisories covering **55** drug-gene pairs.

Investment in this type of infrastructure ensures that UNC Health is well positioned to rapidly implement additional pharmacogenomic testing as demand and use cases expand.

MULTI-GENE PANEL WORKFLOW

- Initial Patient Diagnosis
- Patient Education
- Multigene Pharmacogenomic Testing
- Documentation and Data Entry in the EHR

Medication Review: Patient's current medications altered if needed based on pharmacogenomic testing

Ongoing Medication Monitoring: Best Practice Advisories alert providers for future medication considerations based on pharmacogenomic testing

Notable Cutting-Edge Genomics Workflow Enhancements

In addition to enabling genomics in the EHR across the UNC Health System, the PPMH spearheads clinical collaborations to develop computational support tools that utilize this infrastructure to improve patient care.

Award-Winning Precise Therapeutic Management of Cystic Fibrosis

AMERICAN SOCIETY OF HEATH-SYSTEM PHARMACISTS
Best Practice Award for Excellence in Clinical Innovation

Cystic Fibrosis is a chronic condition in children and young adults. However, clinical care has been revolutionized by new "modulator" therapies that can dramatically reduce morbidity and mortality but depend on a complex understanding of the specific genetic variants in each patient. The PPMH improved and streamlined patient care through comprehensive genomic integration and automated therapeutic guidance. The novel and sophisticated system transforms genetic test results into actionable clinical recommendations, ensuring optimal therapeutic selection and dosing for pediatric Cystic Fibrosis patients throughout their care continuum.

"The PPMH offered expertise and support that allowed our clinical pharmacy team to design and quickly implement clinical decision support to ensure safe, appropriate use of [Cystic Fibrosis] modulators based on genetic and patient-specific factors. They assisted our own pharmacy analytics group to create reports to proactively identify patients eligible for treatments, thereby improving patient care."

JOHN VALGUS, PHARMD, MHA
EXECUTIVE DIRECTOR, DEPARTMENT OF PHARMACY, TRIANGLE WEST REGION

Lifesaving Pharmacogenetic Testing in Patients Undergoing Chemotherapy

In January of 2025, the FDA issued a patient safety alert regarding a genetic interaction between specific variants in the *DPYD* gene and metabolism of common chemotherapy drugs. Patients with these variants can experience severe adverse reactions, including death, when undergoing specific cancer treatments. Utilizing infrastructure built by the PPMH, the PPMH Pharmacogenomics team is leading the response in swiftly implementing pre-chemotherapy *DPYD* testing for patients across UNC Health.

Solving Challenges in Diagnosing Familial Hypercholesterolemia

The PPMH collaborated with UNC Health to deploy an innovative AI-powered implementation of the Dutch Lipid Clinic Network (DLCN) score, designed to predict which patients may have a rare genetic form of high cholesterol. Integrating seamlessly into clinical workflows to create test orders and facilitate referrals, this groundbreaking work addresses a critical gap in identifying an important but severely underdiagnosed genetic condition affecting 1 in 250 individuals.

Precision Medicine for Alzheimer's Disease

New anti-amyloid therapies are transforming dementia care by targeting the underlying biology of Alzheimer's Disease, but their use requires careful patient selection due to complex eligibility criteria. To support the clinicians prescribing these therapies, the PPMH developed a clinical decision support tool designed to navigate the complex eligibility criteria. The tool has achieved widespread adoption with thousands of provider interactions, streamlining access to these breakthrough treatments and optimizing provider workflow efficiency.

> "Working with [the PPMH] on our anti-amyloid therapy program was one of the easiest things I've done at UNC. Since one requirement for the program is a specific genetic test, [the PPMH] also saved our patients time and money in arranging for a common genetic test to be brought into UNC's internal operation."

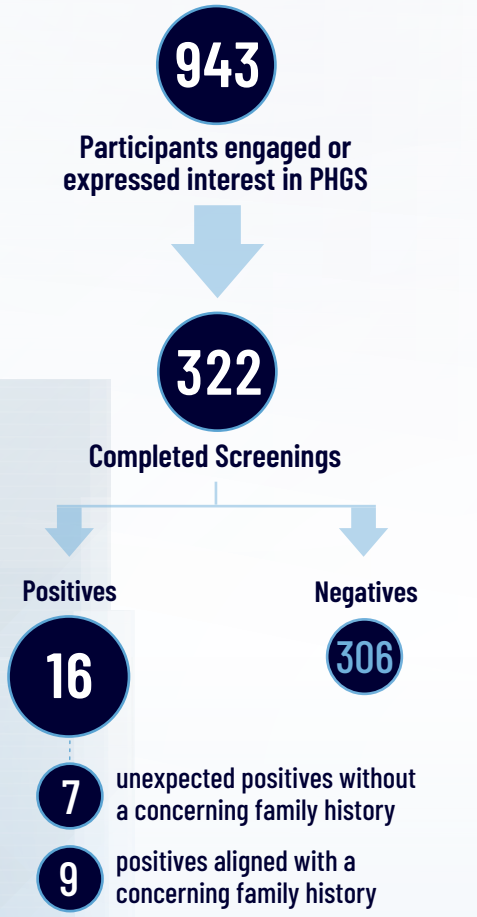
ANDREA BOZOKI, MD, FAAN
UNC PROFESSOR AND DIVISION CHIEF, COGNITIVE AND BEHAVIORAL NEUROLOGY

Championing Population Screening at UNC Health

The PPMH Precision Health Genetic Screening Program (PHGS) offers clinical testing of a select group of highly actionable conditions for healthy adults across the UNC Health System. The program aims to identify the 1-3% of adults who have a treatable genetic disease, enabling health care providers to intervene before symptoms develop and improve patient outcomes.

