CAMPAIGNS AND OTHER TOOLS FOR IMPROVED HPV VACCINATION RATES

Yen-Chi Le, UTHealth Houston
Salim Rahimtoola, UTHealth Houston
Sandra Stansberry, UTHealth Houston

Presenters

Yen-Chi
Le

Salim
Rahimtoola

Sandra
Stansberry

Disclosures

The following speaker(s) have no relevant financial relationships with ineligible companies to disclose:

Yen-Chi Le

Salim Rahimtoola

Sandra Stansberry

UTHealth Houston
UT Physicians

UTHealth Houston | UT Physicians

Academic | Greater Houston area | Hyperdrive May 22

2 BEHAVIORAL HEALTH HOSPITALS	**100+** CLINICS	**2,000+** CLINICIANS
538 BH BEDS	**2 Million** OUTPATIENT VISITS	**1 Million** PATIENTS

UTHealth Houston is an academic university that includes McGovern Medical School, a behavioral health campus, and the clinical practice of UT Physicians (UTPhysicians.com). Founded in 1972, the university focuses on education, patient care for the whole family, and research.

UTHealth Houston
UT Physicians

Learning Objectives

1. Describe how Campaigns can ease implementing and tracking patient care gaps and outreach
2. Apply Epic tools (i.e., Healthy Planet's bulk communication, Campaigns, Cogito SQL) to implement a patient reminder and recall system
3. Describe how to incorporate a population defined with complex randomization into Campaigns

UTHealth Houston
UT Physicians

Agenda

XBM 2023

OVERVIEW

PROCESS

OUTCOMES & LESSONS LEARNED

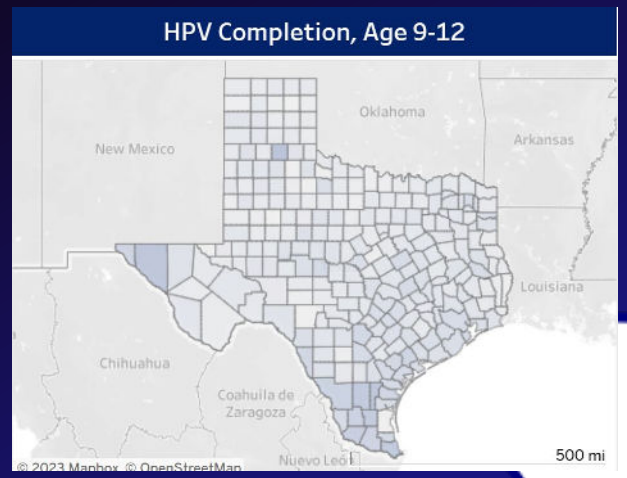
WHAT'S NEXT

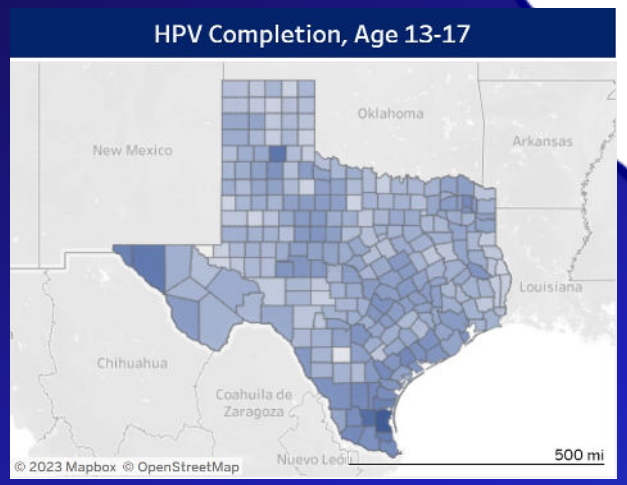
UTHealth Houston
UT Physicians

OVERVIEW

UTHealth Houston
UT Physicians

Challenge





2030
Healthy People Goal:

80% HPV Vaccine Coverage

In 2021,
Harris County

8.2% Ages 9-12
40.2% Ages 13-17

UTHealth Houston
UT Physicians

Overview

Research project using a pragmatic, stratified randomization to increase HPV vaccination for patients 9-26 years of age via electronic reminders

Aims:

1. Use Campaigns to improve HPV vaccination rates among target patients

2. Optimize reminder and recall systems for providers and patients

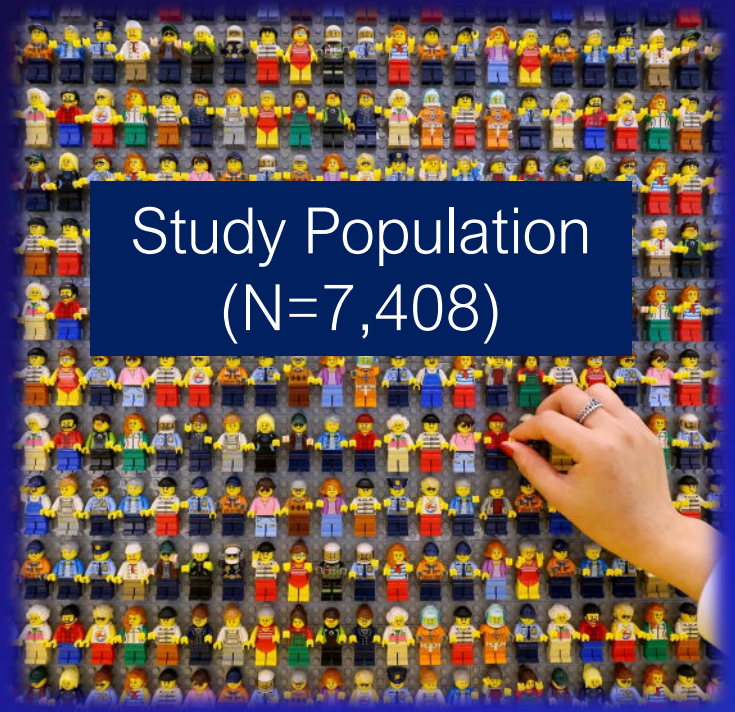
3. Compare vaccination and scheduling rates among Campaign and non-Campaign patients

Reference: Hanley, K., Chung, T. H., Nguyen, L. K., Amadi, T., Stansberry, S., Yetman, R. J., Foxhall, L. E., Bello, R., Diallo, T., & Le, Y. L. (2023). Using Electronic Reminders to Improve Human Papillomavirus (HPV) Vaccinations among Primary Care Patients. Vaccines, 11(4), 872. https://doi.org/10.3390/vaccines11040872

EpicShare: **Closing Preventive Care Gaps and Improving Population Health with Automated Outreach**

UTHealth Houston
UT Physicians

Overview
Study Design



Usual Care
(N=3,703)

Intervention
(N=3,705)

Stratified randomization:

- Age
- Vaccine status
- Sex
- Clinic Location

UTHealth Houston
UT Physicians

Overview
Study Design

Usual care (control):

- in-person, provider recommendation
- visual reminders in rooms
- bundling of vaccinations/opt-out
- pre-visit phone call
- standing orders (some clinics)

Intervention group:

- usual care (as described)
- up to 3 personalized electronic reminders with physician recommendation and brief education

