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Research on the Impact of and Methods for Implementing Regional Genomic Medicine eConsult Services

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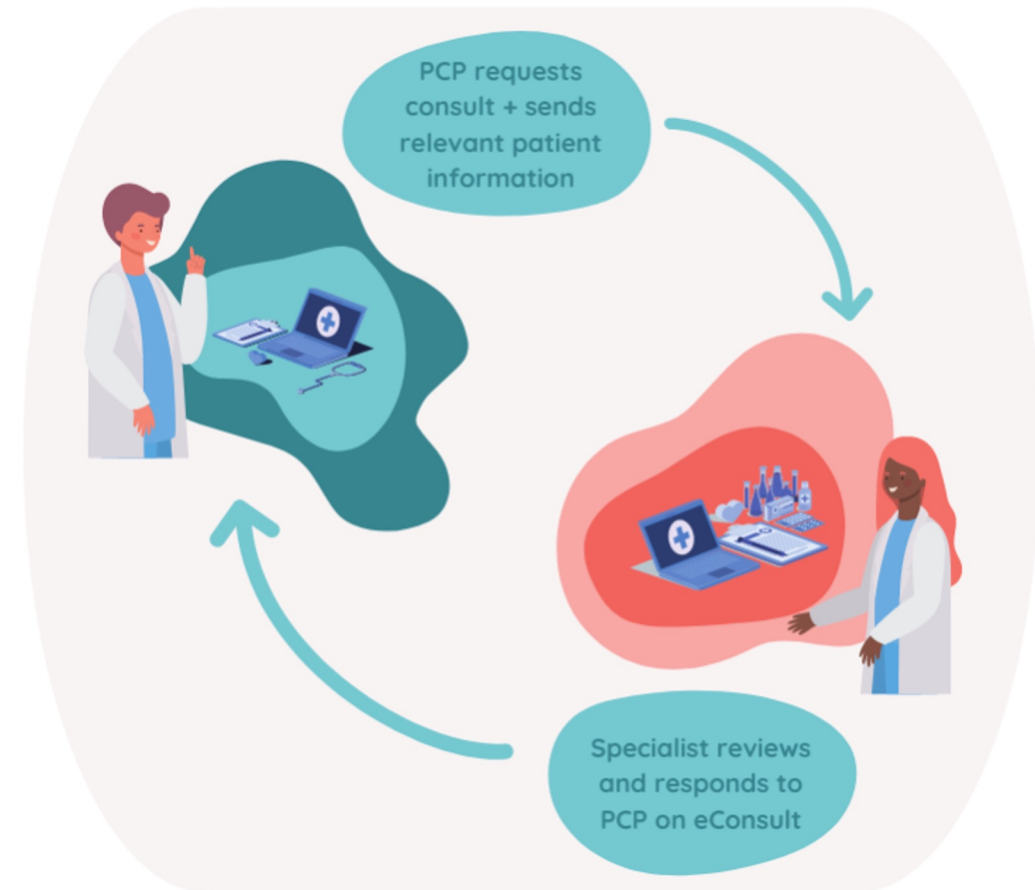
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Background

eConsults

- eConsult = clinician-to-clinician support
- Beneficial in many different specialties
 - Provide actionable recommendations
 - Increase primary care providers ability to provide care, decreasing specialty referrals
 - Reduce wait times
 - Decrease patient burden
 - Increase health equity
- Most are within a single institution
- Few genomic medicine eConsult services

