

SUMMARY

Recognizing the rapidly evolving nature of precision medicine and its fragmented operational structure at VUMC, we convened a small group to develop a formal plan to integrate, operationalize and scale clinical genomics. This plan featured simplified and provider-friendly access, use of algorithms and automation to ensure timely information dissemination, and a model that supported leveraging the expertise of many existing or developing programs on campus.

INTRODUCTION

VUMC has been a leader in various aspects of precision medicine but sees an opportunity to do more at scale. We desire to be internationally known as an academic medical center where genomics is a core value driver, where we use operational resources to implement best in class practices and tools in support of precision care for all patients. The figures below describe the vision (below, left) and scope of our initial work (below, middle).

The Build of Precision Medicine:

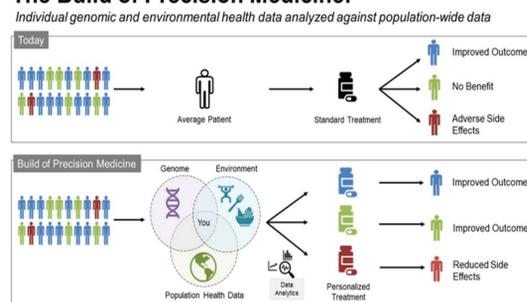


Figure 3 Model of Vanderbilt Precision Medicine current and future state

3 Audiences for the Next Generation Service

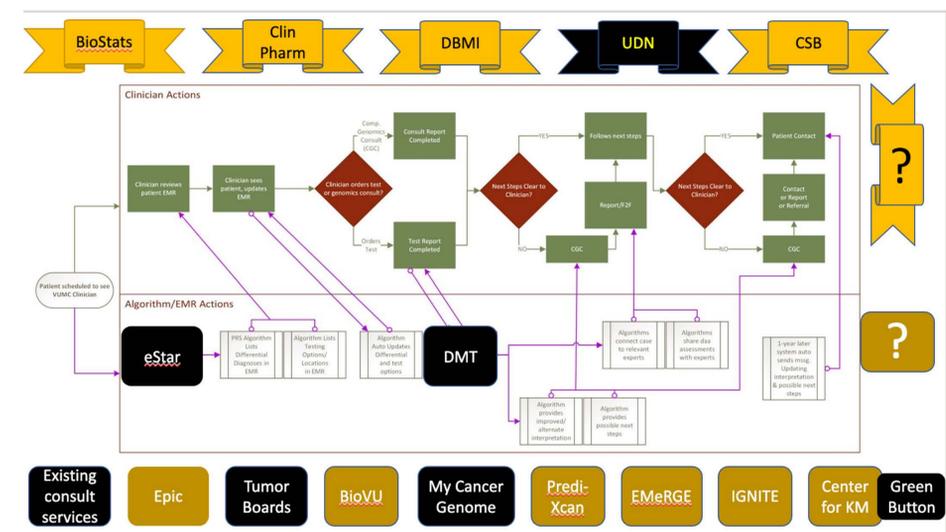
Medical Generalist	Medical Specialist	Patient*
<p>Deals with complicated scenarios</p> <p>Uncertainty about referrals</p> <p>Does not order molecular testing because</p> <ul style="list-style-type: none"> Confusing test options Complicated Interpretation Uncertainty about next steps 	<p>Manages complicated patients</p> <p>Orders molecular testing</p> <p>Has trouble deciding which test to order and where to send it</p> <p>Has trouble interpreting results (what do these results mean)</p> <p>Has trouble deciding on what steps to take moving forward and what to tell the patient</p>	<p>Someone who is concerned about his/her health</p> <p>Obtains direct to consumer testing</p> <p>Unable to understand the results</p> <p>Does not know how to proceed forward</p> <p>Goes to VUMC's website but does not find any guidance</p>

*will be the focus of later phase

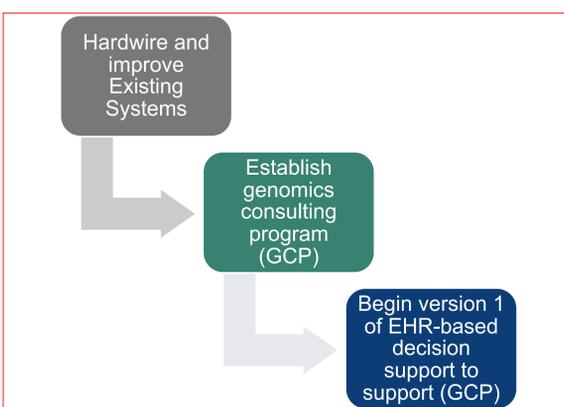
METHODS

A team of individuals from the clinical enterprise and administration met weekly for approximately 3 months to plan a larger meeting of stakeholders, with a goal of creating a pitch for our VUMC leadership to review and consider.

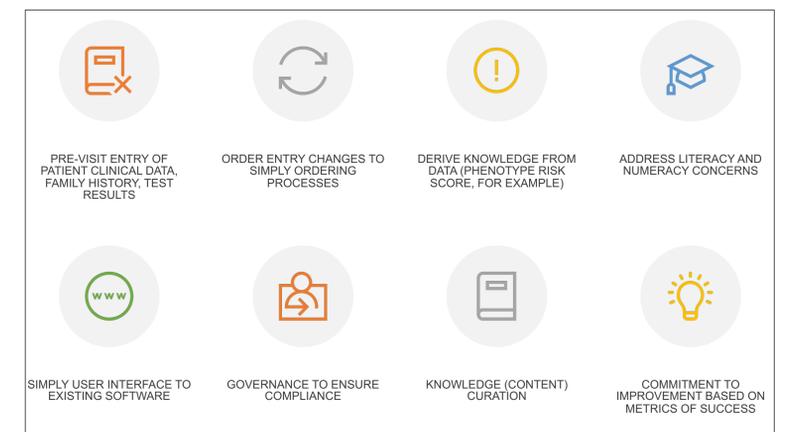
- We drafted clinician personas that represented the view of a specialist, a clinical researcher, and a clinical generalist.
- We constructed a straw model, detailing a step-by-step process for operationalizing the personas (below, right)
- We completed a limited environmental scan of existing VUMC programs or programs in development across VUMC.



RESULTS



- FY 20**
1. Begin work NOW!
 - a. When referral records arrive, trigger an immediate review for recommendations/orders
 - b. Automatic trigger of PRS and BPAs for clinician
 - c. Recommend tests for completion prior to appointment
 - d. Begin pre-test counseling upon record arrival (telemedicine one possible mode)
 2. Explore consented sharing of data among family members' medical records
 3. Learn from Diagnostic Management Team and a locally embedded specialists (to determine which diagnostic elements can be automated and which will require human input)
 4. Identify Champions/Power Users to respond to inquiries for specific phenotype sets
 5. Ensure there is pilot education
- FY 21**
6. Collect patient-reported, clinical, and genetic information prior to patient visit for Phenome Risk Score (PRS) and Best Practice Alerts (BPAs)
 7. Provide computer-driven differential diagnosis support



CONCLUSIONS

There was uniform agreement among stakeholders that VUMC had islands of excellence that were best in the nation, but that work needed to be done in earnest to scale these practices throughout VUMC (as a starting point). The teams proposed creating a new Genomics Consult Program modeled after the diagram above, piloted in primary care, a medical subspecialty service, and in oncology. The team recognized work already underway to improve existing systems, and requested that we complete that work. The team saw enormous potential opportunity to improve physician and patient satisfaction, and to improve our utilization of scarce knowledge and expensive laboratory tests as a byproduct of this new clinical service.