Educating Clinicians about Precision Public Health What is Effective?

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CDC

Oak Ridge Institute For Science and Education

Learning objectives

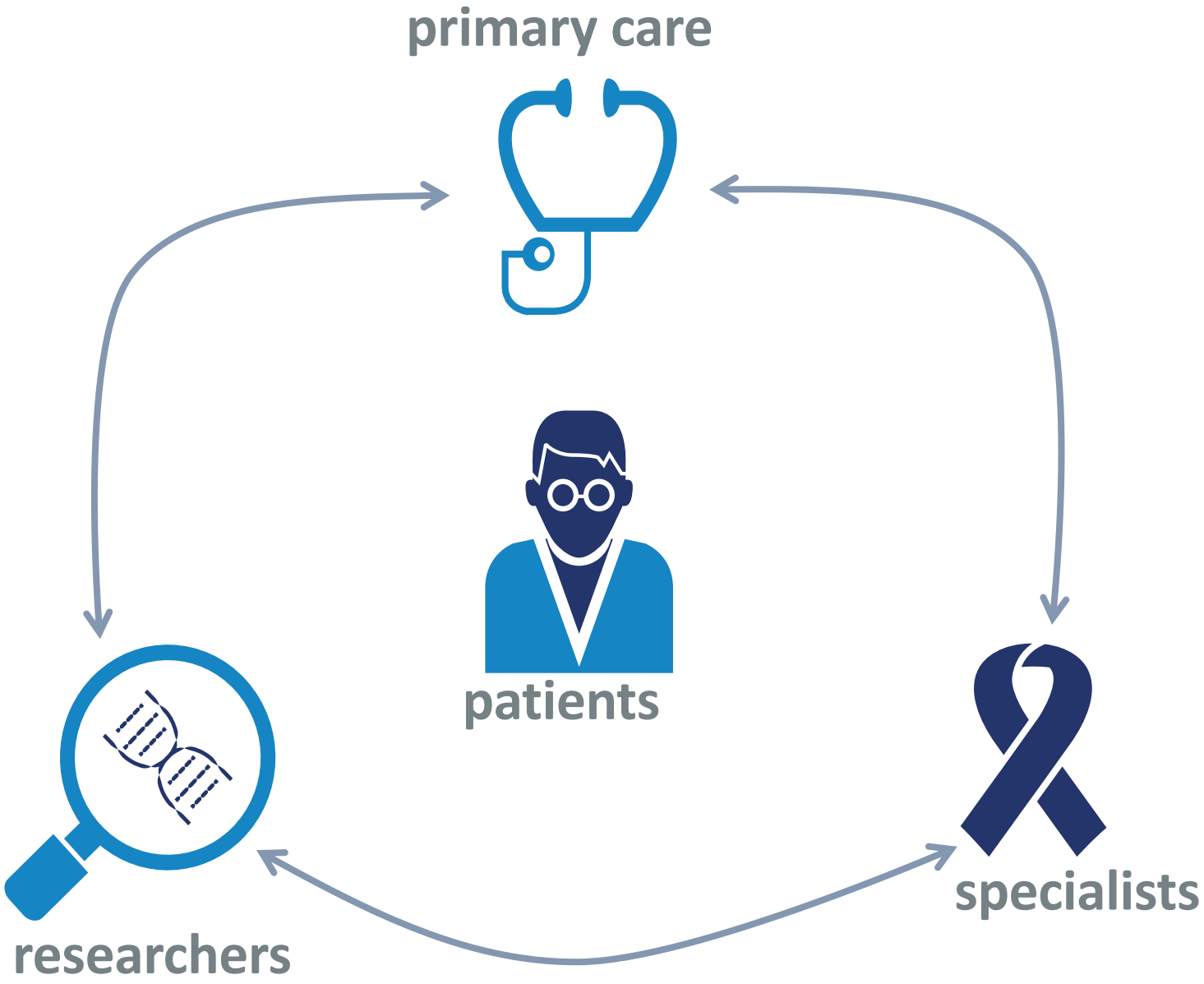
- Discuss needs and gaps in genomics education for clinicians
- Discuss evidence-based approaches to designing and developing adult education
- Identify strategies to engage learners effectively

WE ARE

dedicated to improving human health and providing personalized therapies to help treat, cure and prevent disease

JAX CLINICAL EDUCATION

Empower healthcare professionals to integrate genomics into clinical practice through community collaboration



What education role(s) do you have?

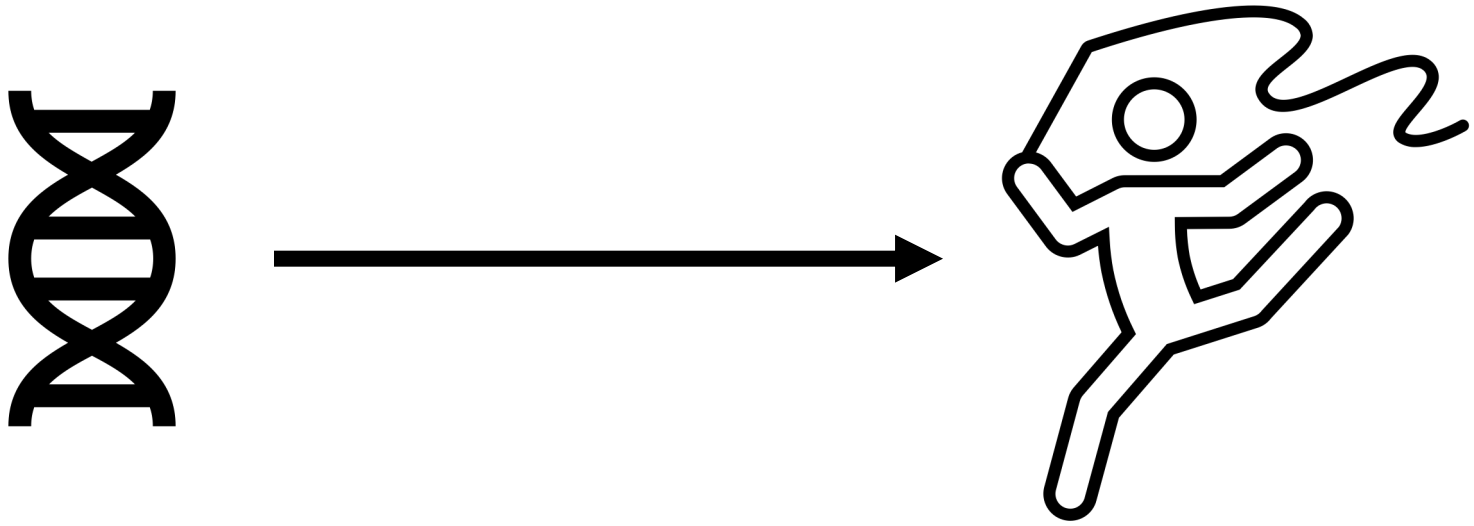
Outline

- Defining the problem
- Evidence based education
- Effectiveness & lessons learned
- The solution