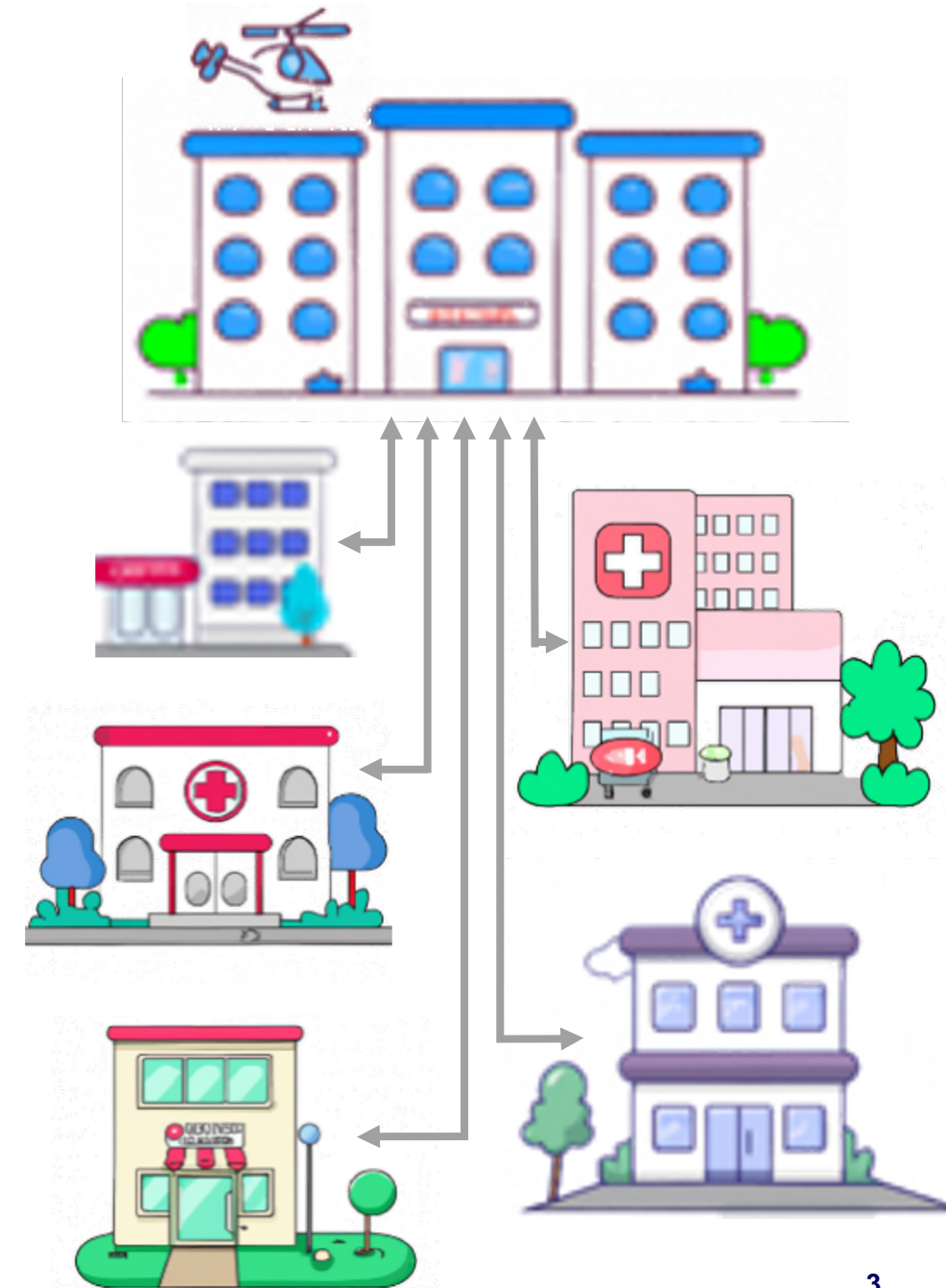


PCP = Primary Care Provider

Background

Regional eConsult services

- Multi-institution eConsult service
- Specialist(s) at one institution provide support to clinicians at other institutions
 - Including those outside of their system
- Allows clinicians without specialists at their institution to get patient specific recommendations
- Increase health equity, in groups such as:
 - Frail elderly
 - Long-term care residents
 - Rural patients
 - Transgender patients



Background

Literature Review

Specialty

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Genomic Medicine

Genomic Medicine

Reach

Single Institution

Literature shows:

- Feasible
- Improve patient care

Landscape analysis:

- Many health systems
- Modules built into large EHR systems

1 publication – US ([Folkerts 2023](#))

Landscape analysis:

- 5 established services
 - 1 PGx only
- 2 services being built

Multi-Institution
or Regional

Literature shows:

- Feasible
- Improve patient care

Landscape analysis:

- Corporate grant to FQHC
- Transgender medicine
- Pediatric mental health
- HIV/AIDs care
- ...and more

1 publication – Canada ([Carroll 2022](#))

Landscape analysis:

- San Francisco Safety Net
 - Cancer genetics only
- New England Regional Genetics Network
 - Too many barriers



Background

Literature Review

		Specialty	
		Not Genomic Medicine	Genomic Medicine
Reach	Single Institution	<p>Literature shows:</p> <ul style="list-style-type: none">• Feasible• Improve patient care <p>Landscape analysis:</p> <ul style="list-style-type: none">• Many health systems• Modules built into large EHR systems	<p>1 publication – US (Folkerts 2023)</p> <p>Landscape analysis:</p> <ul style="list-style-type: none">• 5 established services<ul style="list-style-type: none">◦ 1 PGx only• 2 services being built
	Multi-Institution or Regional	<p>Literature shows:</p> <ul style="list-style-type: none">• Feasible• Improve patient care <p>Landscape analysis:</p> <ul style="list-style-type: none">• Corporate grant to FQHC• Transgender medicine• Pediatric mental health• HIV/AIDS care• ...and more	<p>1 publication – Canada (Carroll 2022)</p> <p>Landscape analysis:</p> <ul style="list-style-type: none">• San Francisco Safety Net<ul style="list-style-type: none">◦ Cancer genetics only• New England Regional Genetics Network<ul style="list-style-type: none">◦ Too many barriers

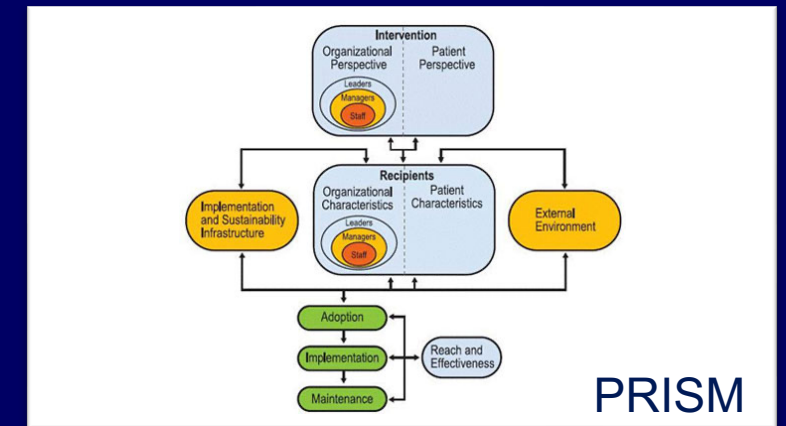
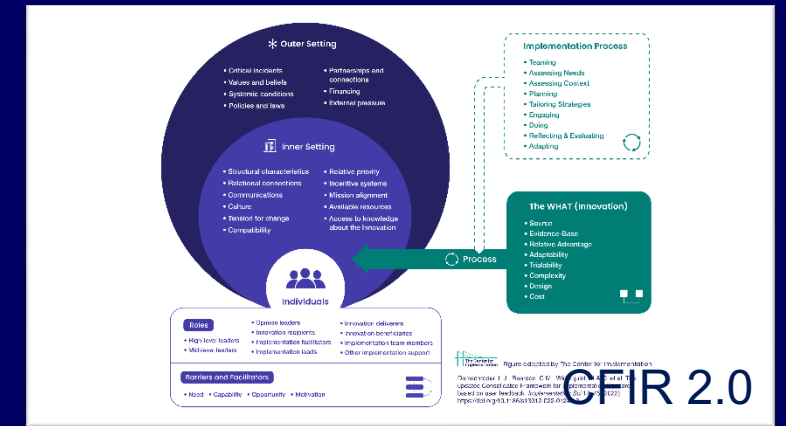
Knowledge gap

