

# Implementing Genomics in a Direct-To-Consumer World: Opportunities for Education and Communication

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CDC Public Health Genomics Seminar Series

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# Disclosures

No conflicts to disclose

JAX Education does not aim to increase use of JAX (or non-JAX) commercial products or services

JAX Clinical Education empowers healthcare professionals to integrate genomics into clinical practice through community collaboration

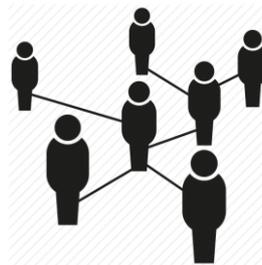


# Plan for today

- Discuss evidence-based approaches to designing and developing adult education
- Identify strategies to engage learners effectively
- Discuss lessons learned in disseminating genomics education



# Direct-To-Consumer (DTC): Greater access to health information



# Clinical Scenario: Antonio

- 30 years old
- Works in IT
- Married, 2 children
- Family history of cancer and heart disease
- Presents in clinic with DTC genetic testing results for over 50 health conditions



**“Can you help me understand this?”**



**What are the opportunities for  
Antonio in having this information?**



# Patient opportunities and challenges

- Increased engagement in health



- Assessing information quality
- Prioritizing information

**What are the provider's greatest challenges in this scenario?**



# Provider opportunities and challenges

- Opportunity for preventive medicine
- Patient questions motivate learning

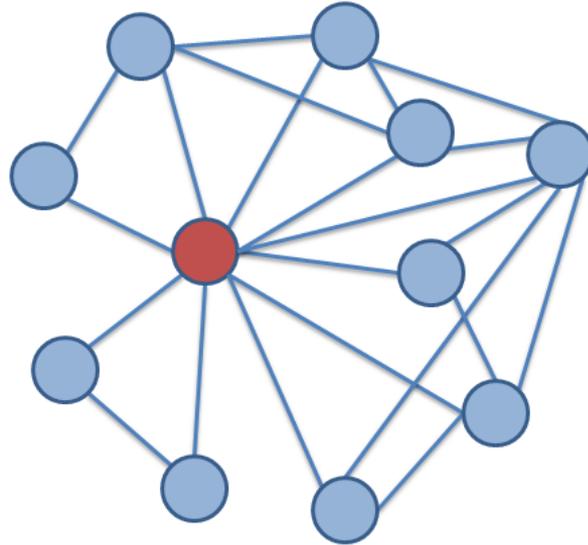


- Competing priorities
- Limited time
- Lack of knowledge, confidence, skills

# Who has the greatest educational need?



# There are plenty of needs to go around



# Education can be part of the solution

- Opportunity for preventive medicine
- Assess information quality
- Questions motivates learning
- Knowledge, skills, attitudes
- Limited time
- Competing priorities
- Engagement in health
- Prioritize information



# Education can be **part** of the solution cont.

## Education

Knowledge, skills, attitudes

Prioritize information

Assess information quality



## System

Limited time

Competing priorities

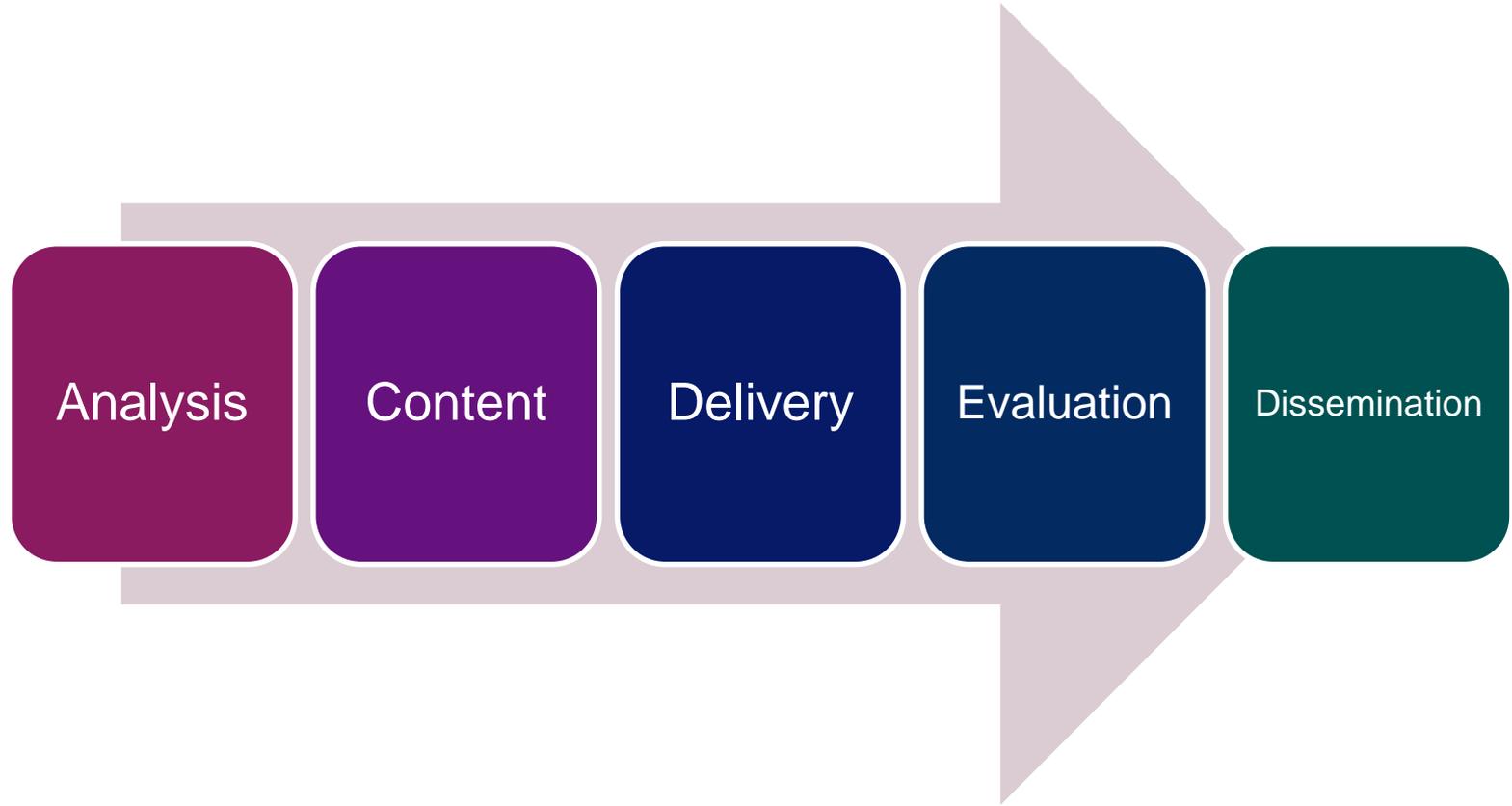
ETC...



# Maximize effectiveness of education

- Determine appropriate goals
- Use evidence-based approaches
- Plan for dissemination





# Analysis: Needs Assessment

- Who is this for?
- What is the goal?
- What gap does this fill?



# Scenario: Develop an education program for PCPs about DTC test results



“ We need help with patients who come in with DTC results.

We'd like you to provide an education program to help our providers.