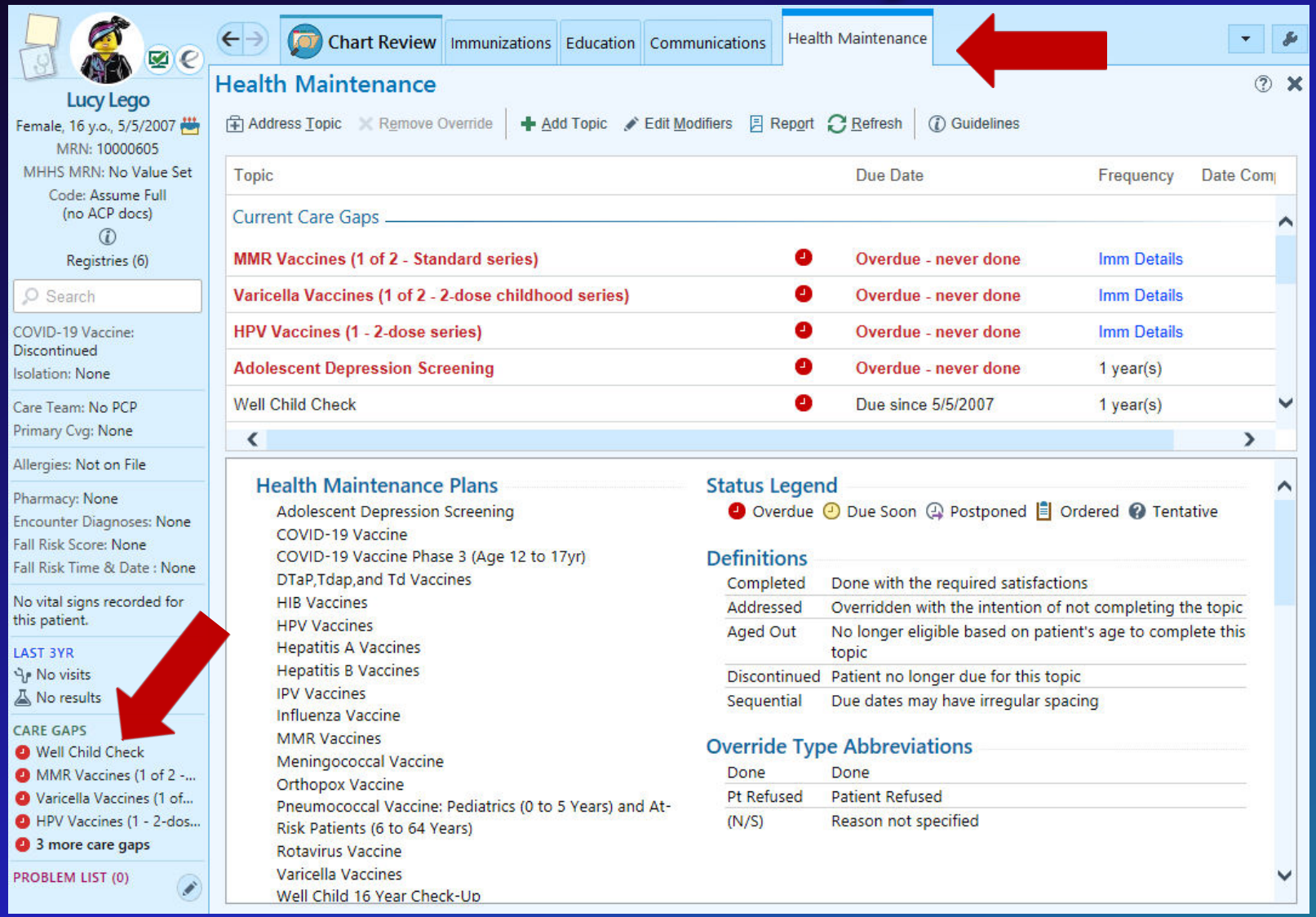
SMS

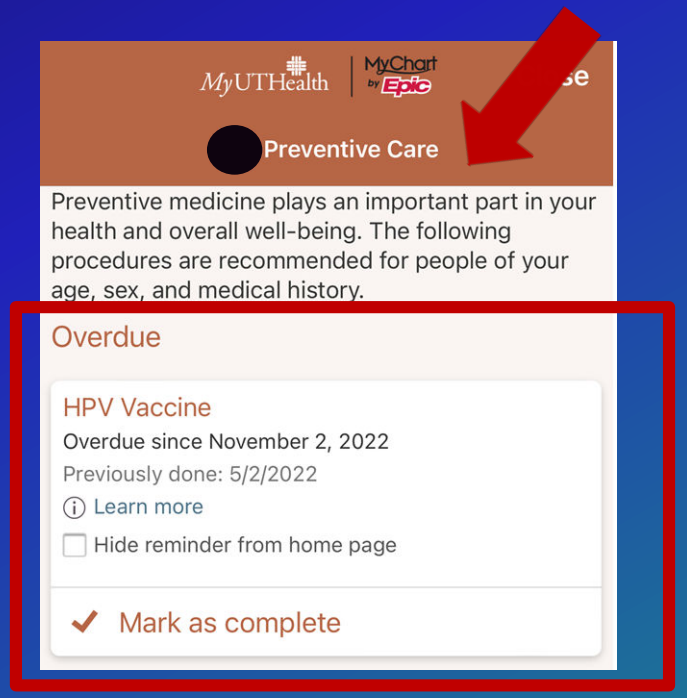
Email

Patient Portal

UTHealth Houston
UT Physicians

Usual Care
Health Maintenance; MyChart





UTHealth Houston
UT Physicians

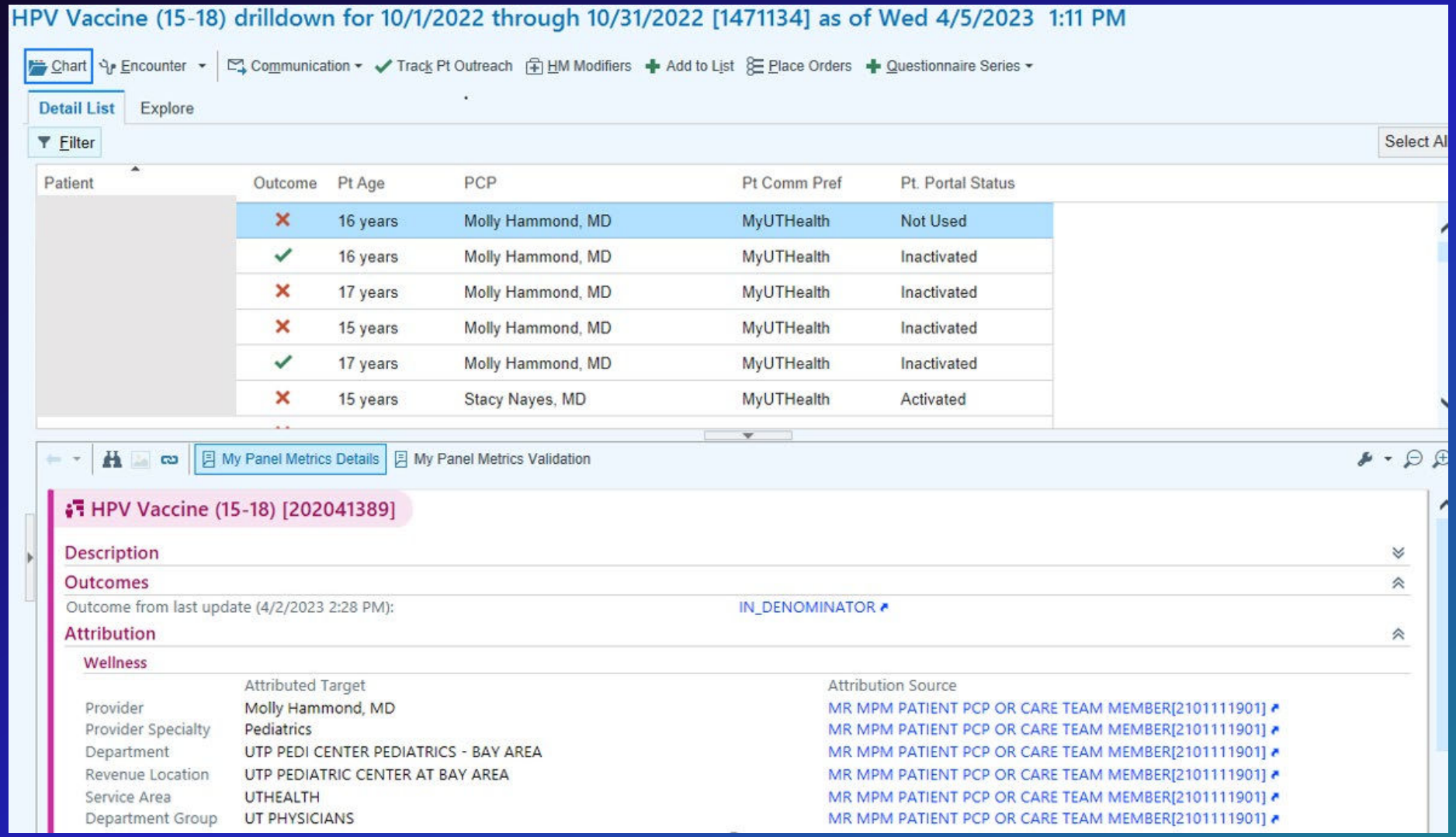
Usual Care
My Panel Metrics – Custom Dashboard

Pediatric Primary Care

	Oct 22	Nov 22	Dec 22	Jan	Feb	Mar	YTD
Childhood Immunization Status	32 %	31 %	32 %	34 %	33 %	35 %	35 %
Immunization for Adolescents	37 %	37 %	37 %	41 %	41 %	41 %	42 %
Tobacco Use and Help with Quitting Among Adolescents	63 %	63 %	65 %	45 %	48 %	50 %	51 %
HPV Vaccine (9-10)	4 %	5 %	5 %	1 %	1 %	2 %	2 %
HPV Vaccine (11-14)	51 %	52 %	53 %	44 %	45 %	46 %	46 %
HPV Vaccine (15-18)	62 %	62 %	63 %	65 %	65 %	65 %	65 %
HPV Vaccine (18-26)	35 %	35 %	35 %	42 %	41 %	41 %	41 %

UTHealth Houston
UT Physicians

Usual Care
Patient List at Department Level



UTHealth Houston
UT Physicians

Usual Care

Custom RWB: MPM Next Appointment Gap List

HTI MPM Next Appointment Gaplist [1471171] as of Wed 4/5/2023 1:22 PM

Chart | Expand | Appts | Check In | Check Out | Change | EOD | Referrals | FYI | Open All Rfls | Create Subset

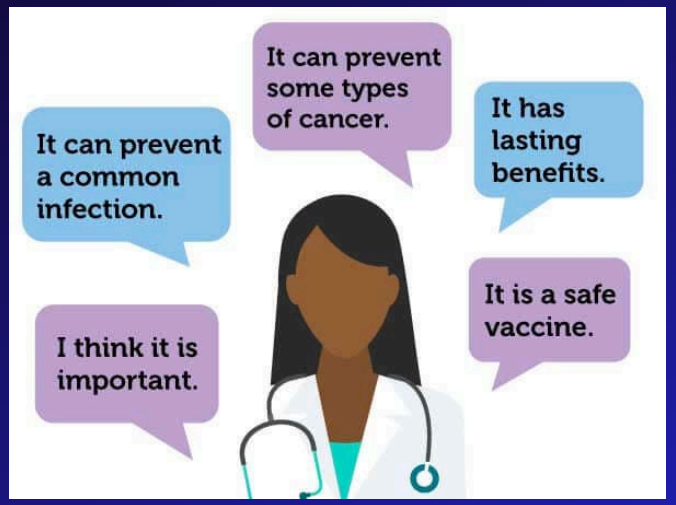
Detail List | Explore | Summary

Filter

MRN	Patient	PCP	bacco	Pedi BMI Measurement	Pedi Nutrition Counseling	Pedi Physical Activity Counseling	HPV 15-18	Childhood Imms	Adolescent Imms
		Michelle Barratt, MD MPH							
		Kristine O'Connor, MD					✓		
		Holly Dawn Smith, MD		✓	✗	✗	✓		
		Robert Yetman, MD					✗		
		Michelle Barratt, MD MPH		✓	✗	✗			
		Kimberly Smith, MD					✓		

UTHealth Houston
UT Physicians

Intervention – Campaigns
Evidence-based Custom Messaging



	Patients > 18 years old	Patients 18+ years
First	Dr. Yetman recommends Jane complete their HPV vaccination to prevent cancers caused by HPV. To schedule, https://www.utphysicians.com/appt. Reply OK to confirm receipt.	John: Dr. Foxhall recommends you complete your HPV vaccination to prevent cancers caused by HPV. To schedule, https://www.utphysicians.com/appt. Reply OK to confirm receipt.

