



**T1D**  
*Exchange*

**BPA-TECH Project Kickoff  
Meeting  
August 13, 2024**

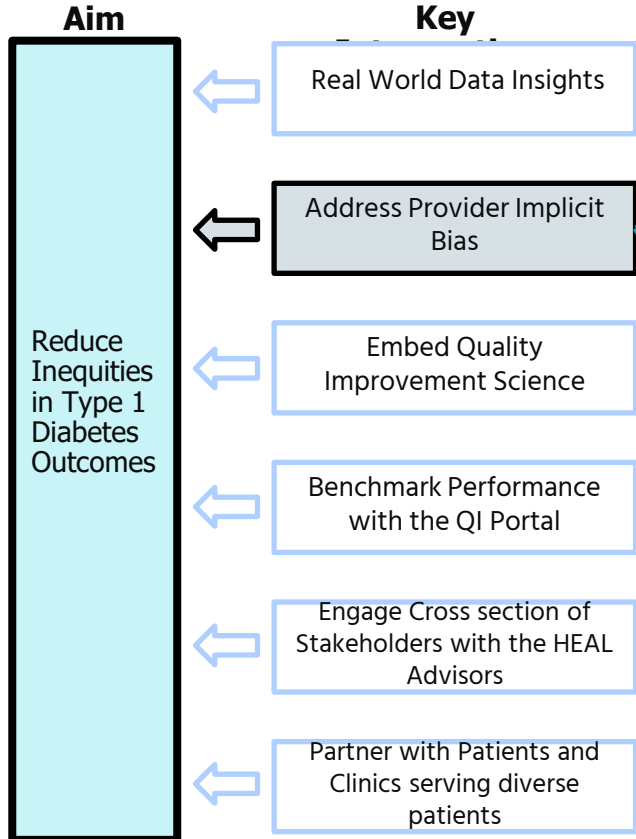
# Agenda

- Welcome
- Background
- Participating centers share brief overview of BPA process
- Project overview
- Timeline
- Coordinating centers' updates
- Deliverables/next steps
- Questions/feedback



# Background

# T1D Exchange Approach to Health Equity



## Implicit Racial–Ethnic and Insurance-Mediated Bias to Recommending Diabetes Technology: Insights from T1D Exchange Multicenter Pediatric and Adult Diabetes Provider Cohort

Ori Odugbesan, MD, MPH,<sup>1,\*</sup> Ananta Addala, DO, MPH,<sup>2,\*</sup> Grace Nelson, MD,<sup>3</sup> Rachel Hopkins, MD,<sup>4</sup> Kristina Cossen, MD,<sup>5</sup> Jessica Schmitt, MD,<sup>6</sup> Justin Indyk, MD, PhD FAAP,<sup>7</sup> Nana-Hawa Yayah Jones, MD,<sup>8</sup> Shivani Agarwal, MD, MPH,<sup>9</sup> Saketh Rompicherla, MS,<sup>1</sup> and Osagie Ebekoziem, MD, MPH<sup>1</sup>

TABLE 3. UNADJUSTED ODDS RATIO FOR RACE/ETHNICITY-MEDIATED AND INSURANCE-MEDIATED PROVIDER BIAS

	<i>Insurance bias</i>	P	<i>Race/ethnicity bias</i>	P
Age	1.03 (0.99, 1.08)	0.06	0.99 (0.96, 1.04)	0.9
Race/ethnicity (NH White)	1.11 (0.48, 2.52)	0.8	0.76 (0.32, 1.79)	0.5
Clinic type (adult)	1.29 (0.56, 3.05)	0.5	1.09 (0.45, 2.53)	0.8
Practice years	<b>1.08 (1.02, 1.16)</b>	<b>0.02<sup>#</sup></b>	1.00 (0.95, 1.06)	0.8
Recognize own bias (agree/strongly agree)	1.54 (0.66, 3.57)	0.3	<b>5.25 (1.83, 19.01)</b>	<b>0.004<sup>#</sup></b>

<sup>#</sup>P-value <0.05.

Bold values indicate statistical significance.

Odugbesan, O., Addala, A., Nelson, G., Hopkins, R., Cossen, K., Schmitt, J., Indyk, J., Jones, N. Y., Agarwal, S., Rompicherla, S., & Ebekoziem, O. (2022). Implicit Racial–Ethnic and Insurance-Mediated Bias to Recommending Diabetes Technology: Insights from T1D Exchange Multicenter Pediatric and Adult Diabetes Provider Cohort. *Diabetes Technol Ther.* <https://doi.org/10.1089/dia.2022.0042>

# Opportunities to reduce waste in the health system.



**FIGURE 1-1 Schematic of the health care system today**

Best Care at Lower Cost: The Path to Continuously Learning Health Care in America. Committee on the Learning Health Care System in America; Institute of Medicine; Smith M, Saunders R, Stuckhardt L, et al., editors. Washington (DC): [National Academies Press \(US\)](https://www.nationalacademies.org); 2013 May 10.