”

# There are likely a number of “problems” that could be addressed

- Awareness
- Knowledge
- Confidence
- Systems issues



# Define problem and overall goal for the learner

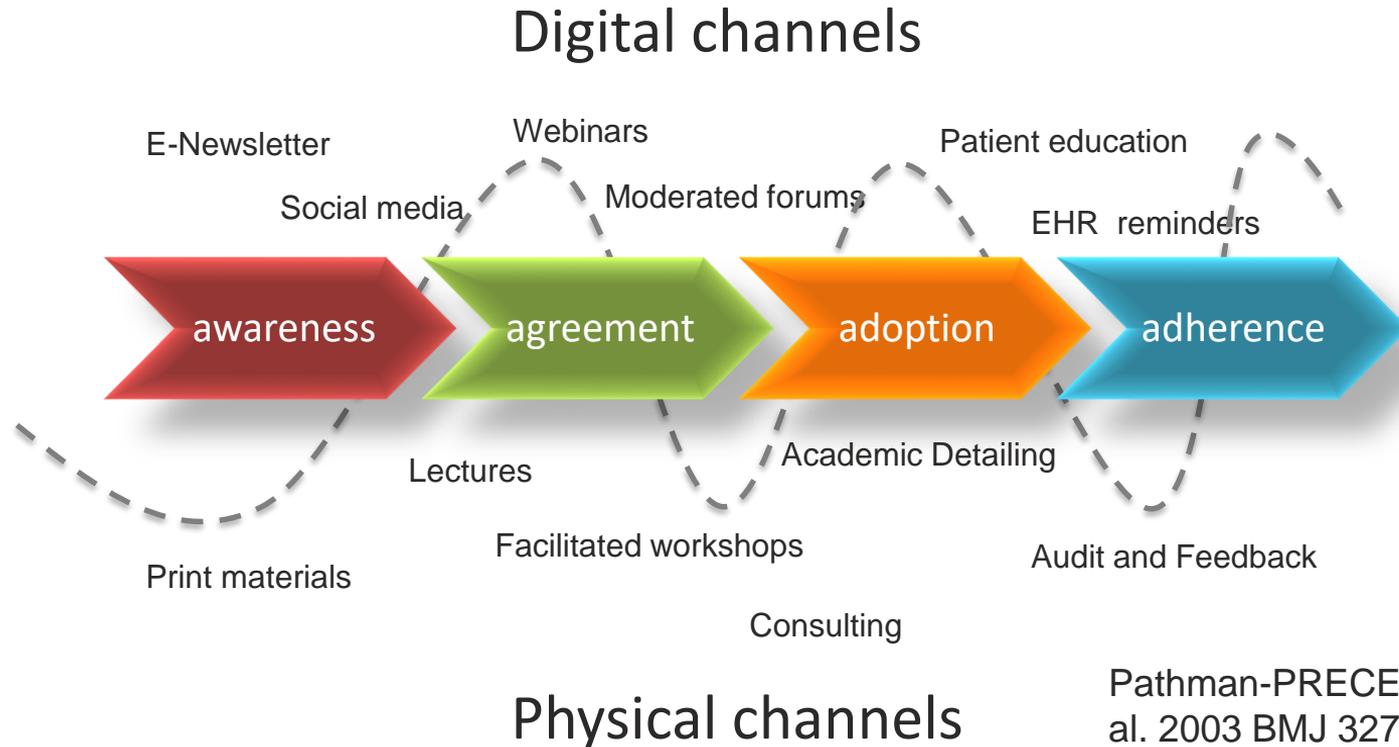
Problem: Clinicians say they aren't sure about which DTC results are reliable and how to incorporate results into medical care.

Goal: Provide appropriate follow-up based on DTC results

# Target education to audience's readiness to learn



# Target education to audience's readiness to learn cont.



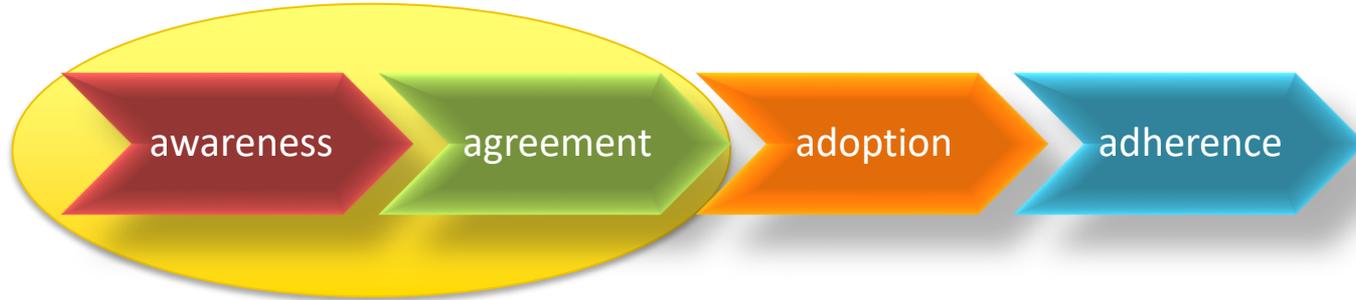
# Practice

## Joyce

- Family medicine physician in suburban private
- No specific genetics training beyond medical s
- Refers ~5 pts/year to cancer genetics
- Two patients last month came in with DTC res
- Uncertain if her interpretation was correct



# Q. Where is Joyce on the awareness-adherence path?



# Q. What delivery mechanism would you consider?

- A. Social media campaign
- B. Lecture
- C. Workshop**
- D. EHR alerts



# Analysis Considerations



# Content

- What is most important to include and prioritize?



# Scenario: Improve identification of patients for genetics referral



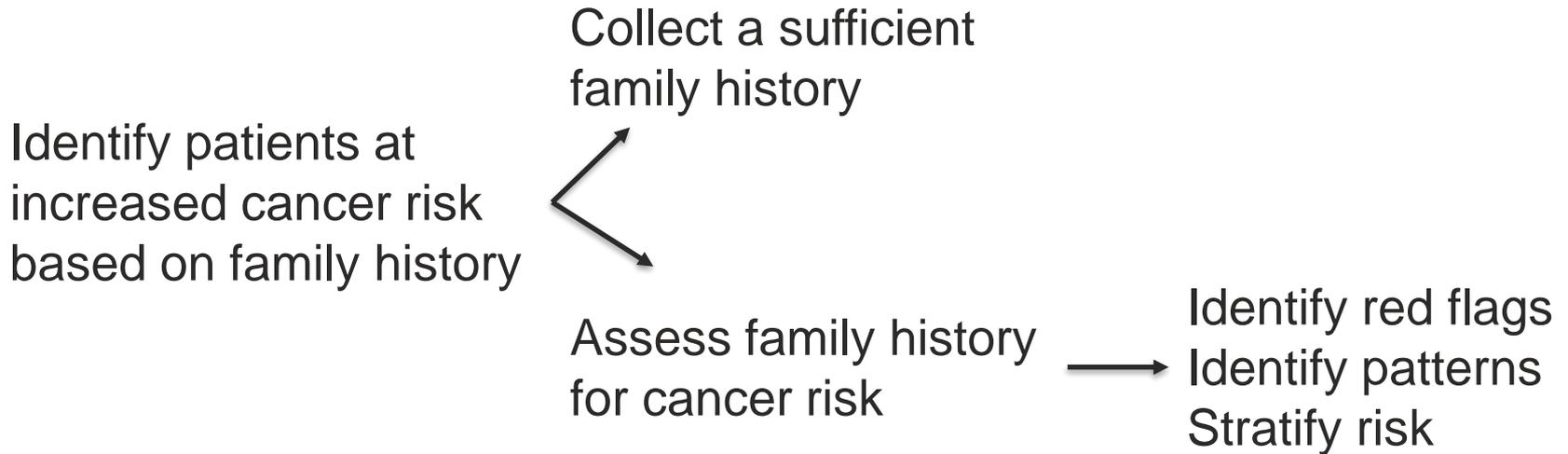
“ We need to improve our identification of patients who are at increased risk of cancer and need to be referred. We’d like you to provide an education program to help do this. ”