UTHealth Houston
UT Physicians

Agenda

XBM 2023

CHALLENGE & OVERVIEW

PROCESS

OUTCOMES & LESSONS LEARNED

WHAT'S NEXT

UTHealth Houston
UT Physicians

PROCESS

UTHealth Houston
UT Physicians

Process
Project Timeline

Phase 1

Start: May 11, 2022

3,061 total

- SMS message (N=1,006)
- Patient Portal Message (N=653)
- Email (N=1,362)

Phase 2

Start: June 11, 2022

2,741 total

- SMS message (N=911)
- Patient Portal Message (N=599)
- Email (N=1,231)

Phase 3

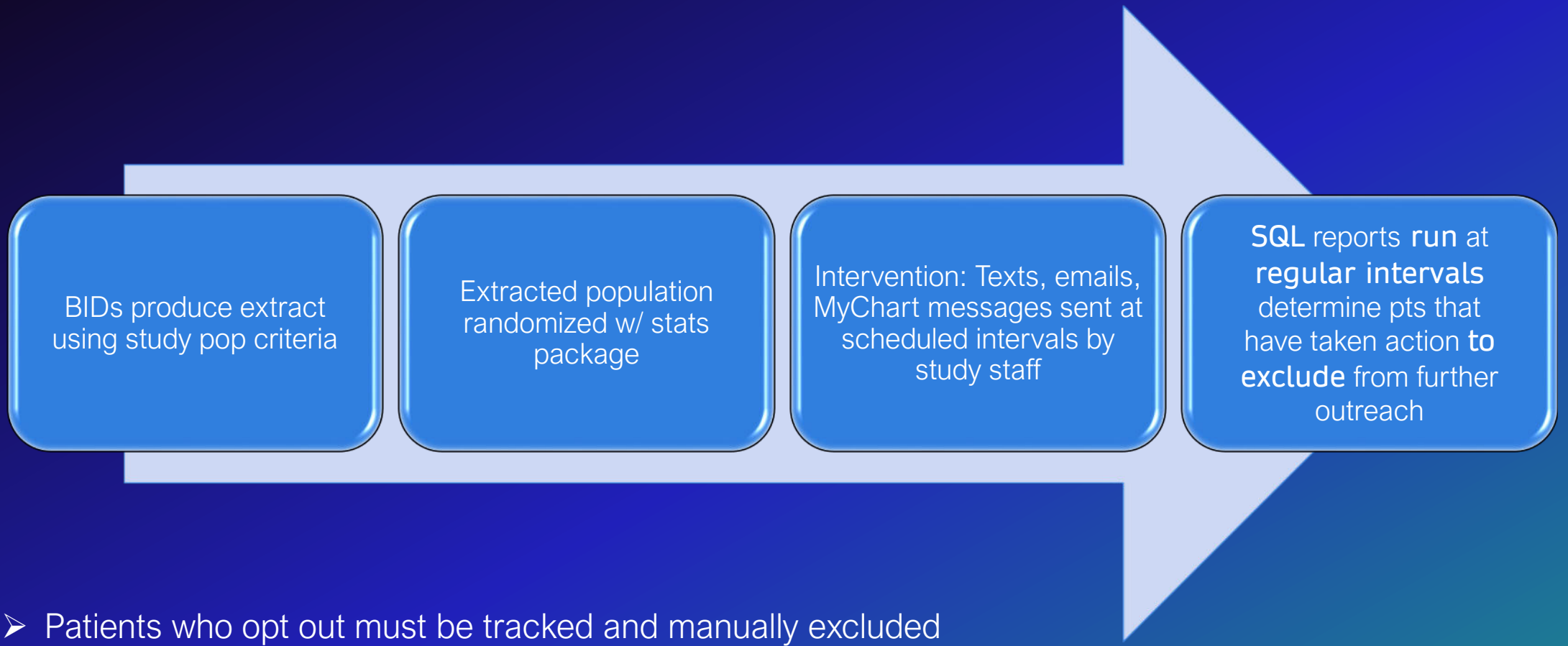
Start: July 11, 2022

2,566 total

- SMS message (N=859)
- Patient Portal Message (N=563)
- Email (N=1,114)

UTHealth Houston
UT Physicians

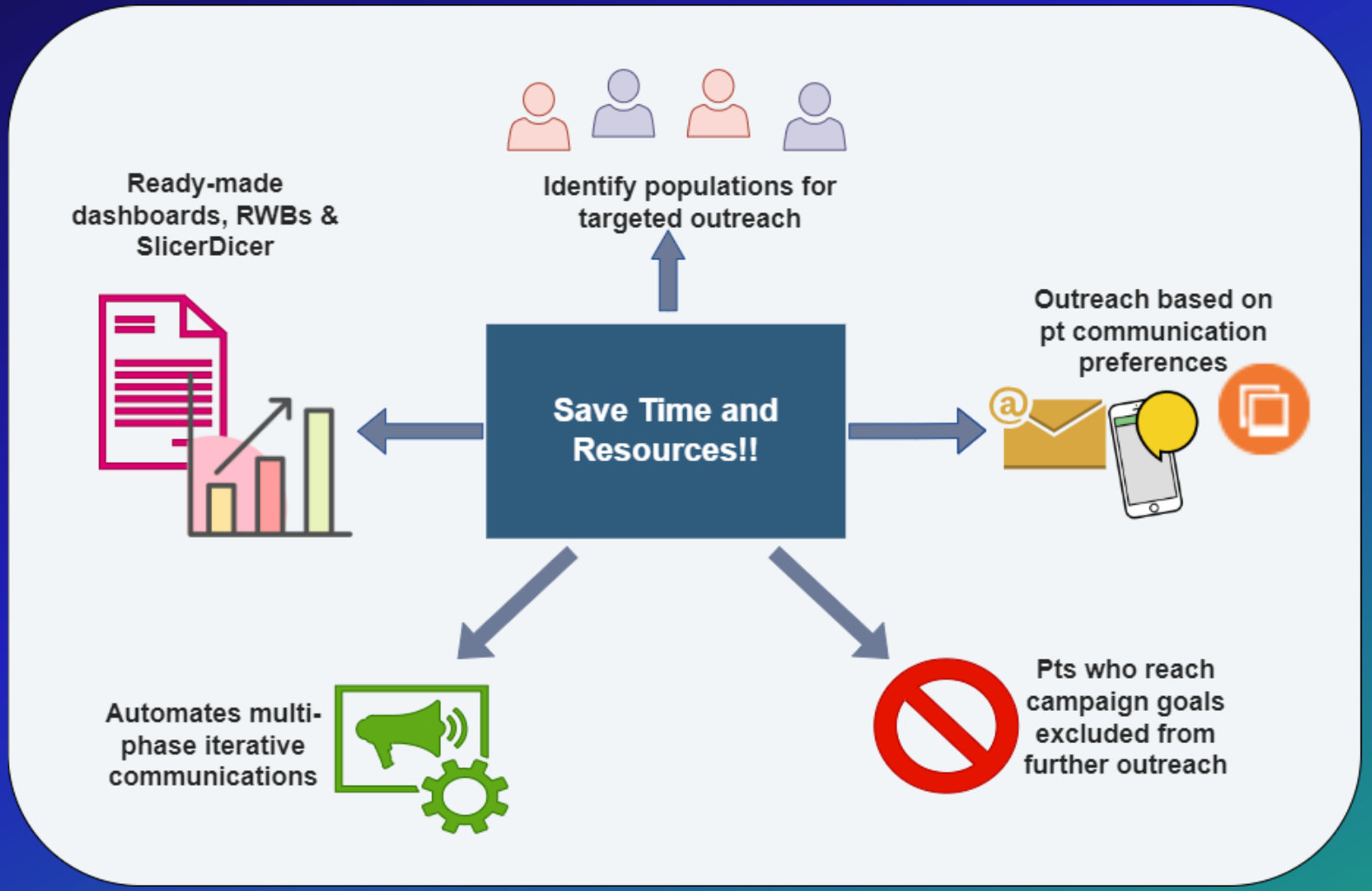
Process – If Campaigns Didn't Exist



- Patients who opt out must be tracked and manually excluded
- Monitoring by leadership/study staff on custom dashboards & RWB reports built by BIDs

UTHealth Houston
UT Physicians

Process
Why Campaigns?