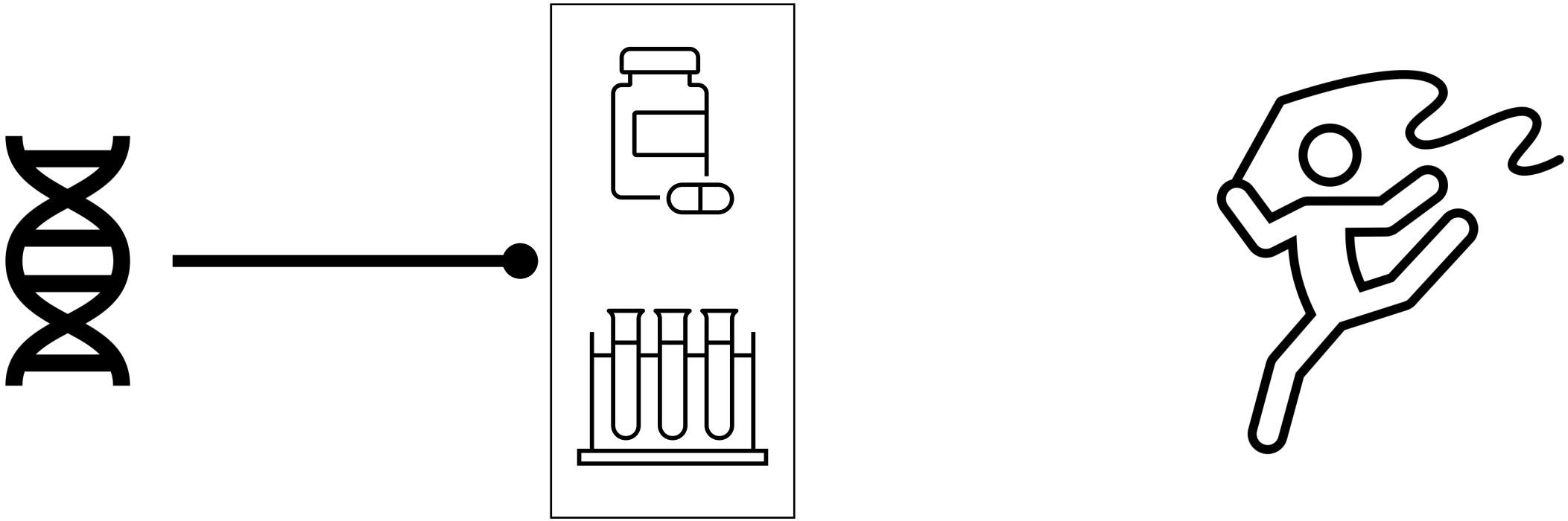
Defining the Problem

GOAL: Use genetics information to improve population health

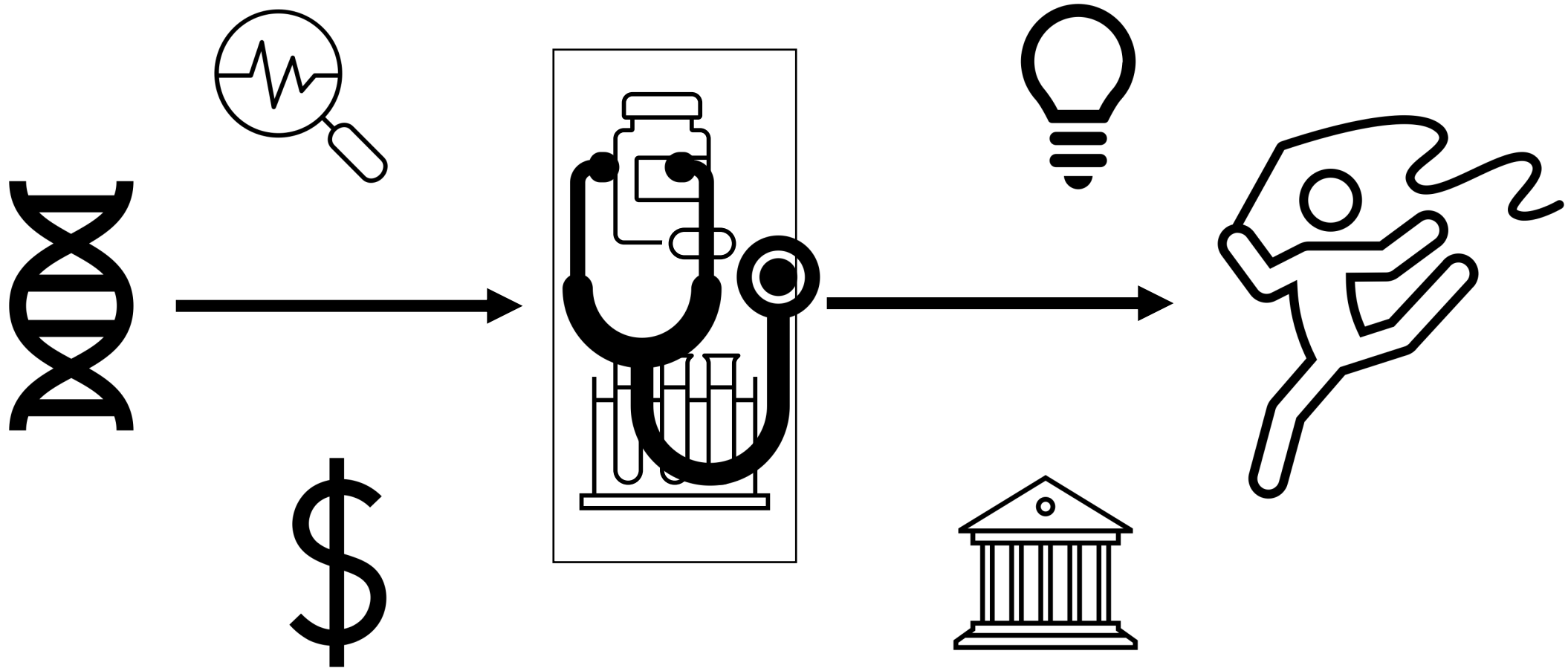
Tier 1 conditions
Clinical guidelines
FDA labels



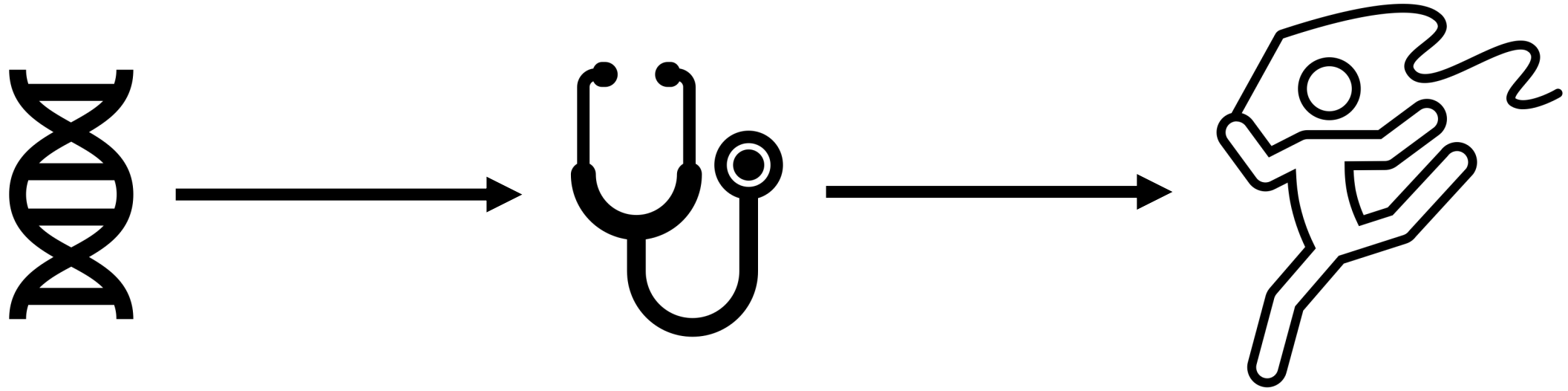
PROBLEM: Guidelines are not being implemented equably across the population



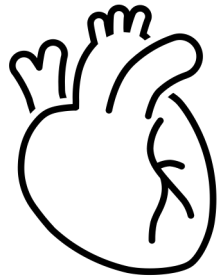
Clinicians are a key component of guideline implementation

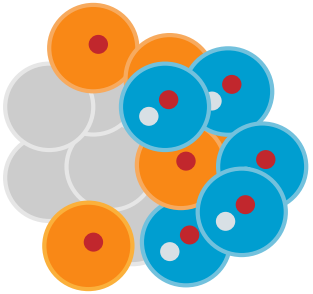


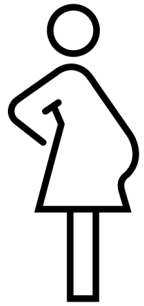
Non-genetics clinicians need to help translate genetics into patient care



Clinicians lack confidence in understanding interpreting genetic information





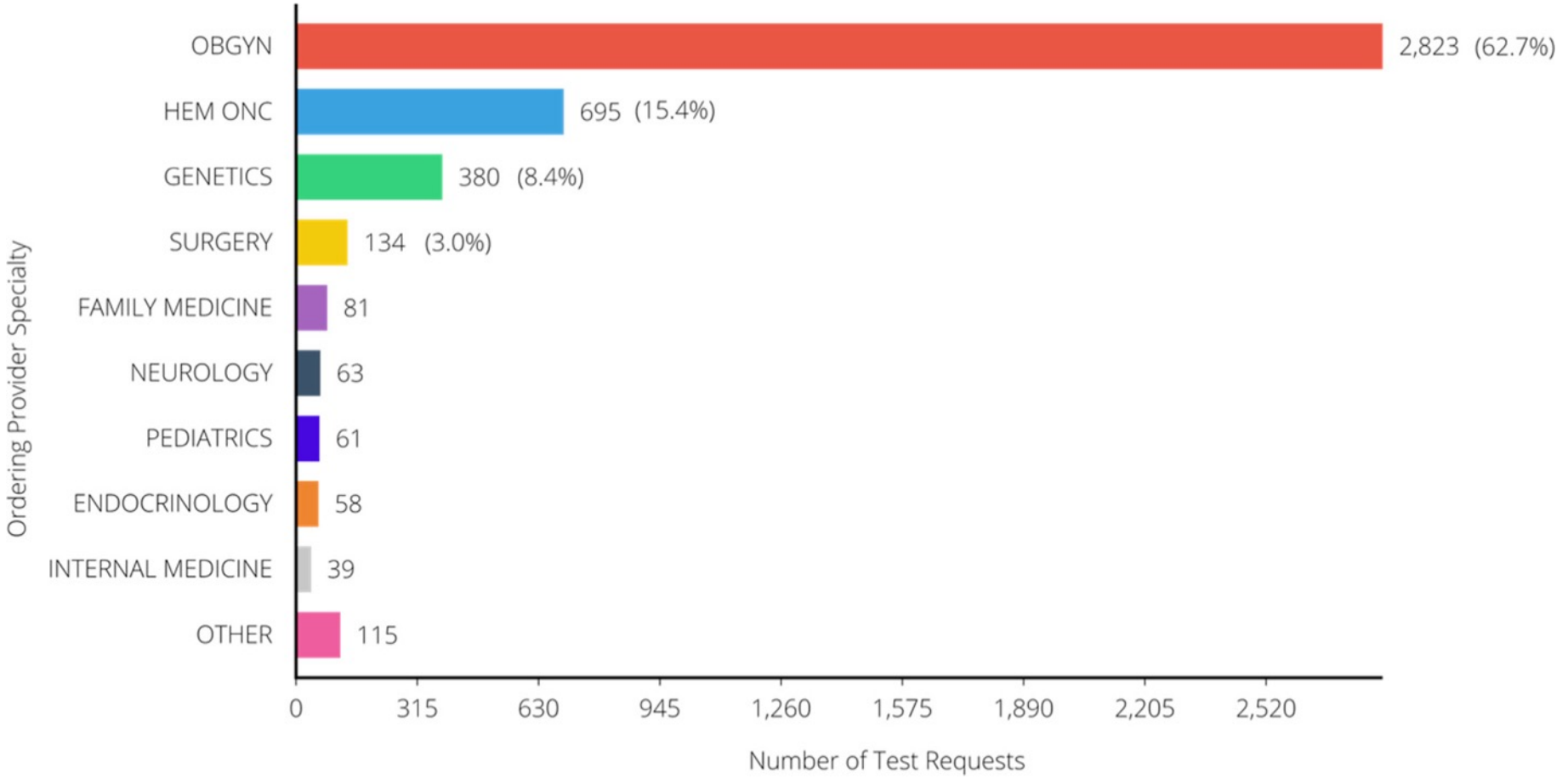


Baiguz 2022; Dotters-Katz 2019; Lemke 2020; Farmer 2019; Helm 2016

Which clinical specialty orders the most genetic tests?

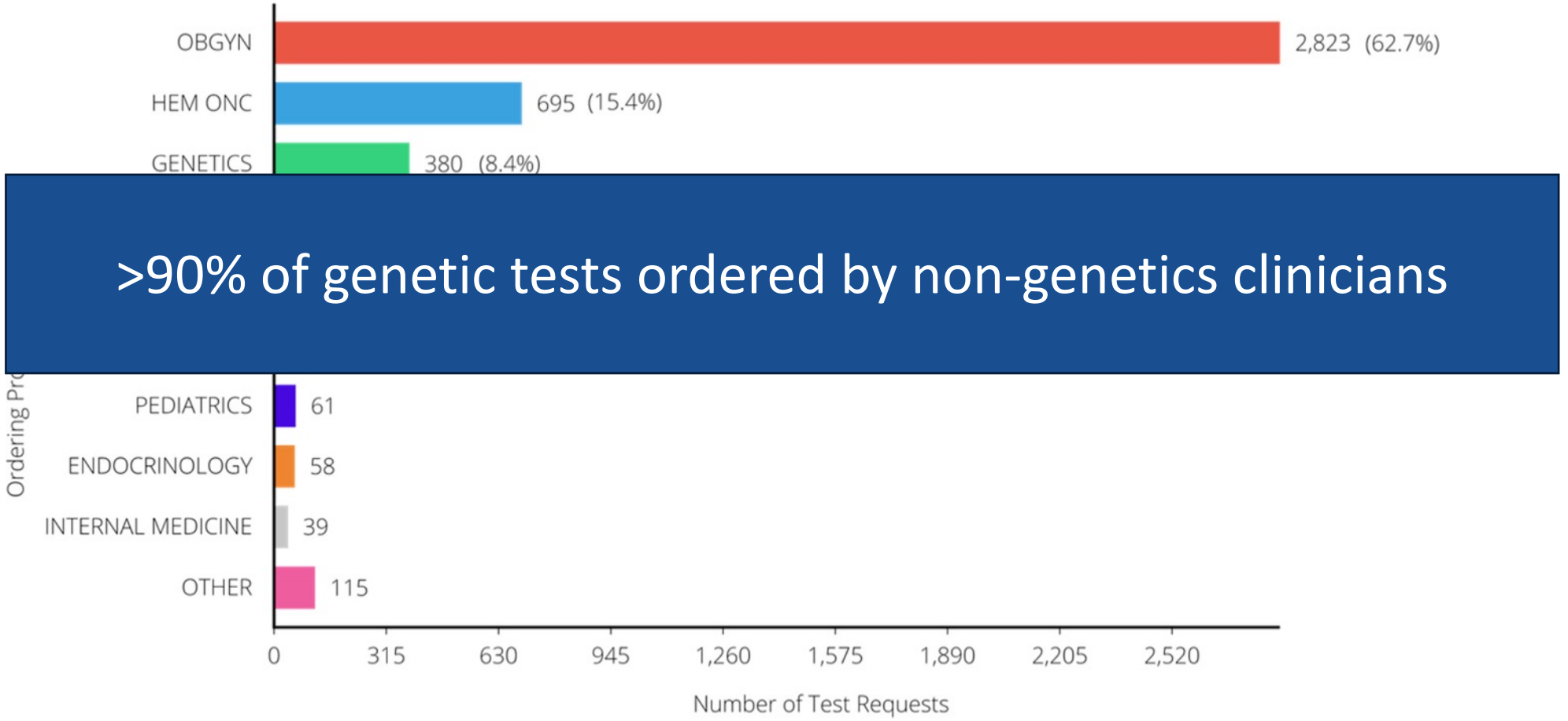
- Genetics
- Oncology
- Neurology
- Primary care
- Ob/gyn