# Q: What topics would you cover?



“ We need to improve our identification of patients who are at increased risk of cancer and need to be referred. We’d like you to provide an education program to help do this. ”

# Break the overarching goal into specific tasks



# GRACE by JAX

## Genetics Risk Assessment Cancer Education

- Collecting sufficient family history
- Identifying red flags and patterns
- Categorizing cancer risk
- Using family history to inform management
- Cancer pretest decisions and counseling
- Genetic testing technology
- Genetic testing process
- Interpreting cancer genetic testing results
- Genetic testing for breast cancer risk
- Genetic testing for colorectal cancer risk
- Identifying and managing Lynch syndrome

[www.jax.org/grace](http://www.jax.org/grace)

# Use learning objectives to focus content

- Collect a family history with sufficient detail
- Analyze a family history to identify patients at increased or high risk of cancer
  - Identify red flags
  - Identify patterns
  - Stratify risk

# Need to know vs. Nice to know

## Actionable

Accurate, not complete



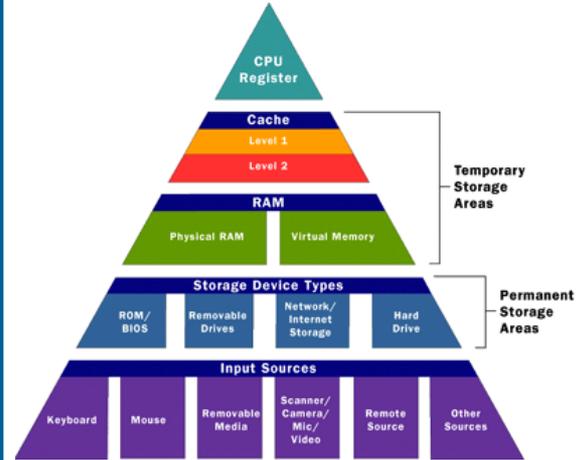
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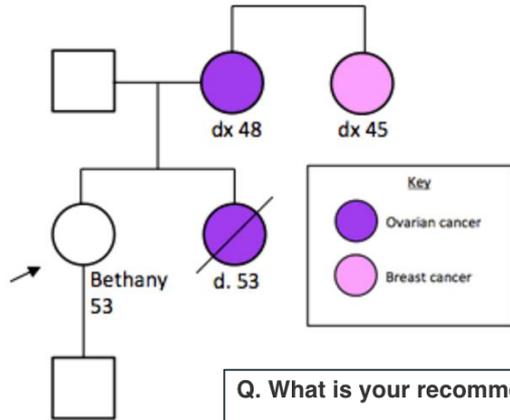
vs.

## Expert

Accurate, complete



# Teach to the clinical tasks



**Q. Is Bethany at average, increased, or high risk for breast cancer?**

- A Average
- B Increased
- C High risk

**Q. What is your recommendation about next steps?**

- A Refer her to a genetic counselor
- B Begin ovarian cancer screening
- C Recommend population screening (annual mammography starting at age 50)

# Effective education is situated in a relevant clinical context

**Meet Jillian**

**Reason for visit**  
Annual exam

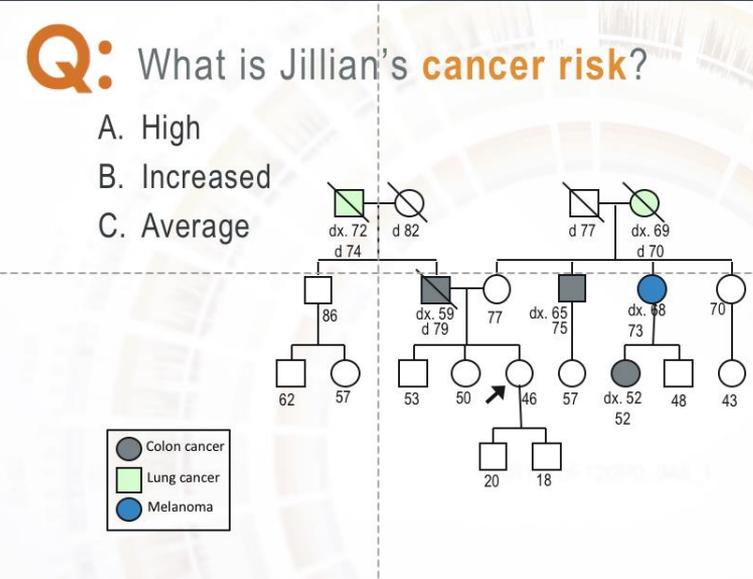
**Medical hx**  
46 yo  
Hypothyroidism

**Social hx**  
Married, two sons



**Q:** What is Jillian's **cancer risk**?

A. High  
B. Increased  
C. Average



Legend:

- Colon cancer
- Lung cancer
- Melanoma

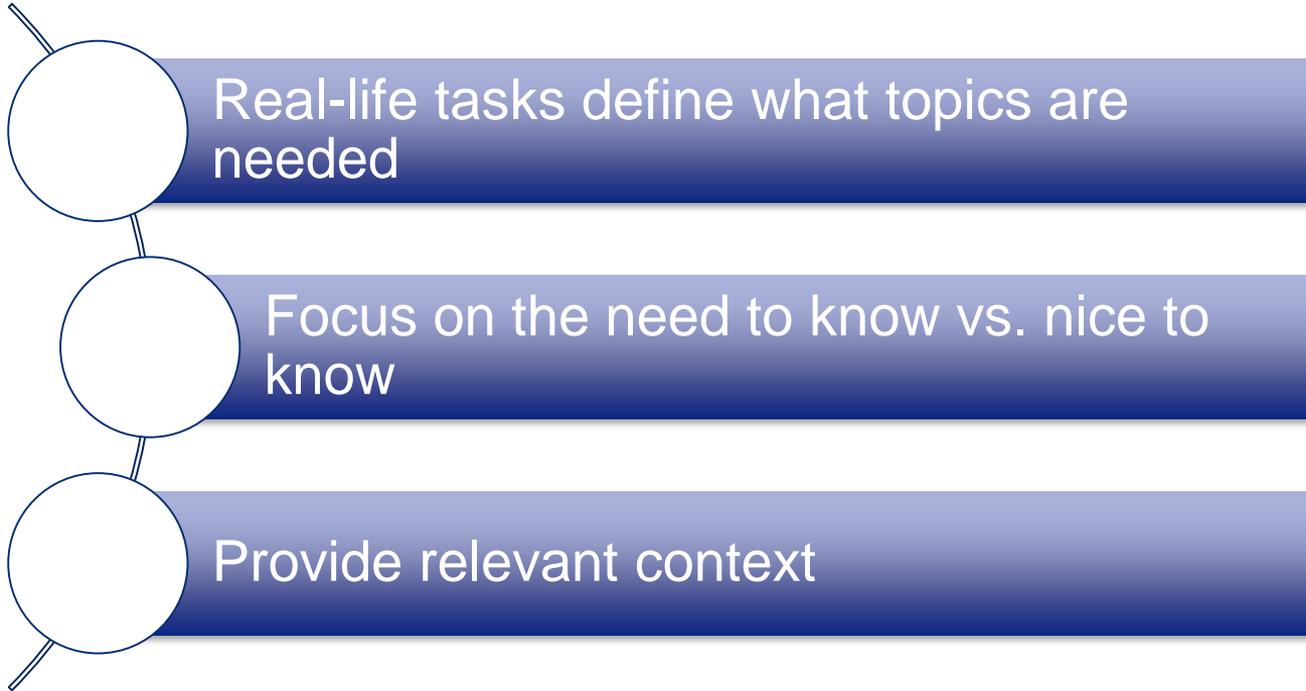
# Q. What is **NEED** to know content?