UTHealth Houston
UT Physicians

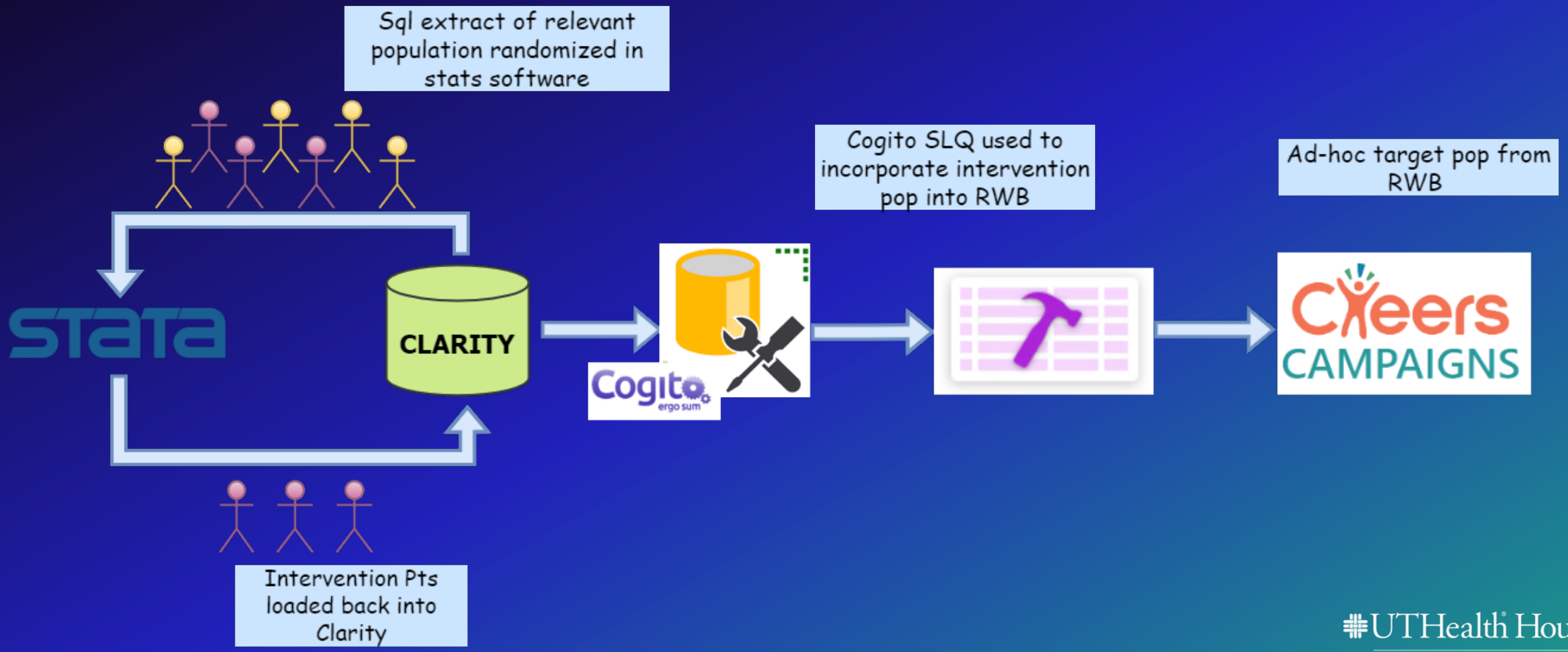
Process
Target Population

Target **Population** = Intervention Arm of study

Campaigns can generate the entire population but cannot randomize. All patients meeting criteria would receive outreach

UTHealth Houston
UT Physicians

Process
Target Population using Cogito SQL



UTHealth Houston
UT Physicians

Process
Target Population using Cogito SQL

HPV Text Messaging [100184]

View Only | Preview

- Snapshot
- Basic Information
- Query Template
  - Parameters
  - **SQL Query**
- User Interface
  - Parameters
- Viewer
  - Columns
  - Actions

RDBMS Platform

(•) SQL Server

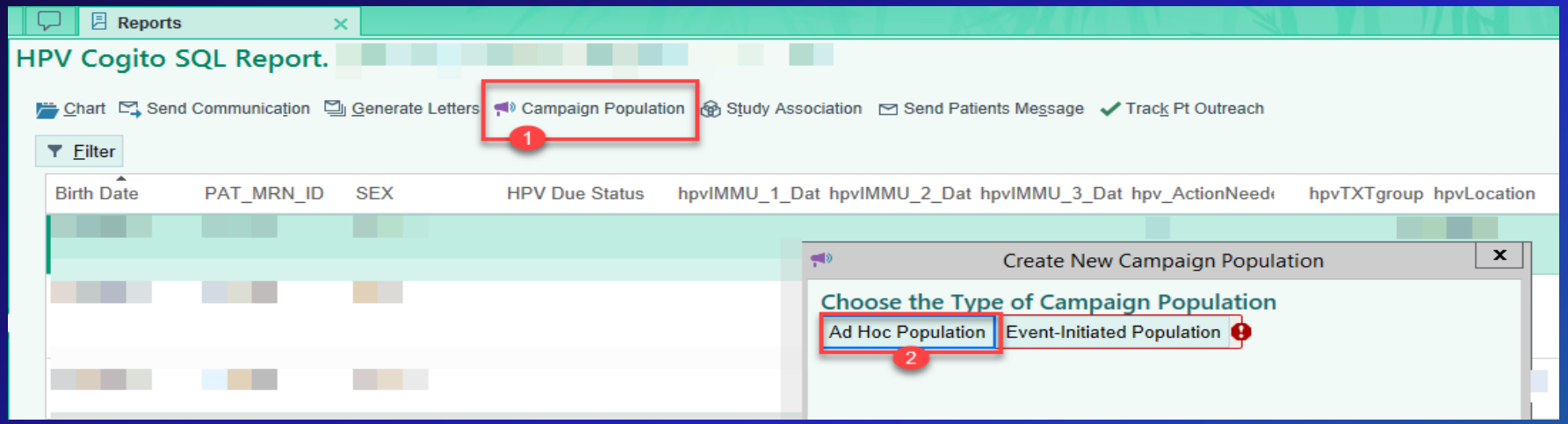
Parameters

SQL Script

```
USE CLARITY

--*************************************************************************************************************************
        --Script contains analysis to identify eligible patients for hpv study
        --It continues from HPV target pop file. Enable sqlcmd mode to make temp tables from target pop script available
        --Differs a bit from HPV sql measure. For instance, we are exluding any patients that have a documented refusale
--*************************************************************************************************************************


--*****************************************
--FROM SQL SCRIPT PART 2
--*****************************************
--DECLARE DATES (Commented out here, since using target pop code and dates already declared in that file)
        DEClare @MeasureStart date = '2021/01/01'
        declare @MeasureEnd date = DATEADD(YEAR, 1, @MeasureStart)
        decl    @CurrYr date = '01/01/2022'

--Set date values
        set  @MeasureStart  = '01/01/2021'
        set @MeasureEnd  = DATEADD(YEAR, 1, @MeasureStart)

--Target population Table
if object_id ('tempdb..#temp_pop') <> 0 drop table #temp_pop
        SELECT
                cast(PAT_MRN_ID as varchar(max)) as PAT_MRN_ID,
                PAT_NAME,
                PtDoB as BIRTH_DATE,
                AgeGroup,
                SEX,
                Ethnic_Group,
                LOC_NAME,
                AttrProviderName,
                newloc_name,
                [status],
                [group],
                txt
        into
                #temp_pop
        FROM
                UTHTI.tbl_HTI_RPT_C1_389_HPVList


--Segment by age group.
```

Intervention group uploaded into Clarity DB

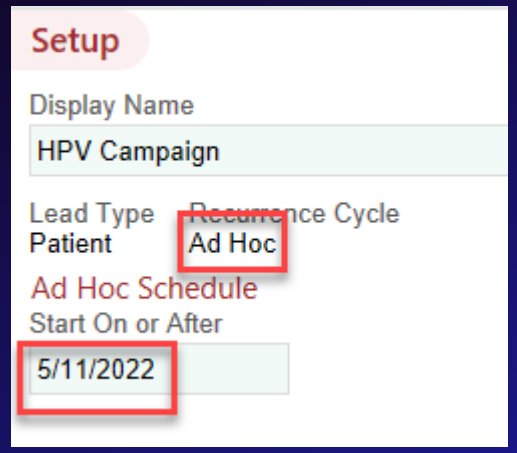
Process
Target Population using SQL Workbench report



