Transforming Care Delivery

Aaron Neinstein, MD
Associate Professor of Medicine
Vice President of Digital Health

The UC System

University of California

10 Campuses, 5 medical centers, 3 national labs

$40B Revenue

$46B to California Economy

Education

280,380 Students

227,700 Faculty and Staff

20 Health Professional Schools

Research

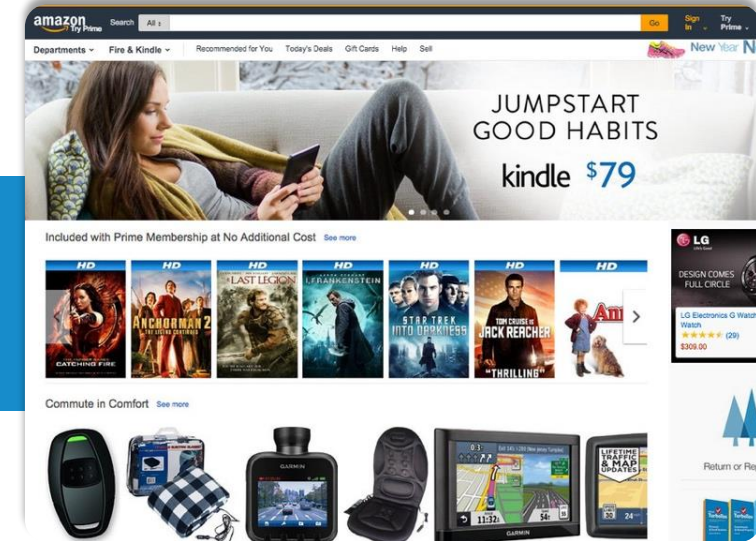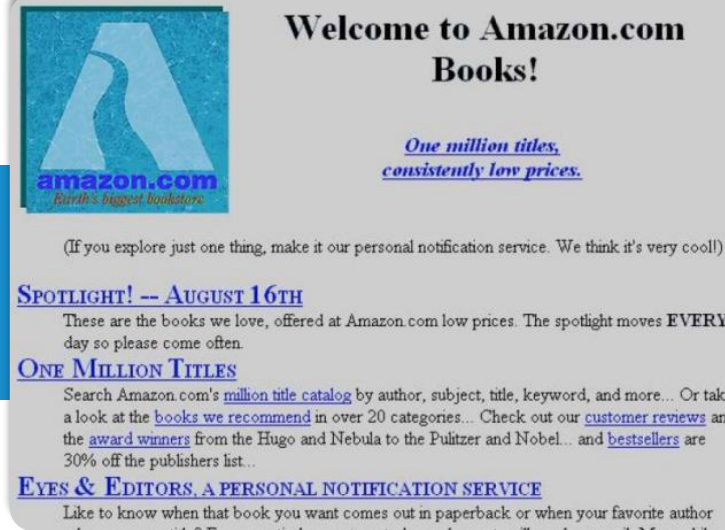Receives >50% of all NIH money in CA (~$2B)

Healthcare delivery

1.8 Million Unique Patients Annually

$13B Clinical Revenue

50% of US transplants happen at UC medical centers

Most U.S. patents of any university globally
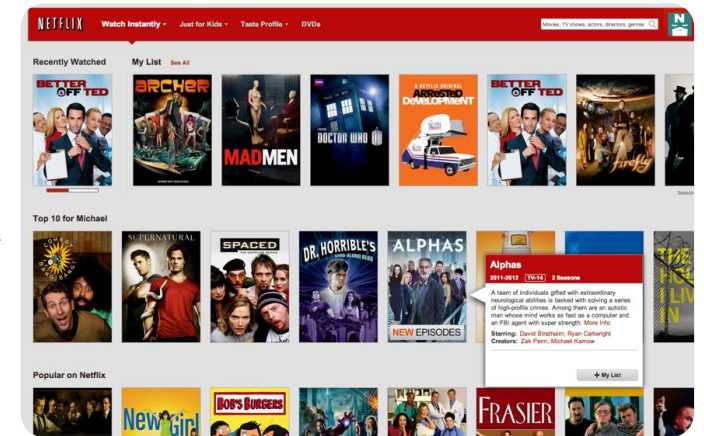
UCSF
University of California
San Francisco

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UCSF Health

Other industries have undergone digital transformation…

Analog → Digital

"Dumb Digital"→
Continuously Improved Digital

… and moved from physical to digital service delivery

Imagine if UCSF Health could:

Put patients in the driver's seat as their partner in care, delivering a care experience that unique to the patient
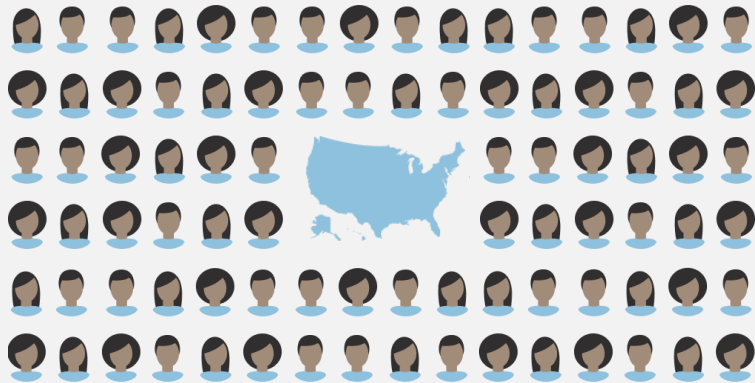
Make it possible to deliver exceptional and scalable healthcare everywhere, without borders or boundaries

Align the best of human and machine intelligence to deliver the next generation of care
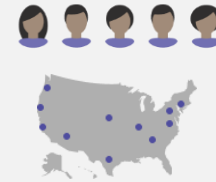
Challenges in Complex Care:
Not Enough Specialist Doctors

Challenges in Complex Care: Finding the Right Doctor for Me

Patient Seeking Care

Specialist Supply

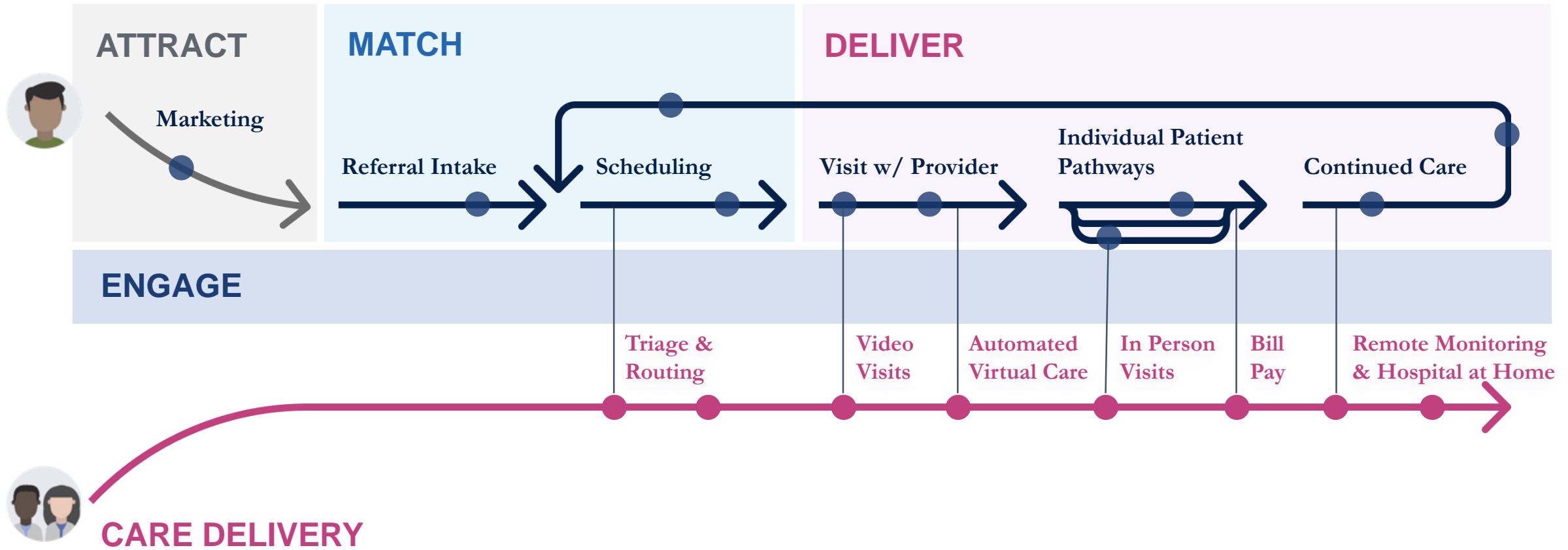# Challenges in Complex Care:
Care Experience & Engagement