## **Learning objective**

Collect a family history with sufficient detail for risk assessment in primary care

- A. Pedigree development
- B. What questions to ask**
- C. What tools are available
- D. Factors that increase risk**

# Content Considerations



# Delivery

- What is the best way to present my content?
- What is the ideal delivery mechanism?  
*or*
- How can I maximize the effectiveness of a set format?



# Delivery & Instruction

## Delivery mechanism

- Means of overall delivery of education program
- Examples
  - Grand rounds
  - Online course
  - Video

## Instructional strategy

- Method of teaching educational content
- Examples
  - Case study
  - Feedback
  - Self-reflection

# Scenario: Implement family history best practices



“ Family history screening for colon cancer can save lives, but it is not being done in a systematic way in most clinics.

We need a resource to help PCPs collect and interpret family history and detect early on colorectal cancer.

”

# Toolkit Goal

Develop a system that helps primary care practices:

- Implement a structured family history collection process
- Identify and manage patients at increased/high risk of CRC
- Recognize and rapidly diagnose patients with a presenting CRC

## *RISK ASSESSMENT AND SCREENING TOOLKIT*

— TO DETECT FAMILIAL, HEREDITARY, AND EARLY  
ONSET COLORECTAL CANCER —



# Educational goal should drive instructional strategy

## Goal

Implement a structured family history collection process

Identify and manage patients at increased/high risk of CRC

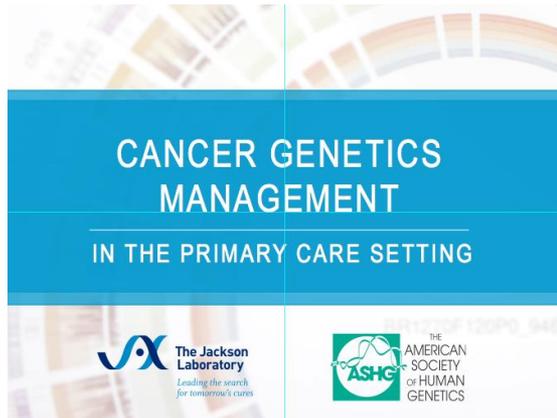
## Strategy

Stepwise instruction: Implementation & clinical skills

Tools and worksheets

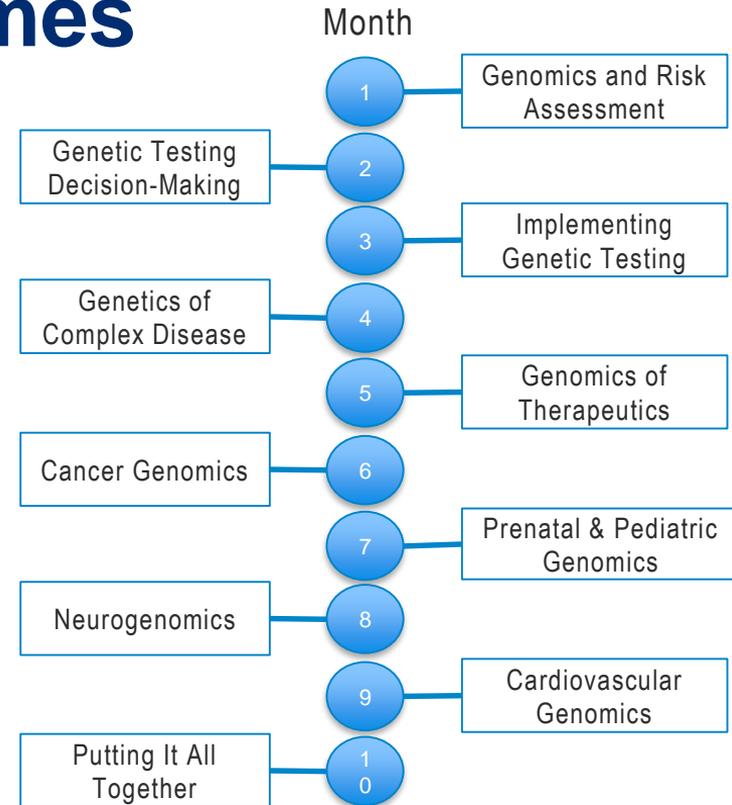
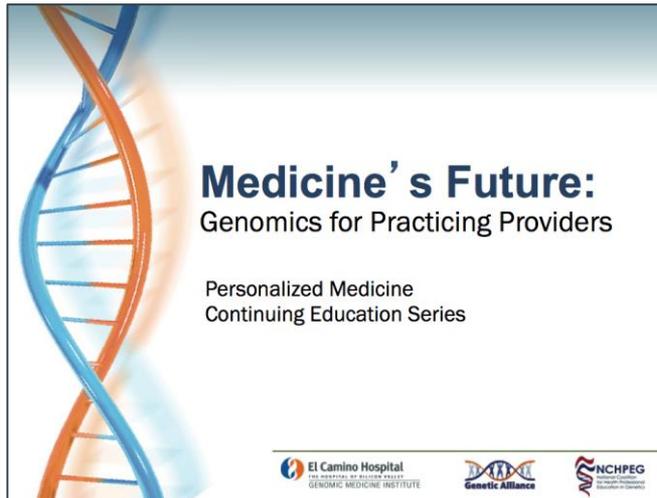
Curated resources and education

# Using different strategies reinforces learning



- Standardized patient
- Case studies
- Audience response
- Small groups

# Reinforce learning by touching audience multiple times



# Q. What delivery would you use?

## Goal

Recognize the benefits of cancer family history risk assessment.

- A. Checklist
- B. Online course
- C. Newsletter
- D. Social media
- E. Workshop

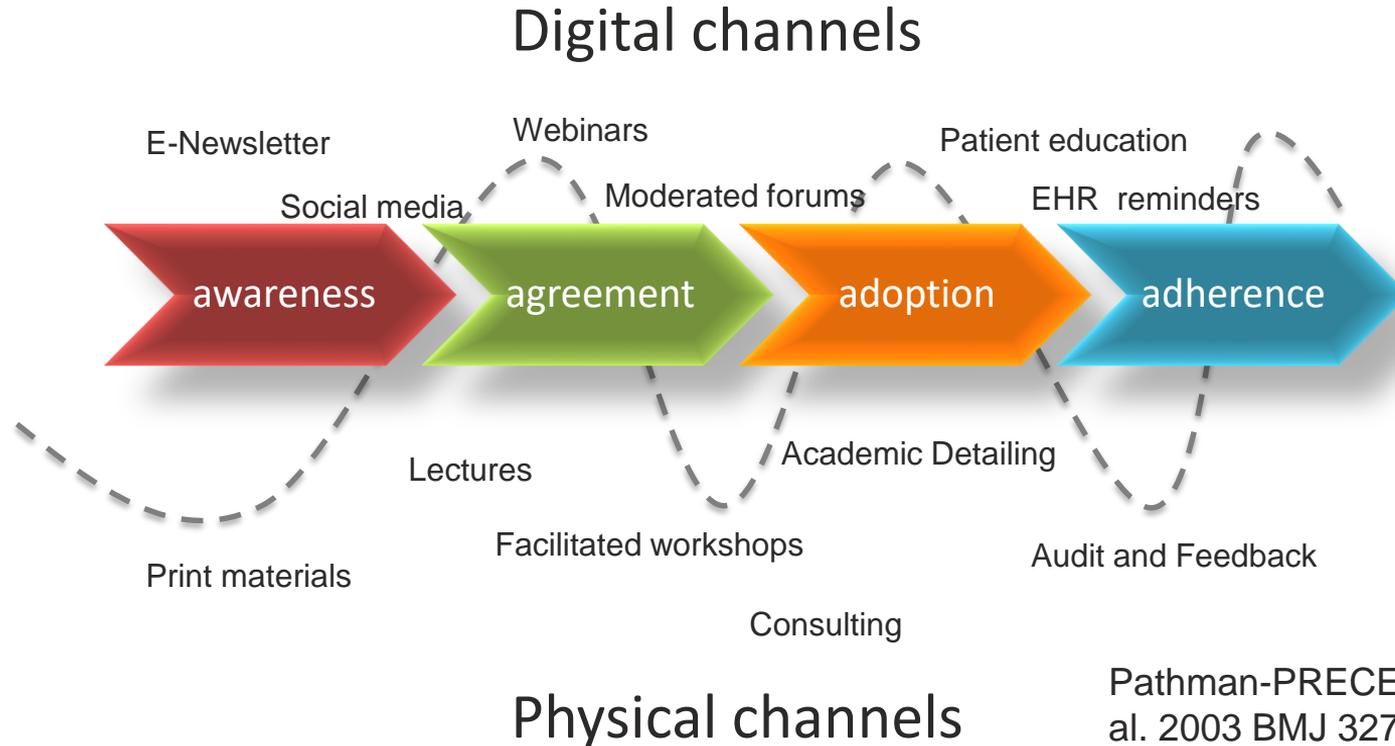
# Q. What delivery would you use?