- Select patients > Campaign population > Ad-hoc Population

UTHealth Houston
UT Physicians

Process – Campaign Set-up

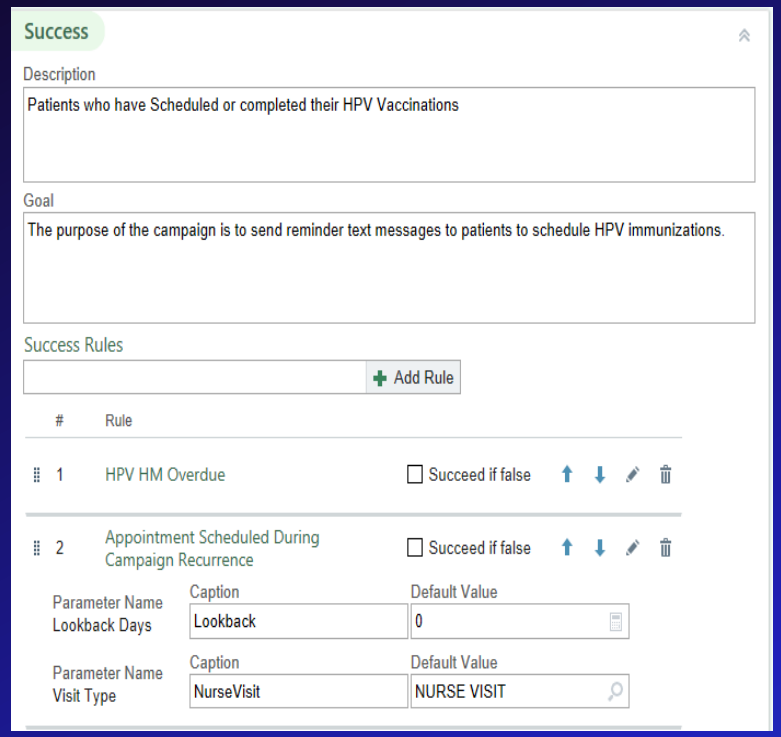


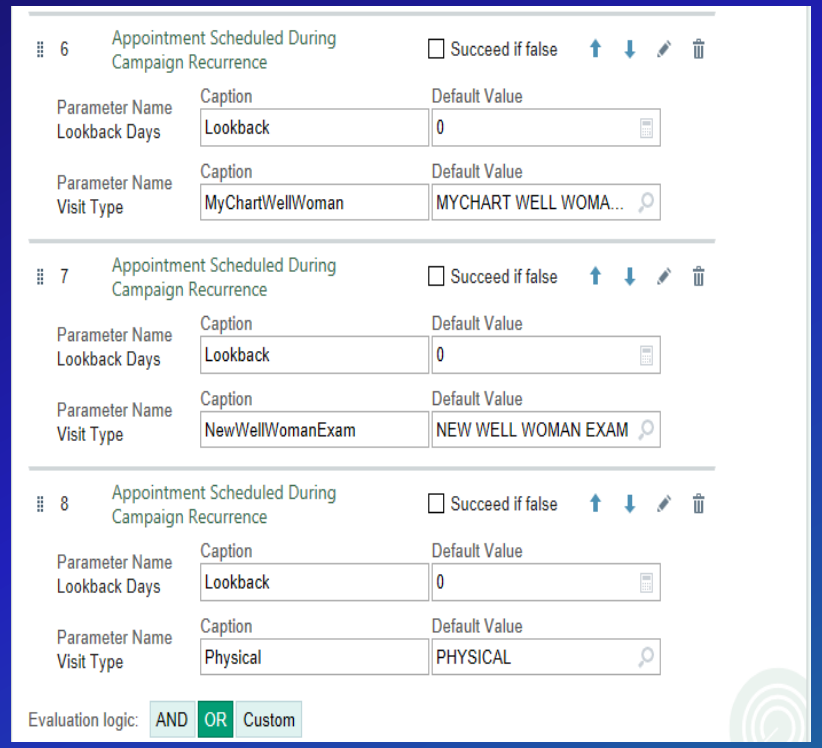
- Ad Hoc > Start date

- Ad Hoc Populations > Select target population

UTHealth Houston
UT Physicians

Process – Campaign Set-up

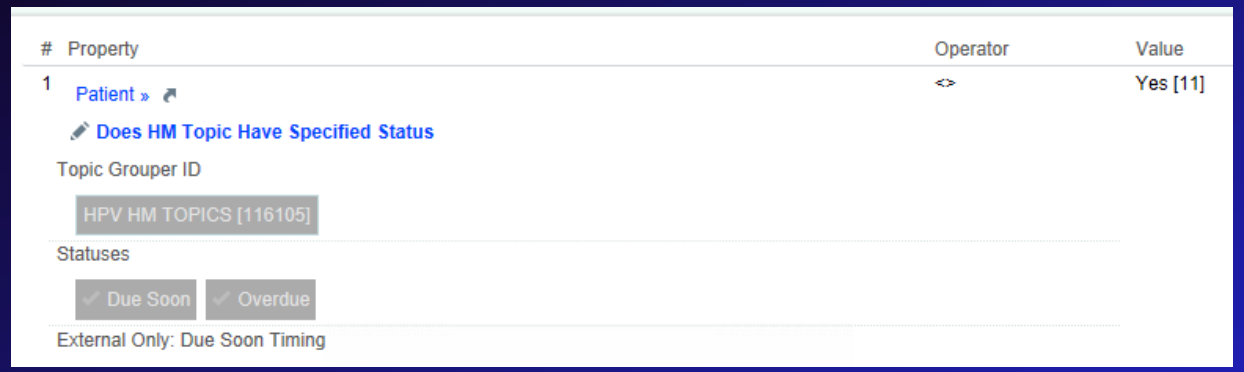


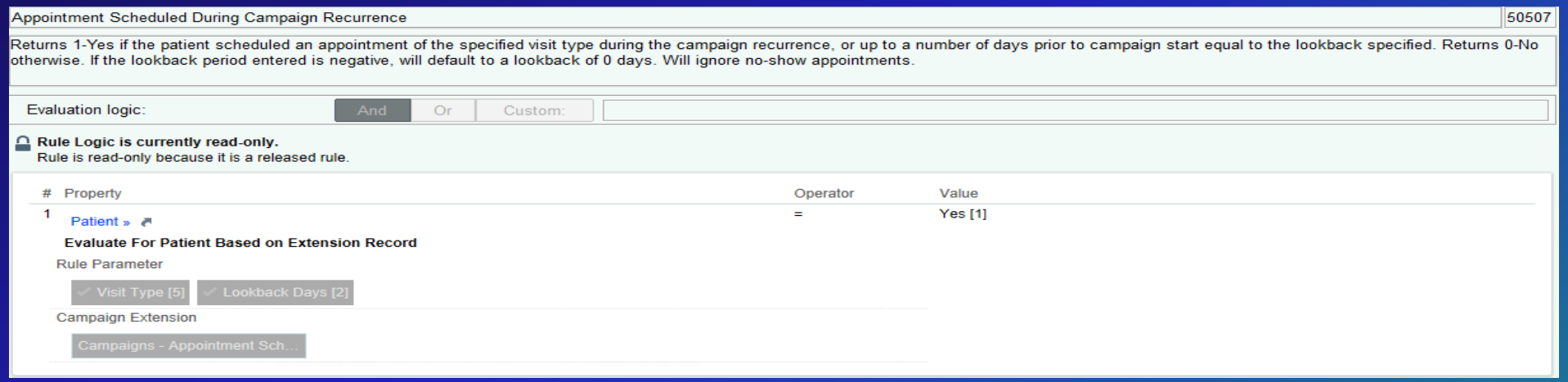


- Campaign Success > Success rules

UTHealth Houston
UT Physicians

Process – Campaign Set-up



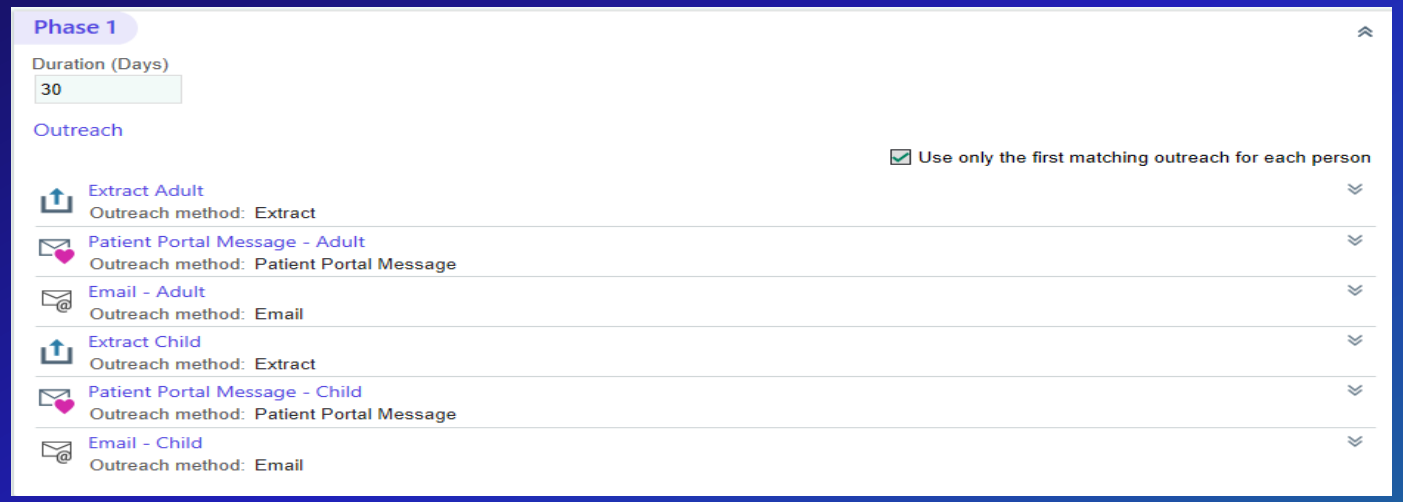


- Campaign Success > Success rules

UTHealth Houston
UT Physicians

Process – Campaign Set-up

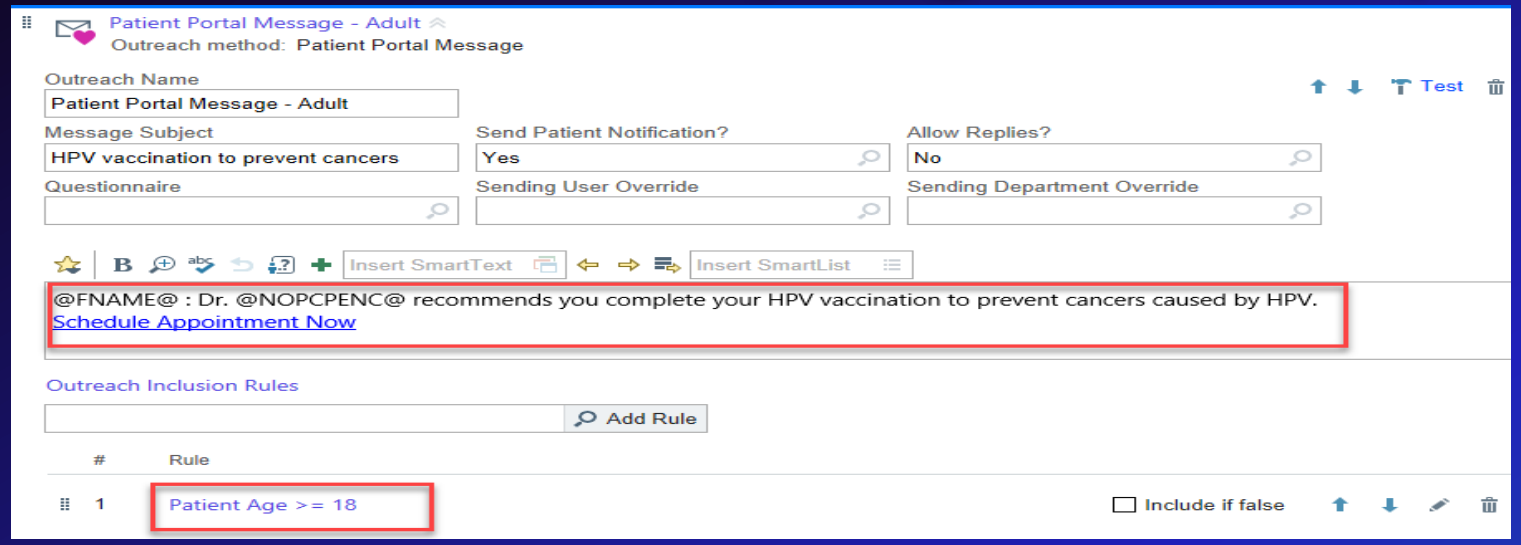
- Stop Outreach > Stop Outreach rule



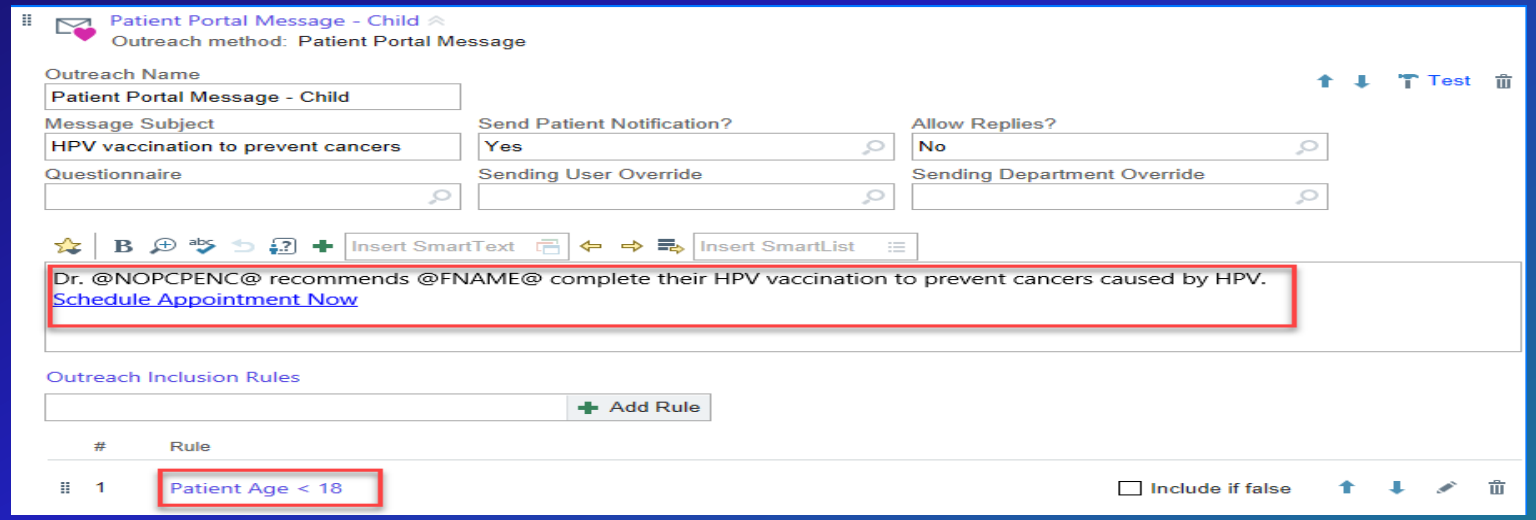