The PHGS screens for the following 3 conditions associated with 11 genes:

Hereditary Breast and Ovarian Cancer Syndrome (genes: *BRCA1*, *BRCA2*)	Increased chance of developing several types of cancer, including breast and ovarian cancers.
Lynch Syndrome (genes: *MLH1*, *MSH2*, *MSH6*, *PMS2*, *EPCAM*)	Increased chance of developing several types of cancer, including colon, uterine, ovarian, stomach, skin, and urinary tract cancers.
Familial Hypercholesterolemia (genes: *APOB*, *LDLR*, *LDLRAP1*, *PCSK9*)	High levels of cholesterol in the blood, which can lead to early heart attacks and heart disease if not treated.



Note: All positive results referred to Clinical Genetics for follow-up care.

PHGS results "put me on a different health path."

After the loss of both parents, including her mother who had late-stage endometrial cancer, Carol Noel decided to take a proactive step and undergo genetic screening through the Precision Health Genetic Screening Program. Her results revealed that she had Lynch Syndrome. In consultation with providers at UNC Health, she underwent prophylactic surgery to remove her uterus, which found an early-stage endometrial cancer that may have otherwise gone unnoticed. Carol's decision changed the course of her life.

"Although the surgery was [difficult], whatever discomfort I'm enduring now, [is] nothing compared to my mother's [experience]."

Carol's decision may also change the health path of her family and others close to her.

"I have encouraged others, friends, to get it done as well. I have a younger brother who was also tested, and he is affected too. And he has two sons, and we know they need to be tested too."

Looking back, Carol reflects on the choice she made to pursue genetic screening, one that may have saved her life.

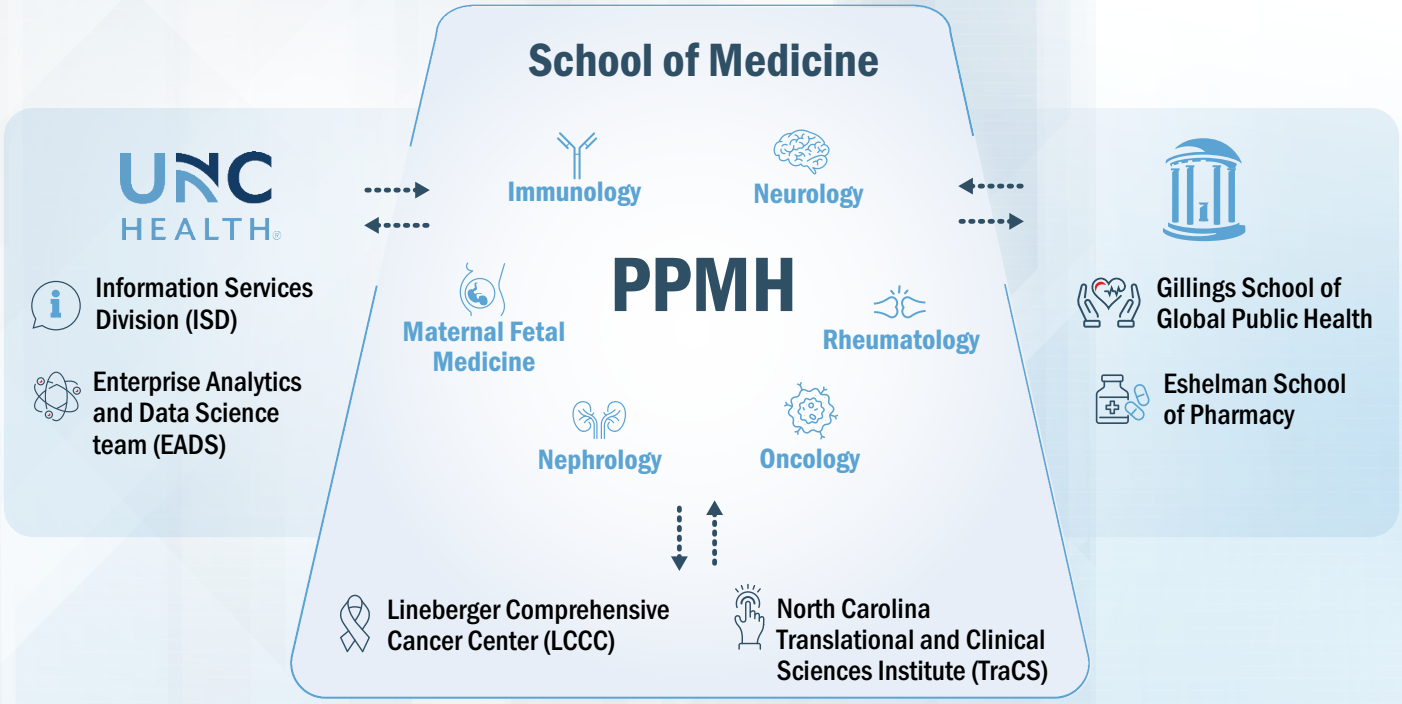
"I could [have done nothing] and look what would have likely transpired. I'm grateful I reached out for genetic screening, and it put me on this path that prevented something more."