- Impact of genomic medicine eConsult services when implemented on regional scale
- Identify and overcome barriers in implementing regional genomic medicine eConsult services

Background

Implementation science

- Often used for ‘evidence-based practices’
- Hybrid designs for continuing to accumulate evidence at larger scales while studying how to best implement ([Curran 2012](#))



Research questions



1. What impact do genetic eConsult services have when they are implemented at the regional level?
2. How can regional genetic eConsult services be implemented and sustained?
3. Can tools be created and shared with others who are creating regional eConsult services?

Proposal

- RFA to implement, evaluate, and refine regional clinician-to-clinician genomic medicine eConsult services



Proposal

- Two to three U01 awards
 - Cooperative agreements
- Separate projects, that test:
 - Diverse service models
 - Local barriers
- Come together for collaborative meetings
 - Both sites, program office
 - Monthly (first 6-12 months), then quarterly



Objectives of collaboration

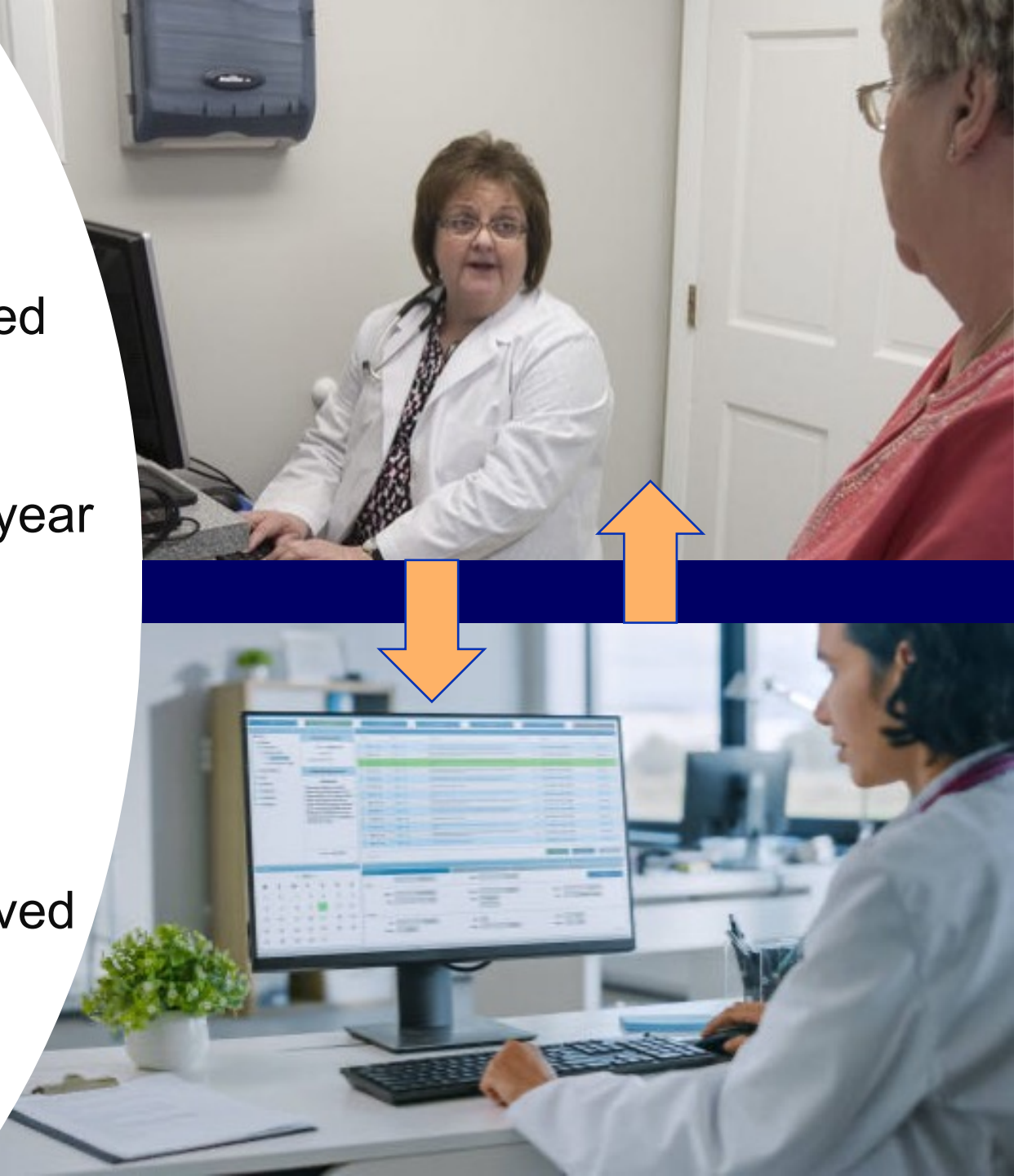
- Establish common metrics
- Discuss obstacles
- Brainstorm and share solutions
- Review stakeholder input
- Discuss progress and timeline