Reproductive and cancer-related testing are most ordered



Bajguz et al 2022
PMID 34939253

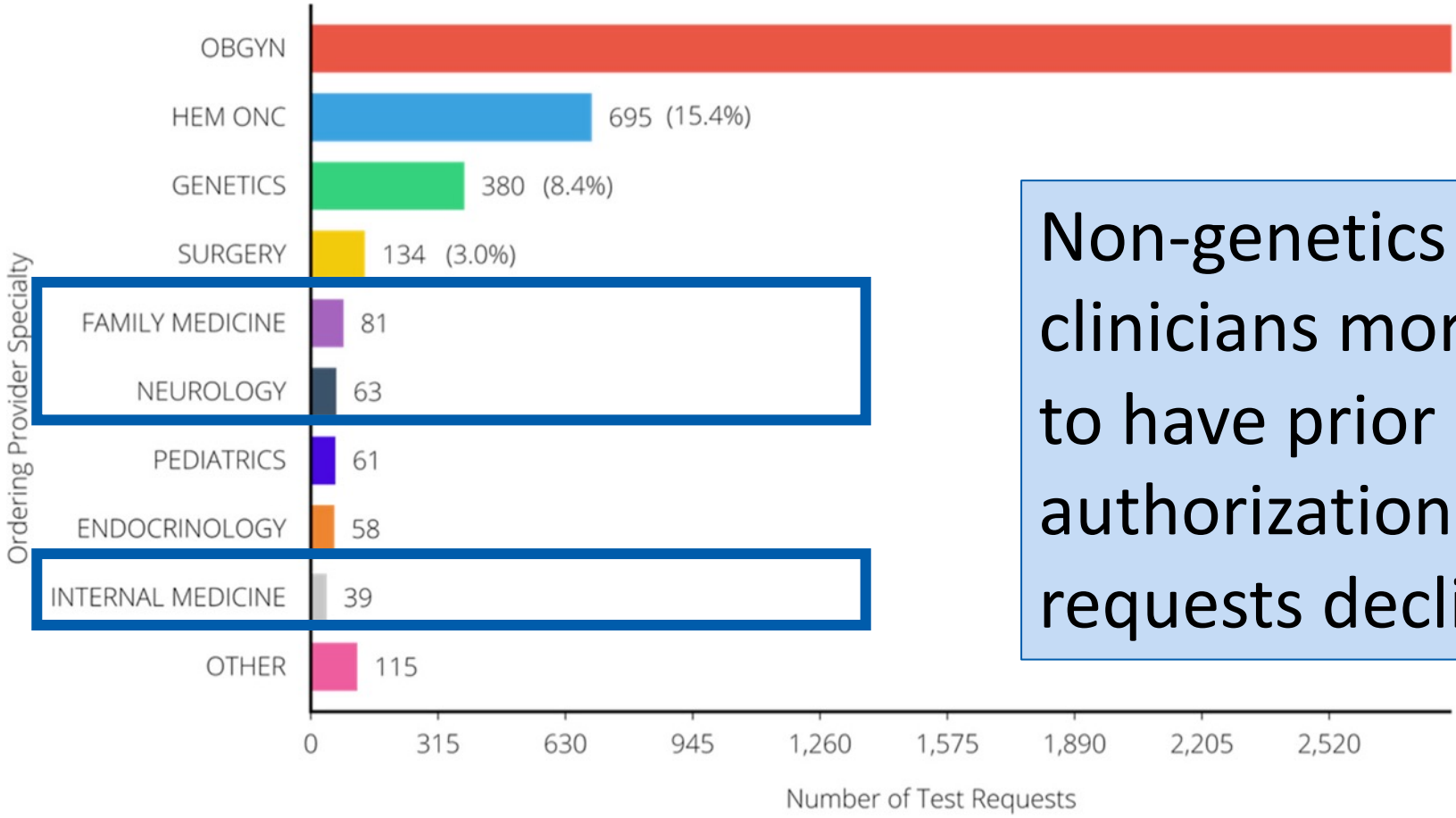
Reproductive and cancer-related testing are most ordered



>90% of genetic tests ordered by non-genetics clinicians

Bajguz et al 2022
PMID 34939253

Reproductive and cancer-related testing are most ordered



Non-genetics clinicians more likely to have prior authorization requests declined

Bajguz et al 2022
PMID 34939253

Misinterpretation of genetic test results can lead to undesirable outcomes

- Unnecessary surgery
- Avoidable late diagnosis
- Lost opportunity for early screening
- Excess testing