CAROL NOEL • UNC HEALTH PATIENT

Forming Bridges Between Disciplines to Power Precision Medicine

The PPMH serves as a central hub connecting multiple departments, centers, and clinical specialties to improve patient care, education, and research. We have created alignment between frontline clinical efforts by fostering collaborations across the UNC School of Medicine and UNC Health with the aim of facilitating effective integration of innovations in genomics and precision medicine into patient care.

THE PPMH AS A CONDUIT TO HEALTH CARE



[The PPMH network includes **130** members across **19** UNC departments and divisions.]

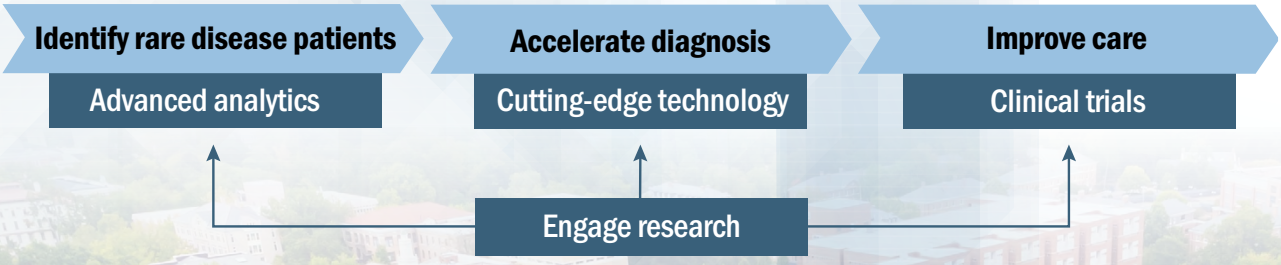
Advancing Rare Disease Care Across North Carolina

"Individuals with a rare disease often face a years-long diagnostic odyssey, enduring a long and uncertain journey until they finally receive a diagnosis. A confirmed diagnosis helps them understand the nature of their condition, its natural history, and provides access to specialized multidisciplinary care that they need. Shortening this odyssey with options for evaluation and diagnosis of rare disease can improve access to treatment with improved outcomes in some cases, and a decrease in emotional stress."

ARTI PANDYA, MD, MBA • UNC PEDIATRIC GENETICS

UNC RARE DISEASE NETWORK

The PPMH envisions a solution to this problem with the UNC Rare Disease Network, leveraging informatics, clinical expertise, education, and the research backbone of a top tier school of medicine. Utilizing the reach of UNC Health across the state, we aim to help patients and providers navigate the journey to reach a diagnosis with access to the deep expertise at the UNC Academic Medical Center.



PART 3: **Impact on Research**

Fast-Tracking Research Innovation into Clinical Care

The PPMH promotes translation of research breakthroughs by bridging the gap between researchers in the UNC School of Medicine and the UNC Health Enterprise Analytics and Data Sciences (EADS) team, providing sustained analytical support to faculty members who face barriers to clinical implementation. One of our key approaches centered around a consultation service which included seminars on precision informatics, opportunities for faculty to pitch project ideas, personalized consulting support, and actionable reports to help researchers move their projects forward.

Research Project Case Study: Advancing decision support for smoking cessation through natural language processing (Dr. Kimberly Shoenbill, Family Medicine)