Scope of service

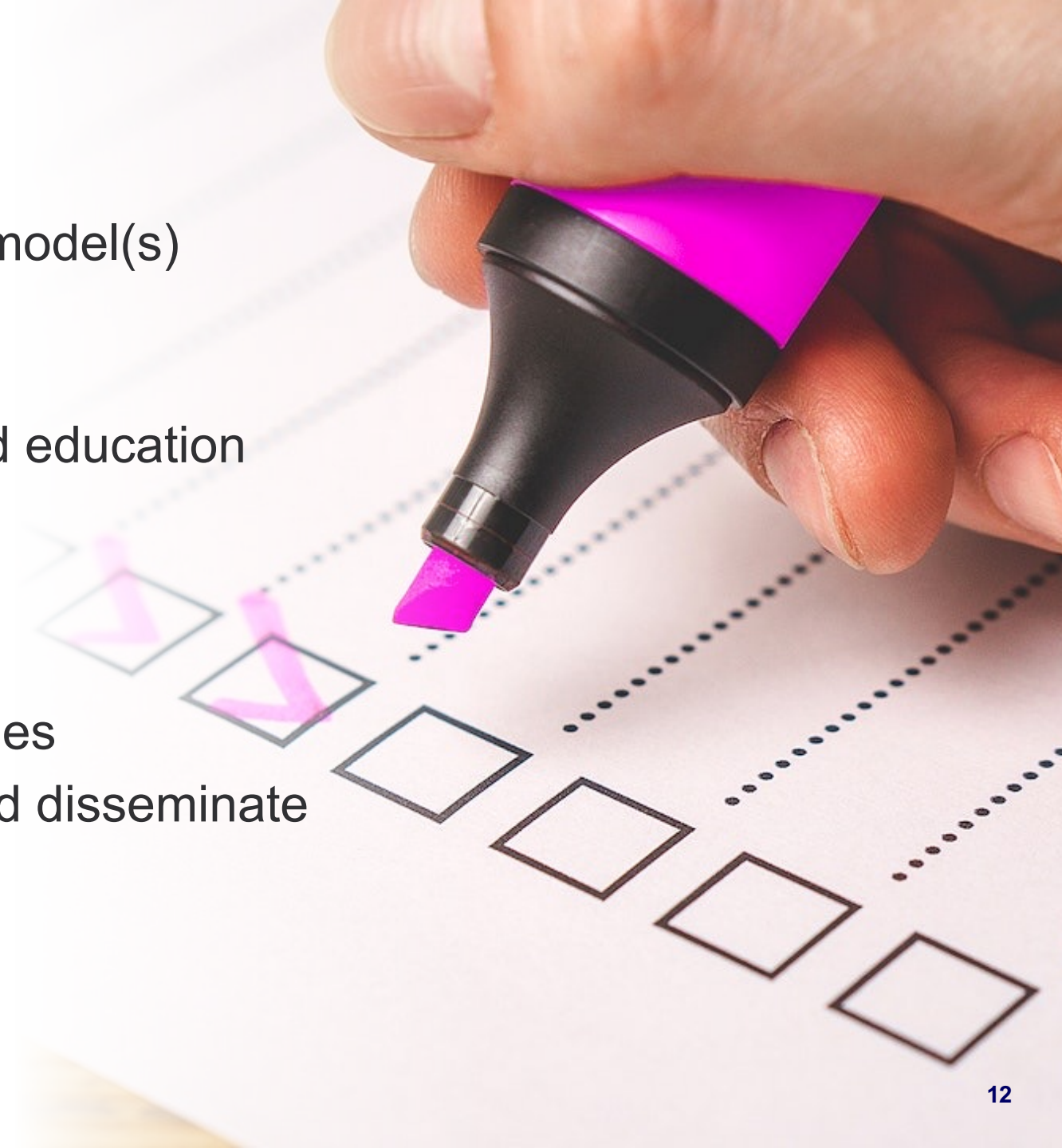
Geographic region or noncontiguous selection of facilities like Federally Qualified Health Centers (FQHCs) or Indian Health Service (IHS) locations:

- Large enough to expect 1000 consults/year
- Include a variety of settings, such as academic medical centers, community hospitals, private practices, safety net services, ideally using multiple EHR platforms
- Include at least two medically underserved populations/areas as defined by HRSA
- Ideally serve multiple states with different licensure laws



Activities

- Each site will test a distinct service model(s)
- Address three operational goals:
 1. Set up eConsult service
 2. Conduct outreach, promotion, and education
 3. Provide eConsults
- For each goal, sites will assess:
 - Impact questions/outcomes
 - Implementation questions/outcomes
 - Implementation tools to create and disseminate