- Outreach Phase > Outreach types

UTHealth Houston
UT Physicians

Process – Campaign Set-up

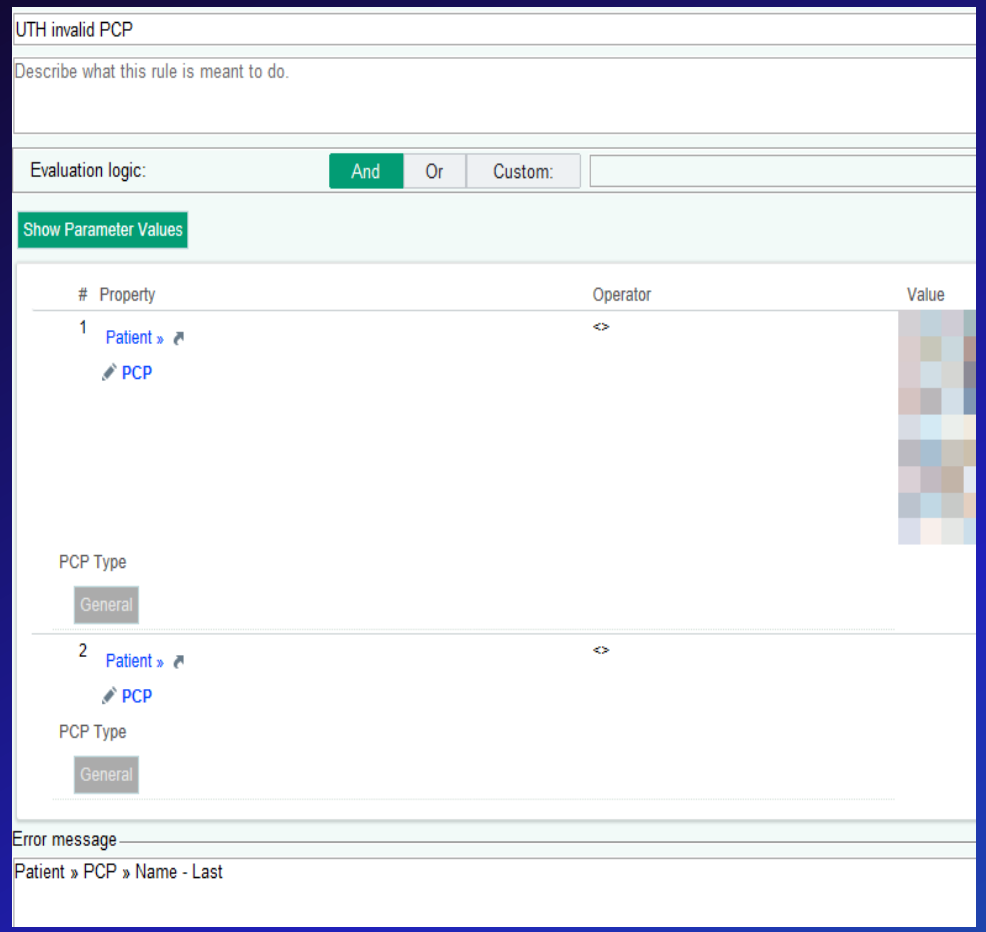


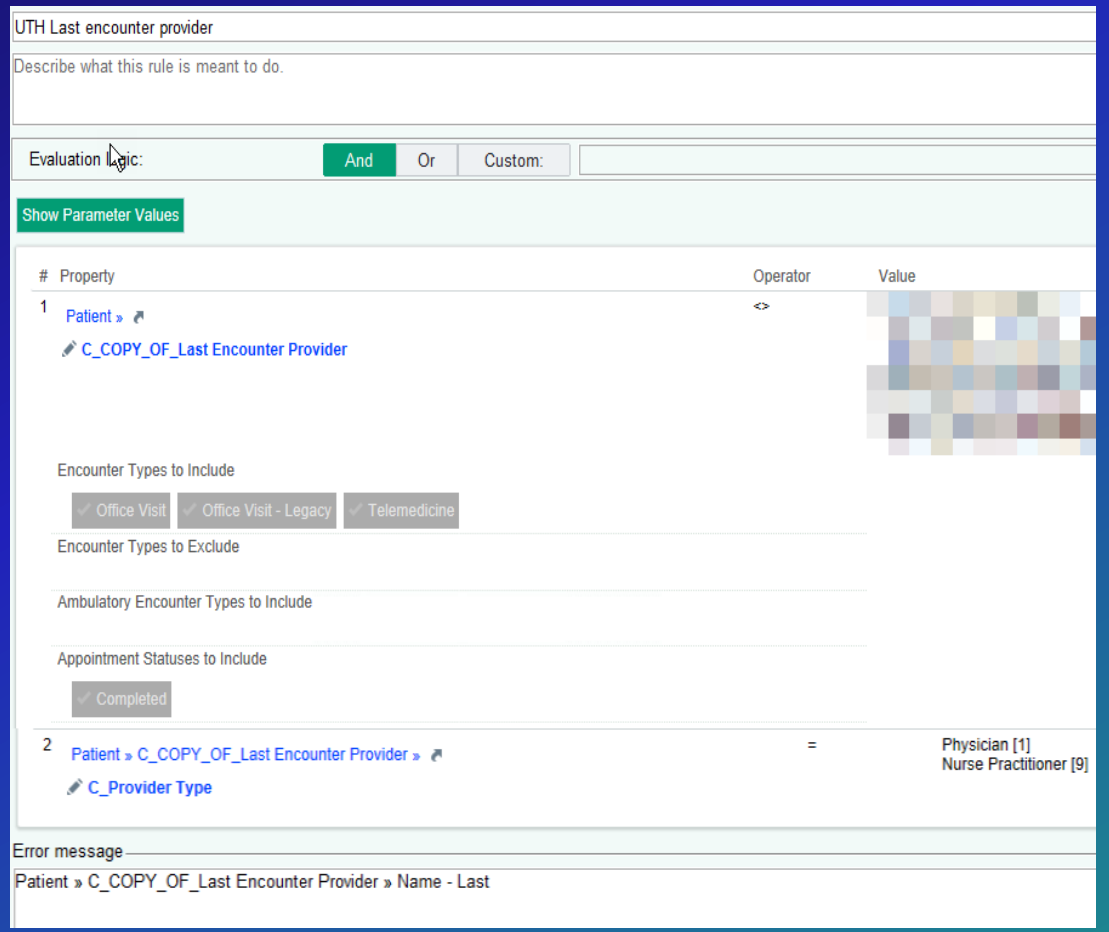
- Outreach > Outreach rule



UTHealth Houston
UT Physicians

Process
Campaign Set-up

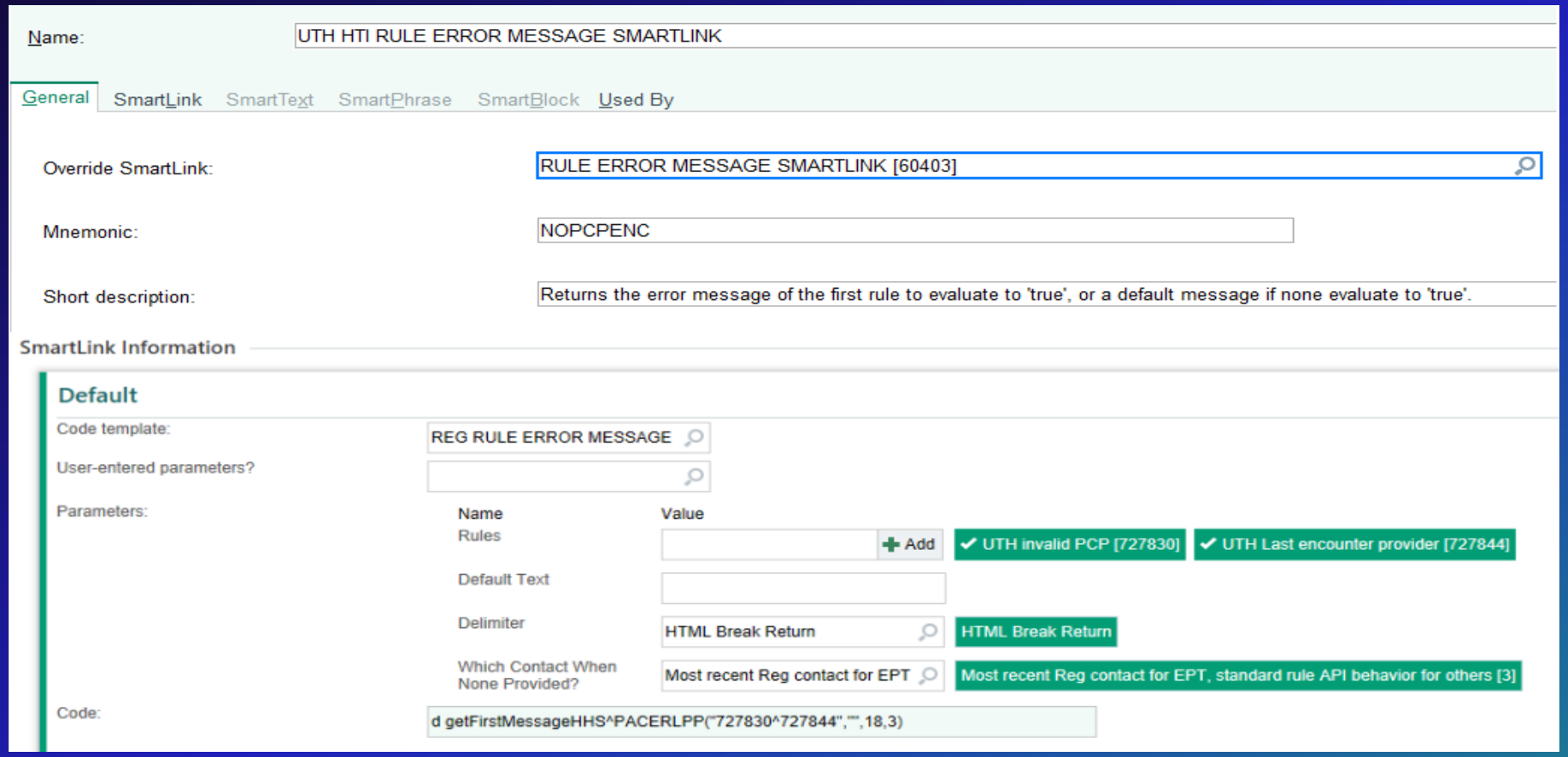




- Outreach > Outreach rule

UTHealth Houston
UT Physicians

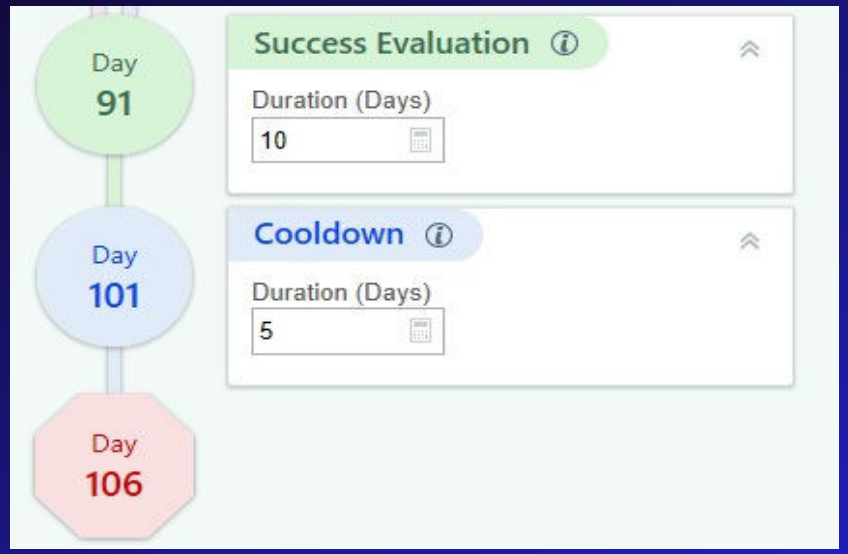
Process
Campaign Set-up



- Outreach > Smartlink

UTHealth Houston
UT Physicians

Process
Campaigns set up



- Success Evaluation and Cool Down

UTHealth Houston
UT Physicians

Agenda

XBM 2023

CHALLENGE & OVERVIEW

PROCESS

OUTCOMES & LESSONS LEARNED

WHAT'S NEXT

UTHealth Houston

UT Physicians

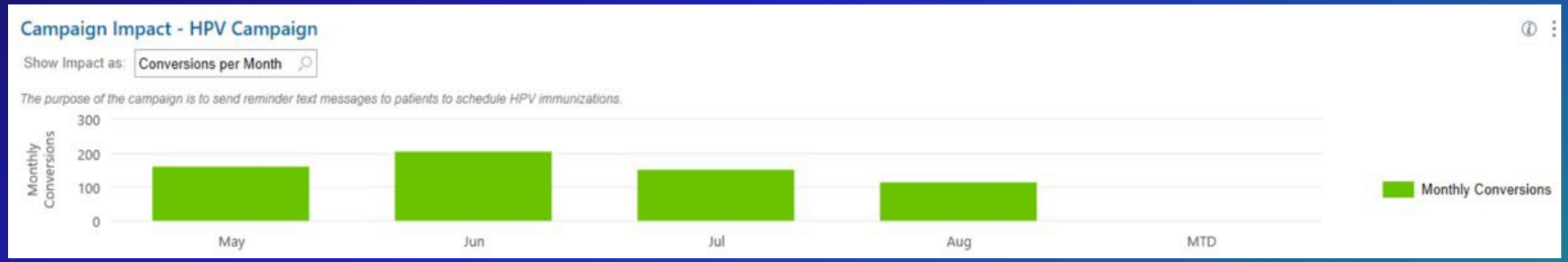
OUTCOMES

UTHealth Houston
UT Physicians

Outcomes: Target Population at Baseline

Baseline Characteristics	Campaigns (N=3,705) N (%)	Usual Care (N=3,703) N (%)	P-value
Age			0.689
9-14	1,511 (40.78)	1,535 (41.45)	
15-18	721 (19.46)	693 (18.71)	
19-25	1,473 (39.76)	1,475 (39.83)	
Sex			0.942
Male	1,676 (45.24)	1,672 (45.15)	
Female	2,029 (54.76)	2,031 (54.85)	
Vaccine Status			0.834
Not initiated	2,542 (68.61)	2,549 (68.84)	
Initiated	1,163 (31.39)	1,154 (31.16)	
Race/Ethnicity			0.176
Non-Hispanic White	865 (23.35)	939 (25.36)	
Non-Hispanic Black	955 (25.78)	962 (25.98)	
Hispanic	911 (24.59)	874 (23.60)	
Other/Unknown	974 (26.29)	928 (25.06)	
Insurance			0.134
Medicaid	1,317 (35.55)	1,337 (36.11)	
Private (managed Care)	2,014 (54.36)	2,049 (55.33)	
Uninsured	338 (9.12)	291 (7.86)	
Other	36 (0.97)	26 (0.70)	