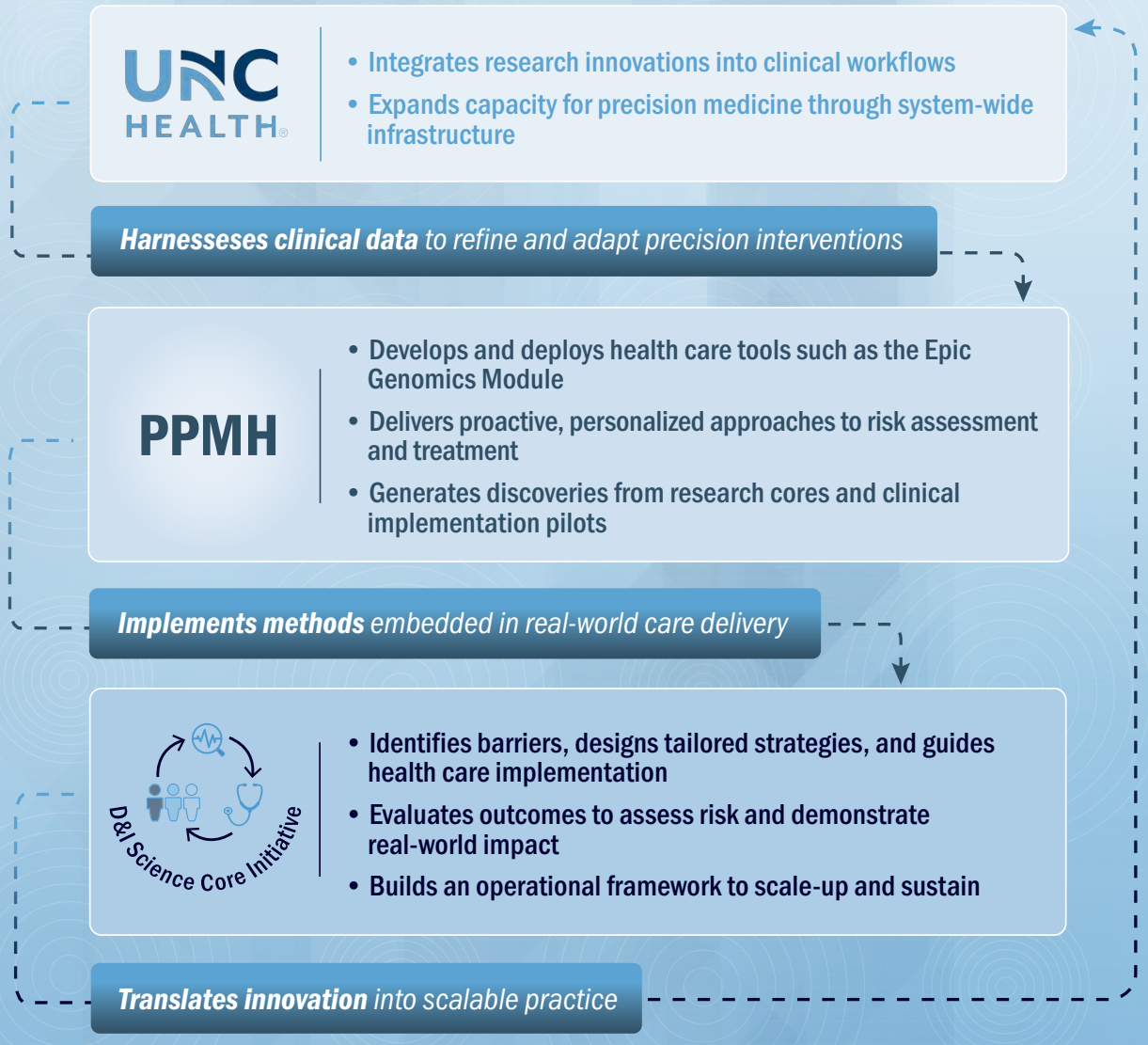
Current EHR data lack comprehensive structured data elements to represent smoking status. The PPMH provided strategic advice and a pilot award for Dr. Shoenbill's research team to work with the NC TraCS Data Science Lab to develop computational tools to extract data from unstructured clinic notes.

Beyond supporting individual projects, this consulting service built a reusable framework for future consulting services on precision medicine informatics efforts, linking technical expertise with opportunities to implement research in clinical settings and strengthening the foundation for precision health research at UNC.

Implementing Precision Medicine Innovations in Patient Care

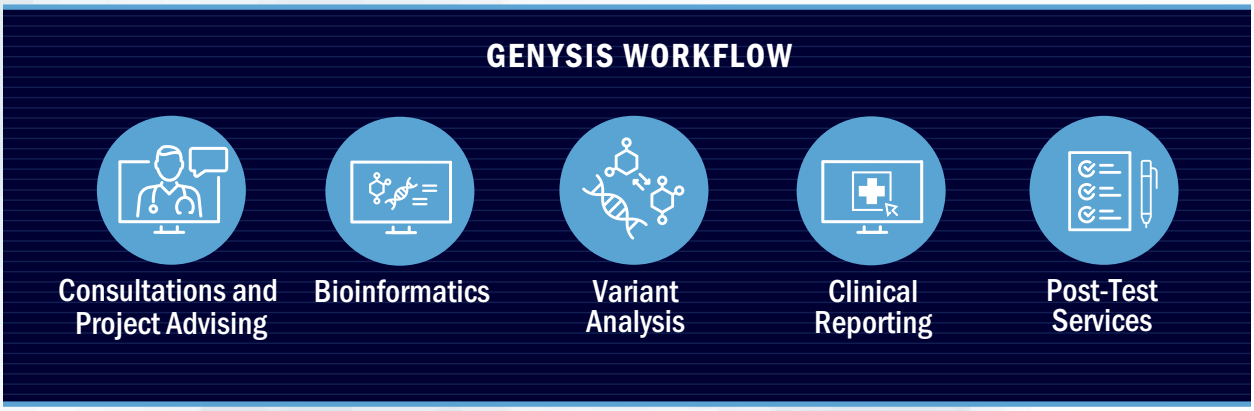
For precision medicine to have real impact, innovations must be implemented effectively so they move beyond discovery and reach patients in clinical care. The PPMH Dissemination and Implementation (D&I) Science Initiative works with other PPMH efforts to apply stakeholder-engaged design and evidence-based strategies that translate complex science into personalized care. Supported by the NIH and NC TraCS funding, the D&I Initiative also enhances UNC Health's capacity as a learning health system, leveraging data, feedback, and implementation expertise to integrate research innovations into practice, improve care delivery, and expand the reach of genomic and precision medicine.