The 15 min office visit cannot be the way we define healthcare

Illuminate the Customer Experience

Aligning Digital Transformation to the Patient Journey

LESSON 1: Ask "How Might We" to Reframe Problems

Learn more about prospective patients' needs

Help people who might need a kidney transplant

Reduce stress for newly diagnosed patients

Shift care to meet patients where it is best for them
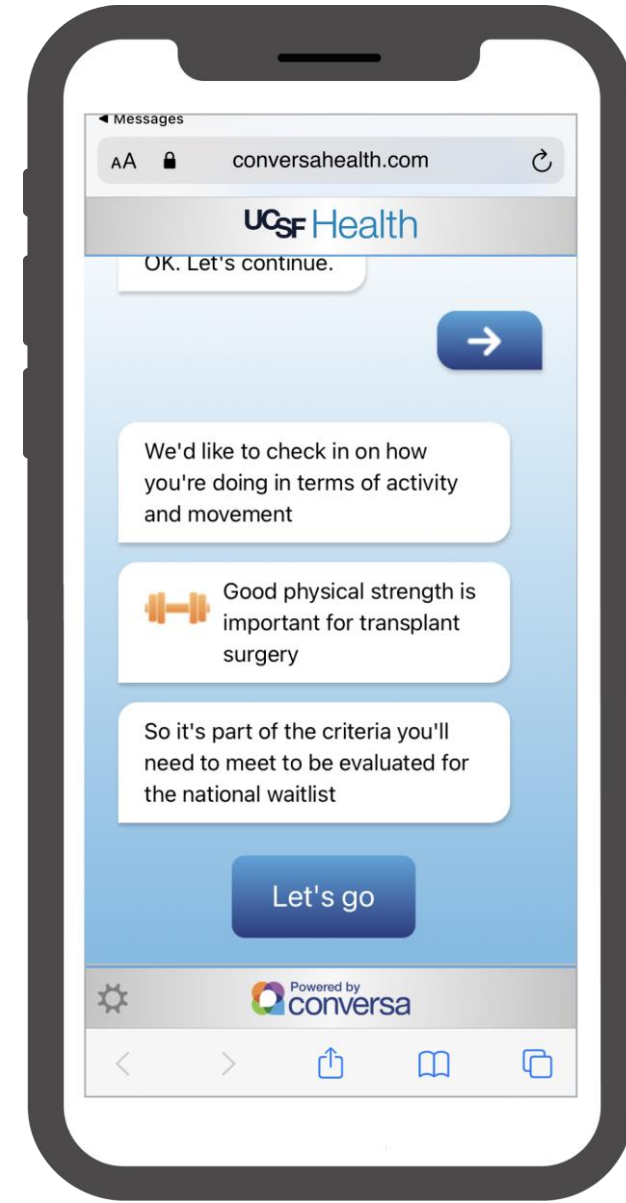
Ensure high quality first visits

Kidney Transplant Listing

There are only a few hundred people we can put on the waiting list each year, out of the thousands who might be interested and in need
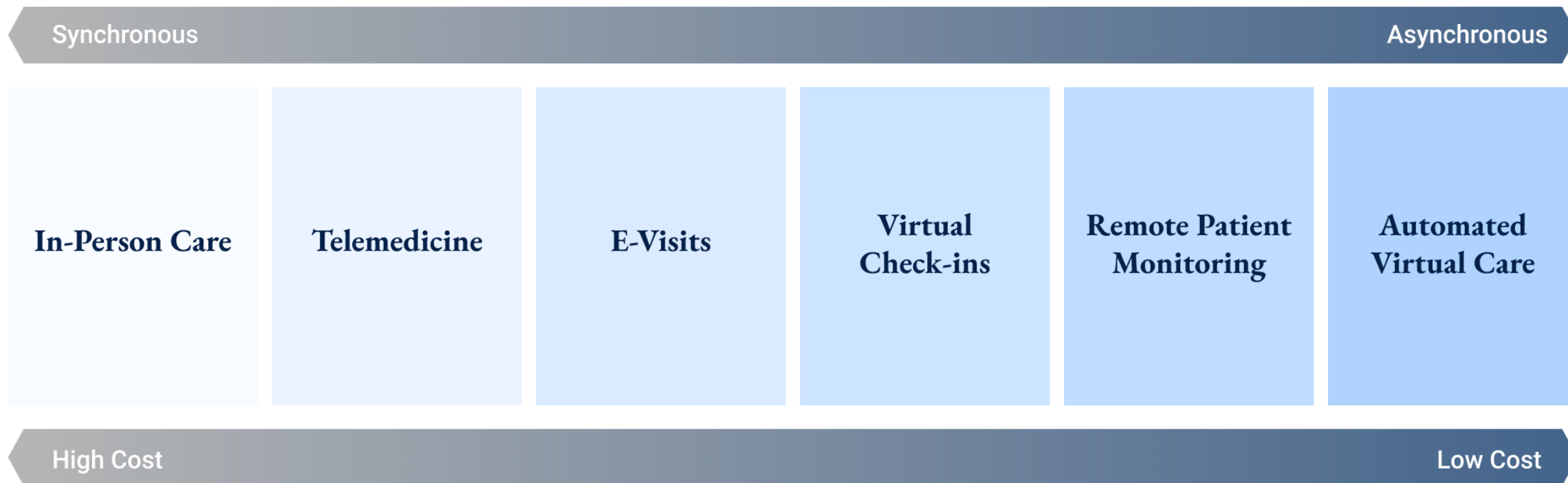
Kidney Transplant Pre-List Chat

How might we provide listing information to *far more* people who are seeking information about potential listing for kidney transplant?

How might we shift post lung transplant care to a lower cost setting, and reduce the need for frequent patient travel?
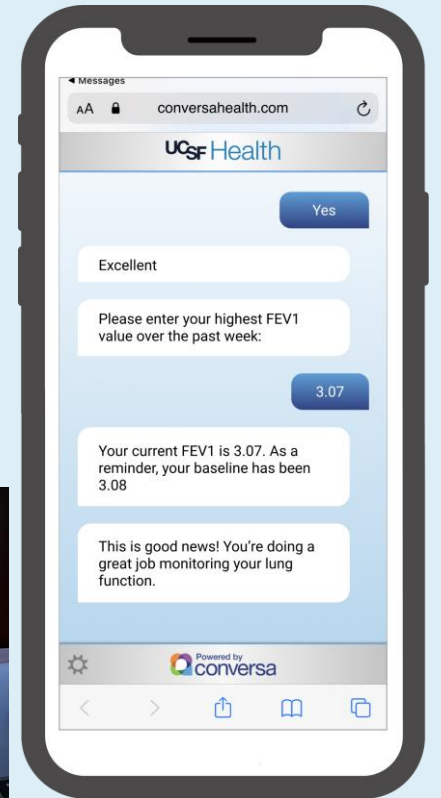
"
Remote monitoring is paying off. We've had cases where the device detected problems before the patient noticed symptoms. Early detection allows a better chance at identifying a problem and applying the appropriate treatment plan.
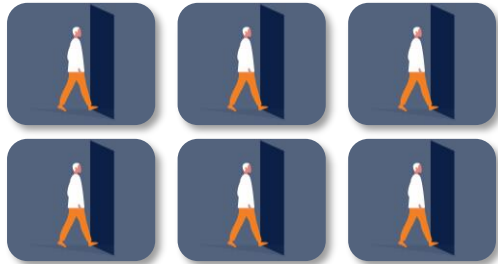"

Steven Hays, MD
Director, UCSF Lung Transplant Program, in the *San Francisco Business Times*