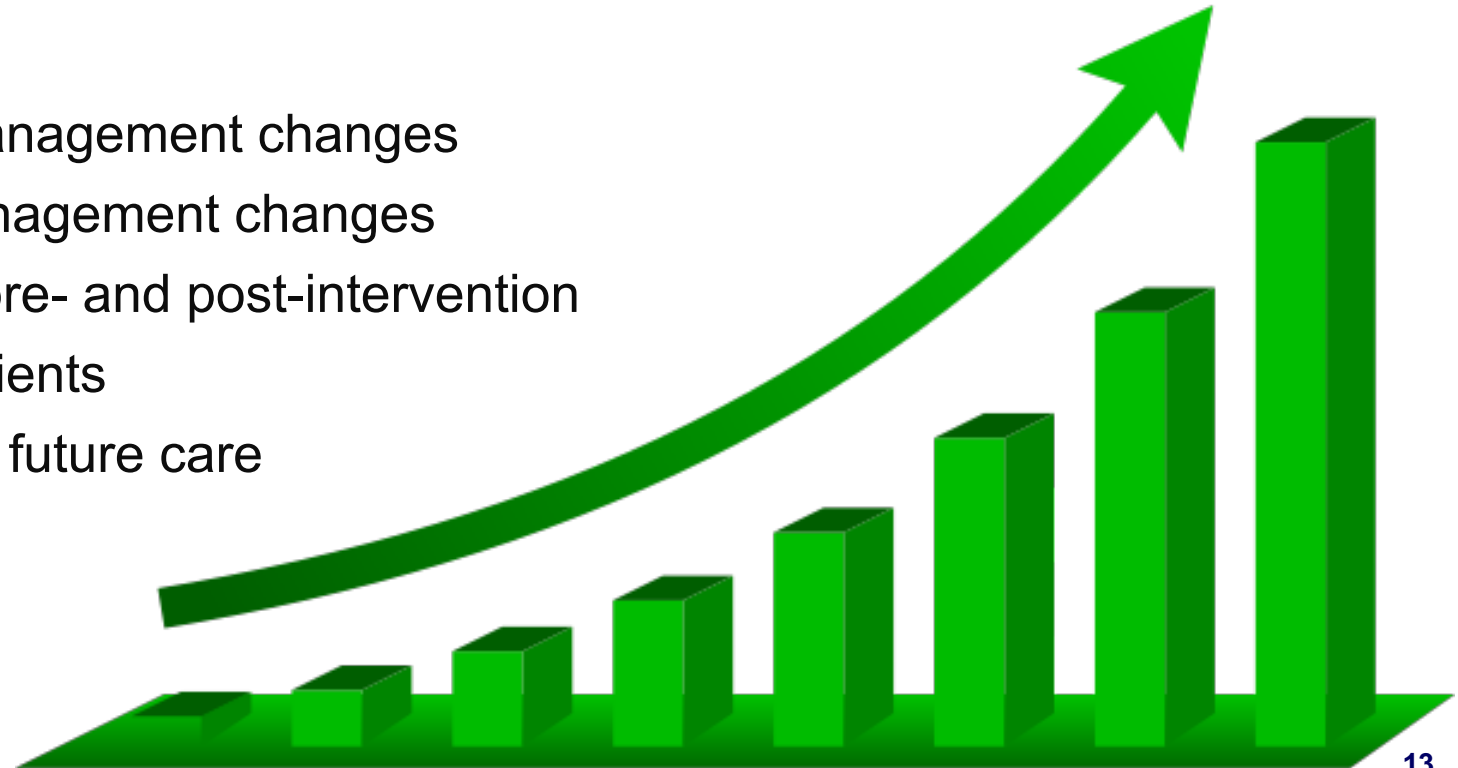
Examples of impact questions/outcomes

Questions

- Do genomic medicine eConsults improve health equity and access?
- What is the impact of providing eConsults, when measured at the patient, provider, and systems levels?

Outcomes

- # eConsults recommend medical management changes
- # eConsults resulting in medical management changes
- # patients receiving genetic testing pre- and post-intervention
- Provider confidence in caring for patients
- Provider knowledge of resources for future care
- Specialty referrals avoided/initiated
- Reduction of wait times



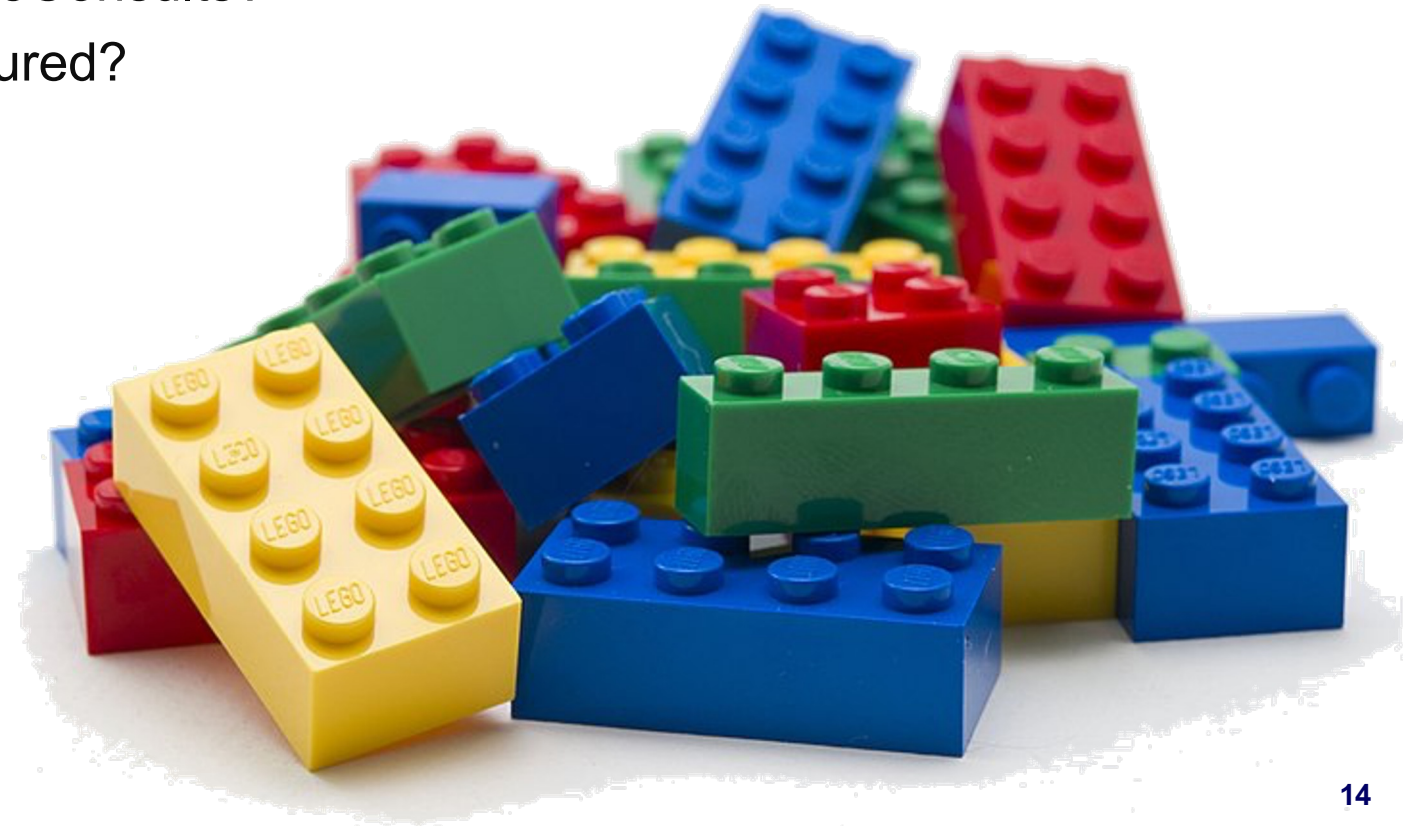
Examples of implementation questions/ outcomes