FROM DISCOVERY TO DELIVERY: HOW IMPLEMENTATION RESEARCH AND PRECISION MEDICINE MOVE US TOWARD A LEARNING HEALTH CARE SYSTEM



Advancing Clinical Genomic Services Through Strategic Research Collaboration

Genome-scale sequencing technologies are increasingly used in clinical research, yet a significant gap persists between research and clinical care. The PPMH-supported Clinical Genomic Analysis (GENYSIS) Core Facility addresses this gap by providing the end-to-end infrastructure needed to support the return of clinically actionable genomic findings from research studies into the health care system and patient medical records.



GENYSIS services are particularly well suited for projects requiring collaborative, iterative analysis or tailored methods, and is useful in research projects with patients who remain undiagnosed after clinical genetic testing. By bridging the structural and regulatory divide between genomic research and clinical care, the PPMH enables research participants to benefit from genomic discoveries involving their own health and strengthens the integration of precision medicine within UNC Health.

From Research to Clinical Diagnosis: A Transformative GENYSIS Case

A newborn with a severe health condition received clinical genetic testing but results were inconclusive. After all clinical testing had failed to identify a diagnosis, the patient was enrolled in a research study collaborating with the GENYSIS Core Facility. Through this study, GENYSIS was able to identify a complex genetic variant that explained the symptoms and gave the patient a diagnosis. This discovery led to updates in commercial clinical testing methods and gave the patient's family hope for their child's future care.

"The support I have received from the PPMH and GENYSIS Core has been instrumental to both my research and the patients we serve. GENYSIS services have expanded diagnostic options available in my work on developmental and epileptic encephalopathies, where many patients still lack a molecular diagnosis. GENYSIS has returned results quickly and confirmed findings clinically, allowing us to provide actionable information to families and their care teams. The expert guidance on patient consent, coordinator training, and appropriate use of genetic testing has been invaluable. The infrastructure and productive partnership offered by GENYSIS and the PPMH have been essential in bridging research and clinical care, thereby accelerating discoveries that directly impact patients and families."

SENYENE HUNTER, MD, PHD • UNC NEUROLOGY

GENYSIS BY THE NUMBERS

8 research studies across **5** UNC School of Medicine Departments

$25,000 Core Facilities Advocacy Committee grant to develop an Oxford Nanopore Technology (ONT) sequencing pipeline

228 Exomes and Genomes analyzed

27 Clinical reports released

24 primary findings

11 medically actionable secondary/incidental findings

18 participant result disclosure encounters with a genetic counselor

15 variants submitted to the ClinVar database

Overall PPMH Funding and Return on Investment

Since 2019, PPMH investigators have been directly granted

$32,256,000 in external funding and **$30,000** in internal funding

The PPMH has granted pilot awards to **12 investigators** across **9 departments** totaling