Moving from current to best practice is multi-disciplinary

POLICY

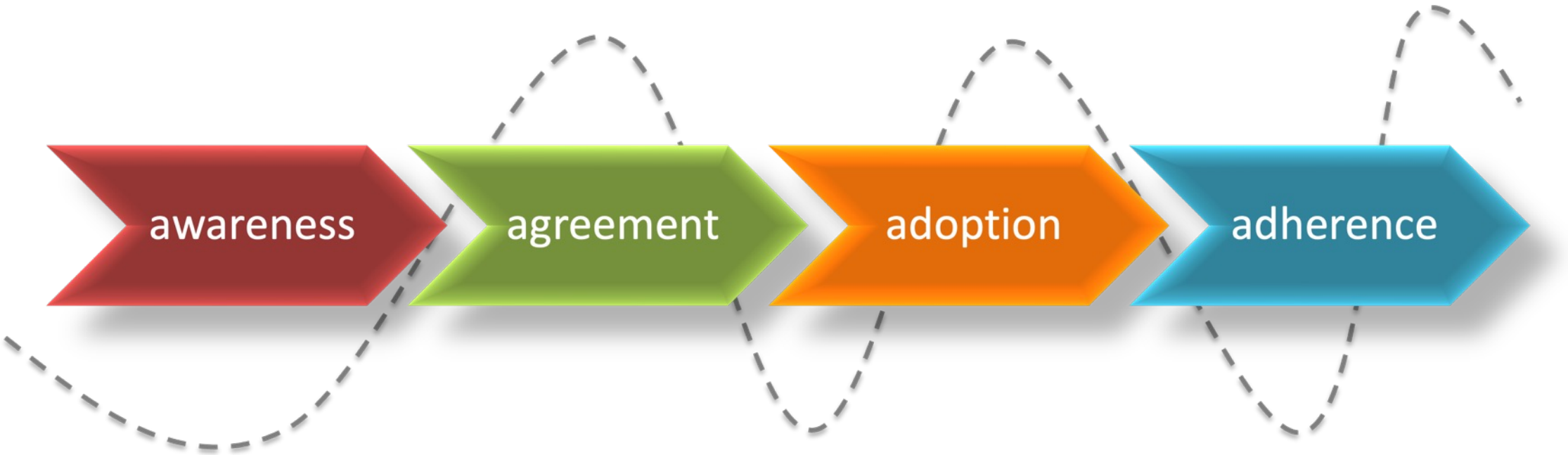
COMMUNICATION

EDUCATION

LOGISTICS/
INFRASTRUCTURE

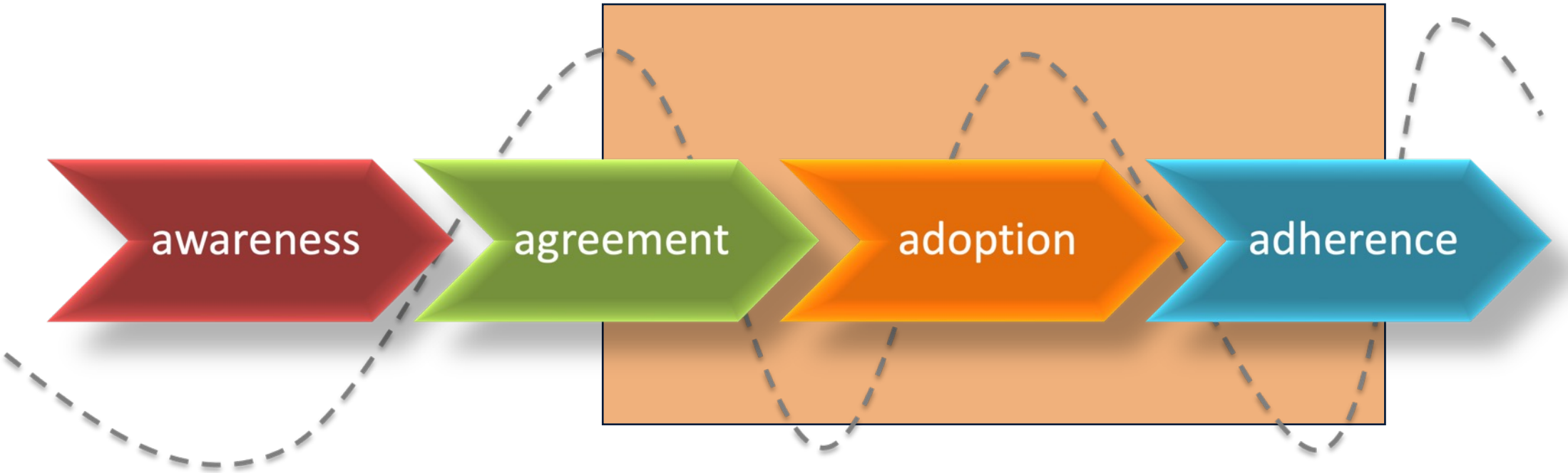
Evidence-based Education

Translation of new knowledge into patient care is a process



Pathman 1996 PMID: 8792778

Education is best suited for agreement to adherence



Not all education is equal in its effectiveness

Evidence-based approach increases effectiveness


Analysis


Design


Development


Implementation


Evaluation

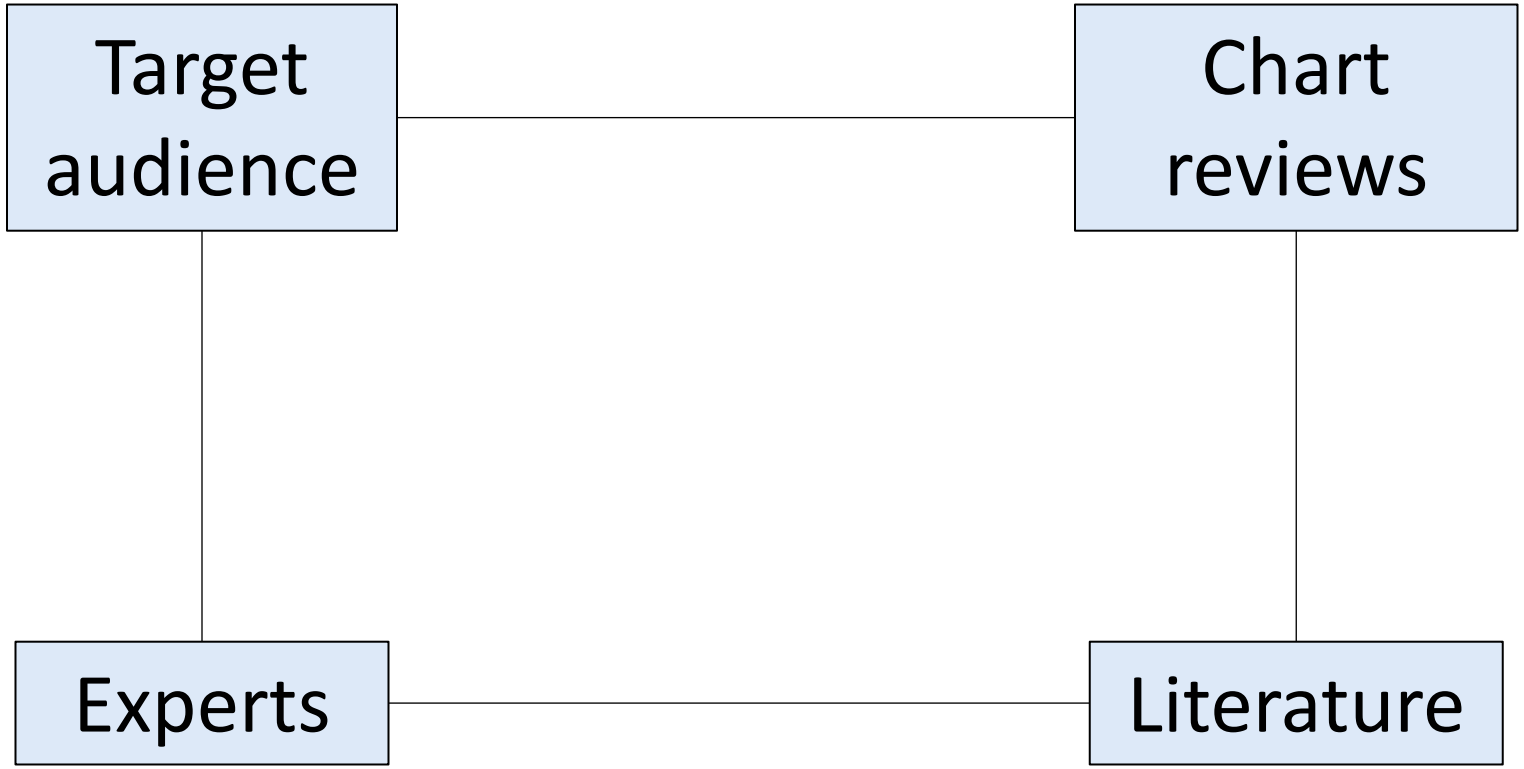
Analysis = Needs Assessment

What does the target audience need to be doing differently?

Why aren't they doing it?

What sources of data can we use to understand clinicians' needs?

Direct and indirect sources of data reveal needs



Clinician needs and constraints are similar over time

- Variable interest in and attitudes about genetics
- Focus on evidence-based applications
- Genetics related tasks vary by setting
- Lack time for everything
- Competing priorities
- Interest in online education, but may need dedicated time

Design & Development

What are the tasks that the audience needs to perform?

What knowledge and skills do they need to accomplish those tasks?

What topics should you prioritize for clinicians?

- Biological pathways of disease
- Clinical applications of genetic testing
- Evidence supporting genetic testing
- Testing methodology
- Assessing family history

Keep education relevant and focused

National Comprehensive Cancer Network®

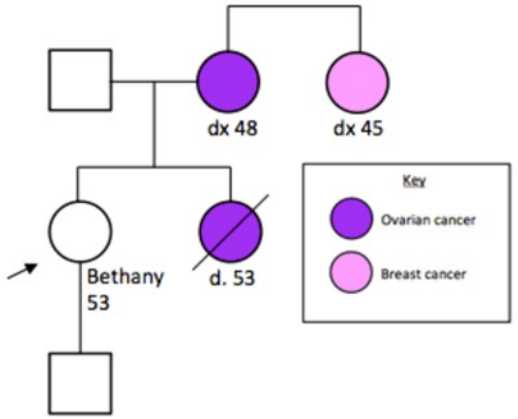
NCCN Guidelines Version 1.2024
Hereditary Cancer Testing Criteria

TESTING CRITERIA FOR HIGH-PENETRANCE BREAST CANCER SUSCEPTIBILITY GENES
(Specifically *BRCA1, BRCA2, CDH1, PALB2, PTEN, STK11,* and *TP53*. See GENE-A)[a,f,g,h,i]

Testing is clinically indicated in the following scenarios:

- See General Testing Criteria on CRIT-1.
- Personal history of breast cancer with specific features:
  - ≤50 y
  - Any age:
    - Treatment indications
      - To aid in systemic treatment decisions using PARP inhibitors for breast cancer in the metastatic setting[j,k] (NCCN Guidelines for Breast Cancer)
      - To aid in adjuvant treatment decisions with olaparib for high-risk,[l] HER2-negative breast cancer[j]
    - Pathology/histology
      - Triple-negative breast cancer
      - Multiple primary breast cancers (synchronous or metachronous)[m]
      - Lobular breast cancer with personal or family history of diffuse gastric cancer NCCN Guidelines for Gastric Cancer
    - Male breast cancer
    - Ancestry: Ashkenazi Jewish ancestry
  - Any age (continued):
    - Family history[n]
      - ≥1 close blood relative[o] with ANY:
        - breast cancer at age ≤50
        - male breast cancer
        - ovarian cancer
        - pancreatic cancer
        - prostate cancer with metastatic,[p] or high- or very-high-risk group (Initial Risk Stratification and Staging Workup in NCCN Guidelines for Prostate Cancer)
      - ≥3 diagnoses of breast and/or prostate cancer (any grade) on the same side of the family including the patient with breast cancer

Is Bethany a candidate for genetic testing?



NEED to know is not the same as NICE to know

Actionable

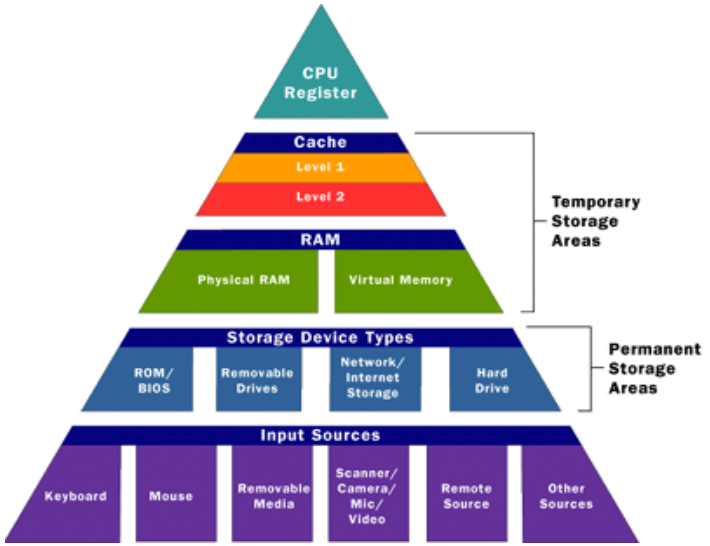
Accurate, but not complete

Save (CTRL-S)

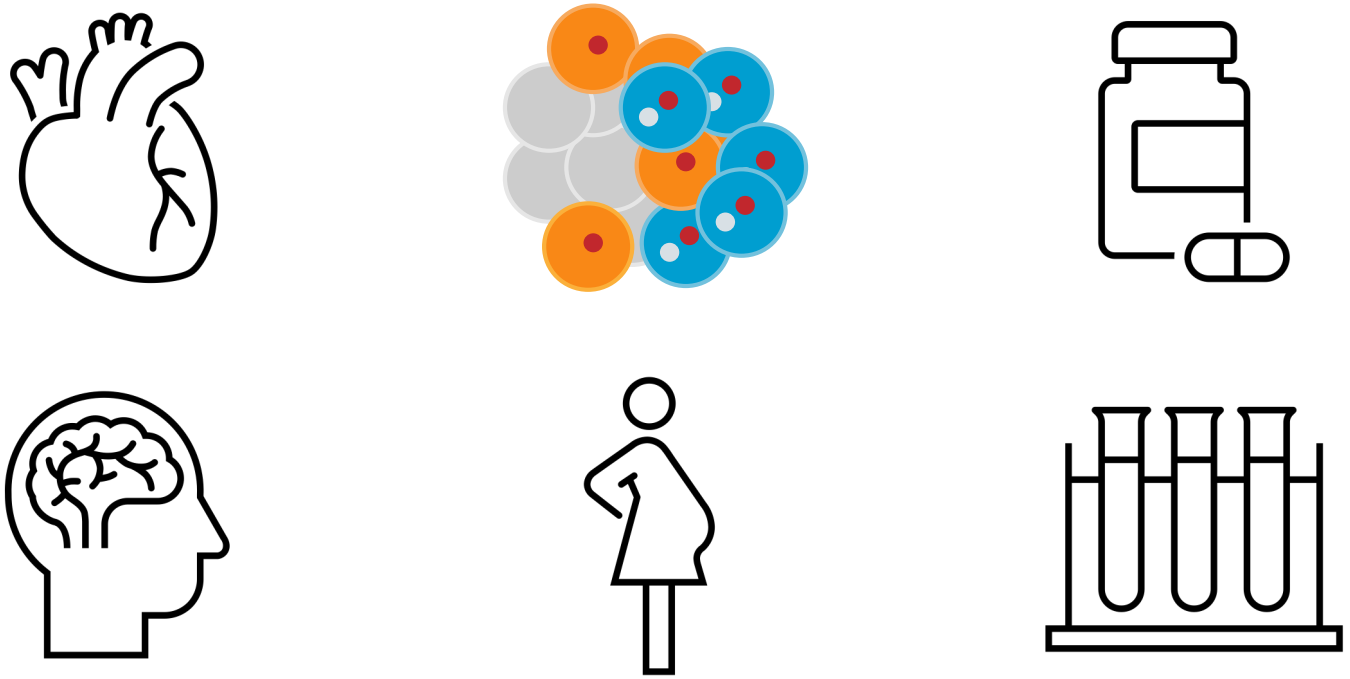
Vs.

Expert

Accurate, complete



Focus on evidence-based applications



Delivery (also Design & Development)

What is the most effective way for the target audience to learn the skill?