**Higher baseline HbA1c > 8.3%**

**Combinations of QI strategies**      **Post-intervention mean<sup>a</sup> HbA1c (95% CrI)<sup>d</sup>**      **Absolute mean difference**

**Five most common combinations of QI strategies observed in included studies reporting HbA1c**



**QI combination (no. of arms)**

CM + PE + PSM (n = 31)	8.13 (7.98 to 8.29)	-0.57 (-0.72 to -0.41)
CM + TC + PE + PSM (n = 28)	8.03 (7.87 to 8.18)	-0.67 (-0.82 to -0.53)
CM + FR + PE + PSM (n = 13)	8.09 (7.91 to 8.27)	-0.61 (-0.79 to -0.43)
FR + PSM (n = 10)	8.53 (8.34 to 8.73)	-0.17 (-0.34 to 0.01)
CM + TC + PE (n = 8)	8.39 (8.20 to 8.59)	-0.31 (-0.49 to -0.12)

Cochrane

Cochrane

Quality  
Incentives  
in Diabetes

Kristin  
Sathya  
Samir N  
Sharon  
Thomas

Version p

https://d

**Sequential combination of the model-estimated five most effective QI strategies for HbA1c**

CM + EPR	8.25 (8.03 to 8.48)	-0.45 (-0.63 to -0.25)
CM + EPR + PE	8.08 (7.85 to 8.32)	-0.62 (-0.84 to -0.39)
CM + EPR + PE + PSM	7.96 (7.75 to 8.17)	-0.74 (-0.95 to -0.53)
CM + EPR + PE + PSM + TC	7.98 (7.73 to 8.22)	-0.72 (-0.95 to -0.50)

