Weill Cornell Medicine

Standardizing Inpatient Nursing Diabetes Education

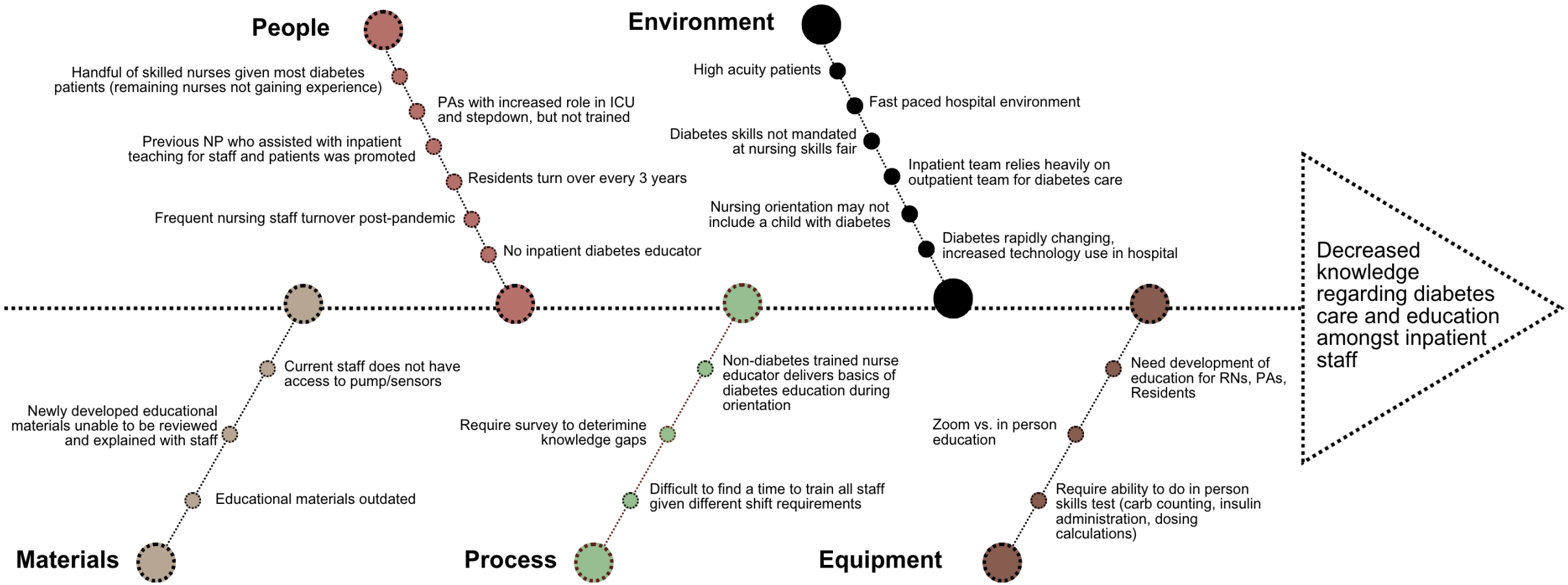
T1DX-QI November Learning Session

Elizabeth Gunckle, CPNP-PC, CDCES
Emily Coppedge, CPNP-PC, CDCES
Weill Cornell Medicine - Pediatric Endocrinology

November 11, 2024

Background and Objectives

- Pediatric patients and families with newly diagnosed Type 1 Diabetes (T1D) require significant education
- Our inpatient nurses serve as key drivers in our new onset diabetes education
- A survey of our nurses revealed various knowledge gaps in diabetes care and education
- Aim: after 3 education sessions, inpatient nurses will report increased comfort levels in providing inpatient diabetes education


People
Handful of skilled nurses given most diabetes patients (remaining nurses not gaining experience)
PAs with increased role in ICU and stepdown, but not trained
Previous NP who assisted with inpatient teaching for staff and patients was promoted
Residents turn over every 3 years
Frequent nursing staff turnover post-pandemic
No inpatient diabetes educator
Environment
High acuity patients
Fast paced hospital environment
Diabetes skills not mandated at nursing skills fair
Inpatient team relies heavily on outpatient team for diabetes care
Nursing orientation may not include a child with diabetes
Diabetes rapidly changing, increased technology use in hospital
Decreased knowledge regarding diabetes care and education amongst inpatient staff
Materials
Current staff does not have access to pump/sensors
Newly developed educational materials unable to be reviewed and explained with staff
Educational materials outdated
Process
Non-diabetes trained nurse educator delivers basics of diabetes education during orientation
Require survey to deterimine knowledge gaps
Difficult to find a time to train all staff given different shift requirements
Equipment
Need development of education for RNs, PAs, Residents
Zoom vs. in person education
Require ability to do in person skills test (carb counting, insulin administration, dosing calculations)

Methods

- Revamping PEET (Pediatric Endocrine Education Taskforce)
- Recruitment of pediatric "diabetes champions"
- Qualtrics survey to assess comfort levels for diabetes topics
- Identified areas of concern: carb counting, insulin dosing, and providing general diabetes education
- Creation of three 1-hour presentations on above topics
- Post-intervention Qualtrics survey (for those who attended all 3 classes)

Education Sessions

- Three 1-hour long education sessions held over Zoom
  - Each session offered at two different times to accommodate shifts

SESSION 1

- Diabetes pathophysiology
- T1D vs T2D
- Goals of inpatient education
- Blood glucose monitoring

SESSION 2

- Insulin storage and needle disposal
- Giving injections
- Types of insulin
- Diabetes "diets"
- **Carbohydrate counting**
- **Rapid-acting insulin dose calculation**

SESSION 3

- Hypo/hyperglycemia
- Sick day management
- Exercise and diabetes
- Technology
- Family Screening
- Typical family questions

A Closer Look at Session 2

- 8 questions specifically dedicated to carb counting
- Photos of plates provided
- Polls launched to submit answers (multiple choice or fill in the blank)
- Did not proceed to the answer until all participants submitted their responses
- Result revealed and discussed

Carb Counting Practice

About how many carbs are in the following?