## **Goal**

Analyze a family history to identify patients at increased or high risk of cancer

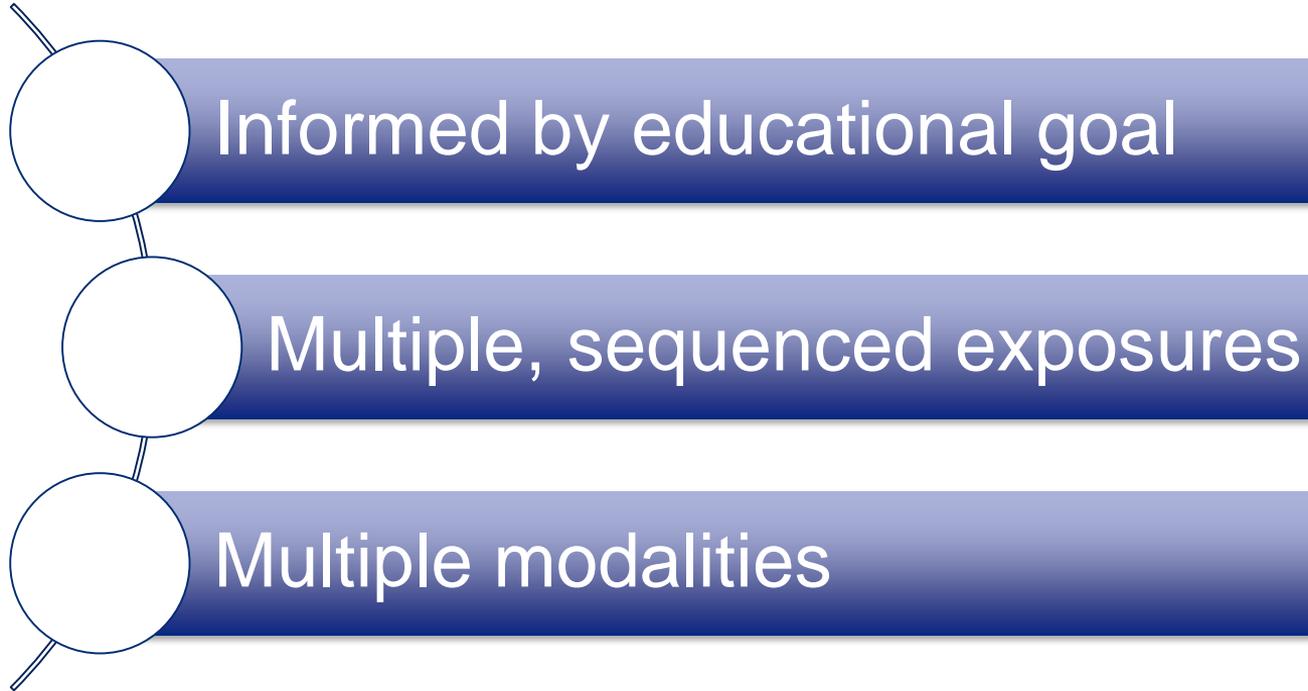
- A. Checklist
- B. Online course
- C. Newsletter
- D. Social media
- E. Workshop**

# Match delivery to goal



Pathman-PRECEED. Davis et al. 2003 BMJ 327:33.

# Delivery Considerations



# Evaluation

- What is my goal for evaluation?
- What outcomes are most important?
- How do I assess them?



# Scenario: Evaluate diverse program and learners



“ We have enduring modules that are taken by diverse learners. We want to assess educational outcomes as well as the impact of the program as a whole. ”

# Precision Medicine for Your Practice

PRECISION MEDICINE

START WATCH PRACTICE LOGISTICS DIG DEEPER TOOLS CME/CPE

Learn how to determine if cell free DNA screening is right for your patient

PRACTICE  
WITH INTERACTIVE CASE STUDIES

**NIA**  
Nia is 37 years of age and at 10 weeks gestation in her third pregnancy. She understands she has an increased risk for fetal chromosome abnormalities due to her age.

**SARAH**  
Sarah is 31 and at 8 weeks gestation in her first pregnancy. She has a history of unexplained infertility, and this pregnancy was conceived by in vitro fertilization.

**ALISHA**  
Alisha is 28 and currently 16 weeks gestation in her second pregnancy. Her first trimester screen showed an increased nuchal translucency (NT) with an elevated risk for Trisomy 21.



## Topics

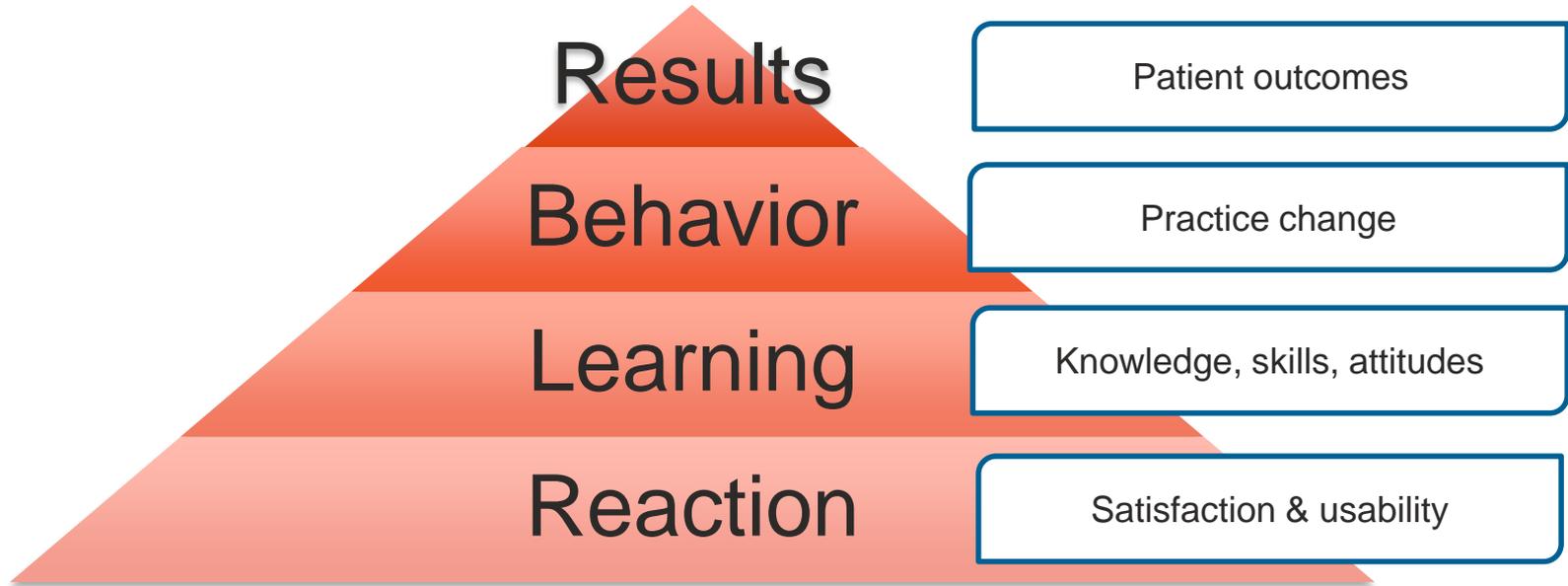
- Non-invasive prenatal screening
- Tumor genomics
- Neurogenomics
- Genomic testing in the healthy
- Exome testing for diagnosis
- Cardiogenomics
- Pharmacogenomics