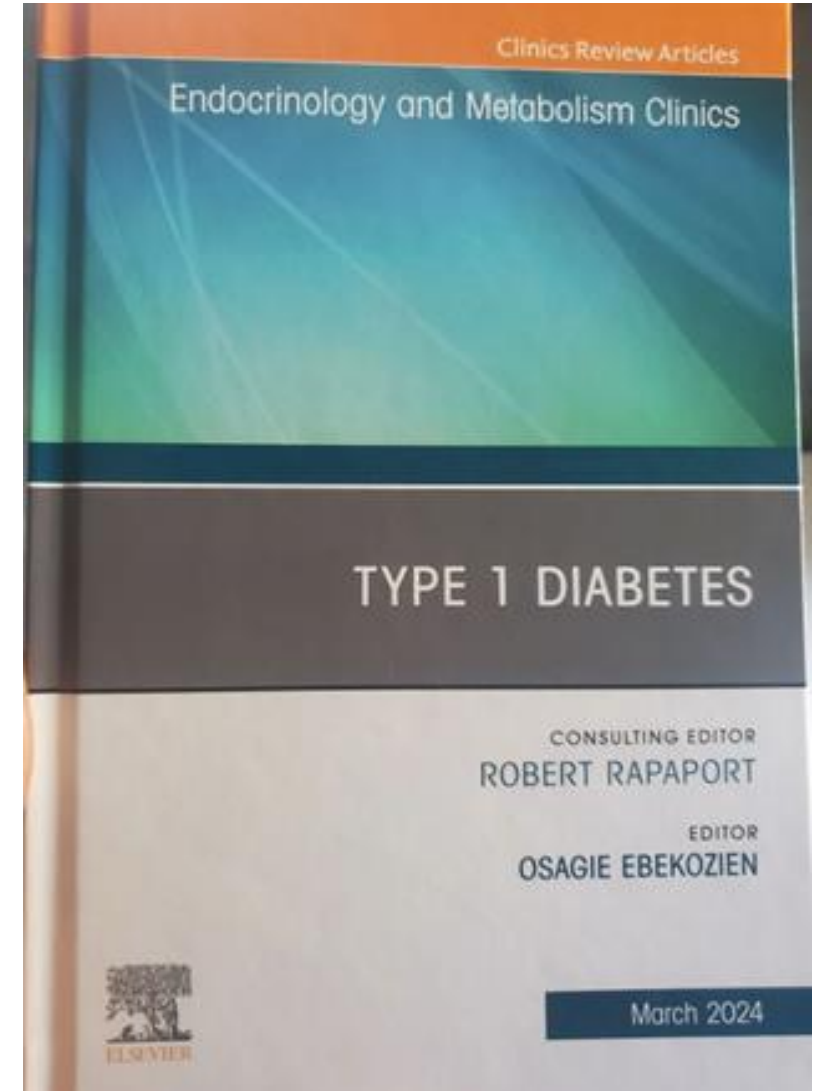
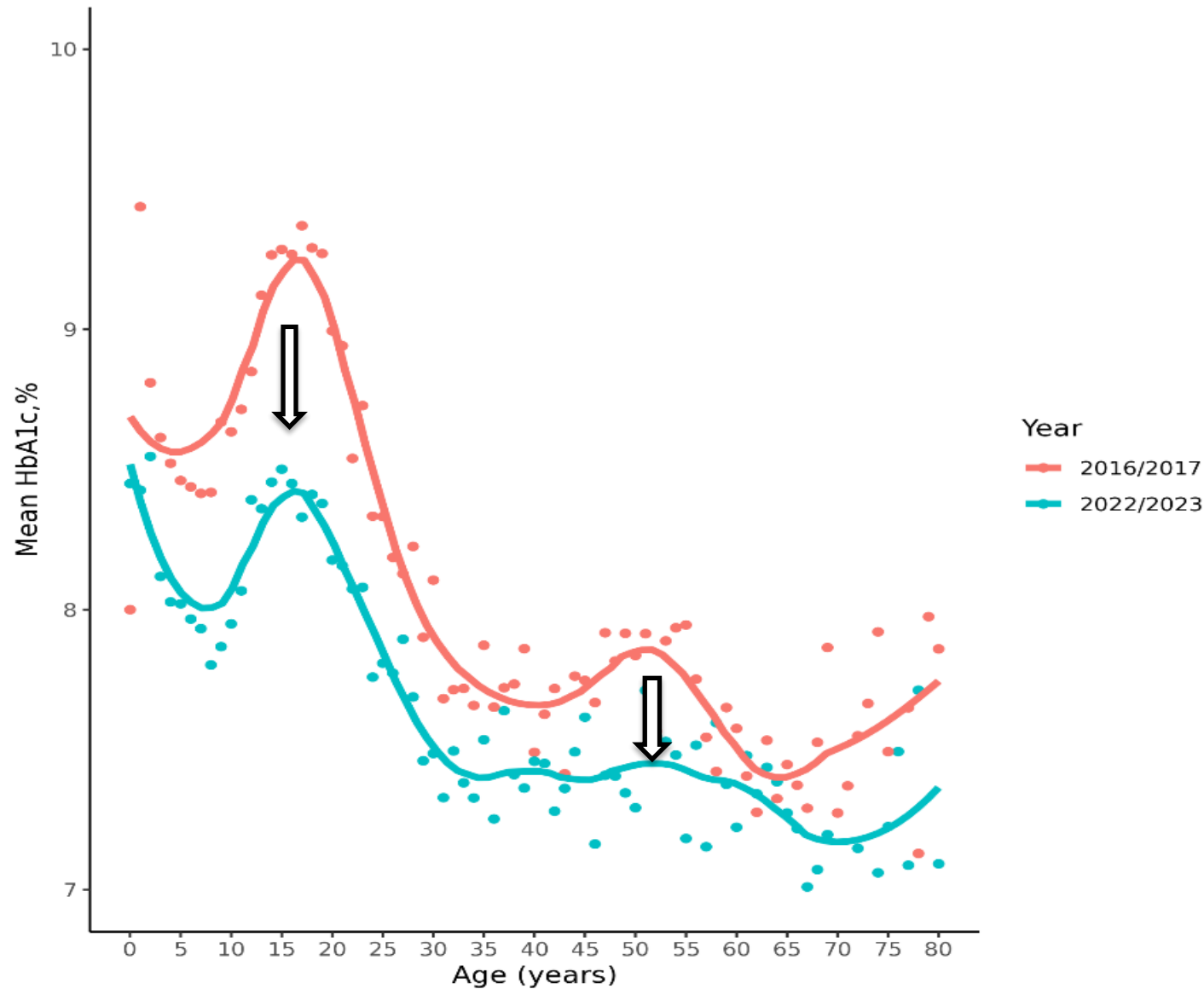
Page : English

Title Abstract I

Hillmer,

**Abbreviations** - QI strategies: AF = audit and feedback, CE = clinician education, CM = case management, CQI = continuous quality improvement, CR = continuous reminder, FI = financial interventions, FR = facilitated relay, PE = patient education, PR = patient reminder, PSM = patient self-management, QI = quality improvement, TC = team changes; Other: CrI = credible interval, n = number, QI = quality improvement.