2 slices of toast, 1/3 of an avocado, ½ banana, peanut butter, 1 hardboiled egg

A. 0 to 5 grams

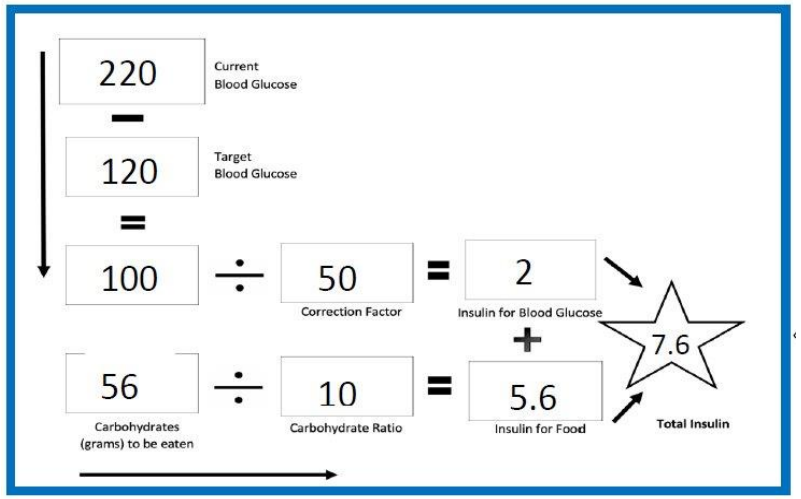
B. 10 to 20 grams

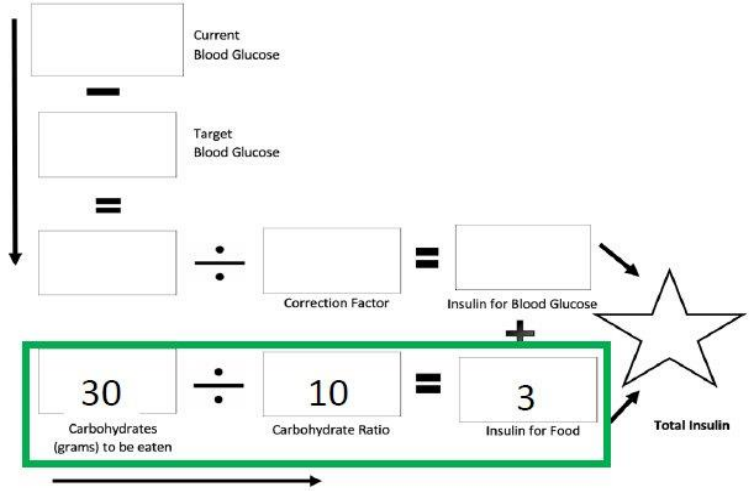
C. 30 to 50 grams

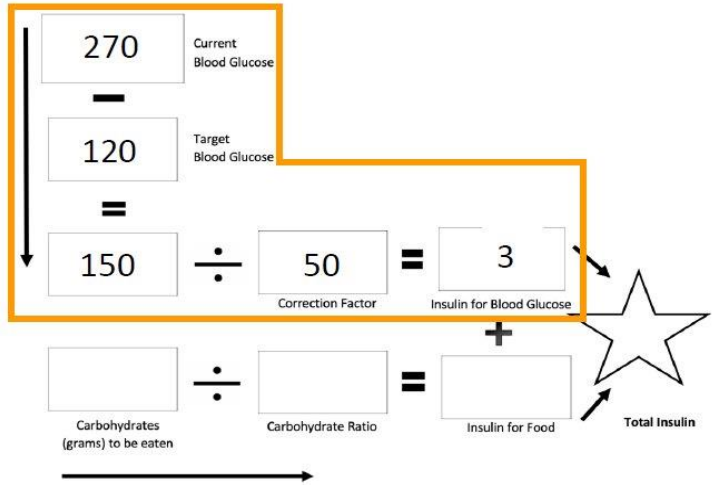
D. 70 to 80 grams

A Closer Look at Session 2

- 3 questions were commonly encountered practice scenarios
  - Carbs + correction
  - Carbs only (reinforcing the 3-hour rule)
  - Correction only
- Similar format with launched polls and waiting for all to respond





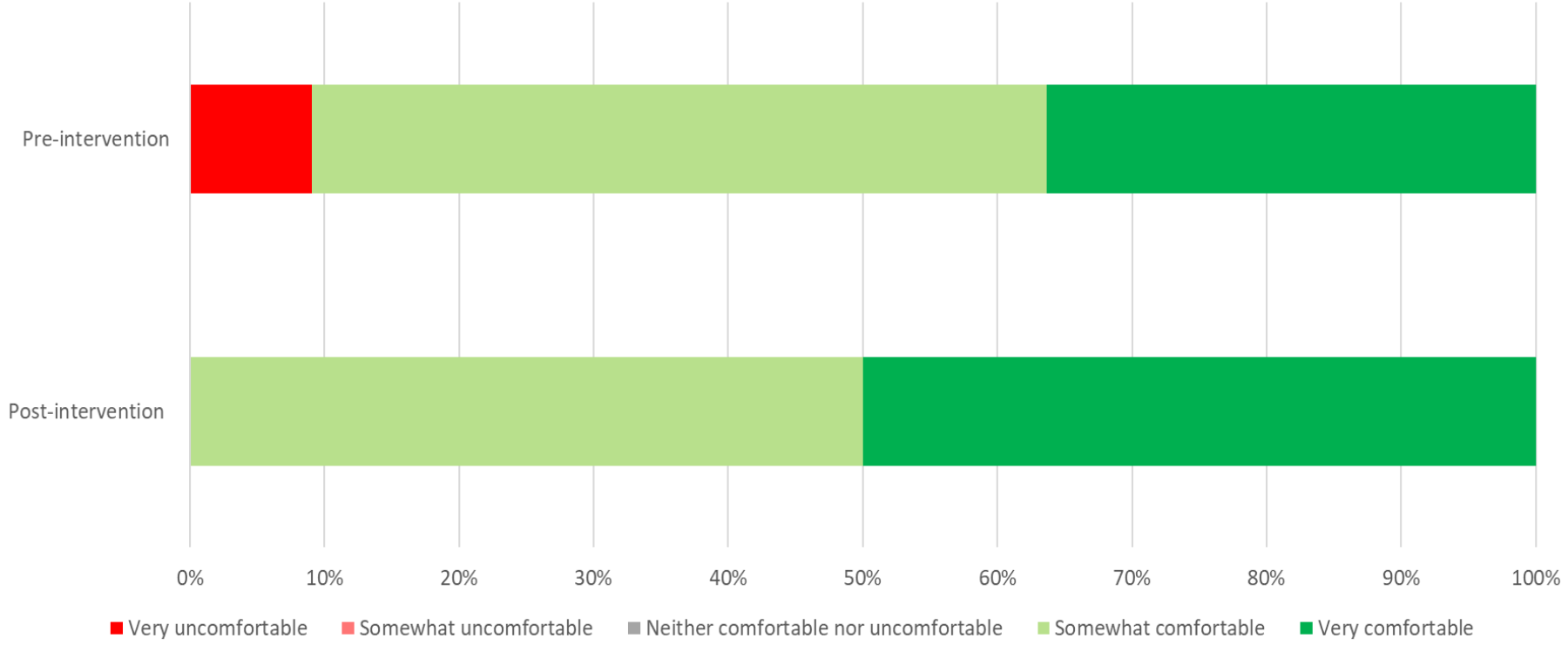


Results

- 11 participants completed the initial survey
- 4 participants completed the post survey
- We evaluated the changes in comfort level for the following topics:
    - Answering patient questions about carb counting
    - Answering patient questions about insulin
    - Providing diabetes education to patients and families