What is the best approach to educate clinicians on how to interpret genetic tests?

- Conferences
- Webinars
- Online courses
- Handouts
- Small group discussions

One Size Does Not Fit All

Handouts

Workshop

Didactic

Audience response

Peer learning

Case-based learning

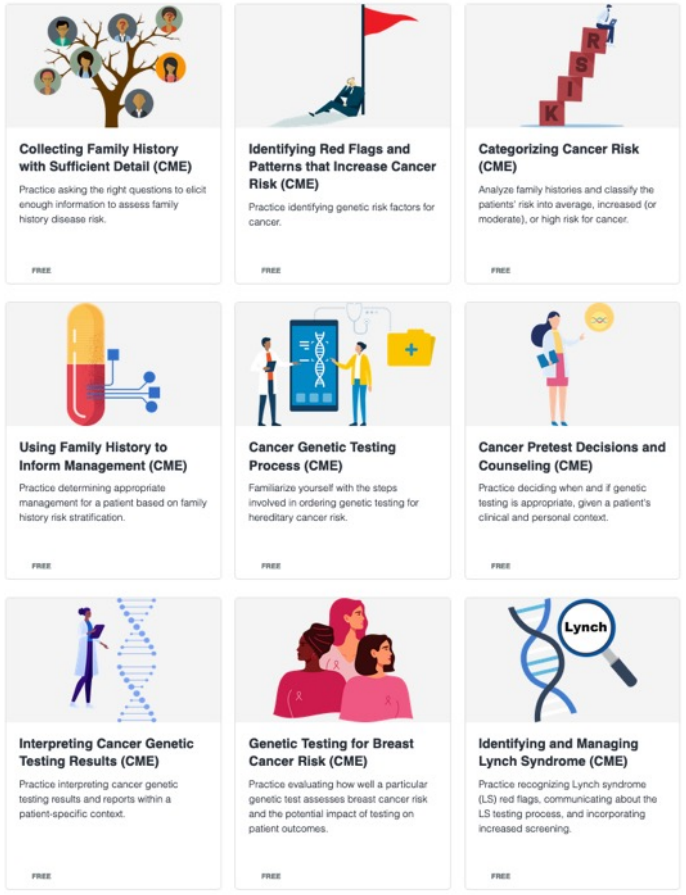
Self-directed CME

Chart audit and feedback

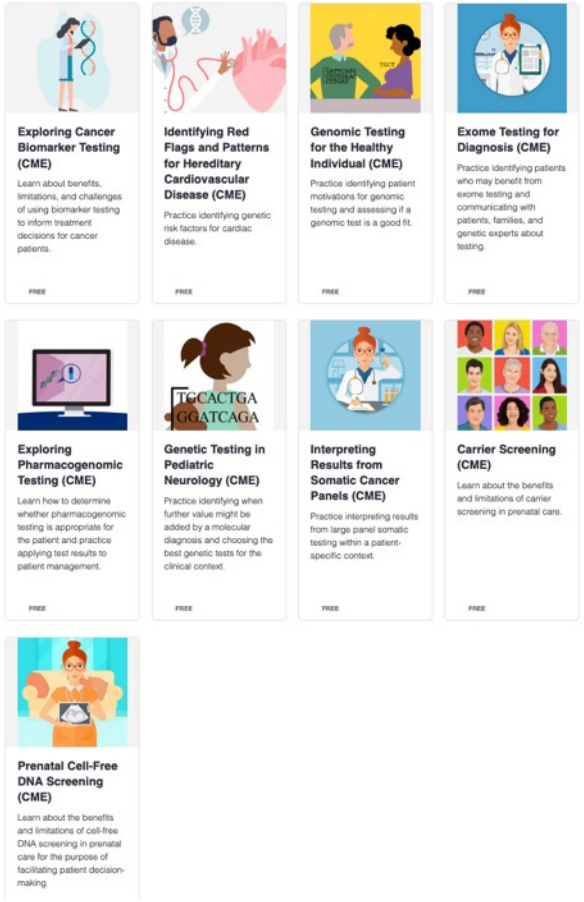
EHR reminders/alerts

Case-based online courses focus on fundamental skills

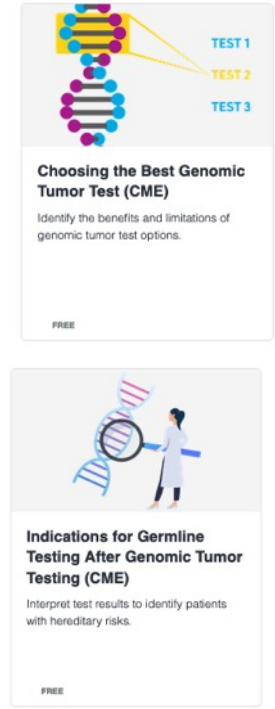
Hereditary Cancer



Precision Medicine



Precision Oncology



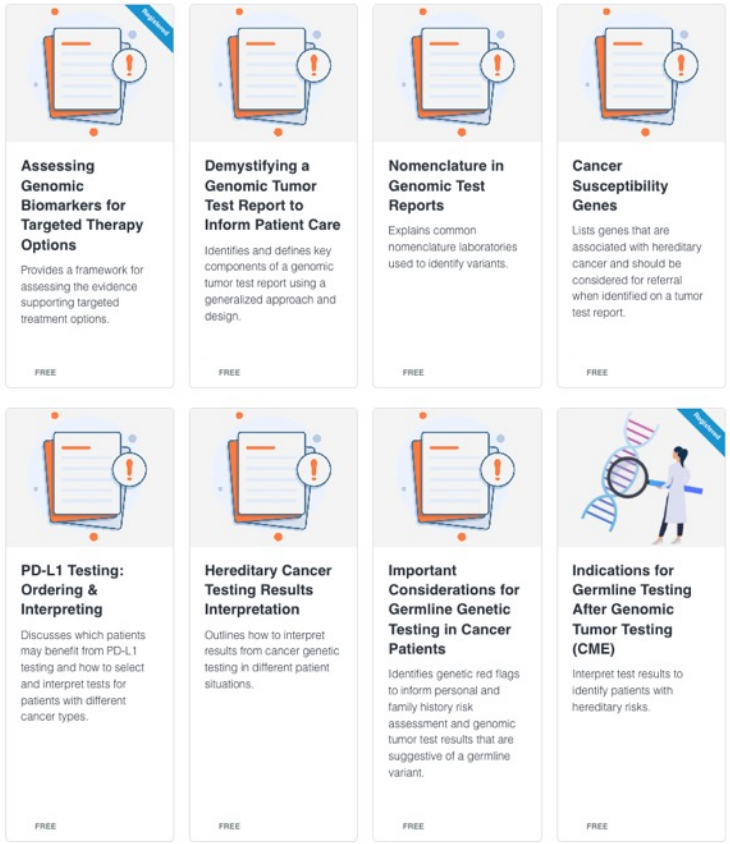
education.clinical.jax.org

CDC

OAK RIDGE INSTITUTE FOR SCIENCE AND EDUCATION

Interactive workshops allow for protected time and feedback

Focused resources support clinical decision making



Multidisciplinary Expert Insights: Navigating DNA Damage Repair Deficiency in Cancer Patient Management

A multidisciplinary panel of clinical experts discusses a case that involves DNA repair deficiency and PARP inhibitors, including BRCA1/2 and other biomarkers, and how to make informed decisions regarding the best path forward for the patient.

FREE

More on MCGI
PMID: 37163717

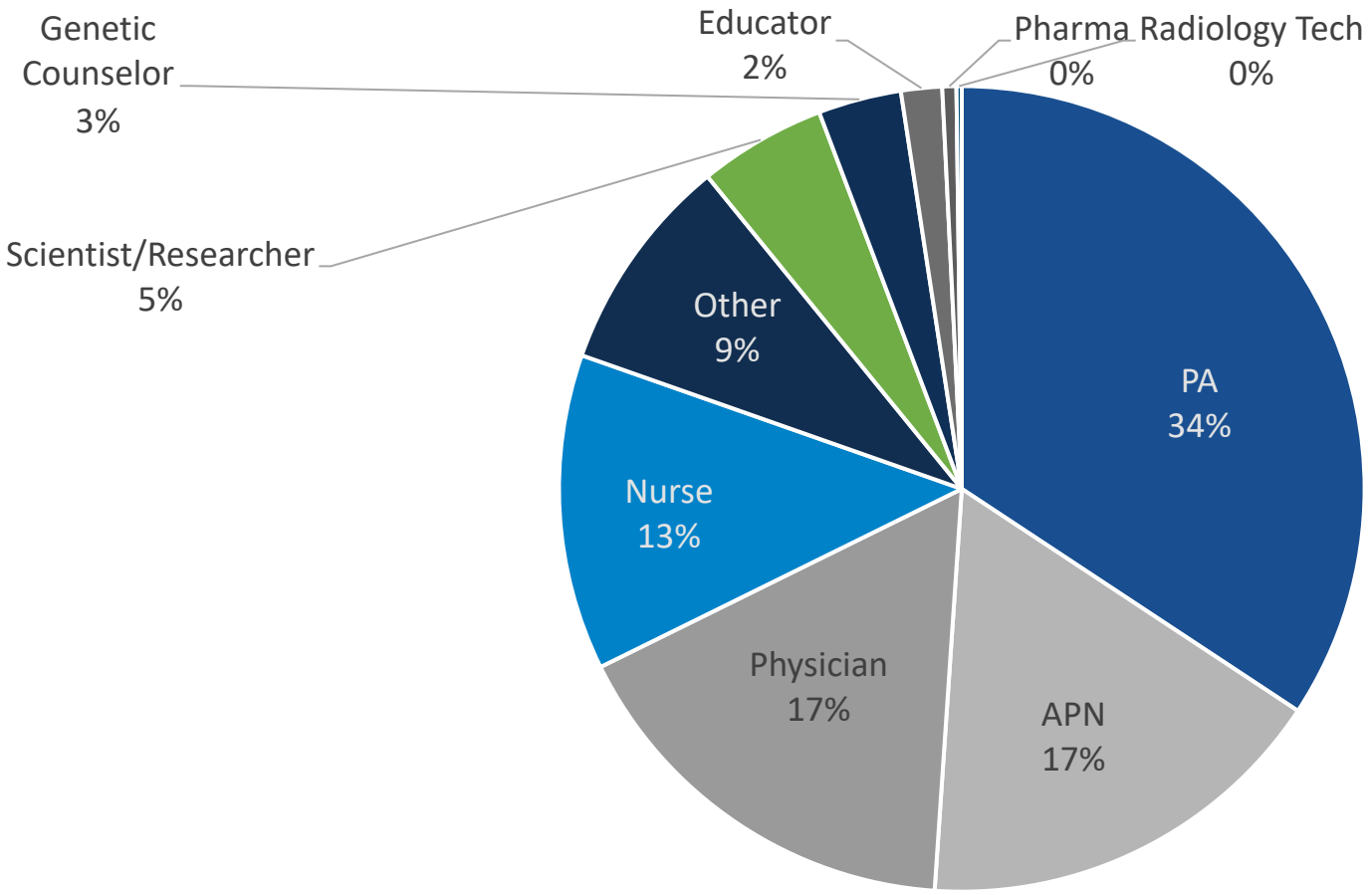
Effectiveness & Lessons Learned

Genetics education effectiveness depends on many variables

- Target audience
- Desired outcome
- Educational approach
- Content area
- Accessibility
- Learner incentives
- Delivery
- Cost
- Dissemination