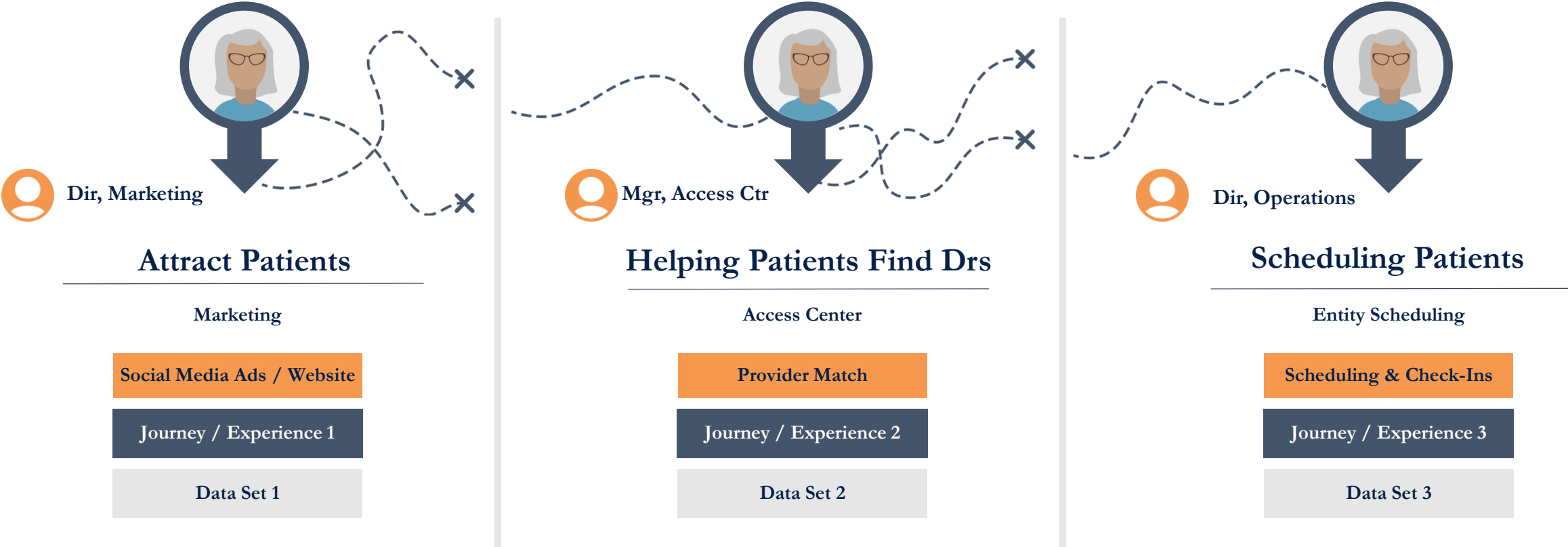# Virtual Lung Care Chat & Home Spirometry: Easier Access, Lower Costs

No travel needed

6 routine in-person
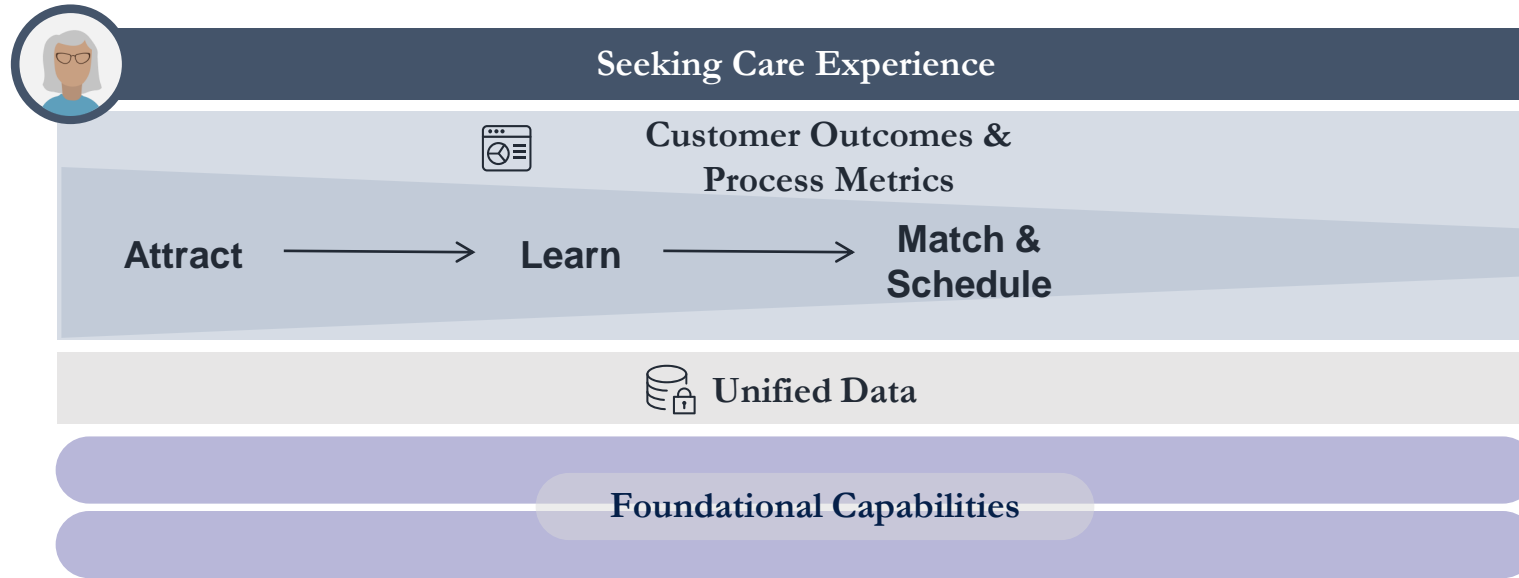**visits eliminated per patient**
in two years post-transplant

Lower costs

Historic State: Fragmented Patient Experience

Dir, Marketing

Attract Patients

Marketing

Social Media Ads / Website
Journey / Experience 1
Data Set 1

Mgr, Access Ctr

Helping Patients Find Drs

Access Center

Provider Match
Journey / Experience 2
Data Set 2

Dir, Operations

Scheduling Patients

Entity Scheduling

Scheduling & Check-Ins
Journey / Experience 3
Data Set 3

**Lacking a holistic understanding and accountability for the end-to-end patient experience**

Unable to directly measure success or learn from failure

LESSON 2: Create Cross-Functional Teams Organized Around Areas of Value

Seeking Care Experience

Customer Outcomes & Process Metrics

Attract → Learn → Match & Schedule
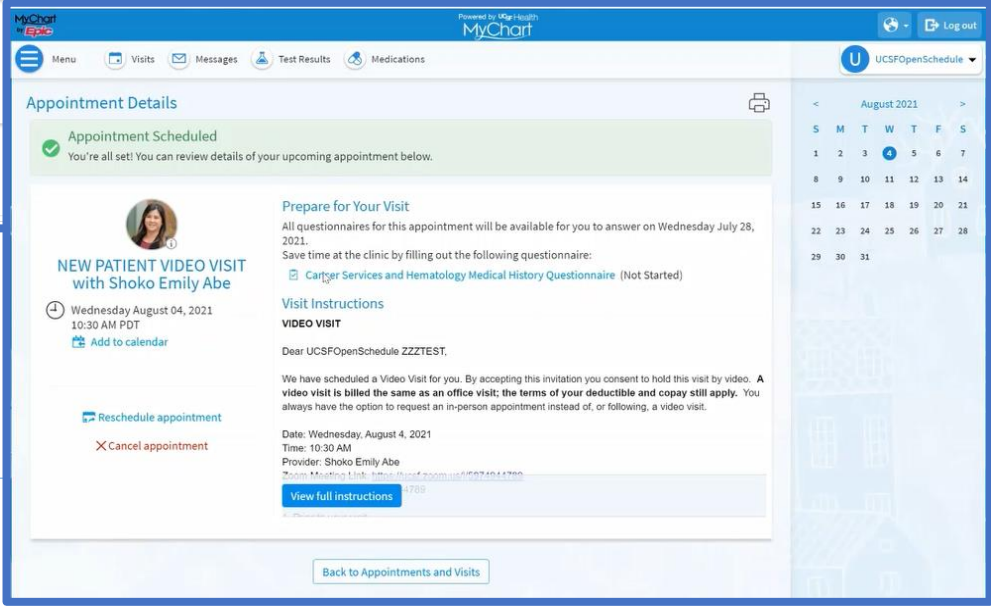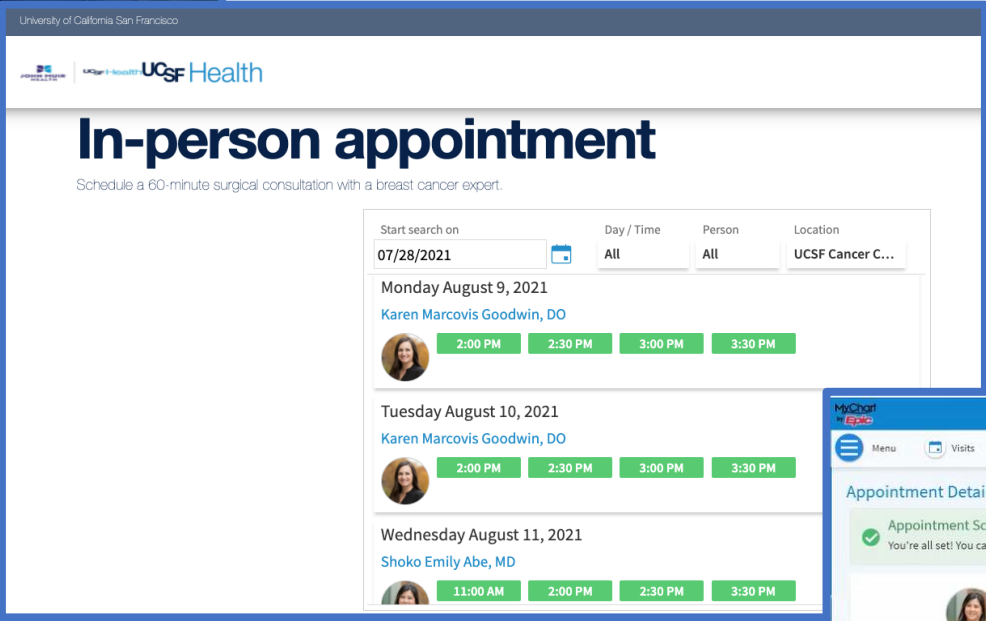
Unified Data