# Precision Medicine for Your Practice: Evaluation Plan

- Short term
  - Individual learner
  - Assess learning gains, satisfaction
  - Short pre/post surveys
- Long term
  - Practice or program (with clinical implementation?)
  - Assess changes in knowledge, confidence, behaviors, patient outcomes?
  - Longitudinal surveys



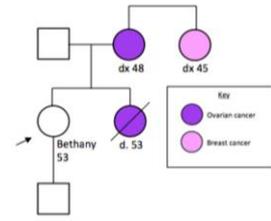
# Evaluate different levels of outcomes



Kirkpatrick 1994

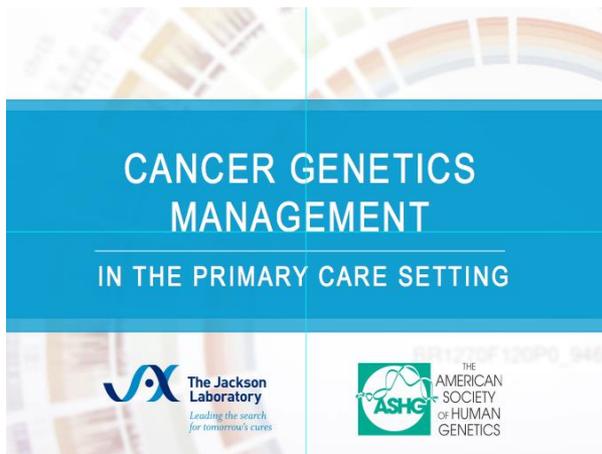
# Learning assessment should match education

- Assess outcomes of learning objectives
- Fidelity between instructional strategies and assessment items

Learning objective	Instructional Strategy	Assessment
<p>Stratify cancer risk to average, increased, and high risk</p>	<p><b>Q. Is Bethany at average, increased, or high risk for breast cancer?</b></p> <p><input type="radio"/> A Average</p> <p><input type="radio"/> B Increased</p> <p><input type="radio"/> C High risk</p>  <p>Key: ● Ovarian cancer ● Breast cancer</p>	<p>Rachelle's mother was diagnosed with ovarian cancer at age 43 and her sister was diagnosed with breast cancer at age 55. Is Rachelle at average, increased, or high risk for ovarian cancer?</p> <p><input type="radio"/> High</p> <p><input type="radio"/> Increased</p> <p><input type="radio"/> Average</p>

# Consider feasibility of evaluation plan

Evaluation goal: Determine the impact of a blended learning program on clinician knowledge, skills, attitudes, confidence, and practice longitudinally.



	2014	2018
Freq.	Every 3 mos.	Every 6 mos.
# items	Many	Fewer
Item type	Closed and open ended	Closed ended
Incentive	No	Yes

# Q. How would you assess?

## **Learning objective**

Communicate with patients about DTC test results

## **Delivery**

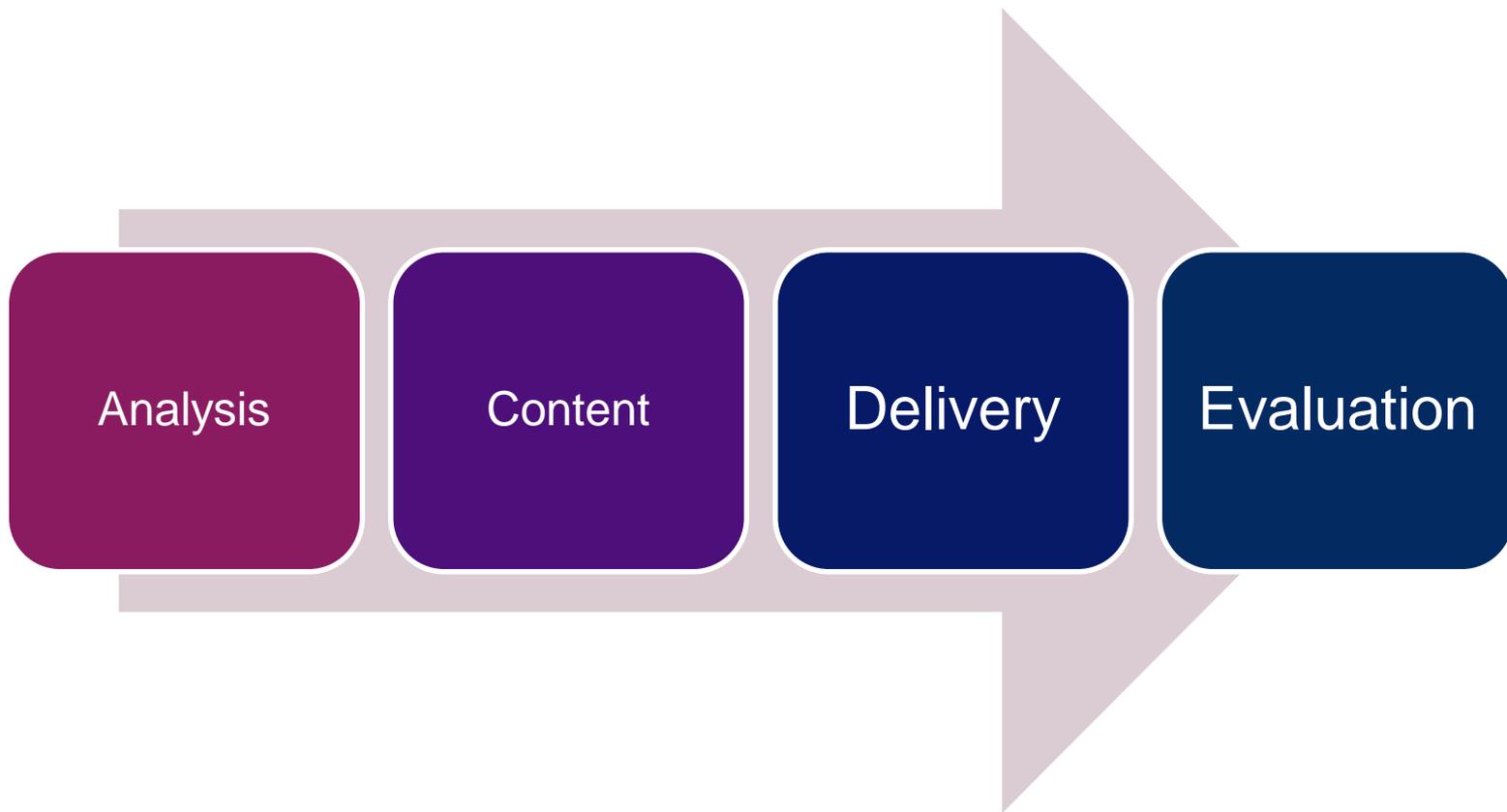
Small group role plays with feedback

- A. T/F items
- B. Multiple choice items
- C. Likert items
- D. Standardized patient**