# Where are we now? Clinical and significant improvement HbA1c 16/17 vs 22/23

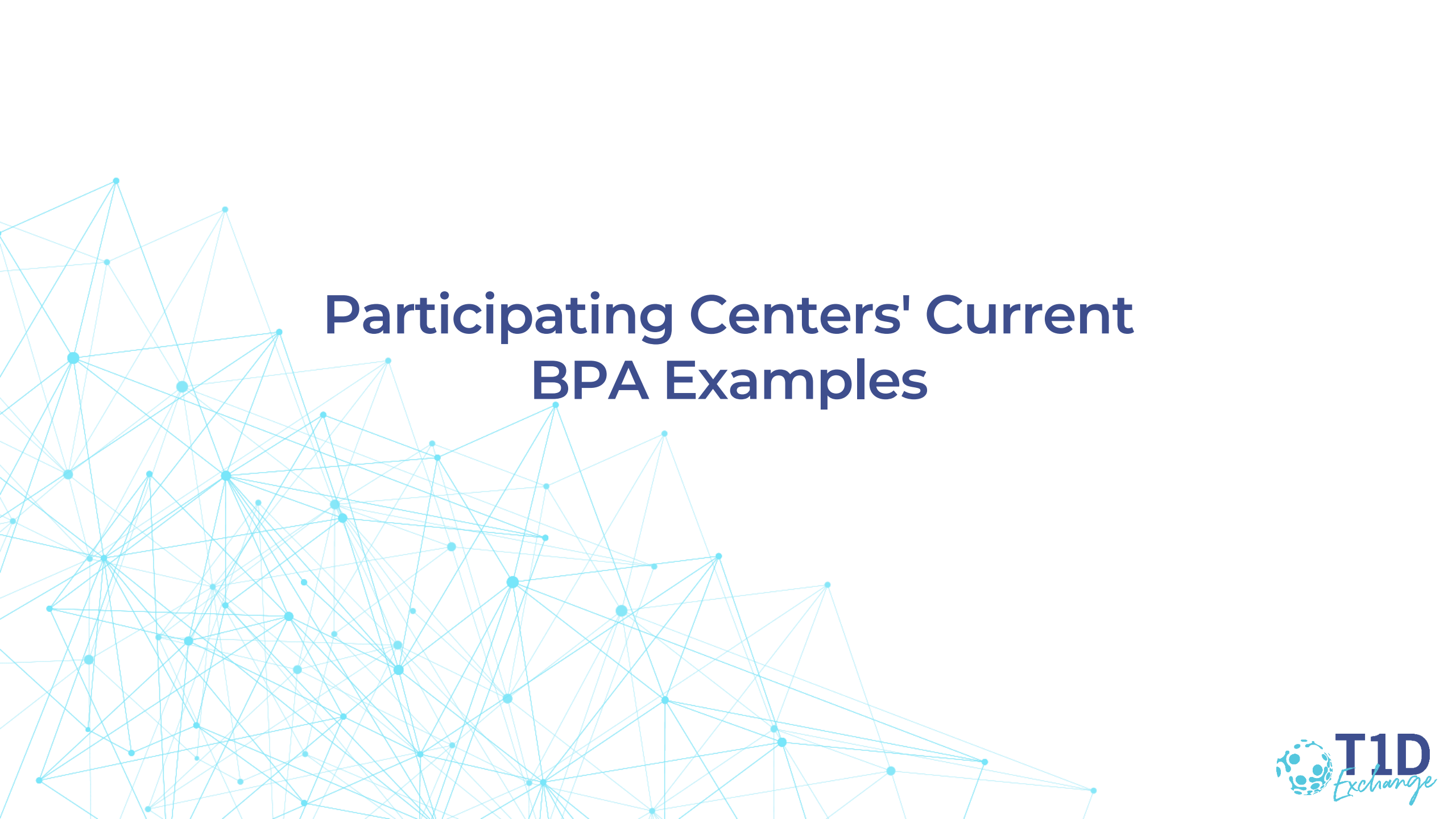


Improving Outcomes for people with diabetes through collaboration. Endo Clinics 2023