Foundational Capabilities

Opportunities

- Modern, personalized patient-focused experience
- Efficient, flexible process, systems approach

- Connected data drives continuous learning and improvement
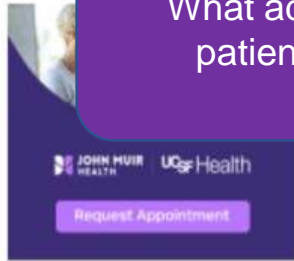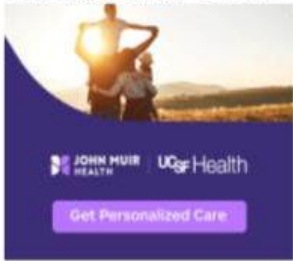- Enabling capabilities support multiple experiences across full journey
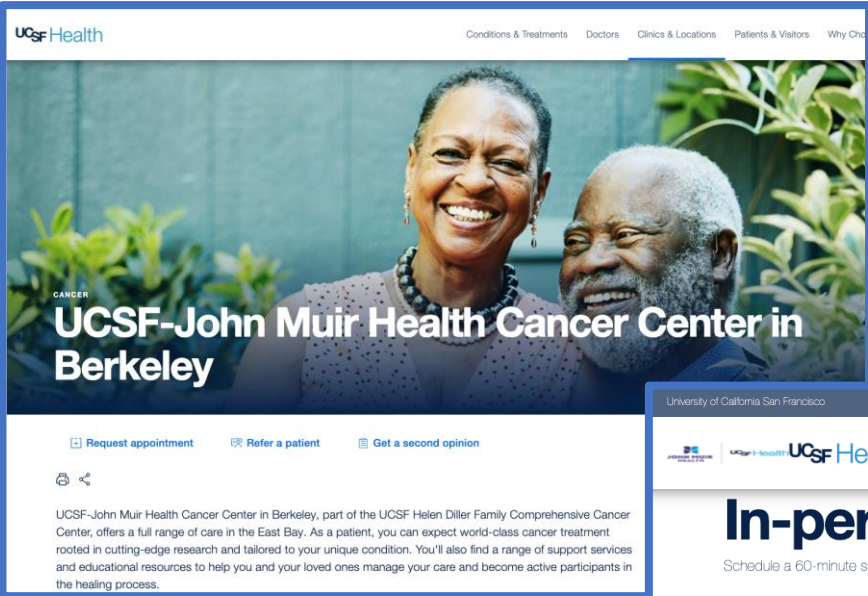
Self-Initiated Self-Scheduling for New Patients

Instrumentation: What Friction Are Patients Experiencing?

LESSON 3: Instrument to Create Analytics That Capture & Illuminate the Patient Journey

Ad Prime, Simpli.fi. Display, Centro
Date range: 3/10/21 - Current

JOHN MUIR HEALTH | UCSF Health
Get Personalized Care

JOHN MUIR HEALTH | UCSF Health
Request Appointment
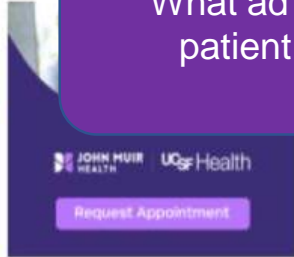
What ad did the patient see?

Did we know what words the patient searched to find us?

...geting
...Uniting
...cer
...earch
...atology
Multiple myeloma awareness, Lung cancer awareness, Head and Neck Cancer Alliance, Cancer research, Prostate-specific antigen, Lung Cancer Support, American Thyroid Association, Breakthrough Breast Cancer, Gynaecology, Obstetrics and gynaecology, Gift of Life Bone Marrow Foundation, Lung Cancer Alliance or Lung Cancer Leaders
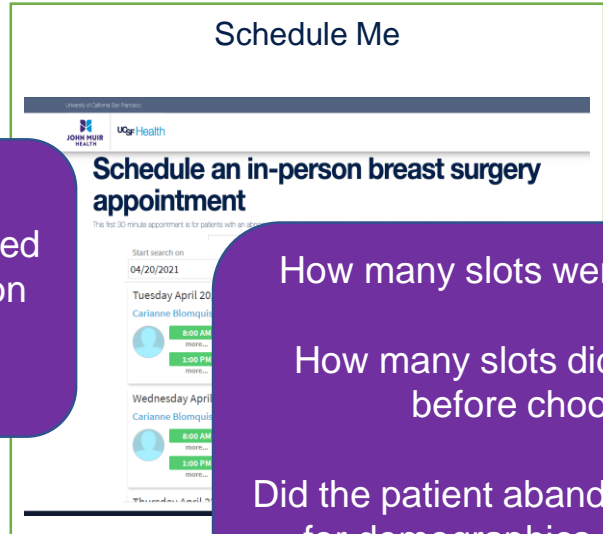
Facebook
Date range: 3/16/21- Current

What browser did patient use?

Did the patient use a computer or mobile phone?
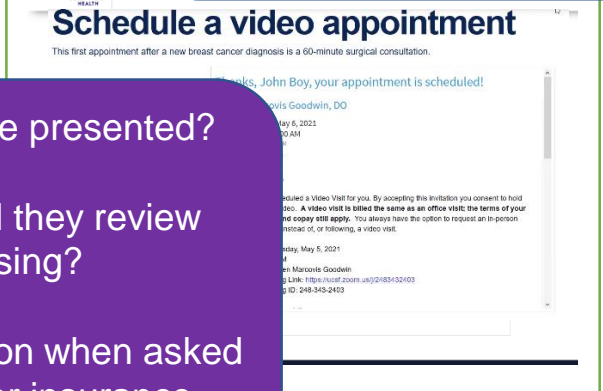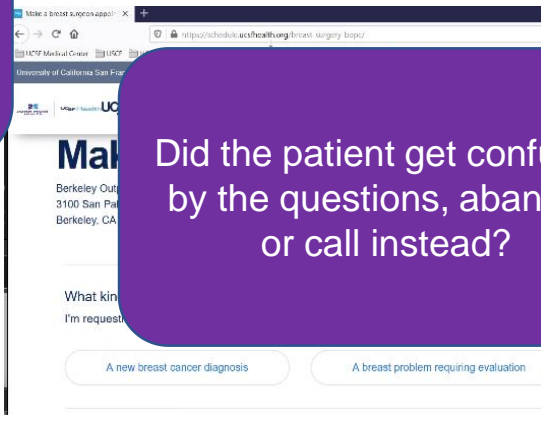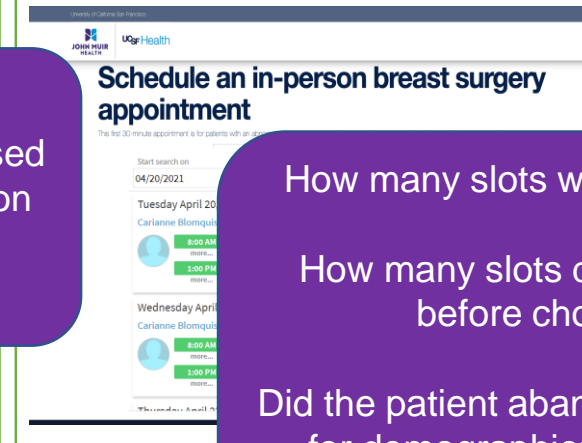
What pathway did the patient use to get to the scheduler?