# Evaluation Considerations



# Putting it all together



# Putting it all together

Analysis

## Set parameters:

- Cancer genetics topic
- Online including video

**Audience:** PCPs, early-adopters

**Goals:** Assess risk, manage, and communicate with patients about cancer genetic risk

# Putting it all together

**g r a c e** by JAX  
Genetics Risk Assessment Cancer Education

Analysis

Content

- Tasks
- Learning objectives
- Prioritization
- Realistic context



# Putting it all together

- Online course
- SHORT modules
- Multiple instructional strategies
  - Video
  - Case studies
  - Topic summaries
  - Tools

Delivery

Evaluation

# Putting it all together

- Identified outcomes
- Identified assessment approach
- Program evaluation every 2 years

Evaluation

**FAST  
EASY  
FREE**

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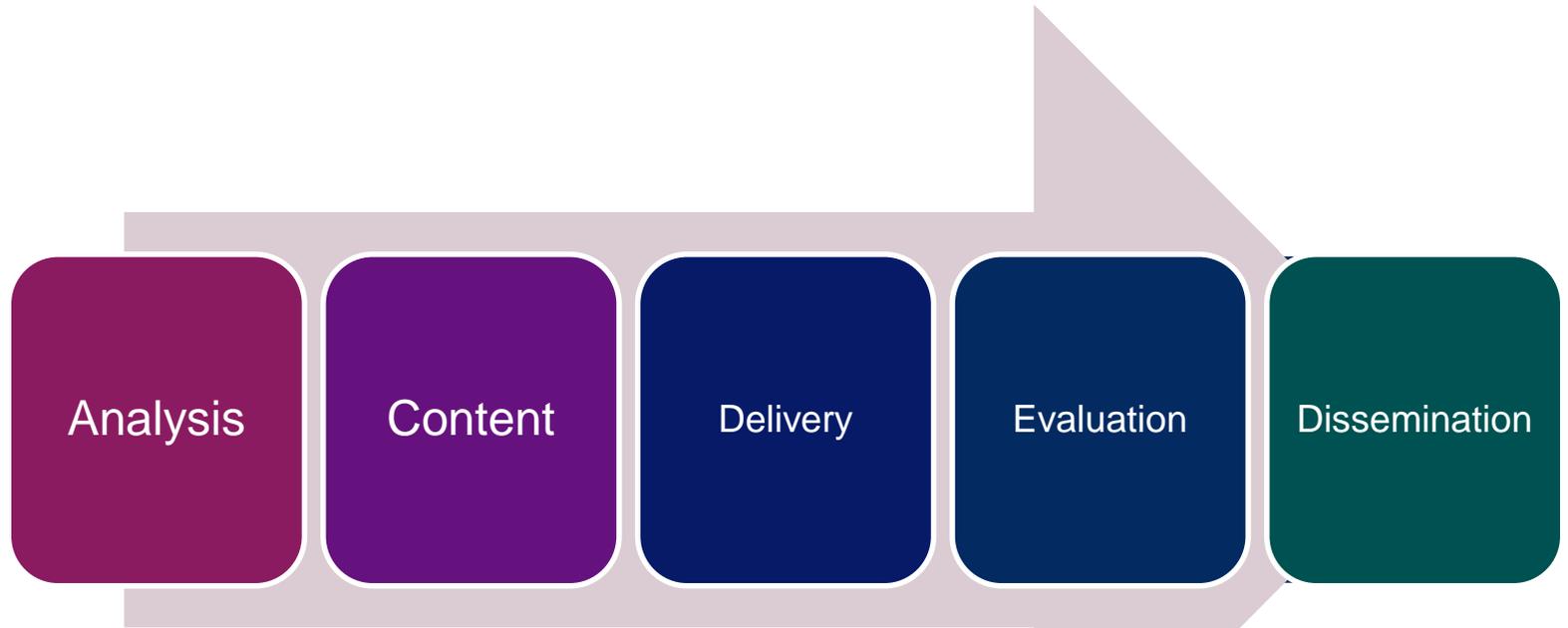
Public health campaign  
to increase clinician  
access to evidence-based  
cancer genetics  
recommendations

**g r a c e** by JAX  
Genetics Risk Assessment Cancer Education

**11** + **15**  
**modules** **minutes**

[www.jax.org/grace](http://www.jax.org/grace)

# We built it; will they come?



# GOAL: Increase enrollment

**g r a c e** by JAX  
Genetics Risk Assessment Cancer Education



**The Jackson  
Laboratory**

*Leading the search  
for tomorrow's cures*

**Public Health**

Prevent. Promote. Protect.



# There's no recipe to follow

- Experts don't agree
- Literature is only helpful so far
- Landscape is changing rapidly



# Assess resources

- Email lists
- Subject matter expertise
- Familiarity with target audience
- Extensive experience in developing education

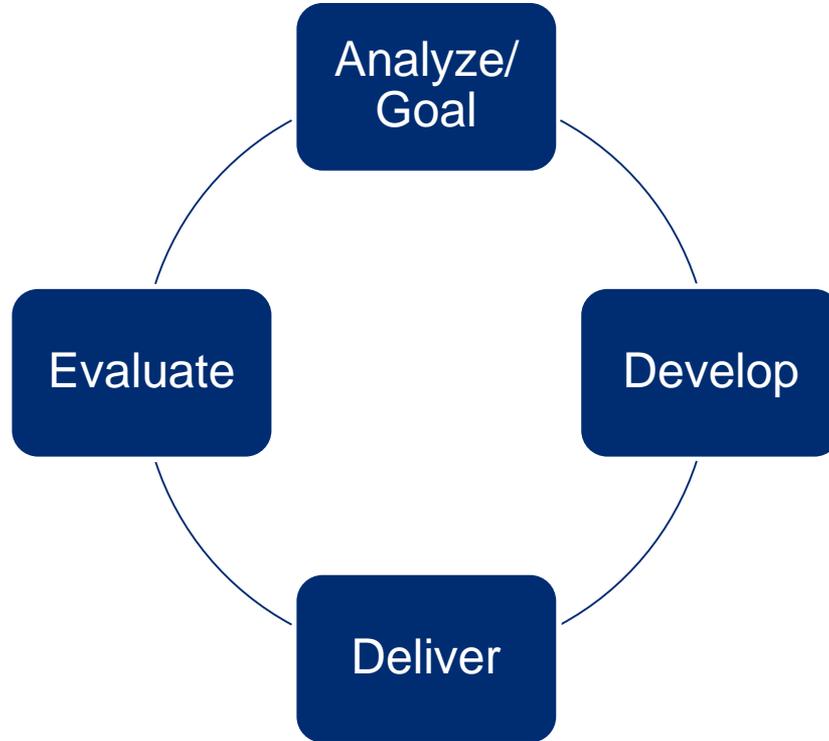
# Recognize challenges



- Target audience awareness of JAX
- Limited access to existing marketing infrastructure
- Internal bandwidth and expertise
- \$\$\$