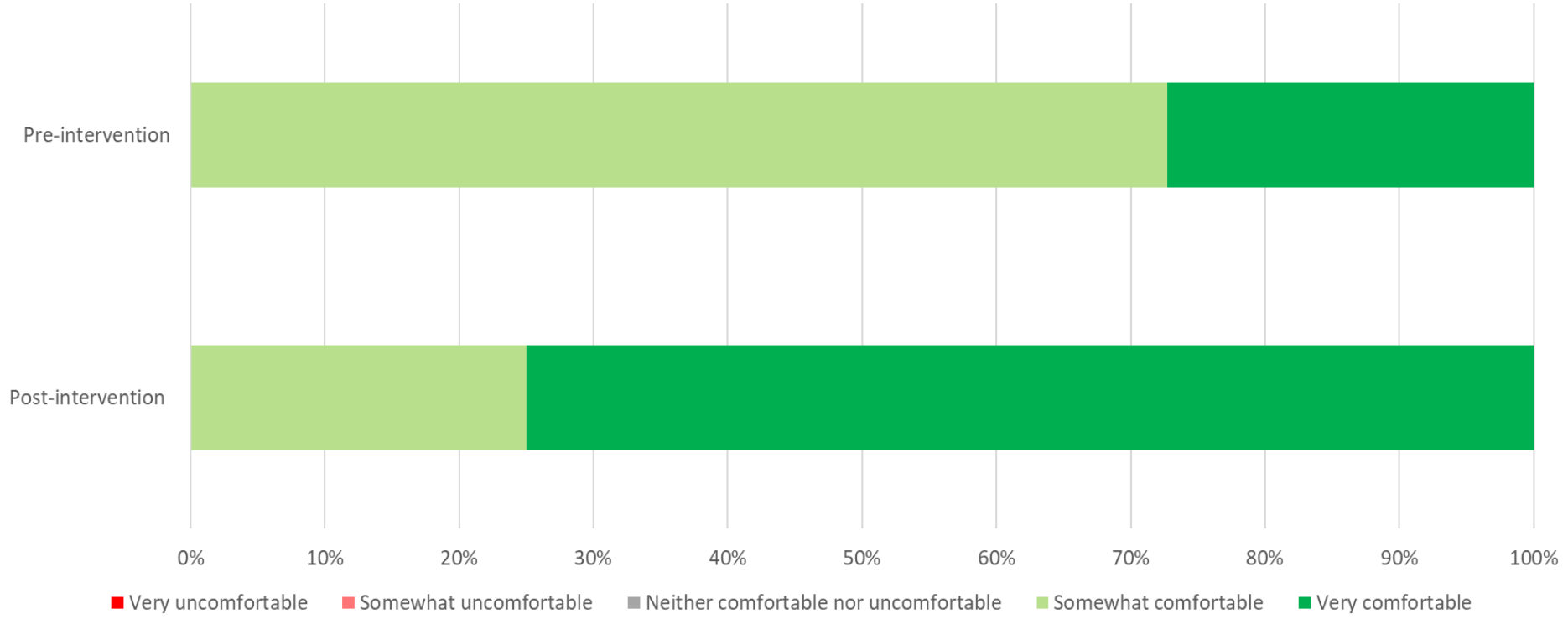
Results – Answering Patient Questions About Carb Counting

- Average comfort levels:
  - Pre: 4.09 out of 5
  - Post: 4.5 out of 5



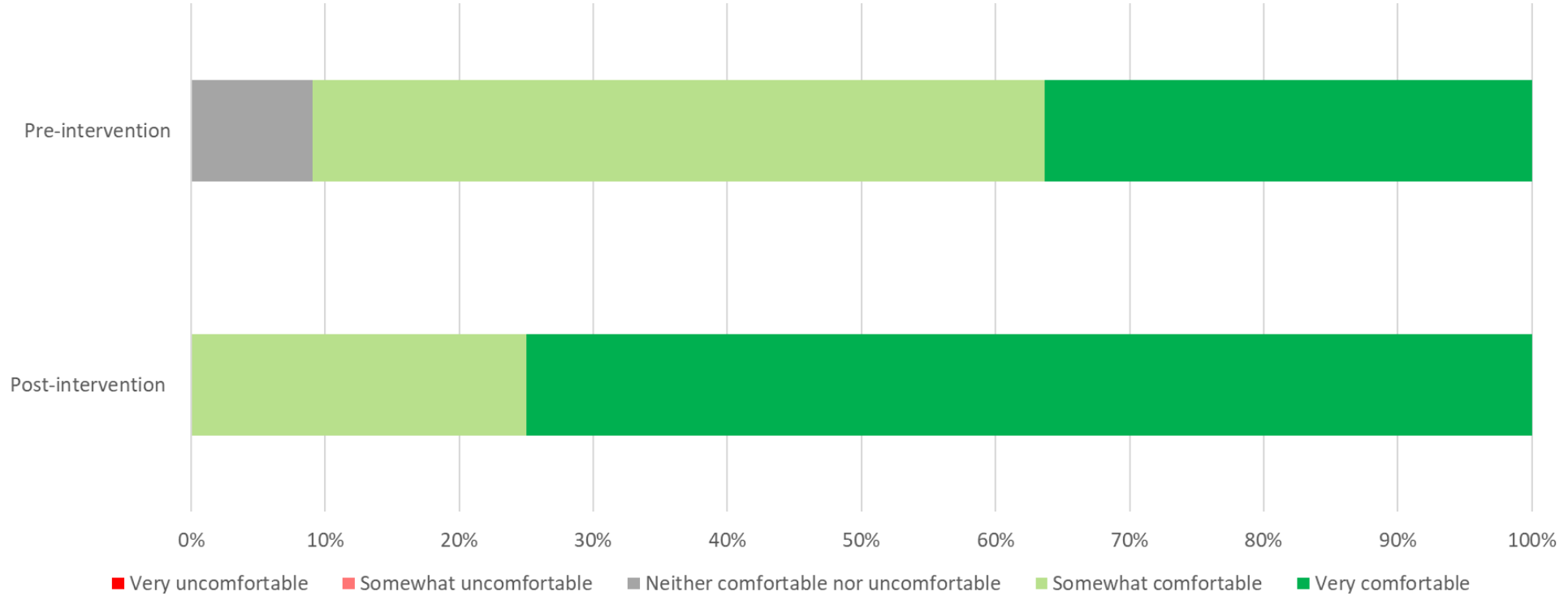
Results – Answering Patient Questions About Insulin