What did they read / what were they interested in?

Get to Right Appointment Type

Mak...
Berkeley Out...
3100 San Pa...
Berkeley, CA...

What kin...
I'm requestl...

A new breast cancer diagnosis   A breast problem requiring evaluation

Did the patient get confused by the questions, abandon or call instead?

Schedule Me

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Schedule an in-person breast surgery appointment
This first 30-minute appointment is for patients with a st...

Start search on
04/20/2021

Tuesday April 20...
Carianne Blomquis...
8:00 AM
more...
1:00 PM
more...

Wednesday April...
Carianne Blomquis...
8:00 AM
more...
1:00 PM
more...

How many slots were presented?

How many slots did they review before choosing?

Did the patient abandon when asked for demographics or insurance information?

JOHN MUIR HEALTH | UCSF Health

Schedule a video appointment
This first appointment after a new breast cancer diagnosis is a 60-minute surgical consultation.

...nks, John Boy, your appointment is scheduled!

...ovis Goodwin, DO
...y 6, 2021
...0 AM

...eduled a Video Visit for you. By accepting this invitation you consent to hold
...deo. A video visit is billed the same as an office visit; the terms of your
...nd copay still apply. You always have the option to request an in-person
...instead of, or following, a video visit.

...en Marcovis Goodwin
...Link: https://ucsf.zoom.us/j/2483432403
...ng ID: 248-343-2403

What else was the patient interested in / click on?

LESSON 4: Think Outside-In, Not Inside-Out

"
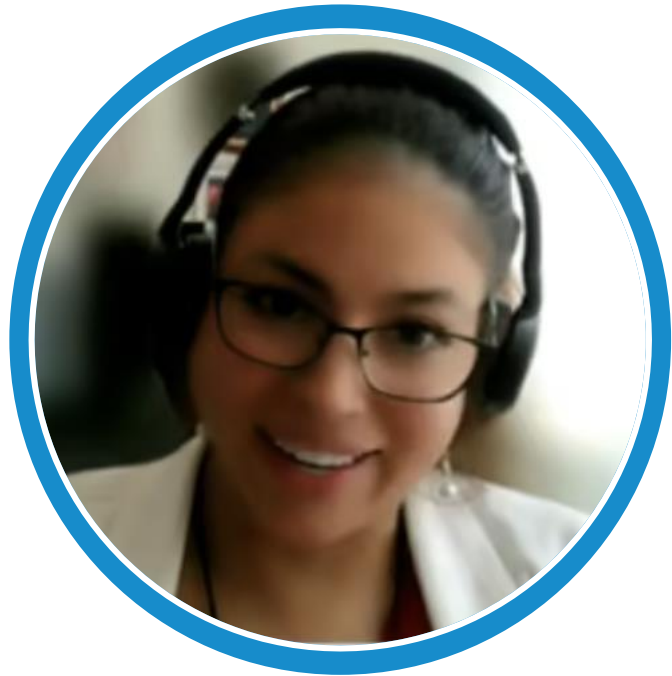
We really prioritized the patient experience aspects of web scheduling.

With that in mind, we wanted to make the process easy, straightforward, and we wanted to remove the common barriers that patients face with healthcare where processes are tedious, time consuming, and so complicated that they deter patients from getting the care they need.
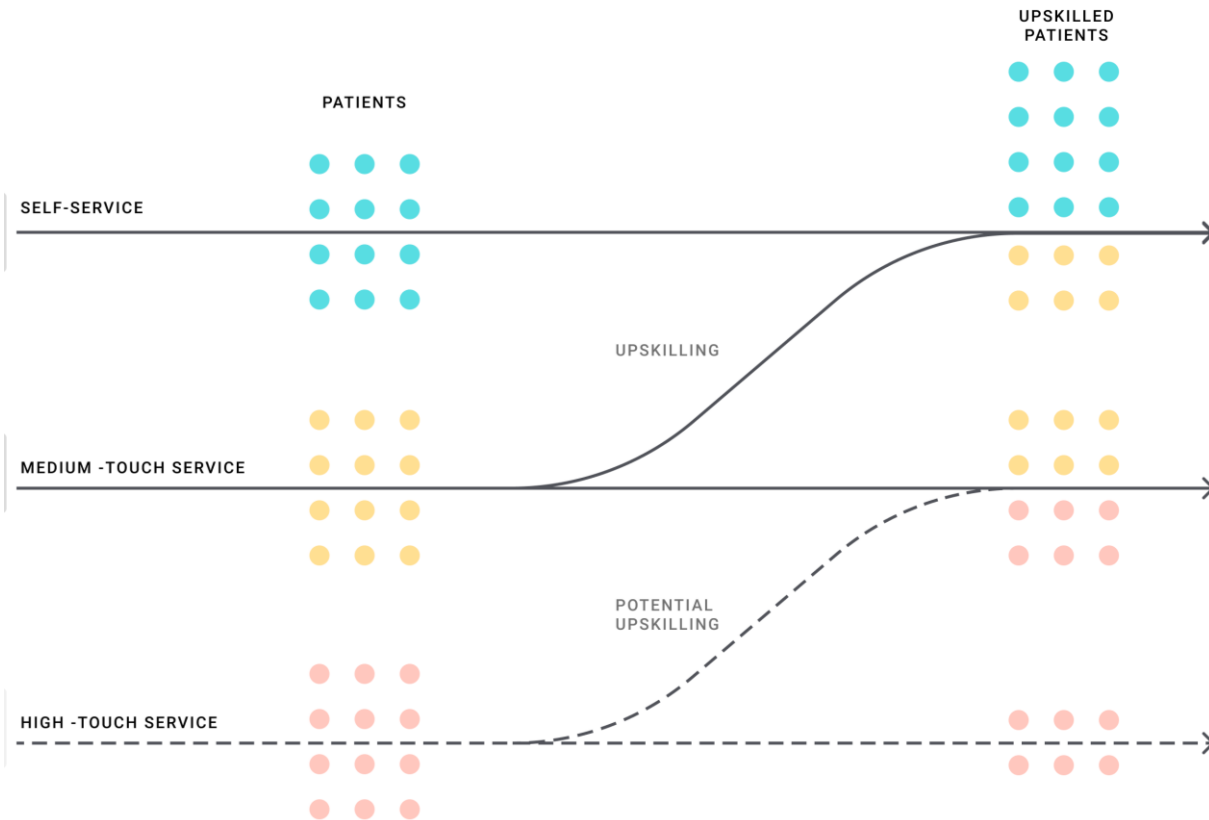
"

Krystle Gomez
Administrative Supervisor,
Berkeley Outpatient Center Breast Surgery Oncology

LESSON 5: Leverage Analytics to Enable Personalization & Illuminate Disparities

GRADUATION SERVICE MODEL THAT SEGMENTS PATIENTS BASED ON NEED

Guiding Principle: Create effective digital solutions that transform health and enable care delivery for all.

- Detect inequalities by measuring who is—and is not—using our digital experiences

- Ensure product requirements meet the needs of the broad demographic population served by UCSF

- Build digital solutions that enable patients to have more control in how they receive care

LESSON 6: Measure Key Process Metrics, Not Deployment Milestones

How many clinics can text message patients?