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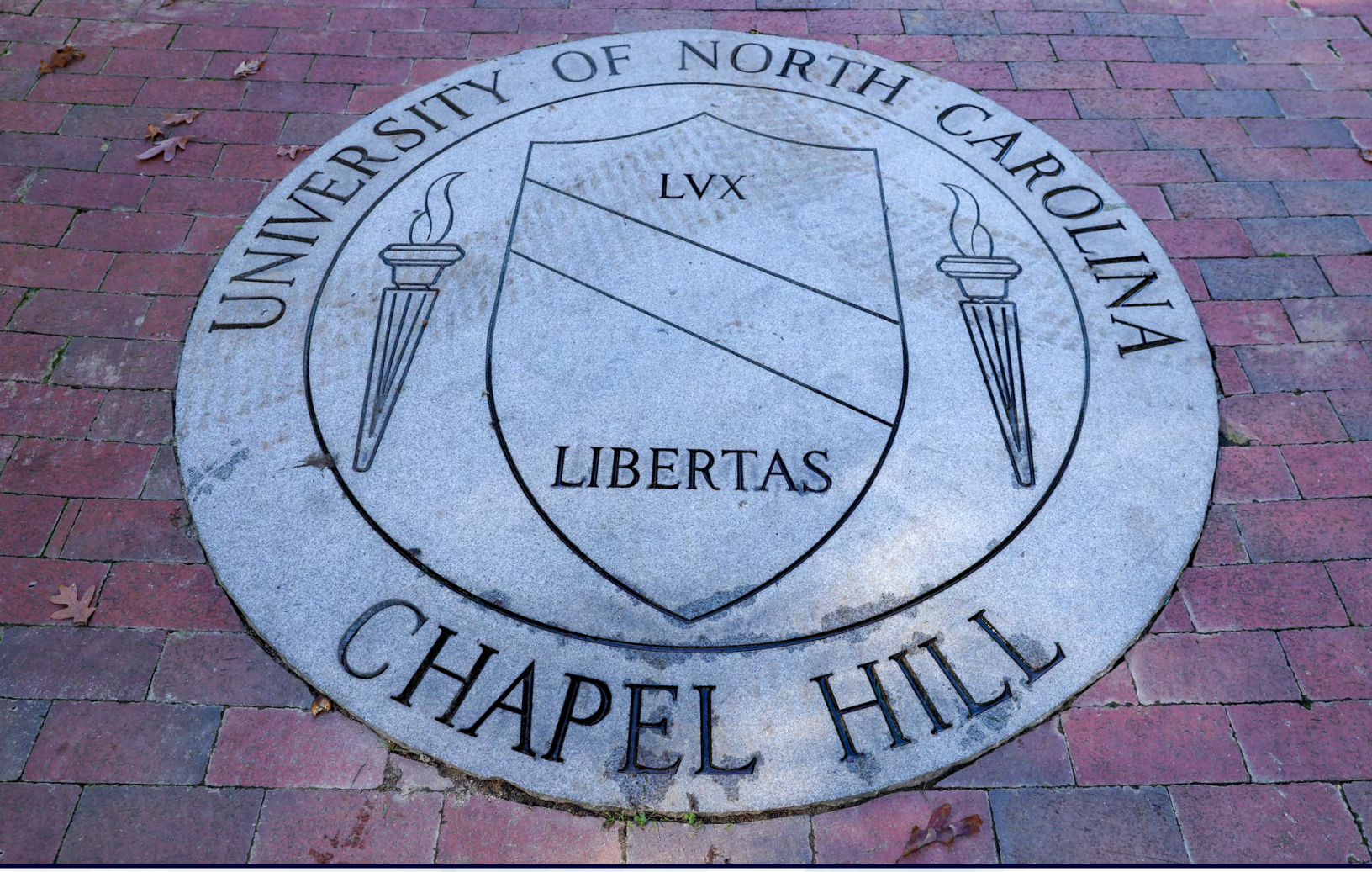


Serving UNC Health as Subject Matter Experts

Genomics technologies are rapidly expanding and entering clinical use across many disciplines, making it difficult for health systems to track which tests are most useful and how best to deploy these often expensive tools to achieve optimal patient care. The PPMH has served as a sounding board for numerous questions arising over the course of time, helping decision-makers within UNC Health by providing expert knowledge and recommendations for:

- Biobanking options for large-scale clinical research
- Commercial pharmacogenomics decision support vendors
- Whole genome sequencing services
- Cloud storage of clinical sequencing data
- Analytics infrastructure

Building a Safe Home for Human Genomic Research Data at UNC

The UNC Privacy Office, following federal guidance, has determined that all human genetic data are potentially identifiable and therefore classified as highly sensitive, even if direct patient identifiers are removed. Existing approved storage systems do not currently meet this classification, so the PPMH has worked closely with UNC and UNC Health leaders to review research use cases and ensure alignment with privacy and security standards. These efforts have led to updates in UNC's handling of genetic data and the launch of a pilot using a secure Azure environment for research analysis.

PART 4: **Impact on Education**

Education of Clinical and Research Communities at UNC

Wide Ranging Opportunities to Learn About Precision Medicine

PPMH educational events address key themes in precision medicine and clinical care at UNC. Participants engage in discussions with leading precision health researchers and clinicians, fostering learning, sparking new insights, and building meaningful collaborations in the field of precision health. The PPMH team collaborates across departments, divisions, centers, and programs to deliver timely educational opportunities.

Notable education events include:

- **Mini-Symposium Series** focusing on trending precision medicine research topics
- **Carolina Seminar Series** exploring justice in genomic and precision medicine with an emphasis on strategies to address social and ethical challenges
- **All of Us Workshop Series** introducing researchers and clinicians to data from the national All of Us research cohort
- **Rare Disease Day** public tabling events at UNC Hospitals to raise awareness about rare disease, along with public symposia highlighting rare disease research, clinical care, and philanthropy at UNC

Rare Disease Day, 2025

General Education of Clinical/ Researcher Communities at UNC

44 Events

1,672 Total Participants

Genomic and Genetic Testing Provider Education

To support the rollout of genomic testing in Epic throughout the UNC Health system, the PPMH created a Genomics and Genetics testing website and delivered clinical peer education seminars to help providers across the UNC Health system understand the who, what, and why of genetic testing. These sessions were broken up across the various subgroup genetic testing types.