- Average comfort levels:
  - Pre: 4.27 out of 5
  - Post: 4.75 out of 5



Results – Providing Diabetes Education to Patients and Families

- Average comfort levels:
  - Pre: 4.27 out of 5
  - Post: 4.75 out of 5



Challenges and Limitations

- Limited sample size
- "Buy in" from nursing - this is on their own time and not a requirement
- Scheduling - few nurses able to attend 3 out of 3 sessions
- Limited resources – no protected time for inpatient nursing education in outpatient NP schedules
- Expandability - current design requires significant legwork with low number of attendees per session

Conclusions

- Focused teaching increased inpatient nursing comfort in providing diabetes education in all 3 identified problem areas
- Live polls allowed for us to identify knowledge gaps that may have otherwise been missed and to provide real-time feedback
- This style of diabetes education should be incorporated by the hospital nursing educator in new nursing orientation
- Addition of diabetes education skills to inpatient pediatric RN core competencies should be considered
- Future ideas:
    - Quarterly refresher classes
    - Appointment of PICU Lead Diabetes Champion
    - Inclusion of other disciplines (residents, PAs, etc.)

Questions?

elg4011@med.cornell.edu

Weill Cornell Medicine

Quality Improvement
New Tools and Methods

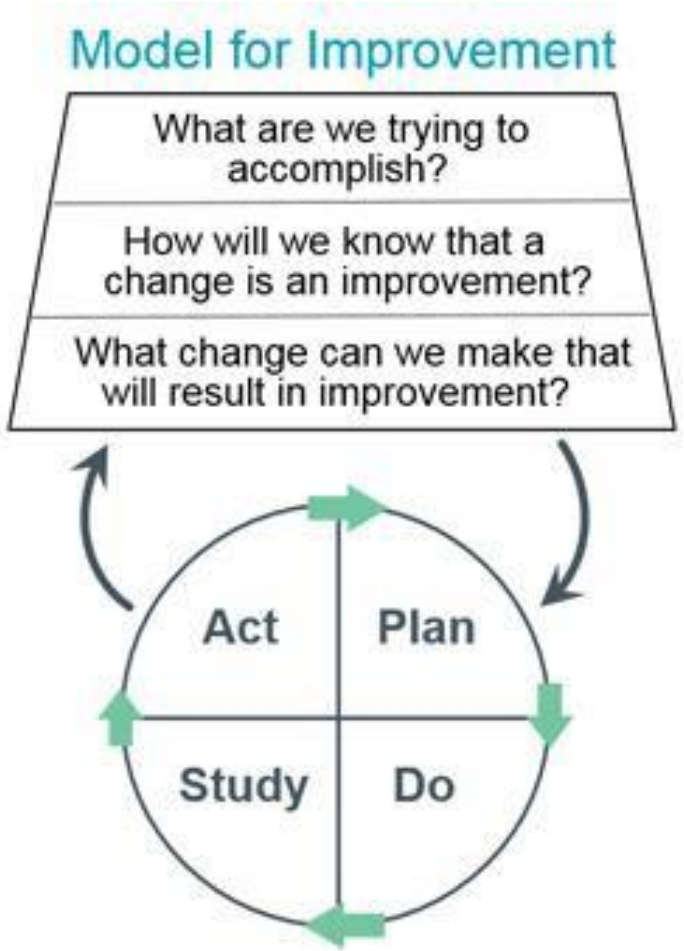
2024 QI Learning Conference – Chicago, IL

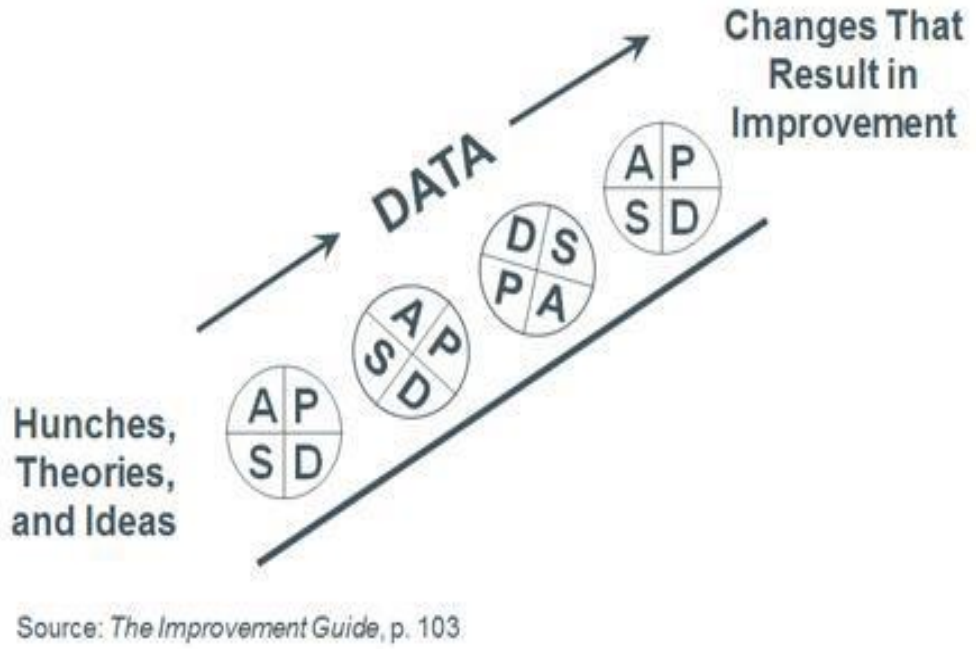
Don Buckingham, Sr. – MBOE, CPHQ, CLSSBB

Learning Objectives

- "Improving Improvement" – using a familiar **Reproduceable Method**
- Beginning a **Strategic Planning Process**
- Prioritizing Initiatives – **Effort/Impact Matrix Tool**
- Assessing Project Readiness / Reliability – **sFMEA Tool**

Reproduceable Method for Improving Improvement*





Source: *The Improvement Guide*, p. 103

** Institute for Healthcare Improvement*

STRATEGIC Planning Tool

Strategic Aim

Among people with T1D,* increase proportion of patients achieving glycemic targets:

- **At least 25% with A1c <7%, OR**
- **Increase proportion of patients A1c <7% by 5%, OR**
- **Increase TIR among CGM users by 5%**

from baseline in 2 years.