Longitudinal Trends in Glycemic Outcomes and Technology Use for Over 48,000 People with Type 1 diabetes (2016-2022) from the T1D Exchange Quality Improvement Collaborative. Diabetes

Technology and Therapeutics 2023





# Participating Centers' Current BPA Examples

# Nationwide Children's

Over the last few years, we have built several BPA alerts:

- Urine microalbumin in T1D
- High BP in T1D
- Urine microalbumin in T2D
- More recently: a bundled BPA for lab orders for T1D: This looks like:

Lab Orders: Type 1 Diabetes ^

▼ Labs

▼ Thyroid Function Labs

TSH ■  
Expected: 12/15/2023, Expires: 12/15/2024, NCH Lab Collect, Routine, Blood

FREE T4 ■

▼ Celiac Disease Screening

TISSUE TRANSGLUTAMINASE AB IGA ■  
Expected: 12/15/2023, Expires: 12/15/2024, NCH Lab Collect, Routine, Blood

IGA ■

▼ Lipid Panel

LIPID PROFILE ■  
Expected: 12/15/2023, Expires: 12/15/2024, NCH Lab Collect, Routine, Blood, Non-fasting is ok

▼ Urine Microalbumin


URINE MICROALBUMIN ■  
Expected: 12/15/2023, Expires: 12/15/2024, Clinic Collect, Routine, Urine

▼ Additional Orders

# UT Southwestern

- BPA for Patients on Diluted Insulin.
- Timeframe: a few weeks.

BestPractice Advisory - [REDACTED]

ⓘ Patient is on **DILUTED** insulin regimen. Please confirm patient's Sliding Scale before proceeding with orders. 

The patient is on  
INSULIN ASPART 20 UNIT / ML INJECTION, INSULIN ASPART 20 UNIT / ML INJECTION, INSULIN ASPART 20  
UNIT / ML INJECTION, INSULIN ASPART 20 UNIT / ML INJECTION, INSULIN ASPART 20 UNIT / ML INJECTION,  
INSULIN ASPART 20 UNIT / ML INJECTION, INSULIN ASPART 20 UNIT / ML INJECTION, INSULIN ASPART 20  
UNIT / ML INJECTION, INSULIN ASPART 20 UNIT / ML INJECTION