Questions

- What are the best methods for receiving eConsult requests?
- What are the best methods for triaging eConsults?
- How can financial sustainability be ensured?

Outcomes

- # of requests received by:
 - Provider type
 - Facilities
 - Specialties
 - Underserved areas/populations
- Response time
- # requests discontinued
- Financial inputs/outputs



Examples of implementation tools

- eConsult request forms
- Triage algorithms
- Billing guides
- Sample advertisements
- Set of response templates for common questions



Funding

- NHGRI proposes to fund 2 sites:

Year 1	Year 2	Year 3	Year 4	Year 5	Total
\$3.0M	\$3.2M	\$3.5M	\$3.5M	\$3.5M	\$16.7M

- Funding increases over project period as the number of eConsult requests is expected to grow
- NHGRI will request co-funding from other institutes and federal agencies to increase:
 - Number of sites
 - Scope of project
 - Speed the expansion and/or evaluation of the service

Discussion





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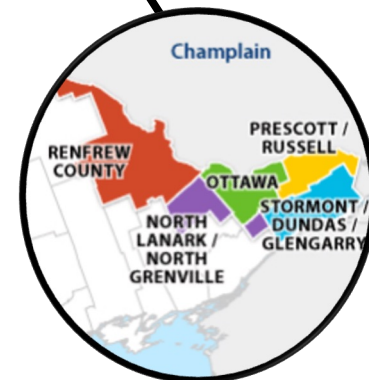
Why 1000 consults?

- Need several consults per week to retain:
 - Engagement
 - Procedural proficiency
 - Satisfaction
- 1000 consults/year = 19 consults/week, divided between specialties



Numbers needed for 1000 consults?

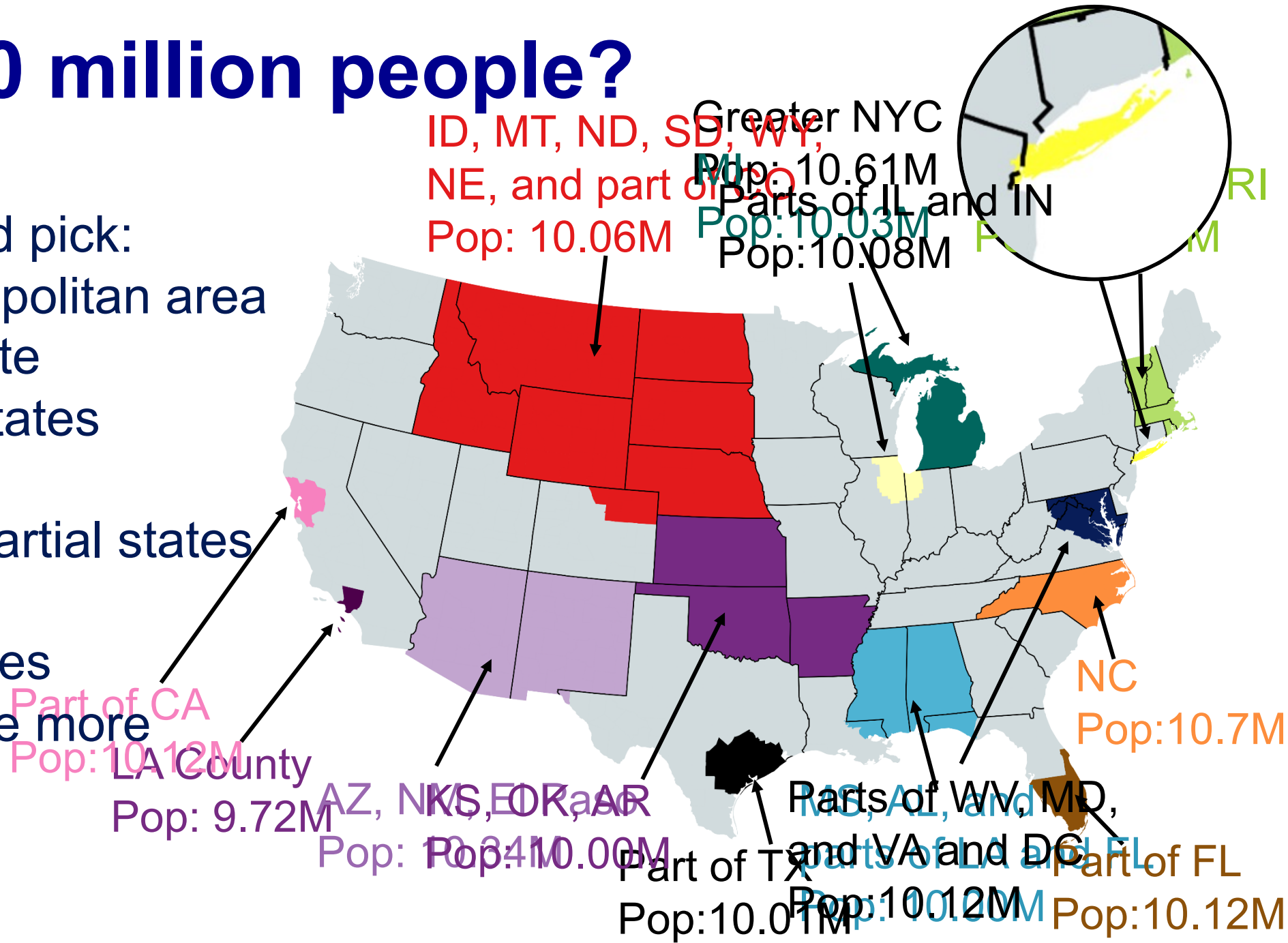
- Population-based: 10M people
 - Data from two regional Canadian genomic medicine eConsult services in the Champlain health region of Ontario
- Patient-based: 4.5M patients
 - Data from personal communications with institutions doing single institution genomic medicine eConsult services
- Individualized
 - Data from local sources such as internal genomic medicine eConsult services