Clinical Peer Genomic and Genetic Testing Education Sessions

16 Events

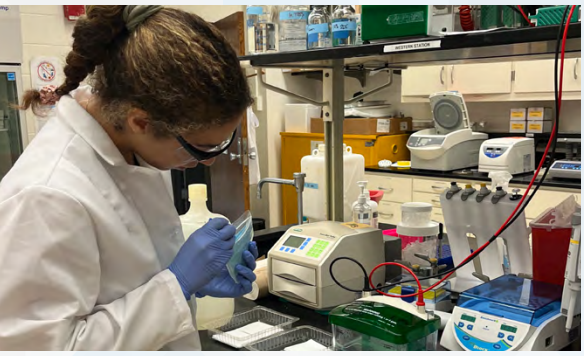
150 Total Clinician Participants

Education of Trainees

Undergraduate, Graduate, and Medical Student Training Opportunities

Through strategic support for training programs and emerging professionals, the PPMH actively accelerates the development of the next generation of precision medicine researchers and clinicians.

EDGE End of Summer Presentations, Summer 2024



EDGE Student in Lab, Summer 2025

EDGE Year 1 and Year 2 Cohorts, Summer 2025

Key components of this support include:

- **UNC Summer Undergraduate Research Fellowship (SURF) Scholar** sponsorship financing 13 scholars since 2019
- **Career Explorations in Genomic Medicine** virtual summer program developed by the PPMH to introduce undergraduate and community college students to careers in genomic medicine research
- **UNC EDGE Genomics Program** designed for early undergraduates interested in genomics providing mentorship, career guidance, and hands-on research experiences
- **"Genetics in a Day" Workshops** hosted at North Carolina Central University, to introduce students to real-world applications of genetics and genomics, raise awareness of genetics and genomics careers, and highlight training opportunities at UNC
- **Genomic and Precision Medicine Elective** for upper-level medical students, exploring how innovations in technology and systems-based precision medicine approaches can be applied to improve patient care
- **PPMH Scholars Program** for post-baccalaureate trainees, post-doctoral scholars, and junior staff and faculty to support career development in areas related to precision medicine

Training Programs and Trainee Support

263 Undergraduate Students

2 Postdoctoral Scholars

3 Precision Medicine Scholar Staff and Faculty

"Completing a SURF fellowship introduced me to the important habit of asking deeper questions and not settling for surface-level understanding. My research involved a complex topic that required me to interpret a wide range of journal articles to truly grasp the underlying science. This practice proved invaluable in medical school where reading around clinical topics and seeking a deeper understanding became essential. It is a habit I intend to carry with me as a physician."

FIONA WISSINK • SURF SCHOLAR 2020

Fiona graduated from UNC Chapel Hill undergrad in 2021, and University College Dublin School of Medicine in May 2025. She received the Surgeon Hugh Boyle Kennedy Bequest, awarded to the candidate who has achieved Honors while also placing the highest in Surgery in the graduating class. This summer, she began as an Intern Doctor in Mater Misericordiae University Hospital in Dublin.

"My [SURF] research experience has solidified my desire to become a researcher professionally. I enjoyed conducting experiments, reading research articles, and explaining and presenting my research to others. This was my first time doing a project entirely on my own, and while it was intimidating, it has given me the confidence and skills to continue being on the front lines of scientific discovery."

KATHERYN KAPFER • SURF SCHOLAR 2023

Katheryn graduated from UNC Chapel Hill undergrad in May 2025 and is now working as a research technician in the Todd Cohen lab within the UNC Neurology Department.

Educational Outreach Seminars by Genomics Experts

The PPMH PARADIGM Initiative, in collaboration with the Clinical Genome Resource, builds partnerships with academic institutions across NC to promote awareness and student interest about biomedical careers. Several complementary modules have been developed for college students, enabling course directors to select which topics about genetics and genomics would most enrich their students' experience.

8
Institutions Where Modules Have Been Presented

31
Presentations

1,445
Attendees

Education of the North Carolina Community

The PPMH not only works within UNC Chapel Hill and UNC Health, but also organizes outreach activities aimed at engaging the broader community with the goal of making genomics and precision medicine more accessible to community members and inspiring the next generation of scientists. Highlights include participation in the UNC Science Expo and hosting the El Centro Hispano's Pioneras en STEM field trip, where students enjoyed an afternoon of hands-on STEM activities and a guided tour of the Genetic Medicine Building (GMB) labs.

UNC Science Expo, 2022

Pioneras en STEM field trip, 2025

PART 5: **Future Outlook of Precision Medicine at UNC**

UNC is uniquely positioned to lead the integration of precision medicine into routine health care due to foundations laid by the PPMH. To build on this momentum, it is essential to maintain and expand the infrastructure, expertise, and collaboration that support the responsible use of genetic and genomic tools across research and the health care system.