*Duration > 1year, ages 1-25, with at least one in-person or telemedicine visit in the last year

8 Initiatives

- Health Literacy/Education and Support
- Decision Support Use of Data
- Insulin therapy technology
- Social Determinant of Health
- Glucose monitoring
- Transition to Adult Care
- Access to in-person and virtual care
- Psychosocial Support

30+ QI Project Ideas

- Patient Education on diet, exercise, transition, device use and self management habits
- Education to reduce DKA events/admission, 4X glucose check education
- Set small patient- and provider-selected goals with clear action step
- Working with families as well as providers

- Referral to nutrition therapy/guidance
- Physical activity coaching
- Peer support groups
- New onset classes
- Accessibility to translated materials

- Use data registries to support population health
- Use EMR templates
- Incorporate QI measures or flow sheets

- Culturally Competent Care
- Catalogue of community resources
- Train staff about SDOH
- Documenting barriers to care (housing, transportation, food, etc.)

- Insulin / monitoring /nutrition interactions
- Coach >4 checks/day (for non CGM patients)
- Test new workflows to improve device use
- Use workflows to improve device documentation
- Advertise CGM in waiting rooms, etc.
- Device data reviews and interpretation, staff troubleshoot device
- Provide contact information for device reps/patient support
- Assure Equity in access and utilization capability

- READDY questionnaire
- Partner with adult clinic for hand-off

- Follow up with LTFU patients (not seen for > 180 days); regular follow up (phone/email/text/televisit)
- Improve scheduling process
- Make appointments longer/have a multidisciplinary team (seeing a CDE/SW/RD)

- Conduct mental health screening and referrals (i.e. depression, FOH, diabetes distress)
- Improve psychosocial support/train providers
- MyChart message for questionnaires, PROs, high-risk patients
- Create workflow for positive patients who needs referral
- Screen for QOL (compare control of people using CGM vs no CGM)

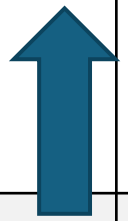
Prioritization: Effort Impact/Matrix Tool

8 **Initiatives** from Strategic Planning Tool

1	Health Literacy Education and Support
2	Use of Data
3	Insulin Therapy – Technology Use
4	Social Determinates of Health
5	Glucose Monitoring
6	Transition to Adult Care
7	Access to In-person / Virtual Care
8	Psychological Support

	Effort L/H	Impact L/H
1	L	H
2	H	H
3	L	H
4	H	H
5	L	H
6	L	H
7	L	H
8	H	H

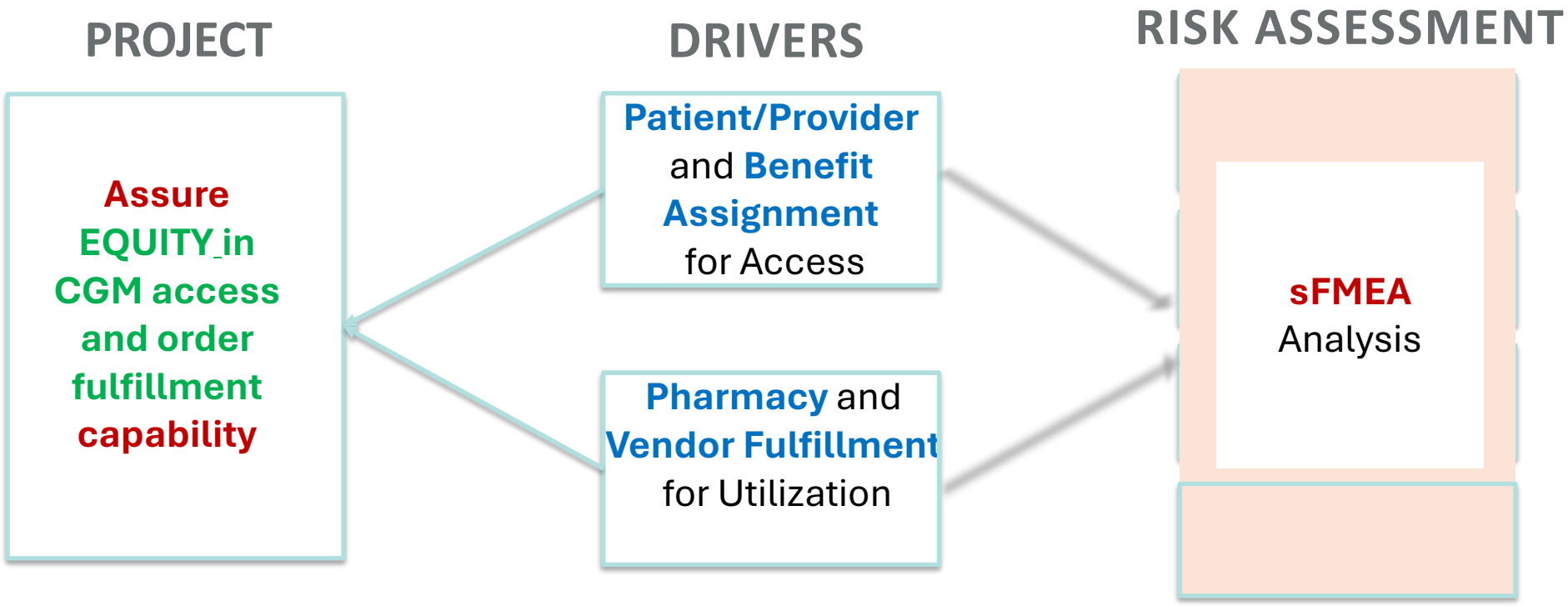
	Relative to Human Resources, Technology, etc.	
	Low Effort	**High Effort**
High Impact	1, 3, 5, 6, 7 — More Direct Control	2, 4, 8 — Less Direct Control
Low Impact	[Not Strategic]	[Not Strategic]



Initiative #5 – Glucose Monitoring Ideas

- Insulin / monitoring /nutrition interactions
- Coach >4 checks/day (for non CGM patients)
- Test new workflows to improve device use
- Use workflows to improve device documentation
- Advertise CGM in waiting rooms, etc.