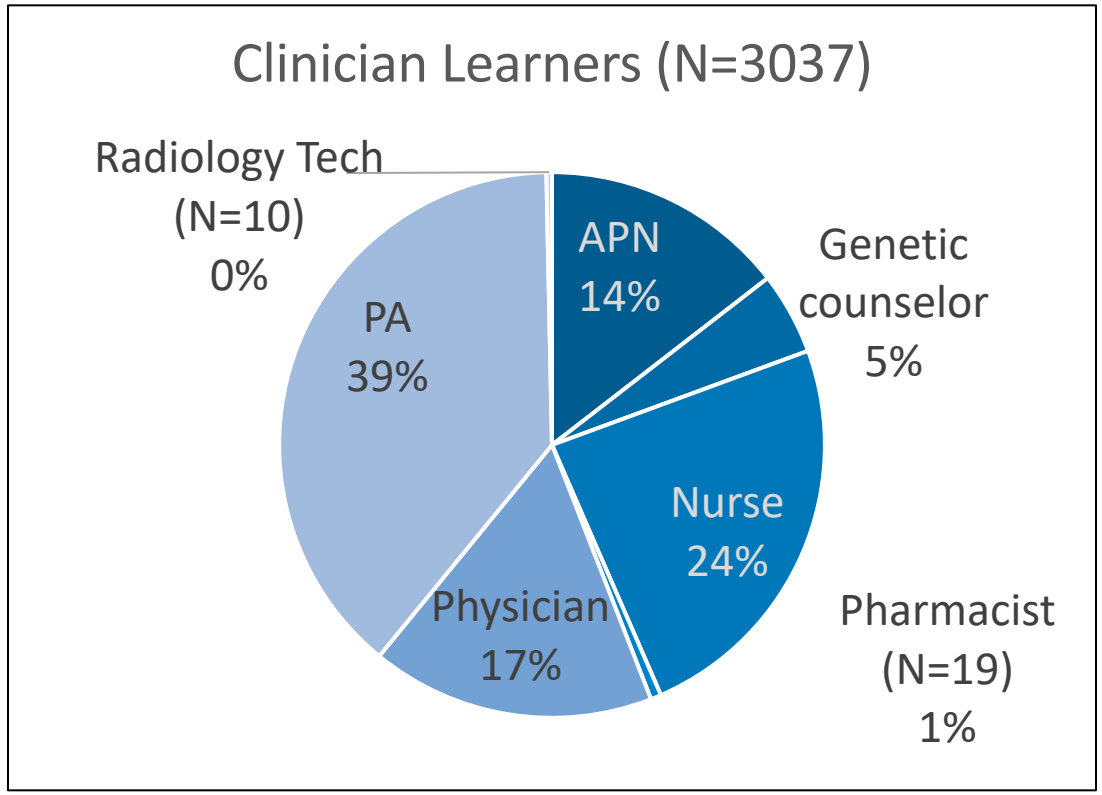
RISE2 Genomics
Nisselle 2021
PMID 33824503

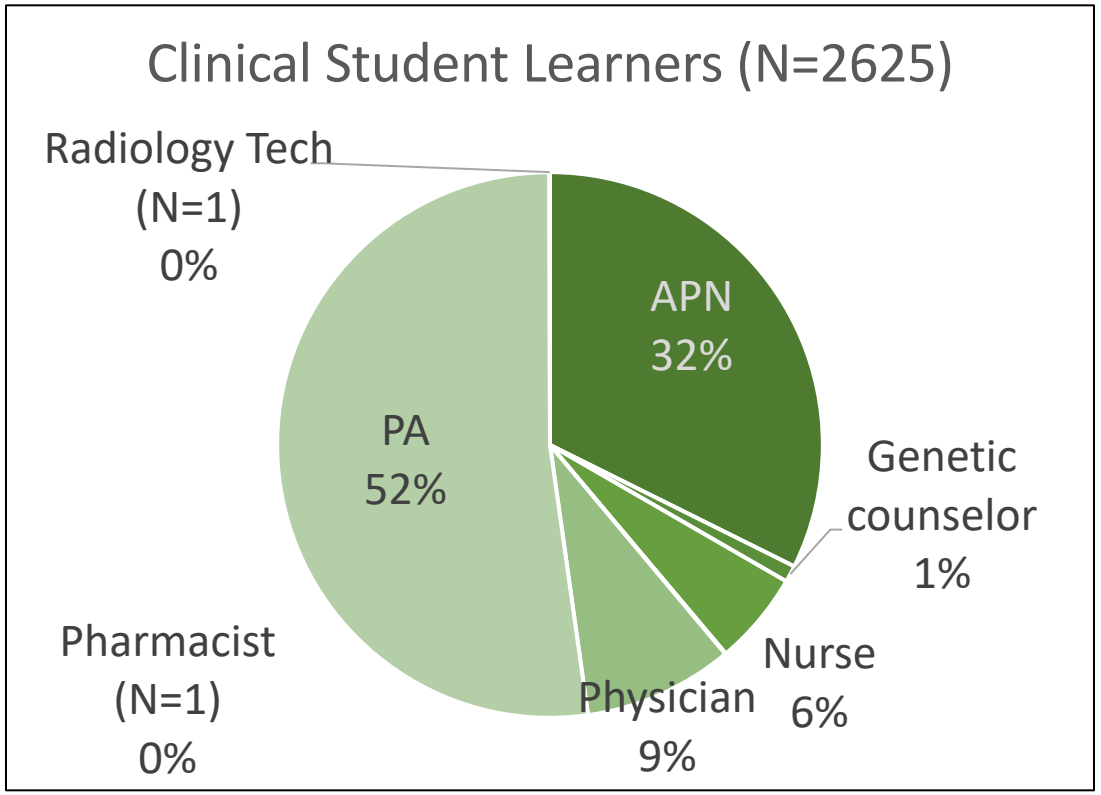
Our online courses are reaching a clinical audience



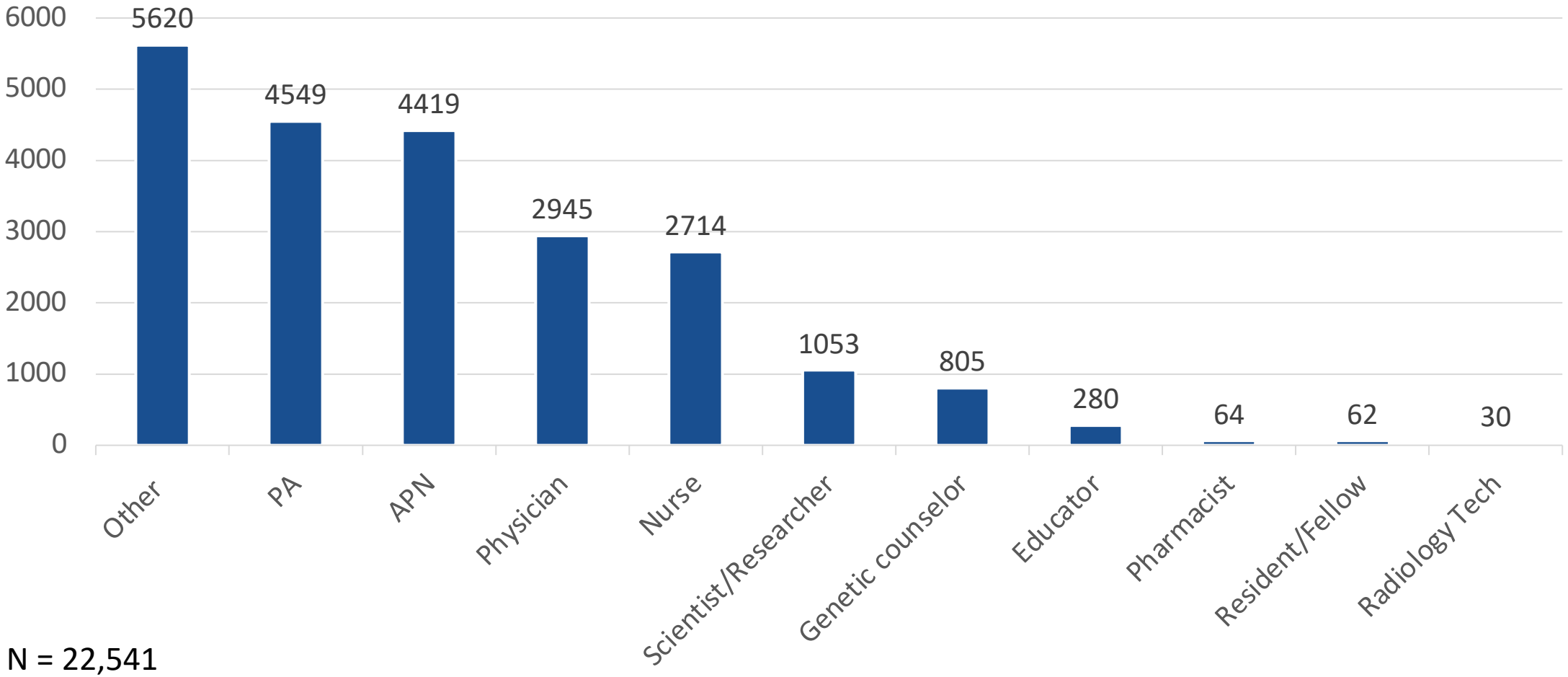
N = 11,033
27% (N = 2526) missing professional data
Data 2107 – March 2022