Hello, UCSF http://tiny.ucsf.edu/ompOQM has received your referral and we are ready to schedule your visit. Please contact us at 415-353-2350. Practice hours are 8:30am – 4:30pm (M-F). Thank you. Reply STOP to Cancel. Msg freq varies. Msg and data rates apply.

How many appointments are scheduled without requiring any phone call?
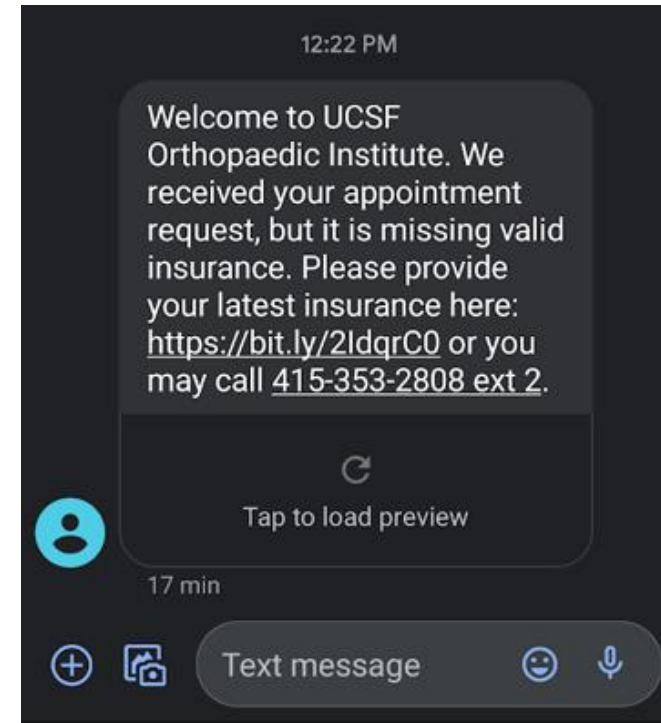
Tech Tool Implementation   vs.   **Digital Transformation**

Experiment to De-Risk

"We need to help referring providers electronically send us referrals"

Traditional approach & methodology…

Develop and Plan
Privacy & Security
Risk & Compliance
Technology Build

Deploy

Evaluate
Does it work?
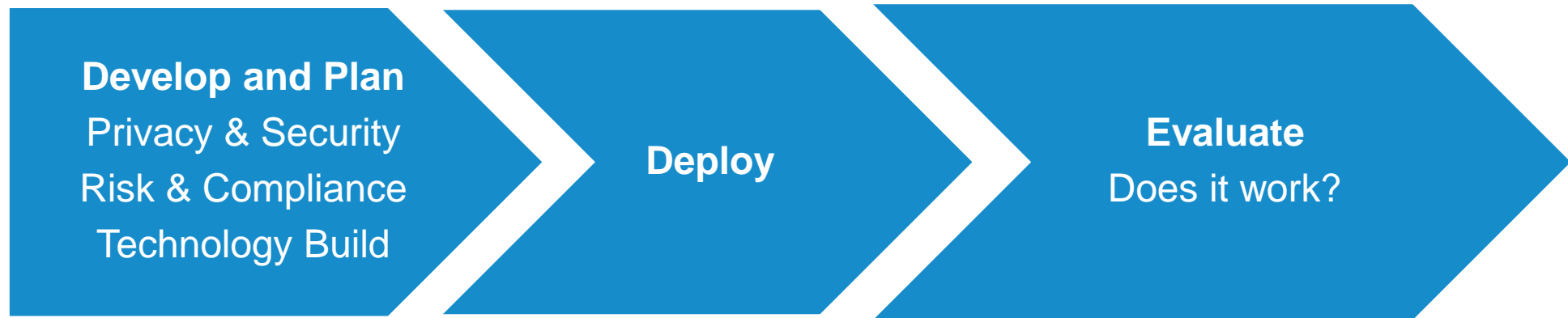
What if, instead, we first identify and test the biggest assumptions, before committing scarce resources to development?

Instead, in a Digitally Transformed organization…
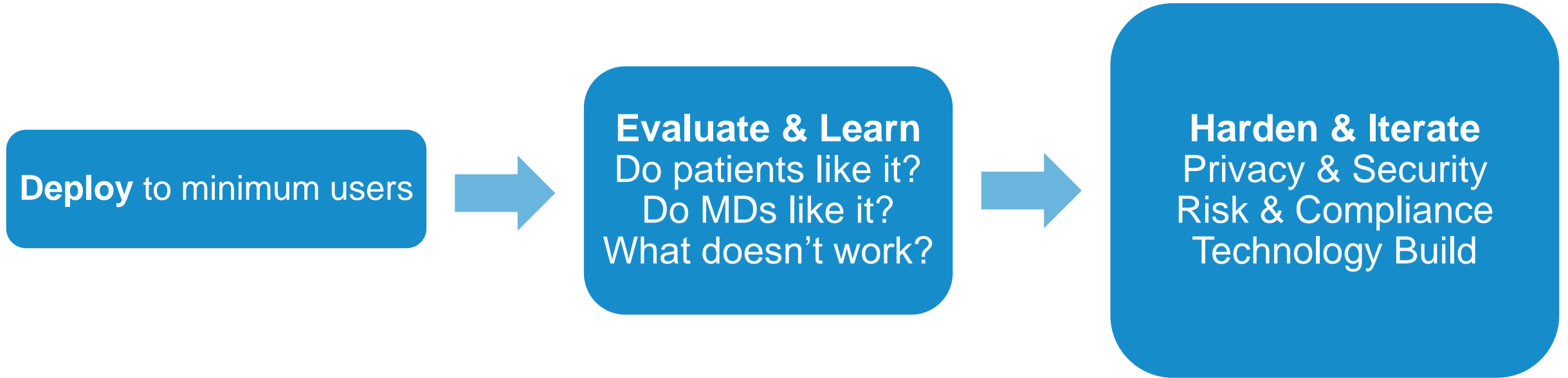
Deploy to minimum users

→

Evaluate & Learn
Do patients like it?
Do MDs like it?
What doesn't work?

→

Harden & Iterate
Privacy & Security
Risk & Compliance
Technology Build

What's the quickest, cheapest way to de-risk the concept and determine if the idea has merit?

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LESSON 7: Run Small, Quick, Cheap Experiments to De-risk
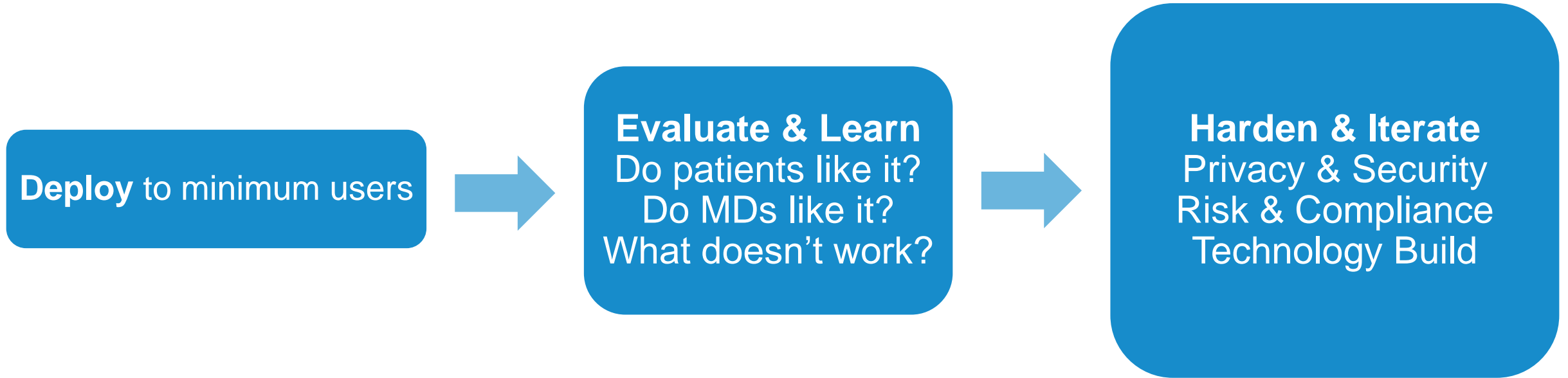
Deploy to minimum users

→

Evaluate & Learn
Do patients like it?
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Privacy & Security
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What's the quickest, cheapest way to de-risk the concept and determine if the idea has merit?