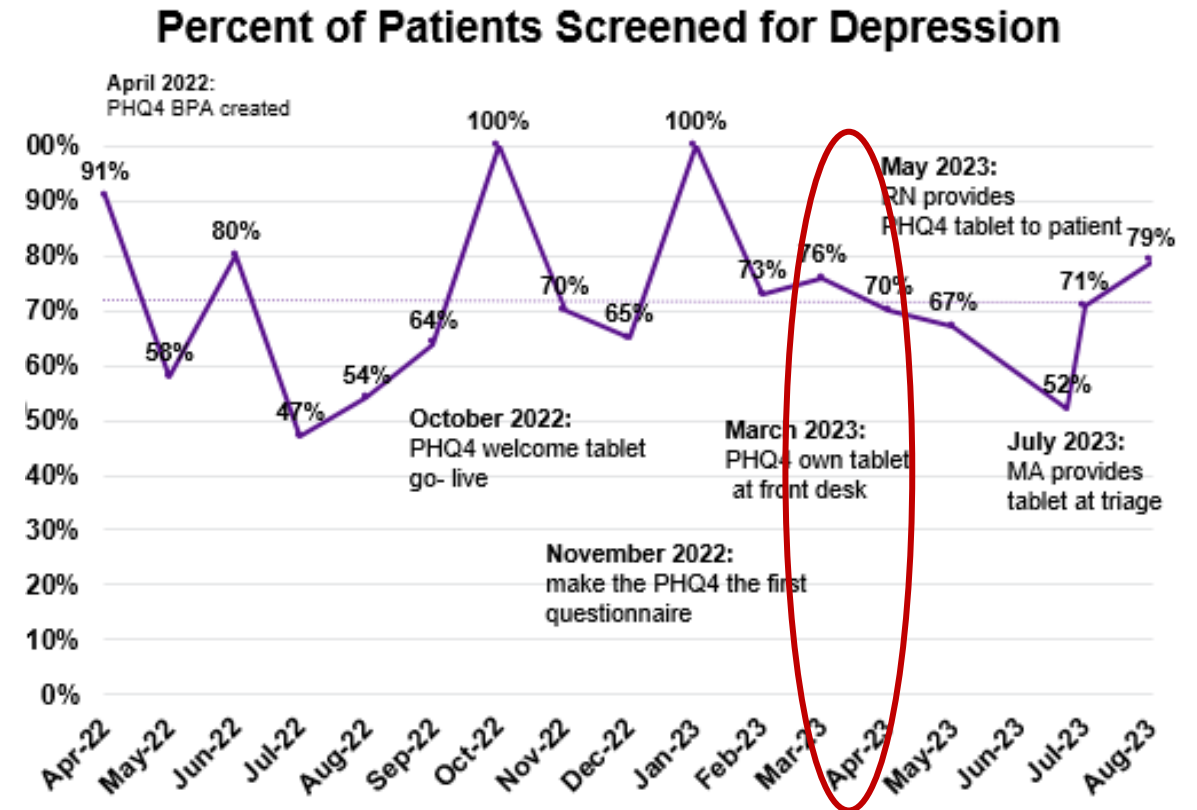
Acknowledge Reason \_\_\_\_\_

# SUNY Upstate-Adult

- **BPA for Positive PHQ-9 Screening:**
  - When someone scores  $\geq 10$  on the PHQ-9 screening a BPA triggers to place a referral to our social worker. LPN pends referral to be signed by clinician.
  - **Timeframe:**
    - Pilot for depression screening began in October 2016, BPA was created and went into production in 2017.
- **BPA for Positive SDOH Screening:**
  - If a positive response to one of SDOH questions and patient consents to social worker contact, BPA alerts staff to place a referral. LPN pends referral to be signed by clinician.
  - **Timeframe:**
    - Pilot of Screening for SDOH began in August 2021. The BPA went live in December 2021.
- **Lessons Learned:**
  - BPA for positive screening was necessary but not sufficient.
  - Selection tool in EMR for resources needed
  - Process needed for determining efficacy of resources provided.
  - Staff burnout from notifications created BPA desensitization.
    - Solution: BPAs were combined into one.

# Hassenfeld Children's Depression Screening in the Pediatric Diabetes Center

- BPA created to notify MA to administer PHQ4
- Started in April 2022 and discontinued in April 2023 because it obscured suicide screen BPA from MA view until completed
- Lessons learned:
  - Imperative to make BPA visible to the appropriate team member
  - Effective, but necessary to consider impact on current workflow
  - Important to create a BPA to notify provider of result



BPA  
discontinued

# Seattle Children's

- Institution has several BPAs in practice e.g. sepsis alert, difficult airway acknowledgement, telehealth check-in, telemed compliance documentation, etc.
- For endocrinology, BPA identifying 'Adrenal suppression' risk → particularly helpful for ED encounters and stress dosing
  - Concept ICD-10 codes on problem list (PL) linked to BPA on Storyboard

The screenshot shows the EHR interface for a patient named 'Animal Muppet'. The patient's information includes: Male, 4 y.o., 3/10/2019, MRN: 5118111, Language: Spanish, Bed Phone: None, Code: No order on file, Legal Guardian: 2 in total. The 'Rooming' tab is selected, showing 'Visit Information' with 'Reason for Visit: No reason for visit.' and 'Vital Signs' with a '+ New Set of Vitals' button. A yellow alert box at the bottom states: 'Patient is at risk of adrenal suppression. Stress-dose steroids in an appropriate clinical context are recommended.' The 'Adrenal Suppression Risk' problem list item is highlighted with a red box.

## Lessons learned:

- Critical safety alerts → build turnaround is quick
- Requires addition of a problem list item → PL not commonly used by most providers
- Helpful that it is on storyboard → less likely to contribute to Alert fatigue

# Grady Memorial Hospital-Adult

**Diabetic Retinal Eye Exam Due**

**DNP**  
PCP - General

**PROVIDER, SELF REFERRAL**  
Ref Provider

Primary Cvg:

BestPractice Advisory - [REDACTED]

**Important (1)**

**Diabetic Retinal Eye Exam Due. Address with one of the following:**

- Open and complete the recommended **SmartSet**.
- Open **Health Maintenance** to adjust frequencies or exclude the patient from the topic.
- Acknowledge** the BPA for one of the listed reasons.

Diabetes Eye Exam last satisfied: [REDACTED]

**Open SmartSet** Do Not Open **Diabetic Retinal Eye Exam Preview**

[Health Maintenance \(history, frequencies, exclusions\)](#)

Acknowledge Reason \_\_\_\_\_

**Patient Refused** **Deferred for Future Visit** **Other (See Comments)**

**Accept** **Cancel**

**Diabetic Retinal Eye Exam** [Manage User Versions](#)

**Procedure**

**Procedure and Medication** [Click for more](#)

- Diabetic Retinal (Eye) Assessment Exam**  
Routine, Ancillary Performed
- tropicamide (MYDRIACYL) 0.5 % ophthalmic solution  
1 drop, Both Eyes, ONCE, Starting As needed per IRIS exam protocol

**Future Procedure**

- Diabetic Retinal (Eye) Assessment Exam **■**  
Routine

**Additional SmartSet Orders**

Search for additional SmartSet orders

You can search for an order by typing in the header of this section.