Interest in genetics by practicing clinicians and clinical trainees



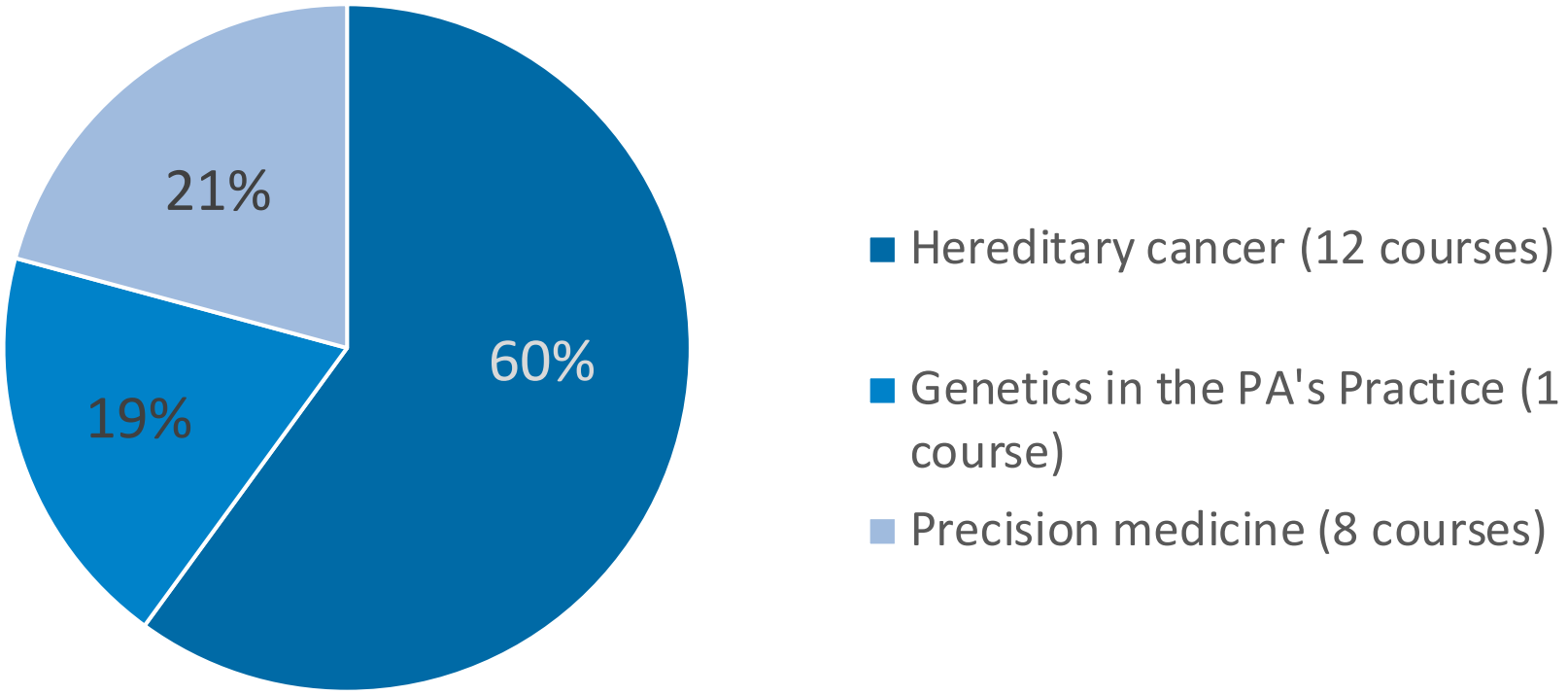


PAs and APNs made up 40% of total enrollments



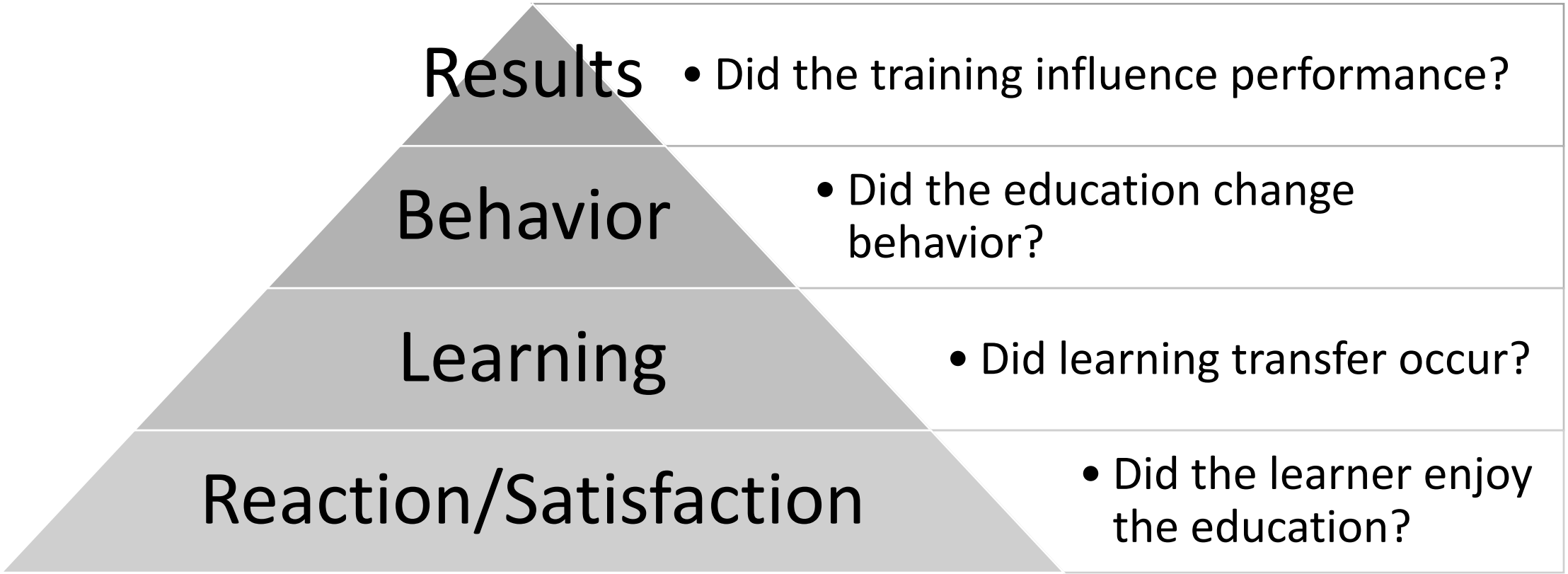
N = 22,541

Hereditary cancer courses have highest enrollment

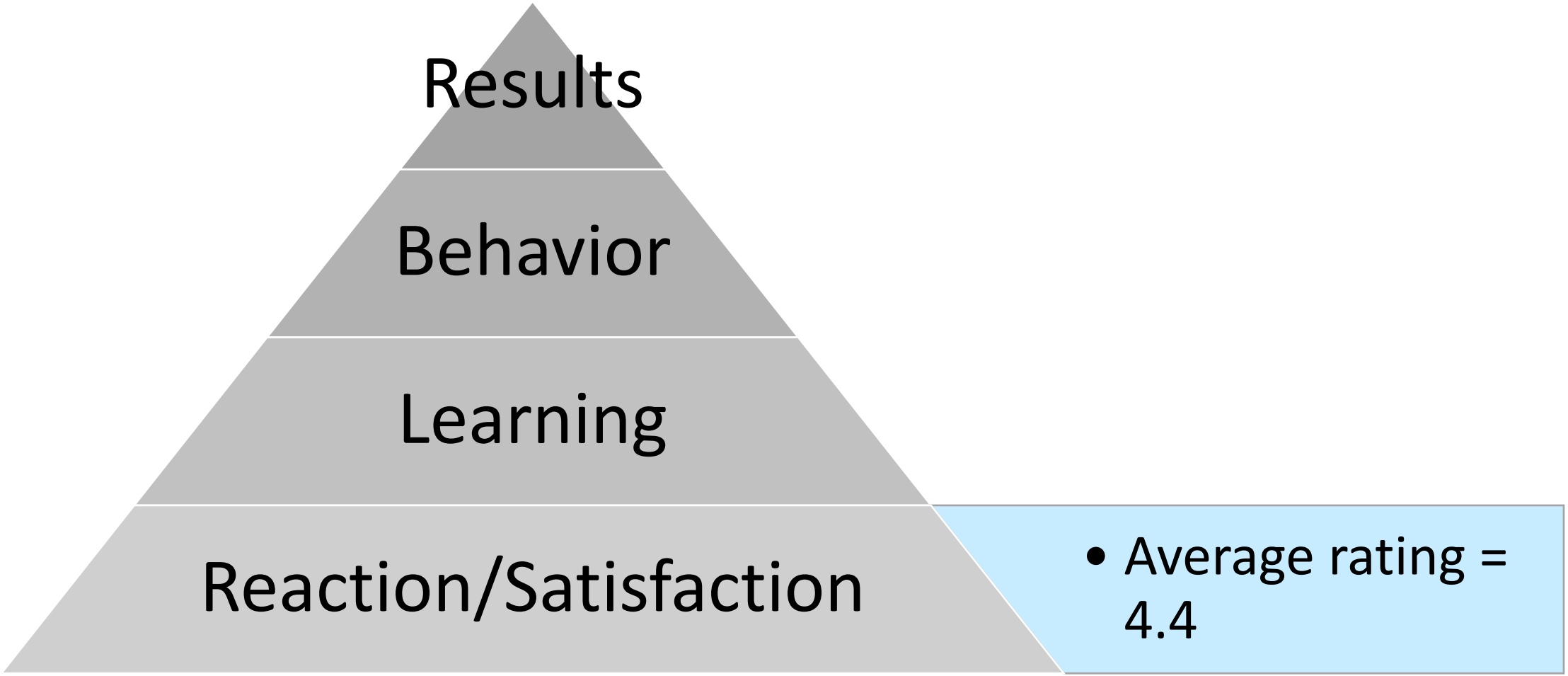


N = 24,391

Assessing impact of education is challenging



Evidence based approach shows effectiveness to a point



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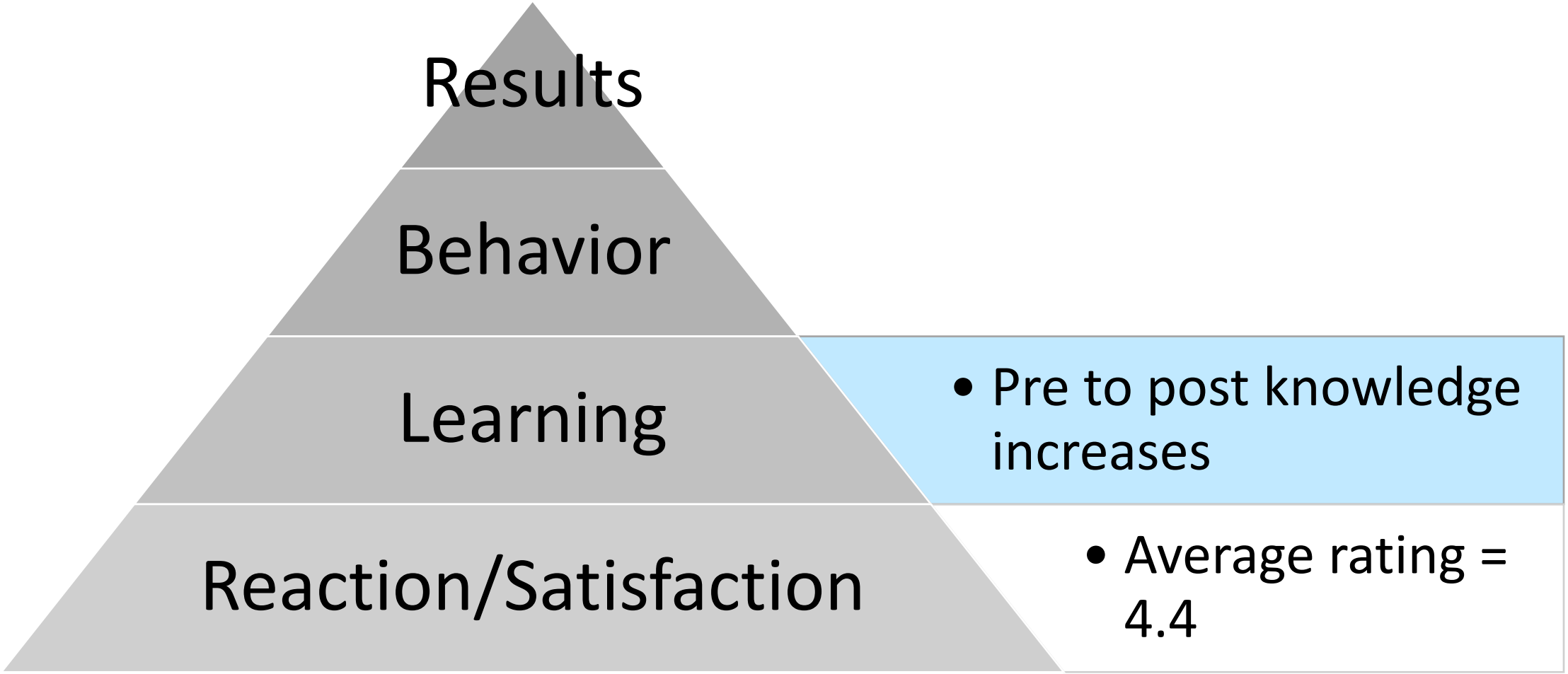