A Message from the PPMH Director:

As Director of the PPMH, I focused our efforts on translation of advancements into practice through engagement with UNC Health ISD and the Epic@UNC team. Over the past six years, the PPMH genetics and genomics working groups laid the groundwork for integrating genetic testing into the EHR, developing orderable tests, decision support tools, and clinical workflows. The continued evolution and maintenance of genomic testing is now being incorporated into UNC Health's internal governance processes. I envision a precision medicine IT and analytics team integrated within the UNC Health ISD development team to continue developing robust clinical decision support. In parallel, we will engage with the Care Redesign effort currently underway within UNC Health to support Laboratory Stewardship efforts aimed at new complex diagnostic tests, as well as improving management of patients with rare and monogenic conditions across disease areas. I also hope to see expanded applications of genomic screening in population health. As complex tests become more accessible, computational algorithms improve, and novel molecular medicines are developed, clinical expertise will be needed to ensure safe and appropriate use of precision medicine technologies across the health system.

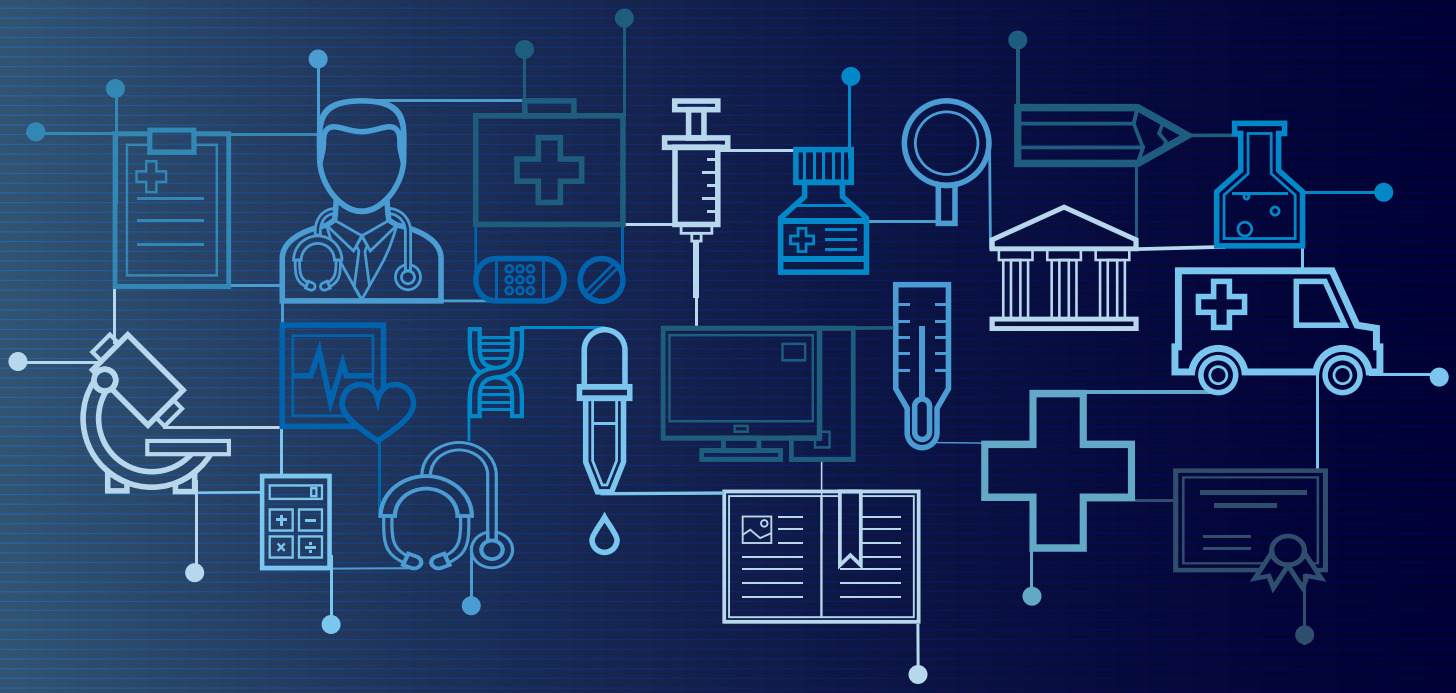
– Jonathan Berg, MD, PhD

What will come next for the PPMH as we continue to advance precision medicine at UNC?

Education and outreach for a broad range of learners will remain critical to the mission. In this quickly growing field, it can be challenging to stay up-to-date with emerging tools, technologies, and analytical approaches. As genetic testing expands into specialties outside of genetics, the need to support training for providers to understand complex or inconclusive results will be vital. The PPMH will play a critical role in filling these gaps for medical students, residents, and faculty.

Furthermore, precision medicine offers vast opportunities for research. The PPMH supports genomics researchers through the Clinical Genomic Analysis (GENYSIS) Core Facility and we have conducted training workshops in EHR data and precision analytics. In the next phase of the PPMH we plan to expand the research focus of the program to include an increased emphasis on biomarkers, disease modeling, computational analysis, molecular medicine clinical trials, and dissemination and implementation science.

We will continue to pursue community-building efforts across the campus and health care system that position UNC as a leader in precision medicine through research, education, and integration with clinical care.



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