**Associate** **Edit Multiple**

**Providers**

- GHS PRATT STREET PHARMACY (FORMERLY SENIOR CARE)**  
404-616-5080

**Remove** **Pend** **Sign**

**Previous** **Next**

- BPA to improve screening for diabetic retinopathy in the diabetes and local primary care centers
- BPA alert: history of diabetes and absence of ophthalmology appointment or retinal imaging during past 12 months
- Estimated implementation timeframe: ~6 months (including administrative approvals)

## Lessons Learned:

- Need to consider alert fatigue when adding BPAs to clinical demand
- Changes to clinical workflow surrounding BPA
- Consider for options for modifying and acknowledging alerts



# BPA Project Overview

# Study Objectives

## Aim 1

- To develop and implement an EMR-based BPA using stakeholder feedback to standardize the approach for prescribing and documentation of ADT use among children and adults with T1D

## Aim 2

- To determine the effectiveness of an EMR-based BPA in reducing racial inequities in ADT use

## Aim 3

- To explore the reasons identified for providers' decision to not prescribe ADT and whether they were patient or provider led, and the association between reason provided and patient's race/ethnicity

# Aim 1: Qualitative Research



## Focus groups/ structured interviews:

- Pediatric and adult endocrine providers who are part of T1DX-QI
- PWD/caregivers with T1D



## Electronic surveys

- T1D Exchange Registry


# Aim 1: Five Rights of CDS

Five Rights of Clinical Decision Support	Provider	Patients
<b>Right information</b>	How to translate ADA standards of care for CGM and insulin pumps into prompt/alert? Reason device not offered/declined?	What information would be helpful to you in making a decision about using ADT? Reasons device declined?
<b>Right person</b>	Who should receive the prompt? Endocrinologist or diabetes advanced practice provider? Primary care physician?	Who should receive the information about technology (patient only, parent, primary care physician)?
<b>Right intervention format</b>	Define BPA inputs	MyChart notification*
<b>Right channel</b>	Order entry Progress note template Level of service (closing chart) Health maintenance/care gap	MyChart notification Pre-visit questionnaire Post-visit questionnaire
<b>Right timing</b>	Pre-visit charting During encounter When closing encounter How often? Once, 3 months, 6 months, 12 months?	Prior to visit? After visit? How often? Once, 3 months, 6 months, 12 months?

# Aim 1: Prototype Testing

Important (1) 

## Continuous Glucose Monitoring Advisory

 Patient with Type 1 Diabetes is not currently using a Continuous Glucose Monitor (CGM). ADA guidelines recommend CGM therapy for all patients with T1D. Consider prescribing if clinically appropriate.

• Last HbA1C (8.2%), Calculated (8/7/2024)

Order

Do Not Order



Referral to DSMT

Acknowledge Reason

Patient preference

Patient already prescribed CGM

Financial/insurance issue

Other (Specify reason)