What is 10 million people?

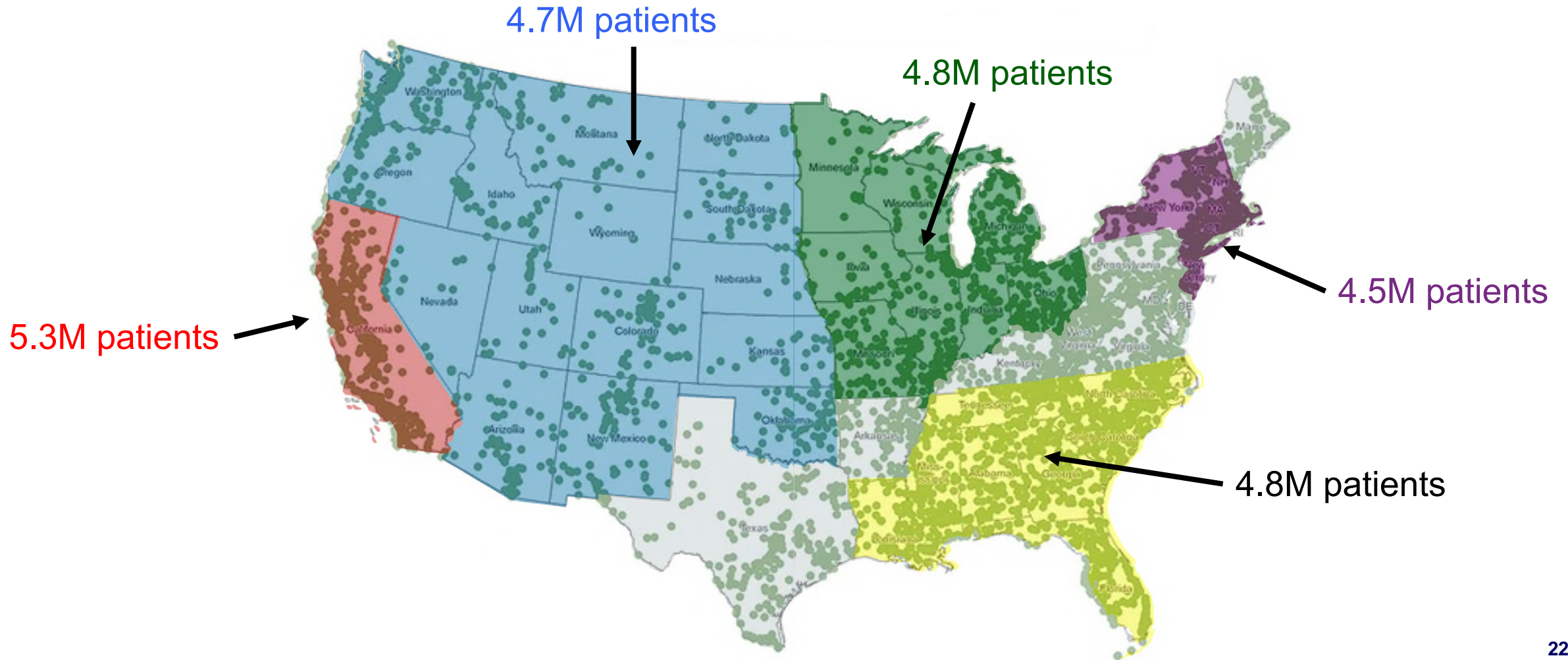
Applicants could pick:

- Large metropolitan area
 - Single state
 - Multiple states
- Partial state
 - Multiple partial states
- Single state
- Multiple states
 - Plus a little more
- Many states