# There are common processes and approaches



# Develop plan

Increase clinician  
engagement

# exposed  
# enrolled

# Delivery must be feasible | **g r a c e** by JAX Genetics Risk Assessment Cancer Education

✓ Email

~~TV~~

✓ Facebook

~~Radio~~

✓ In-person

✓ Twitter

~~Etc...~~

✗ LinkedIn

? Paid Ads

✗ Google+

? SEO

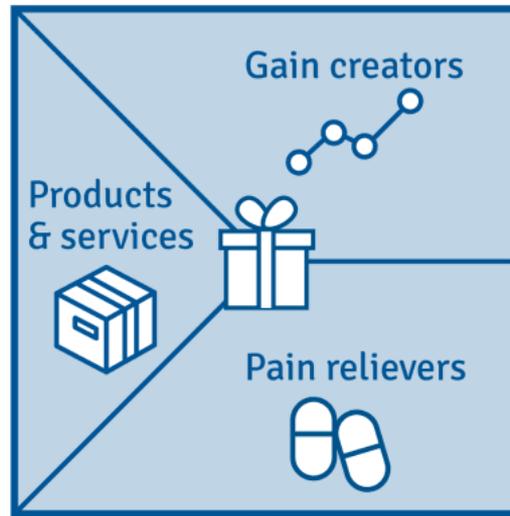
~~Direct mail~~

? Boosted tweets

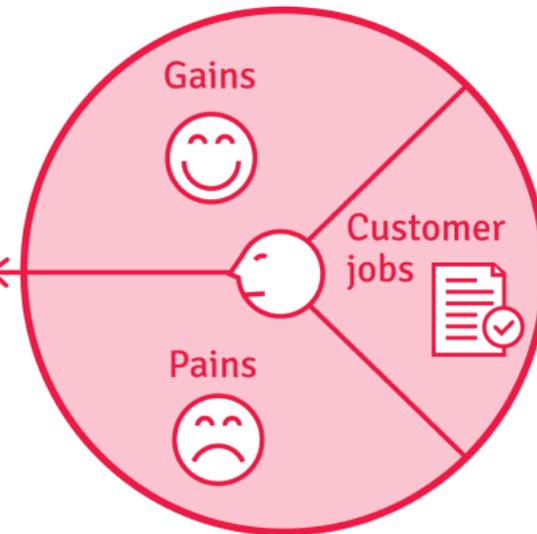


# Define the problem the education will help solve

## Value Proposition



## Customer Profile



# Messaging

- FREE
- CME/CNE
- Don't miss at-risk patients
- Can you identify who's at-risk?
- This state has one of the highest cancer rates

# The approach that works is the one you can implement

- Available resources
- Access to channels
- Knowledge about the target audience
- Expertise to evaluate impact
- Ability to sustain efforts



# Multimodal approach

	Feb	Mar	Apr	May	June	July
Email	1	1		1	1	2
Twitter posts	31	25	21	36	22	15
Facebook posts	11	5	7	9	8	7
Grand rounds		✓	✓	✓	✓	
Personal outreach			✓	✓		

- Started @JAXClinicalEd twitter feed Feb 2018

# Status at 6 months



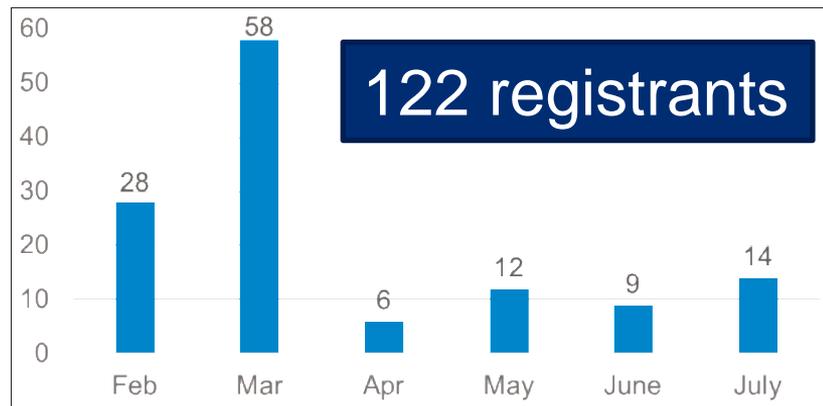
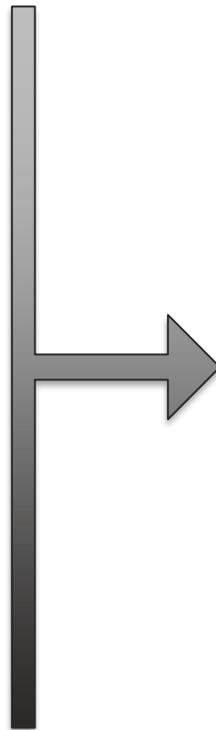
>10,000 PCPs



>104 attendees



144 followers



# Find your audience

- Know your audience
- Identify who they trust
- Determine needed assets
- Personal outreach



# Next steps

- **Delivery**

- Outreach to professional organization local/regional
- Personal outreach
- Boosted tweets
- Blog

- **Value proposition/Content messaging**

- Assess trends to maximize impact

- **Evaluation: Complex!**

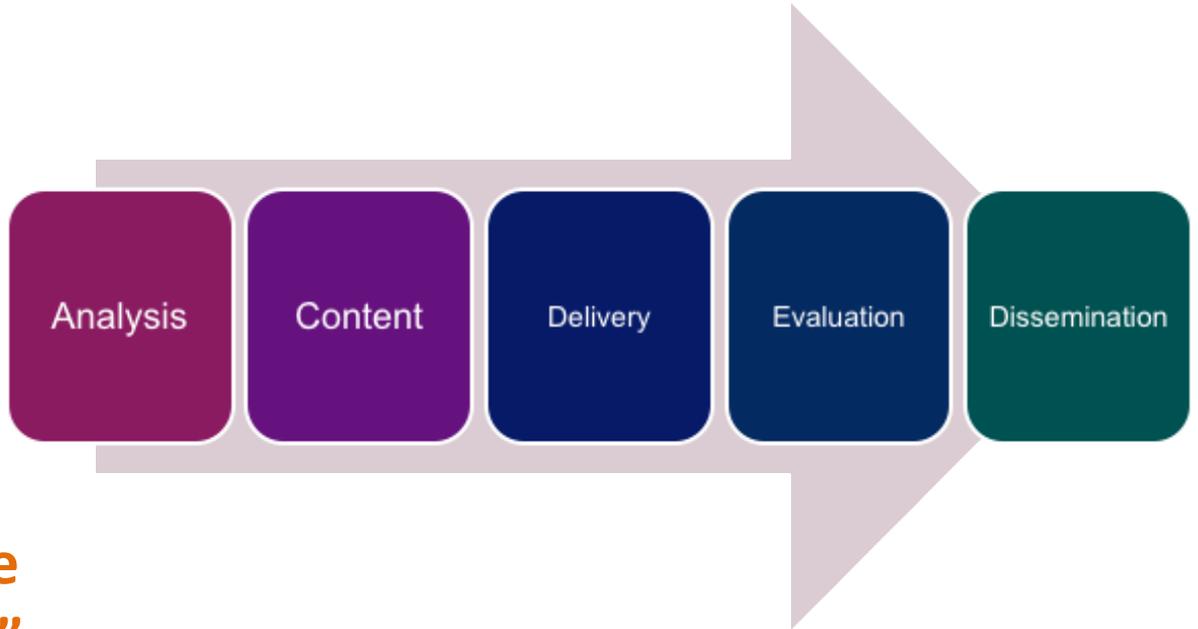
# Dissemination Considerations



# So...how can we best help Antonio?



**“Can you help me understand this?”**



# Best practices still apply in a DTC world

- Know your audience
- Focus on the skill rather than knowledge gain alone
- Separate need to know from nice to know
- Provide learning in relevant context
- Match delivery to educational goals
- Match evaluation to desired outcome
- Prioritize dissemination



# Thank you!

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