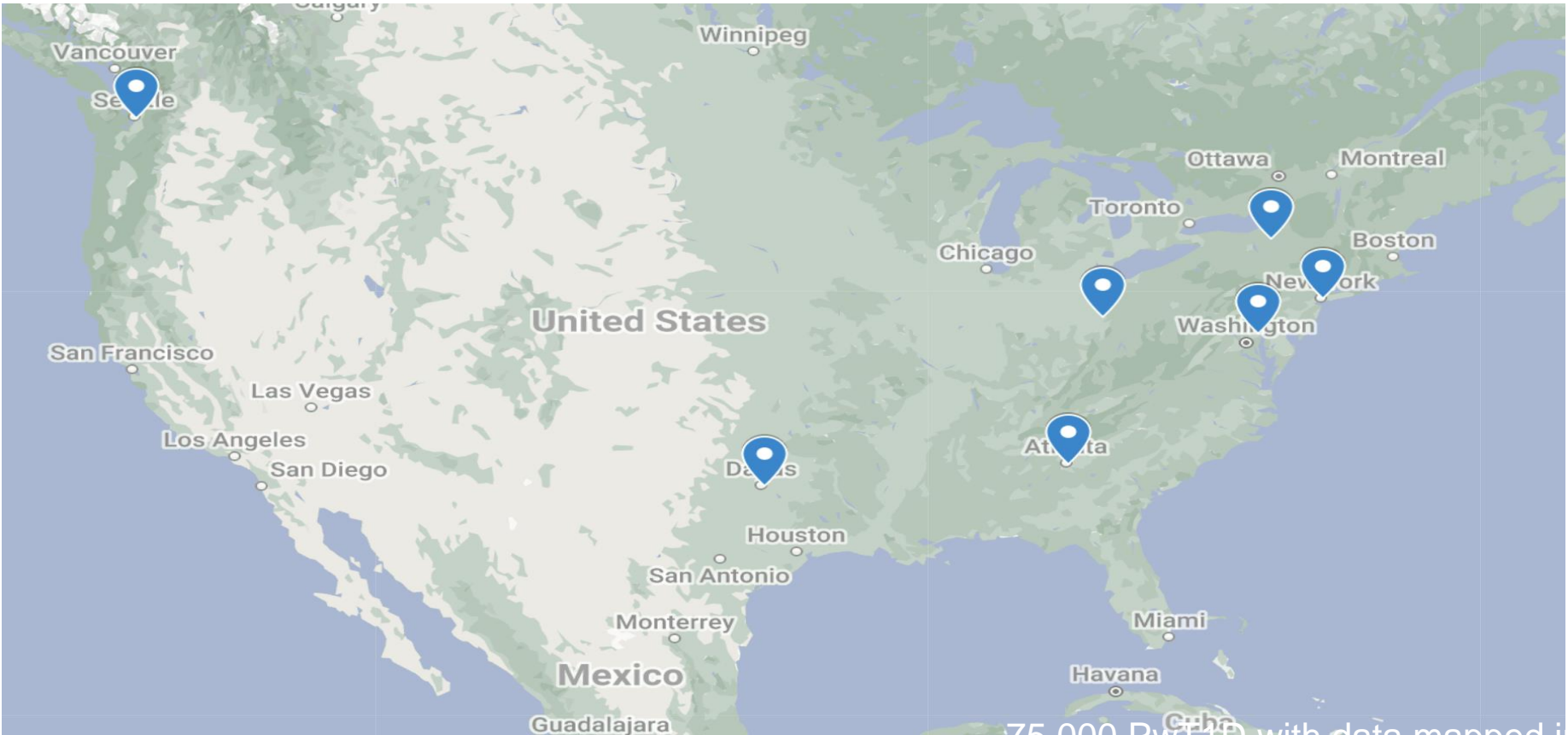
 Accept

Dismiss

## Aim 2: Effectiveness

- Non-randomized matched-pair intervention design
- Compare ADT use following BPA intervention among non-Hispanic Black and Hispanic PwT1D receiving care at 6 T1DX-QI centers with matched control non-Hispanic Black and Hispanic PwT1D receiving care at a non-intervention center over a 12-month period

# Participating Centers



# Primary Outcome

- Progression in ADT use in intervention PwT1D compared with matched-pair control PwT1D during the 12-month study period:
  - No CGM → Any CGM
  - MDI → Insulin pump
  - No AID → AID

## Aim 3

- Explore reasons for not prescribing ADT
- Determine if reasons are PwT1D- or provider-led
- Analyze relationships between reasons and PwT1D race/ethnicity



# Project Timeline/ Scope of Work

# Study Timeline

Milestones	Apr-24	Jul-24	Oct-24	Jan-25	Apr-25	Jul-25	Oct-25	Jan-26	Apr-26	Jul-26	Oct-26	Jan-27
Start-up	X											
Aim 1												
Qualitative Study		X	X									
BPA develop/impl.			X	X	X							
Publication				X								
Aim 2												
BPA deployed					X	X	X	X	X			
Data collection						X	X	X	X	X		
Data analysis								X	X	X	X	
Aim 3												
Data analysis										X	X	X
Publications											X	X

# Scope of Work

- Duration of Project: July 1, 2024, to January 30, 2027
- Description of work to be performed by participating centers:
  - Participate in monthly group check-in calls.
  - Participate in survey and focus groups.
  - Implement an EMR-based BPA.
  - Contribute to publications (abstracts, manuscripts, change packages)

# Next Steps

- Next meeting: September
- Participating centers will create a process map that highlights the center's overall process of integrating a BPA into their EMR.
- Setting up a time to meet for the Focus groups.



# Next Steps/Questions