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If we build it, will they come?

Two Initial Experiments to De-risk the Concept
Do the fastest, cheapest thing to validate

HYPOTHESIS 1

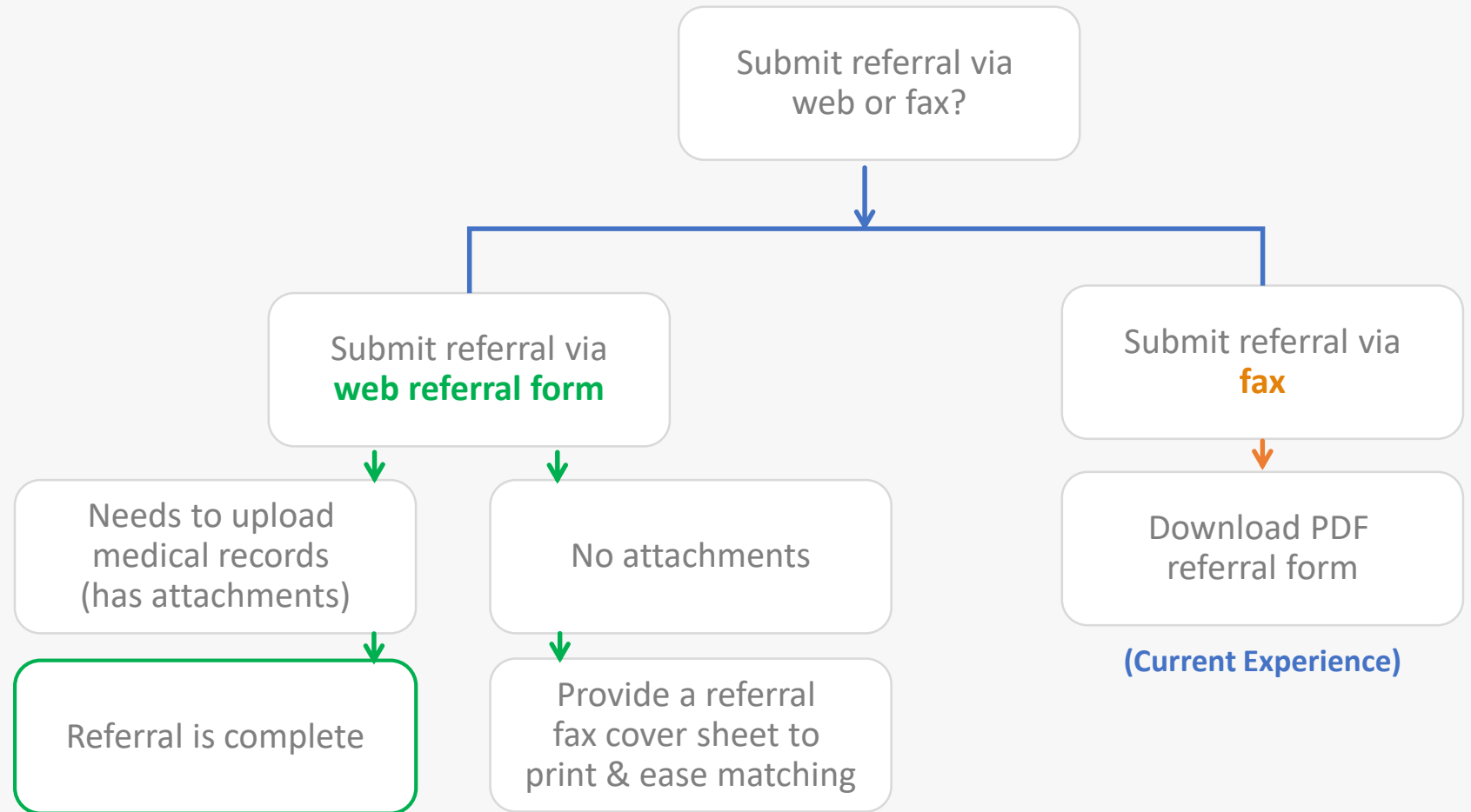Enough community providers will **choose an online form over fax**

HYPOTHESIS 2

Enough community providers will **choose to upload documentation instead of faxing**

Experiments for Cancer Referrals

1 **Phase 1**
Enough referring providers will choose the web referral form over fax

2 **Phase 2**
The web referral form will improve referral quality & completeness

Submit referral via web or fax?

Submit referral via **web referral form**

Submit referral via **fax**

Needs to upload medical records (has attachments)

No attachments

Download PDF referral form

(Current Experience)

Referral is complete

Provide a referral fax cover sheet to print & ease matching

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Experiment: Will enough referring providers choose this over fax?

Operational Improvements Pay Big Dividends

Challenge: Incoming Referrals

Annually
200,000
incoming faxed referrals

Too slow to process them

Patients waiting for care

Process intensely manual

How might we…

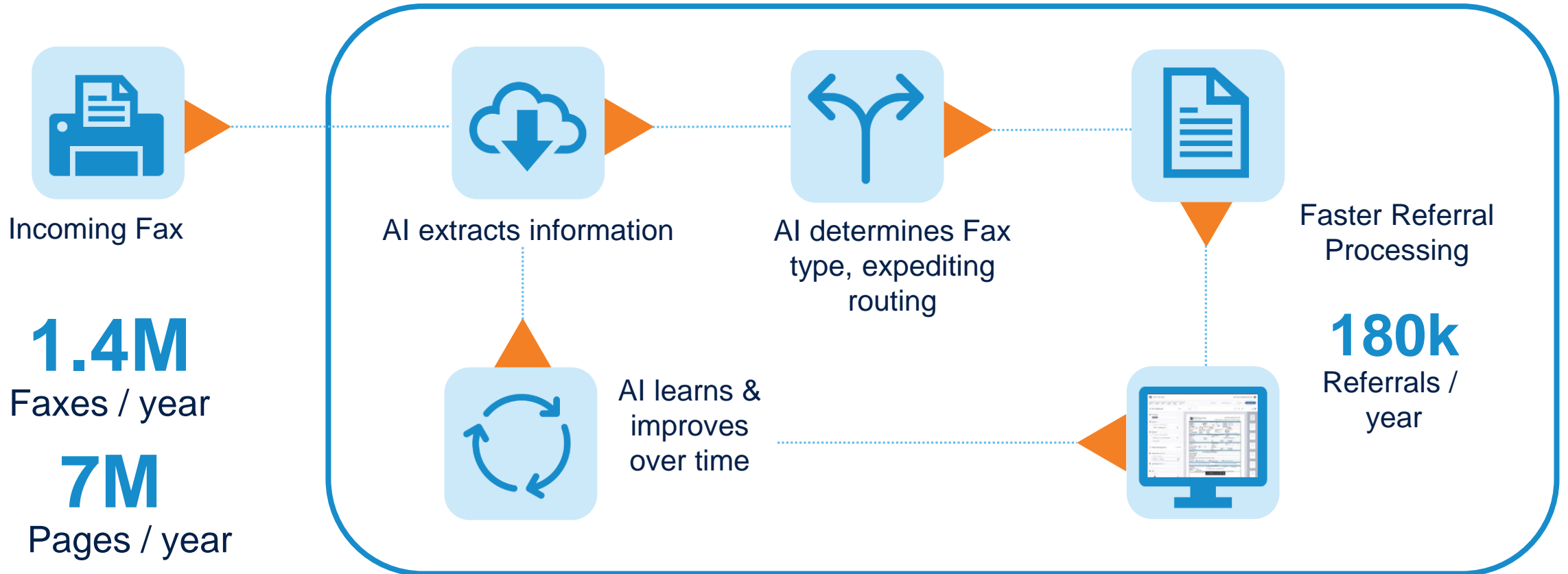**Increase efficiency in referral turnaround & scheduling**