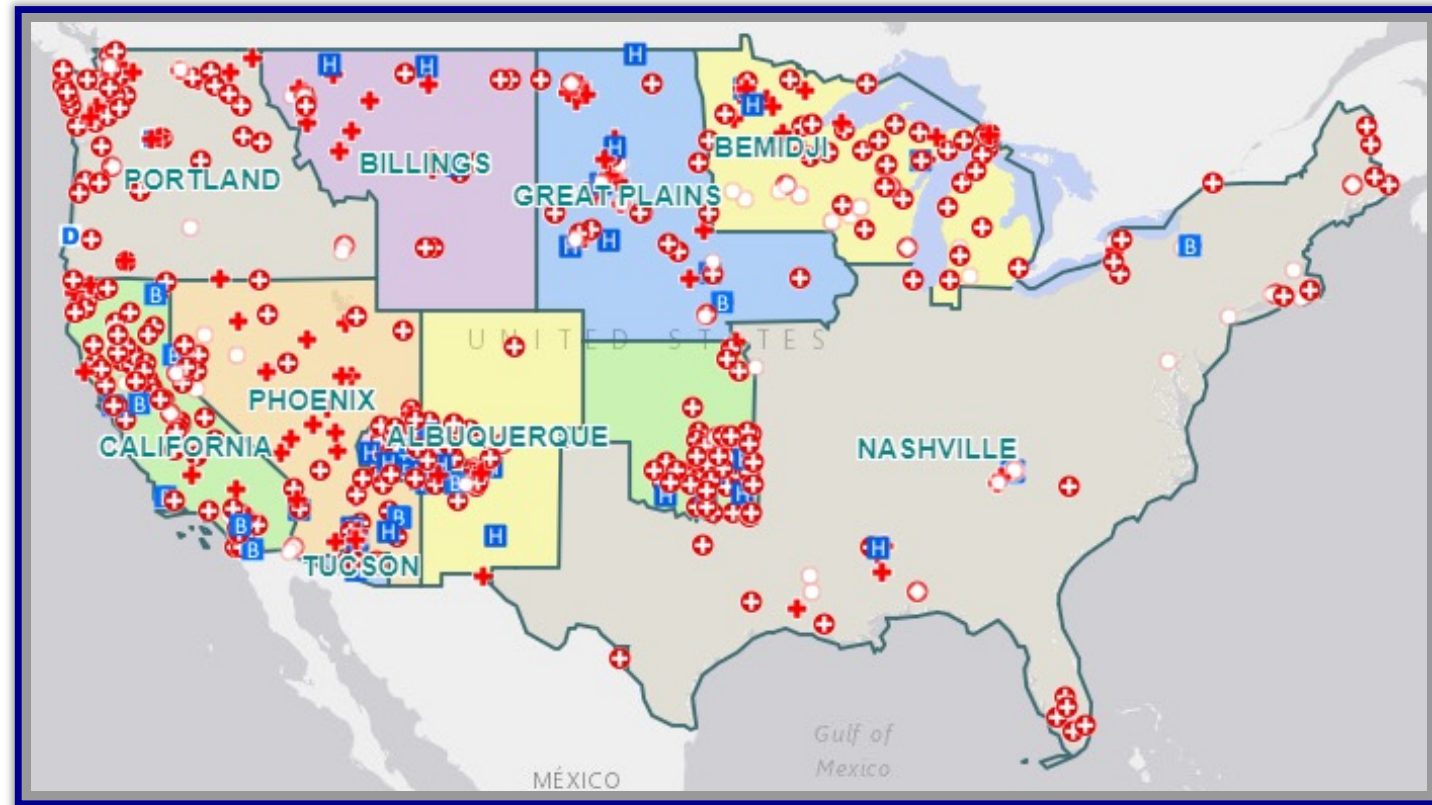
What is 4.5 million patients?

- Federally Qualified Health Centers (FQHC): over 30M



What is 4.5 million patients?

- Indian Health Service (IHS): 2.2M



Suggested Timeline and Budget

Two U01s
Five years

- Year 1: Establish eConsult services
Collaborate to agree on metrics
Establish outreach and referral networks
Soft launch - 100 pilot eConsults
- Year 2-5: Continued outreach, promotion, and education
Continuously evaluate and refine
- Focus on sustainability, such as billing and reimbursement
- Create implementation tools
Expand volume/reach
- Year 2 – 500 consults
 - Year 3 – 750 consults
 - Year 4 & 5 – 1000 consults
- Year 5: Disseminate and publicize findings and tools

Year 1	Year 2	Year 3	Year 4	Year 5	Total
\$3.0M	\$3.2M	\$3.5M	\$3.5M	\$3.5M	\$16.7M

Literature Review: need

Non-genetic providers need support to care for patients with genetic needs:

- 73% of internists and family medicine practitioners don't feel their genetic training in medical school adequately prepared them to use genetic testing in clinical practice
- In NYC, majority of physicians "felt unprepared to work with patients at high risk for genetic conditions and were not confident about interpreting test results"
- In Canada, 42% of medical oncologists felt they didn't have enough genomic training
- 62% of cardiologists are not confident in ordering genetic tests; 77% refer to genetics for testing; 45% don't feel confident in making medical recommendations based on genetic tests



Figure 2. Venn diagram of overlapping and unique barriers to genetic service provision affecting providers, system, and patients.

Literature Review: eConsult successes

eConsults work in many specialties:

- Canada: reduction in need for traditional referral in 43% of cases
- Geisinger's Ask-a-Doc: 20% reduction in total costs after 2 months
- VHA's e-consults: decreased patient travel costs by \$2.8M, lower burden on patients
- LA's Safety-Net: 25% reduction in need to specialty visits, decreased wait times to see specialists
- Canada: eConsults perceived as "highly beneficial to providers and patients" in >90%
- Canada: eConsults increased health equity, allowing access to specialty care for seven patient groups: addiction, frail elderly, homeless, long-term care, rural, special needs, and transgender

Literature Review: genomic eConsults

- Some research on eConsults for Genetics:
 - Mass General Hosp: in 1 year, 153 requests; 85 had actionable recommendations, ordering clinicians documented follow through in 82% (preprint)
 - 2 regions of Ontario: 55% got advice that changed management, 36% referral avoided, 86% perceived valuable