- Device data reviews and interpretation, staff
  troubleshoot device
- Provide contact information for device reps/patient support
- **Assure Equity in access and utilization capability = PROJECT**



sFMEA©

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changing the outcome together

Simplified Failure Modes Effects Analysis (sFMEA)

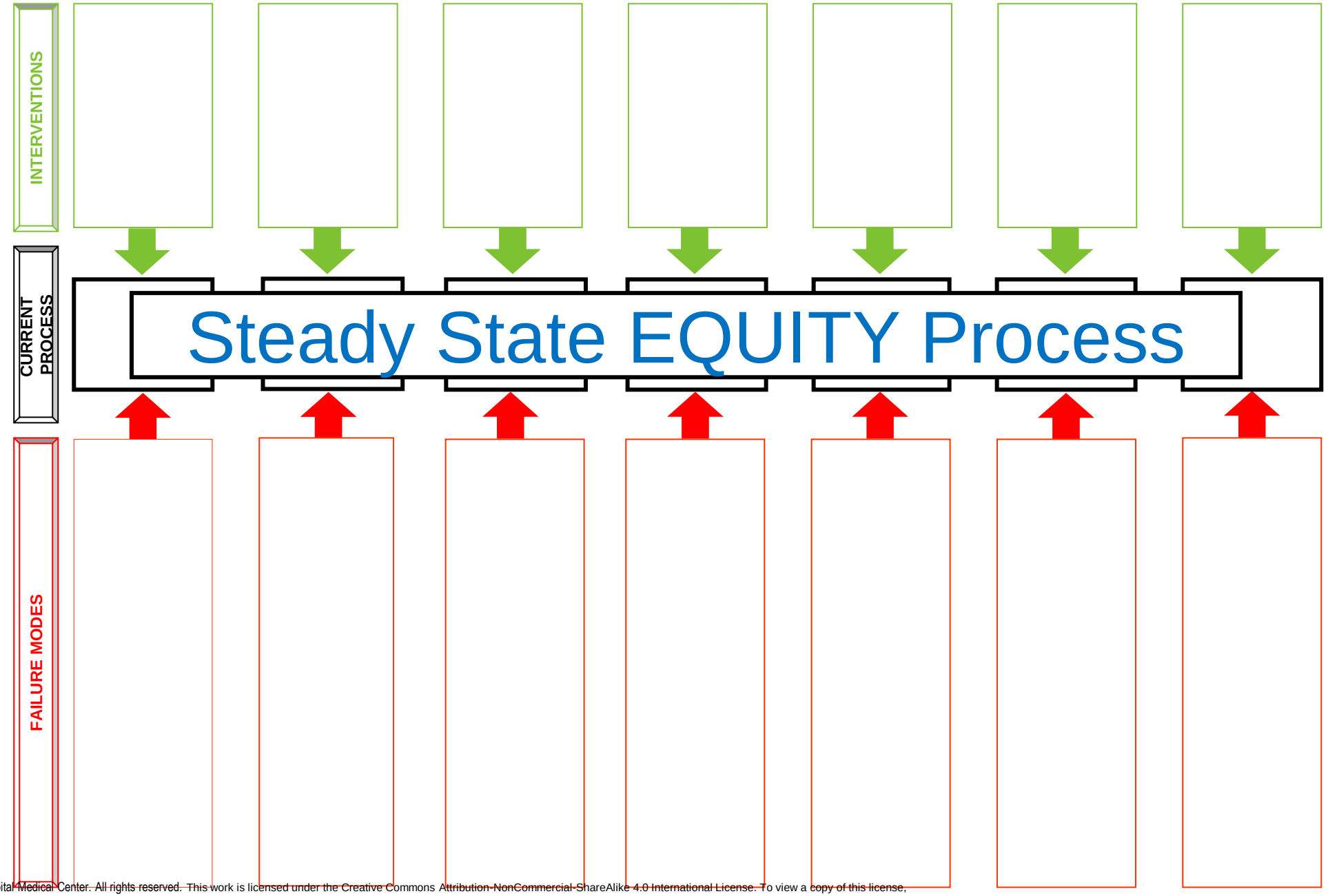
- A systematic method to identify process problems/breakdowns that may result in the inability to achieve desired outcomes
- It can be used on new or existing processes
- Use a high-level process map
- Document possible failures for each process step in the red boxes (failure modes)
- Document potential interventions to mitigate failure modes in the green boxes (interventions) These are possible ideas to test via Plan-Do-Study-Act (PDSA) cycles
- Identify failures related to inequities where present; Identify corresponding potential intervention

3 Interventions

1 Current process from High-Level Process Map

2 Failure Modes

"Force Field" Diagram Tool



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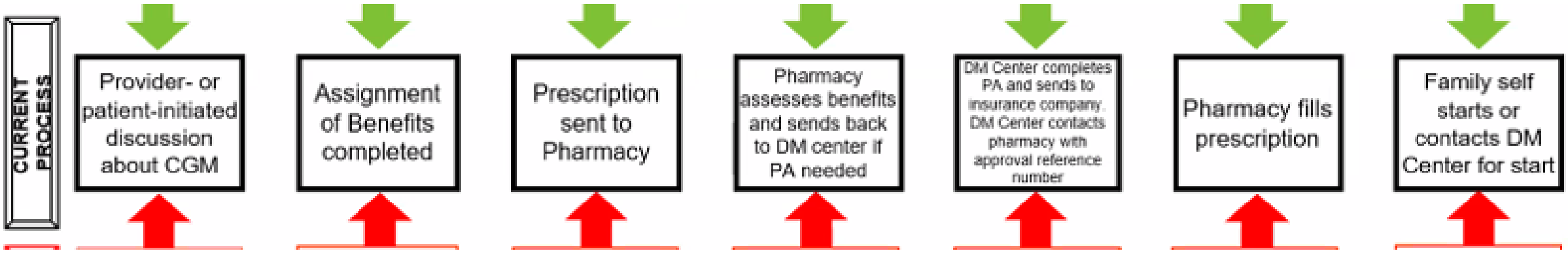
Steady State for EQUITY: Chart the current process