Outcomes
Campaigns Successes



UTHealth Houston
UT Physicians

Outcomes
Scheduling, Visits, and Additional Doses

HPV outcomes	Electronic Reminder (N=3,705)			Usual Care (N=3,703)
	N (%)	Adjusted OR (95% CI**)	P-Value	N (%)
Appointment Scheduling	752 (20.3)	1.12 (1.00, 1.26)	0.056	700 (18.9)
Clinic Visit	423 (11.42)	1.07 (0.94, 1.23)	0.300	419 (11.32)
All additional HPV Vaccination(s)	450 (12.15)	1.17 (1.01, 1.36)	0.036	402 (10.86)

Multiple logistic regression* analysis results of HPV outcomes

UTHealth Houston
UT Physicians

Outcomes
Vaccination Initiation and Completion

	Electronic Reminder (N=2,529)			Usual Care (N=2,538)
	N (%)	Adjusted Odds Ratio (95% CI**)	P-Value	N (%)
HPV vaccine initiation rate	206 (8.15)	1.22 (0.98, 1.51)	0.076	181 (7.13)
	Electronic Reminder (N=3,705)			Usual Care (N=3,703)
	N (%)	Adjusted Odds Ratio (95% CI**)	P-Value	N (%)
HPV vaccine completion rate	225 (6.07)	1.12 (0.90, 1.38)	0.302	207 (5.59)

Subgroup vaccination outcomes

UTHealth Houston
UT Physicians

LESSONS LEARNED

UTHealth Houston
UT Physicians

Lessons Learned

- Learning new things takes more time than expected...Cogito SQL
- Is governance needed for contacting patients?
  - Whose patients: yours, mine or ours?
  - Proxy and adolescent access to MyChart
- Campaigns automated some things but not all things...
  - Text messages were done via extract and third party
  - No embedded opt-out for emails
  - Ability to do complex randomization in CER rules and SlicerDicer.

UTHealth Houston
UT Physicians

Lessons Learned

- Active Campaigns
  - **Preventive:** Annual Well Child Check -up
  - **Alternate Treatment:** Hypoglossal Nerve Stimulation for Patients with Sleep Apnea
  - **Patient Access:** Adolescent to Adult MyChart Access
- Campaigns in Development
  - **Preventive:** Annual Wellness Visit for Patients with Medicare
  - **Alternate Treatment:** Treatment Options for Patients with Rhinitis
  - **Patient Access:** MyChart Activation for <18

UTHealth Houston
UT Physicians

Agenda

XGM 2023

CHALLENGES & OVERVIEW

PROCESS

OUTCOMES & LESSONS LEARNED

WHAT'S NEXT

UTHealth Houston

UT Physicians

WHAT'S NEXT

UTHealth Houston
UT Physicians

What's Next – Cheers Roadmap (as of April 2023)

Cheers	Available Today	Underway	Future
Offer Personalized Points of Contact Designs customer service experiences that make conversations feel familiar and valuable. Current Maturity: Adequate	● Maintain Comprehensive Call Records ★ Present 360-Degree Caller Information ● Personalize Calls Through Telephony Integration ★ Automatically Assign Follow-up Tasks ● Report on Contact Center Operations ★ Operate from a Flexible Call Hub ◐ Connect Agents to Provider Finder ● Recommend Next Best Actions	● Guide Continuous Improvement from the Agent Home ● Operate an Omnichannel Communication Hub ● Enhance Customer Service with Live Chat ● Create Providers on the Fly ★ Simplified Call Center Scheduling	● Cultivate Relationships with Provider, Donors, and Volunteers ● Chat Bots ● Satisfaction Surveys + Service Recovery ● CRM SlicerDicer Data Model ● Take Next Best Actions Beyond the Contact Center ◐ Dynamic Next Best Action Prioritization
Drive Outreach Campaigns Automate timely, targeted outreach to keep patients and prospective patients engaged with your organization, deliver relevant information, and enhance the health and wellness of your communities. Current Maturity: Adequate What's not planned?	● Automate and Personalize Outreach ● Send Outreach Through Patients' Preferred Channels ● Simulate Campaigns ● Control the Amount and Timing of Your Communication ● Embed Questionnaires in Your Outreach ● Measure and Monitor the Effectiveness of Your Campaigns	● Reach Out Through Epic SMS ● Identify and Attract Prospective Patients ● Monitor Campaigns with Even Greater Precision ● Analyze Patient Acquisition Trends ● Learn from Online Forms	● Reach out through Epic Email ● Welcome Patients with Personalized Microsites ● Better Measure Campaign ROI & Downstream Health Outcomes ● Model Outreach Propensity ● Enable Campaigns for Utility Servers ● Outreach Beyond Patients ★ Automate Care Companion Campaigns

What's Next - Considerations

- Additional features for outreach now available
  - Hello World SMS platform (Feb 2023 via Nebula)
  - Opt-out of individual campaigns vs communication concept / method. - (Feb 2023)
- Epic Cheers
- Developer collaboration on new features
  - Complex randomization options
  - Additional recurrence options

UTHealth Houston
UT Physicians

Acknowledgements

Care Teams:
Veronica Martinez, CHW Supervisor

Epic TS:
Austin Sailing
Nicole Jain
Lizzie Koptik
Noah Brennick
Alina Yan

Epic UTHealth:
Brittney Townsend, RN
Carrie De Los Santos
Rajesh Dikonda
Victoria Egbetokun

Providers/Clinical Staff:
Olasunkanmi Adeyinka, MD
Sarah Cavenaugh, MD
Christina Fok, MD
Robert Yetman, MD

HTI Analytics:
Tochi Amadi, MPH
Jordan Godfrey-Stovall
Sandra Stansberry, MPH
Kathleen Hanley, PhD
Tong Han Chung, PhD
Linh Nguyen, PhD
Isaac Mancillas
Hannah Reygaerts, MPH

School of Biomedical Informatics:
Todd Johnson, PhD

Funding
The UTHealth Academic Excellence Endowment and donors to The University of Texas MD Anderson Cancer Center's Annual Fund

Q&A

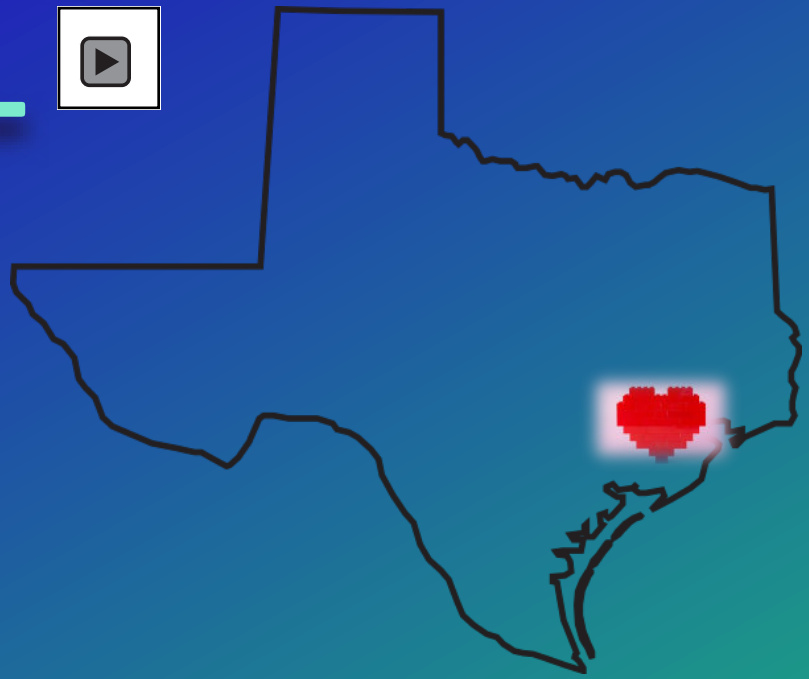
CONTACT

Yen-Chi Le
Director, Innovation & Evaluation
Yen-Chi.L.Le@uth.tmc.edu

Salim Rahimtoola
UTHealth Epic Application Manager
Salim.Rahimtoola@uth.tmc.edu

Sandra Stansberry
Assistant Director, Innovation & Analytics
Sandra.Stansberry@uth.tmc.edu

UTHealth Houston
UT Physicians

XGM 2023

THANKS Y'ALL