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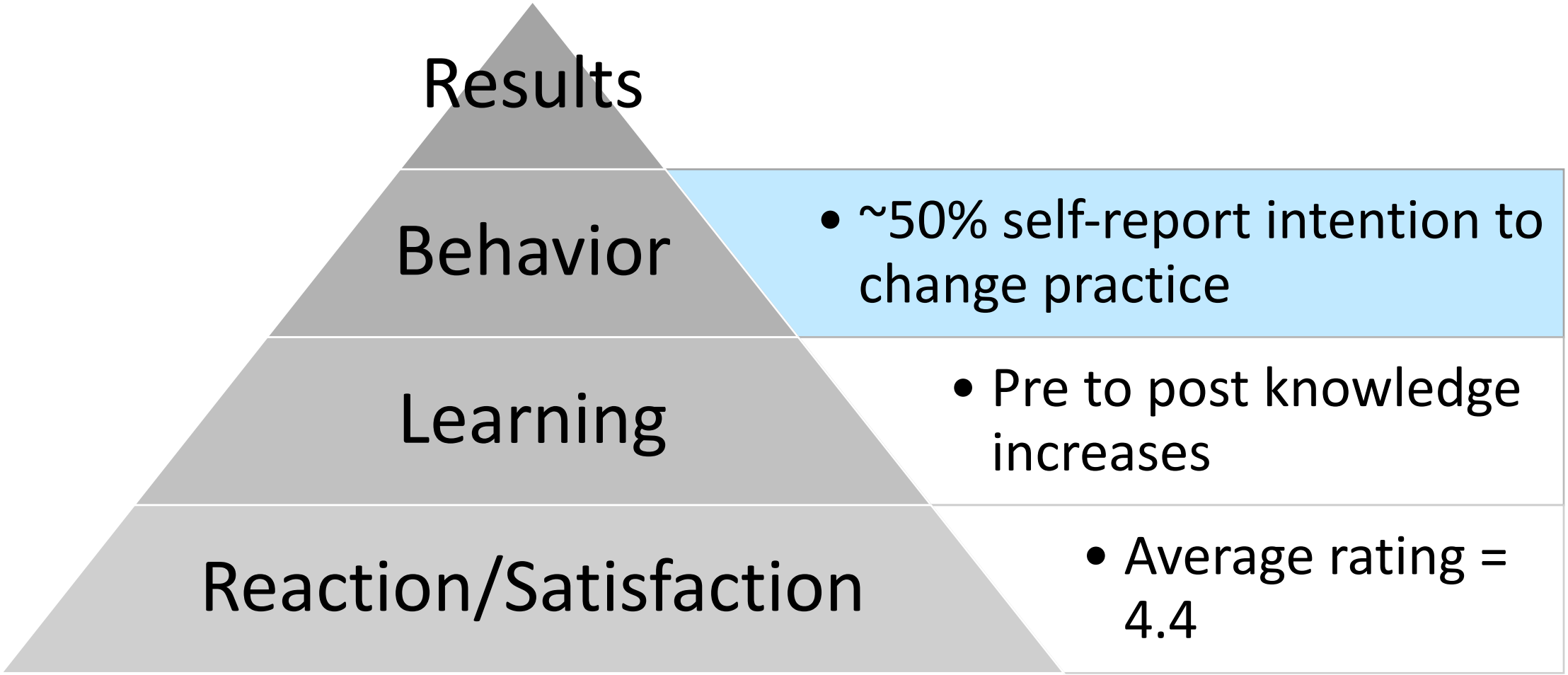


Our ability to assess effectiveness is limited

- No external incentives beyond CE credit
- Limited access to target audience
- Learners likely have higher knowledge to start
- Short, focused modules
- Lack of commitment or relationship

The Solution

Bridging the gap from current practice to best practice is multi-disciplinary

POLICY

COMMUNICATION

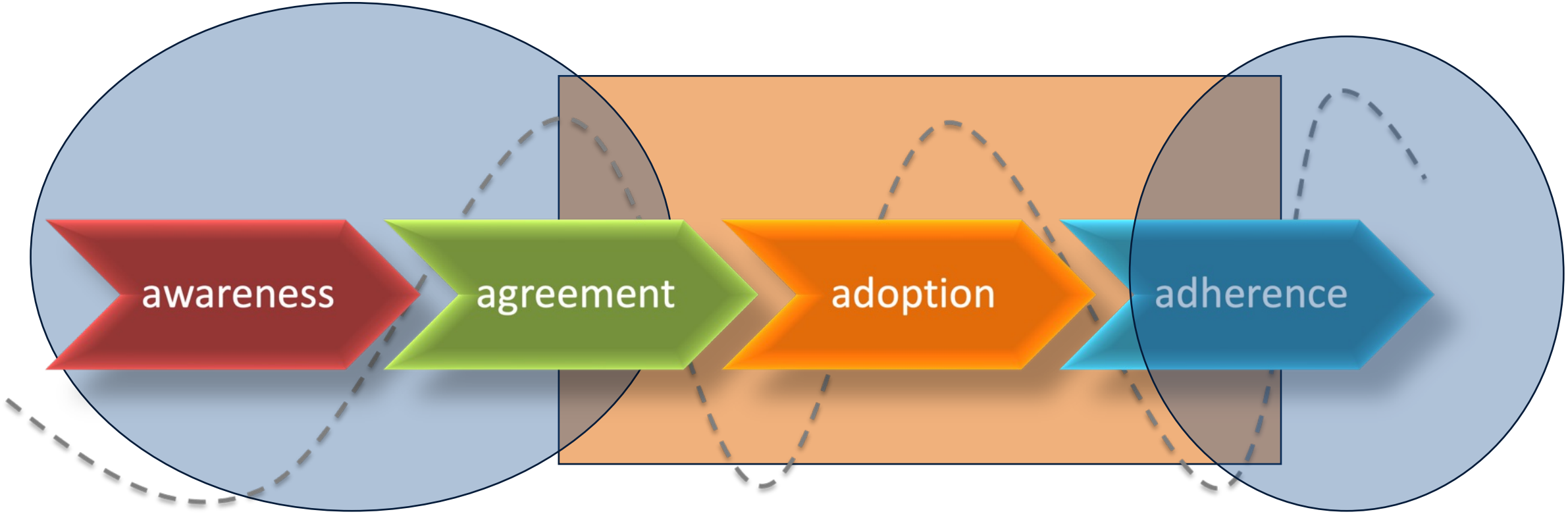
EDUCATION

LOGISTICS/
INFRASTRUCTURE

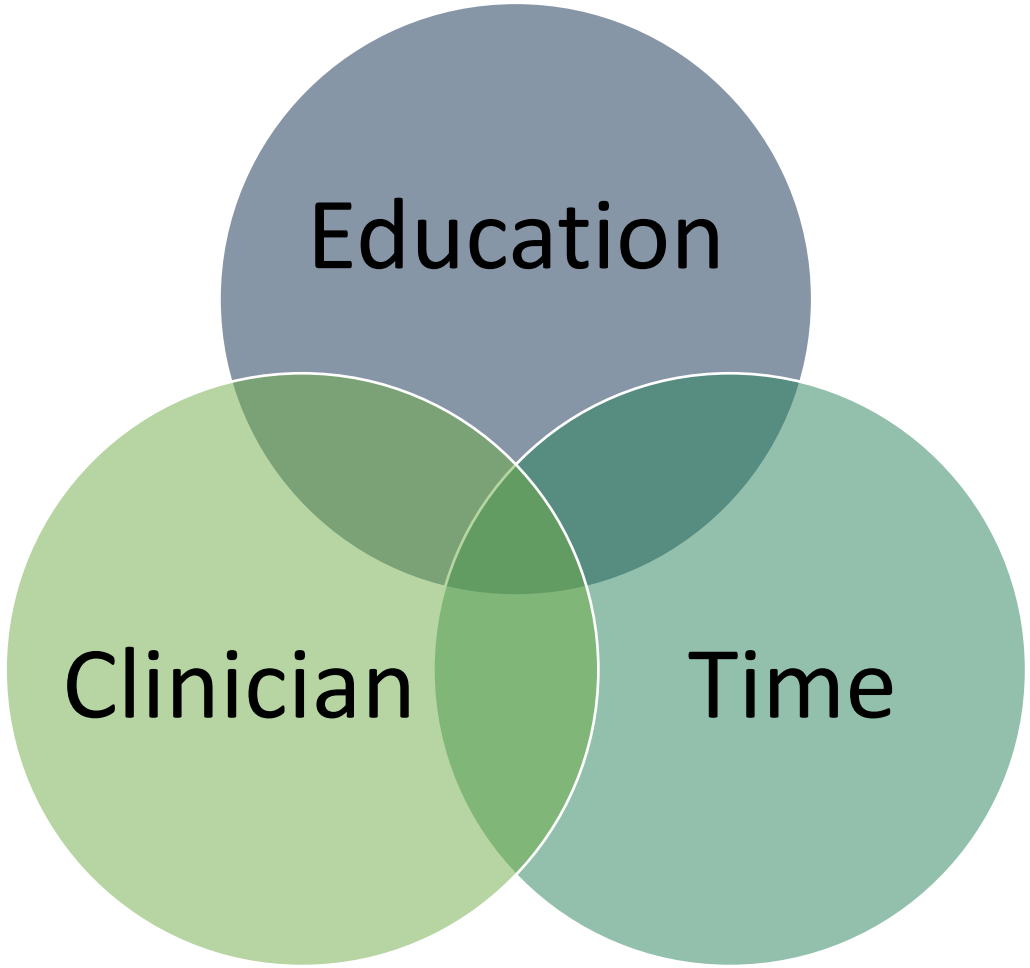
No entity is responsible for the whole pathway

Policy	• Professional societies, federal agencies, etc. • Accrediting and licensing bodies • Insurance coverage
Communication	• Public health • Research community • Professional societies
Education	• Public Health • Professional societies • Educational providers
Logistics/ Infrastructure	• EHR vendors • Testing laboratories • Clinic workflows

Collaboration is needed to feed the education pipeline and facilitate consistent application



Moving towards precision education



Questions?

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Find our resources

Course catalog: education.clinical.jax.org

Information and resources: www.jax.org/ccep