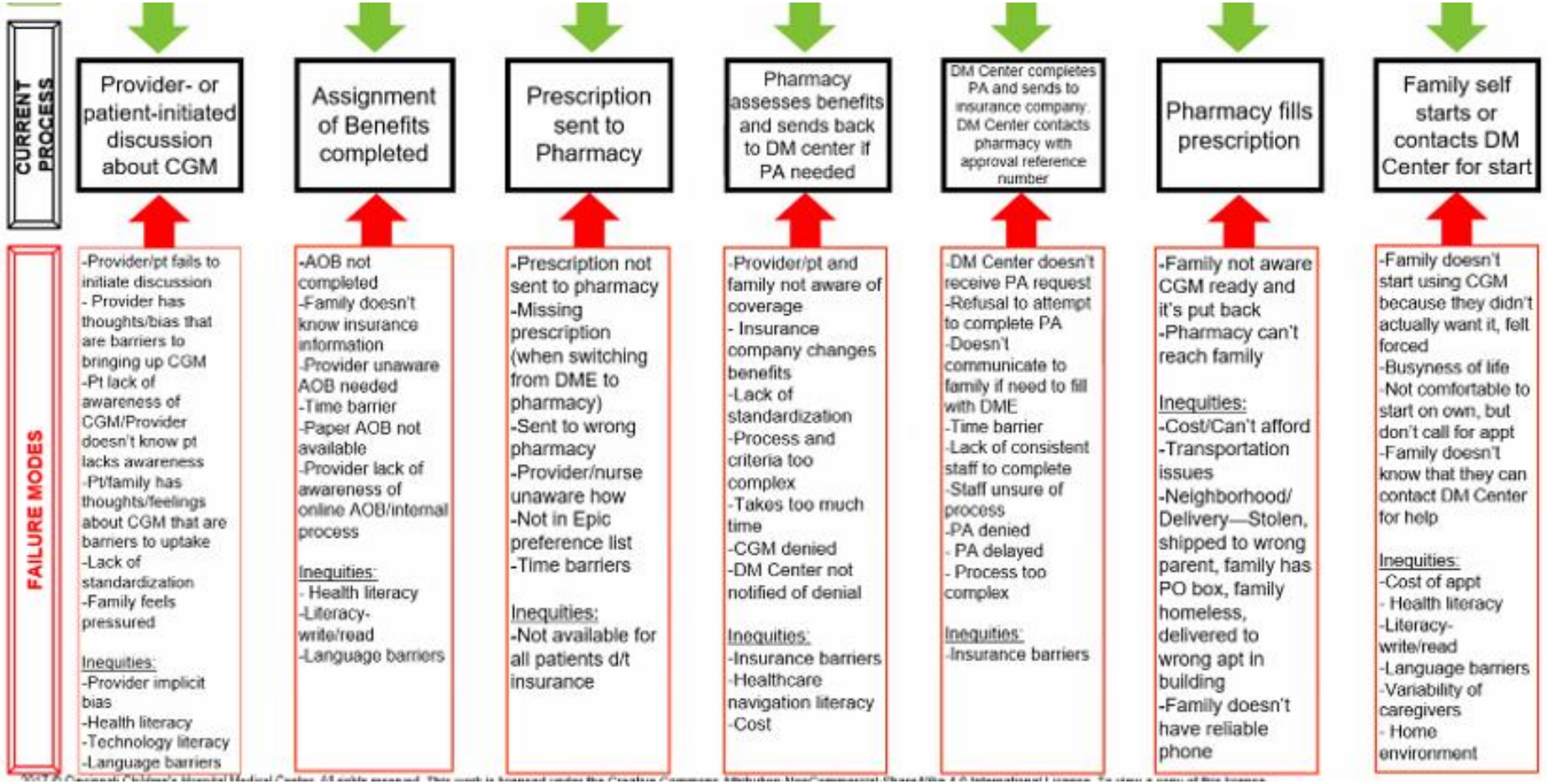
Lots of internal and external "hand-offs" = multiple delays and failure opportunities



Steady State for EQUITY: Discover existing and/or possible failure modes / pareto effect

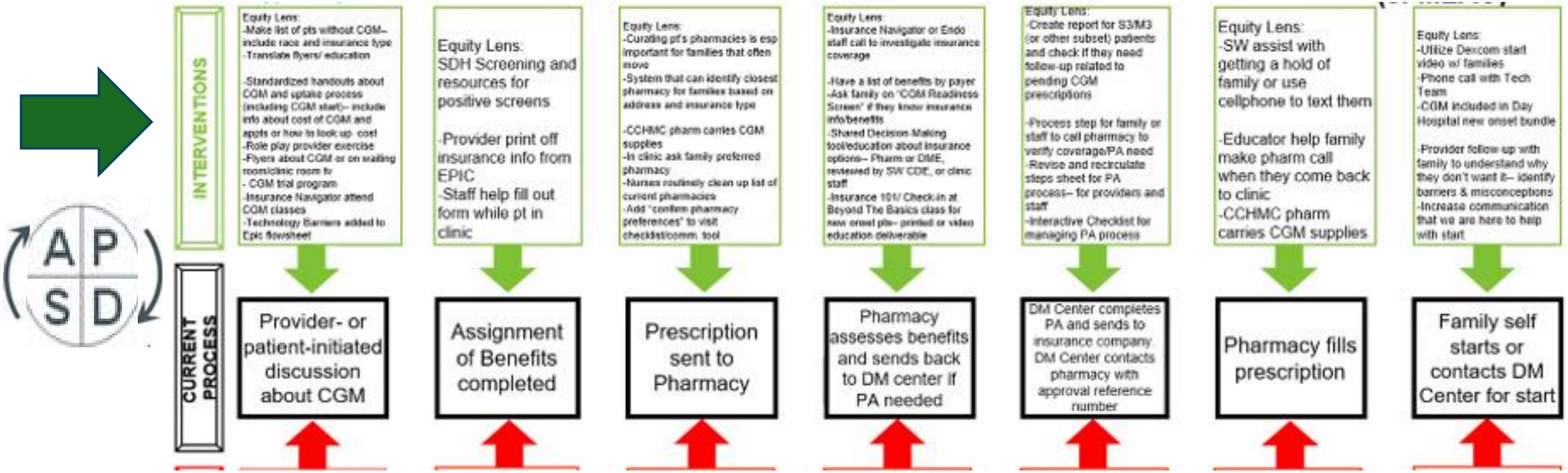
How do you use an sFMEA?