Reduce friction & inefficiencies: phone calls, manual work
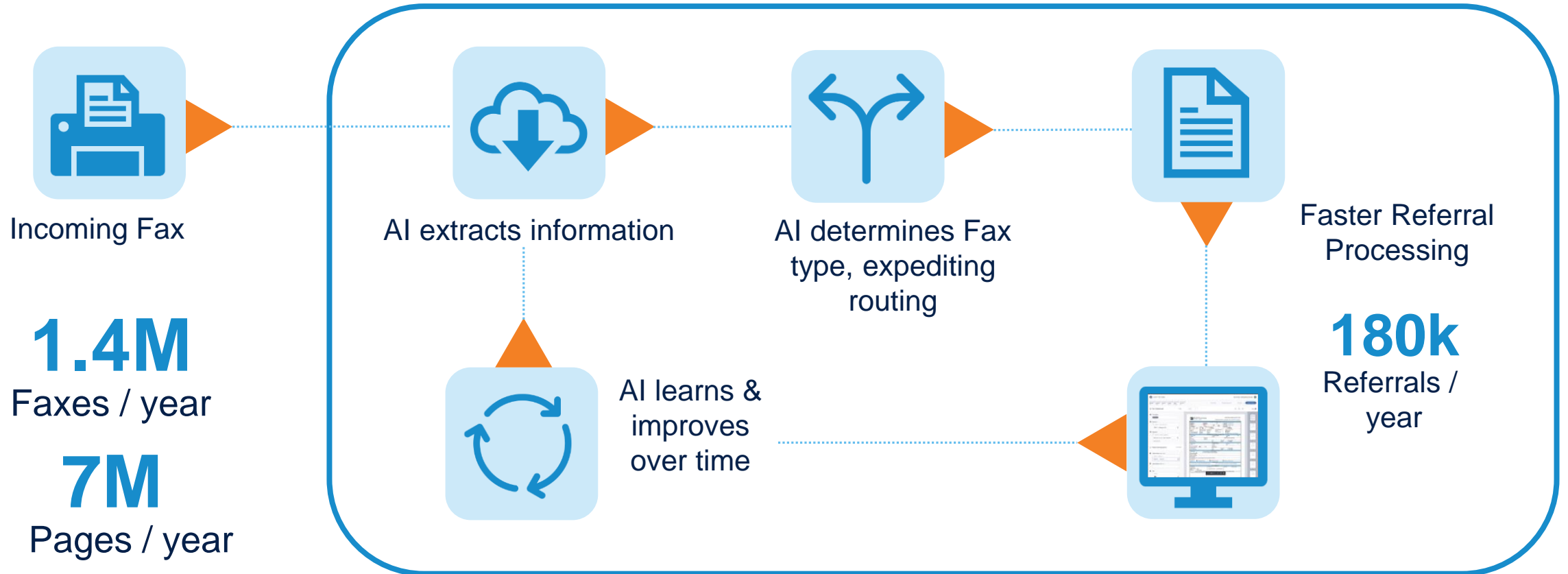
Improve patient experience

Faster Referral Scheduling

We estimate AI will save UCSF admin staff *>25,000 hours/year* of work in faxed document processing

Incoming Fax

AI extracts information

AI determines Fax type, expediting routing

Faster Referral Processing

AI learns & improves over time

1.4M Faxes / year

7M Pages / year

1.180k Referrals / year

LESSON 8: Leverage AI for Your Boring Problems

We estimate AI will save UCSF admin staff *>25,000 hours/year* of work in faxed document processing

Incoming Fax

1.4M
Faxes / year

7M
Pages / year

AI extracts information

AI determines Fax type, expediting routing

Faster Referral Processing

AI learns & improves over time

1.180k
Referrals / year

LESSON 9: AI Enables a Difference in Kind, Not Degree

Without AI, faxes are
processed in the order received

With AI, urgent and high priority faxes
are processed and routed first

AI
Triage
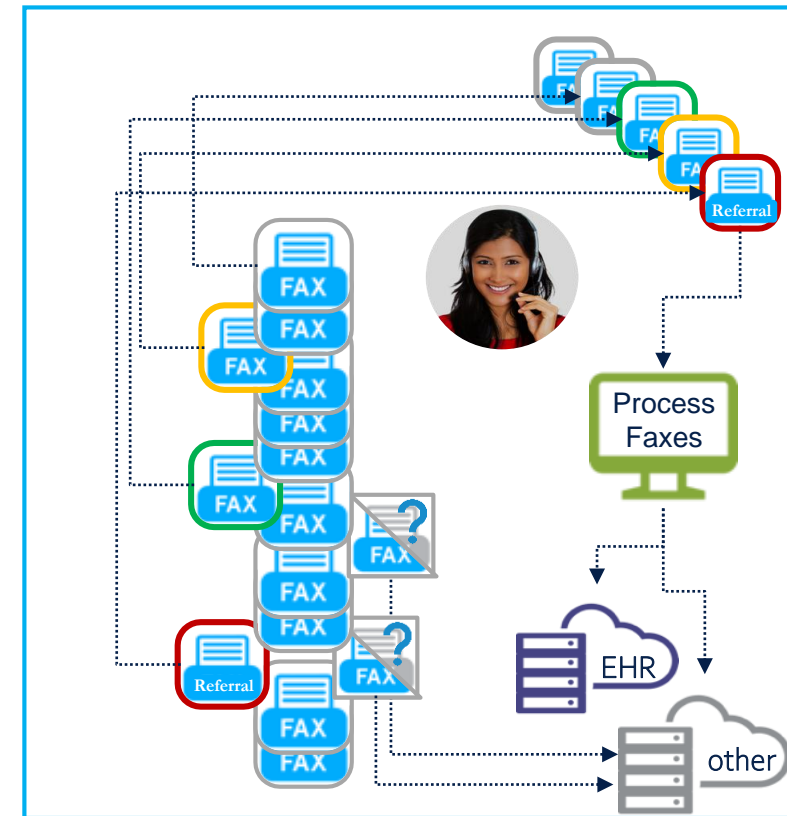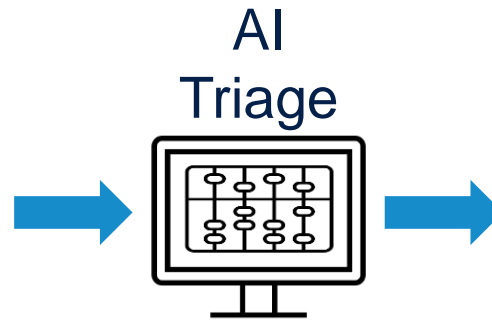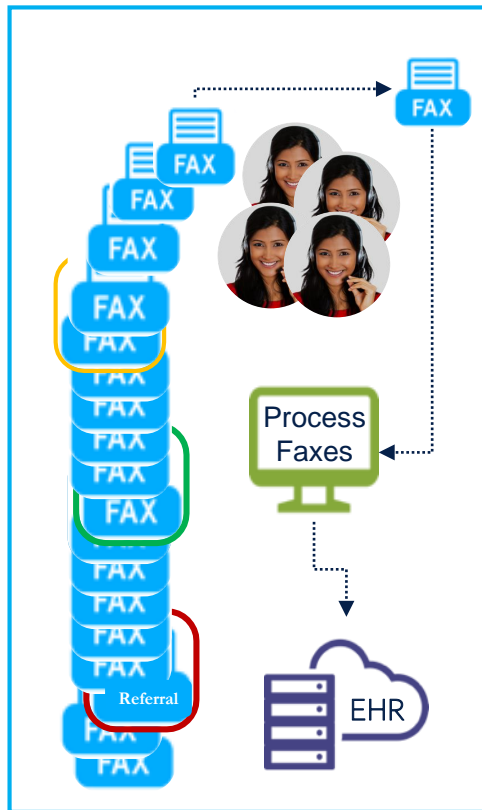
Patient Flow Capacity Suite (PFCS)

A Health System Patient Flow application (SaaS/cloud) that improves care coordination and patient transitions by combining patient insights, care needs and resource requirements to optimize care delivery at the right time, place and care setting

- Patient demand prediction including acuity
- Enterprise capacity
- Admission prioritzer
- ICU capacity management
- Acute care management
- Discharge optimizer

PHILIPS

Conclusion

Digital Transformation Checklist

- ☐ Reframe Problems with "How Might We"

- ☐ Organize Cross-Functional Teams Around Areas of Value

- ☐ Create Analytics That Capture and Illuminate the Patient Journey

- ☐ Think Outside-In, Not Inside-Out

- ☐ Leverage Analytics to Enable Segmentation, Personalization, & Equity

- ☐ Measure Key Process Metrics

- ☐ Experiment to De-risk

- ☐ Leverage AI for Your Boring Problems

- ☐ Enable a Difference in Kind, Not Degree

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