- **Collect data** of failures of breakdowns
- Frequency of breakdowns
- Failure data into Pareto Chart
- Prioritize how **critical** each breakdown/failure is regarding its **effect on achieving the desired outcome**
- Helps identify interventions to test



Cincinnati Children's changing the outcome together
T1D Exchange

Steady State for EQUITY: Brainstorm interventions to test for improvement



T1Dx CGM Equity Project (Pharmacy Process)-- Simplified Failure Mode Effects Analysis (sFMEA©)

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INTERVENTIONS	Equity Lens: -Make list of pts without CGM– include race and insurance type -Translate flyers/ education -Standardized handouts about CGM and uptake process (including CGM start)– include info about cost of CGM and appts or how to look up cost -Role play provider exercise -Flyers about CGM or on waiting room/clinic room tv - CGM trial program -Insurance Navigator attend CGM classes -Technology Barriers added to Epic flowsheet	Equity Lens: SDH Screening and resources for positive screens -Provider print off insurance info from EPIC -Staff help fill out form while pt in clinic	Equity Lens: -Curating pt's pharmacies is esp important for families that often move -System that can identify closest pharmacy for families based on address and insurance type -CCHMC pharm carries CGM supplies -In clinic ask family preferred pharmacy -Nurses routinely clean up list of current pharmacies -Add "confirm pharmacy preferences" to visit checklist/comm. tool	Equity Lens: -Insurance Navigator or Endo staff call to investigate insurance coverage -Have a list of benefits by payer -Ask family on "CGM Readiness Screen" if they know insurance info/benefits -Shared Decision-Making tool/education about insurance options– Pharm or DME, reviewed by SW CDE, or clinic staff -Insurance 101/ Check-in at Beyond The Basics class for new onset pts– printed or video education deliverable	Equity Lens: -Create report for S3/M3 (or other subset) patients and check if they need follow-up related to pending CGM prescriptions -Process step for family or staff to call pharmacy to verify coverage/PA need -Revise and recirculate steps sheet for PA process– for providers and staff -Interactive Checklist for managing PA process	Equity Lens: -SW assist with getting a hold of family or use cellphone to text them -Educator help family make pharm call when they come back to clinic -CCHMC pharm carries CGM supplies	Equity Lens: -Utilize Dexcom start video w/ families -Phone call with Tech Team -CGM included in Day Hospital new onset bundle -Provider follow-up with family to understand why they don't want it-- identify barriers & misconceptions -Increase communication that we are here to help with start
CURRENT PROCESS	Provider- or patient-initiated discussion about CGM	Assignment of Benefits completed	Prescription sent to Pharmacy	Pharmacy assesses benefits and sends back to DM center if PA needed	DM Center completes PA and sends to insurance company. DM Center contacts pharmacy with approval reference number	Pharmacy fills prescription	Family self starts or contacts DM Center for start
FAILURE MODES	-Provider/pt fails to initiate discussion - Provider has thoughts/bias that are barriers to bringing up CGM -Pt lack of awareness of CGM/Provider doesn't know pt lacks awareness -Pt/family has thoughts/feelings about CGM that are barriers to uptake -Lack of standardization -Family feels pressured Inequities: -Provider implicit bias -Health literacy -Technology literacy -Language barriers	-AOB not completed -Family doesn't know insurance information -Provider unaware AOB needed -Time barrier -Paper AOB not available -Provider lack of awareness of online AOB/internal process Inequities: - Health literacy -Literacy-write/read -Language barriers	-Prescription not sent to pharmacy -Missing prescription (when switching from DME to pharmacy) -Sent to wrong pharmacy -Provider/nurse unaware how -Not in Epic preference list -Time barriers Inequities: -Not available for all patients d/t insurance	-Provider/pt and family not aware of coverage - Insurance company changes benefits -Lack of standardization -Process and criteria too complex -Takes too much time -CGM denied -DM Center not notified of denial Inequities: -Insurance barriers -Healthcare navigation literacy -Cost	-DM Center doesn't receive PA request -Refusal to attempt to complete PA -Doesn't communicate to family if need to fill with DME -Time barrier -Lack of consistent staff to complete -Staff unsure of process -PA denied - PA delayed - Process too complex Inequities: -Insurance barriers	-Family not aware CGM ready and it's put back -Pharmacy can't reach family Inequities: -Cost/Can't afford -Transportation issues -Neighborhood/ Delivery—Stolen, shipped to wrong parent, family has PO box, family homeless, delivered to wrong apt in building -Family doesn't have reliable phone	-Family doesn't start using CGM because they didn't actually want it, felt forced -Busyness of life -Not comfortable to start on own, but don't call for appt -Family doesn't know that they can contact DM Center for help Inequities: -Cost of appt - Health literacy -Literacy-write/read -Language barriers -Variability of caregivers - Home environment

Simplified Failure Modes Effects Analysis (sFMEA)

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Appreciation and Acknowledgement

- Special thanks to …

  - **Cincinnati Children's Hospital Medical Center**

    James M. Anderson Center for Health Systems Excellence

    - **Sarah Corathers, MD** -- Clinical Director, Division of Endocrinology
    - **Amy Grant, DNP, RN, CPN** -- Senior Clinical Quality Specialist

. . . for sharing the Strategic Planning method and sFMEA © tool

Quality Improvement
New Tools and Methods

Thank you!

Discussion?

T1DX-QI Pre-symptomatic T1D Screening and Monitoring Efforts

Emma Ospelt MPH

Pre-Symptomatic T1D Screening and Monitoring Project- Project Team

Co-Principal Investigator
Chief Medical Officer
Osagie Ebekozien, MD, MPH

Co-Principal Investigator
Laura Jacobsen, MD

Co-Principal Investigator
Carla Demeterco-Berggren, MD, Ph.D.

Senior Data Analyst,
Emma Ospelt, MPH

Senior QI Consultant,
Don Buckingham, Sr., MBOE, CPHQ

Senior Director of Clinical Partnerships
Nicole Rioles, MA

Senior Quality Improvement Analyst
Trevon Wright, MHA

Funded by Breakthrough T1D, Sanofi

Background

- Screening for diabetes-related autoantibodies can inform patients' risk of developing Type 1 Diabetes (T1D) before the onset of clinical symptoms.[1]

- Screening provides the opportunity for early disease management, allowing patients to obtain more education before diagnosis and preventing diabetic ketoacidosis (DKA).[1]

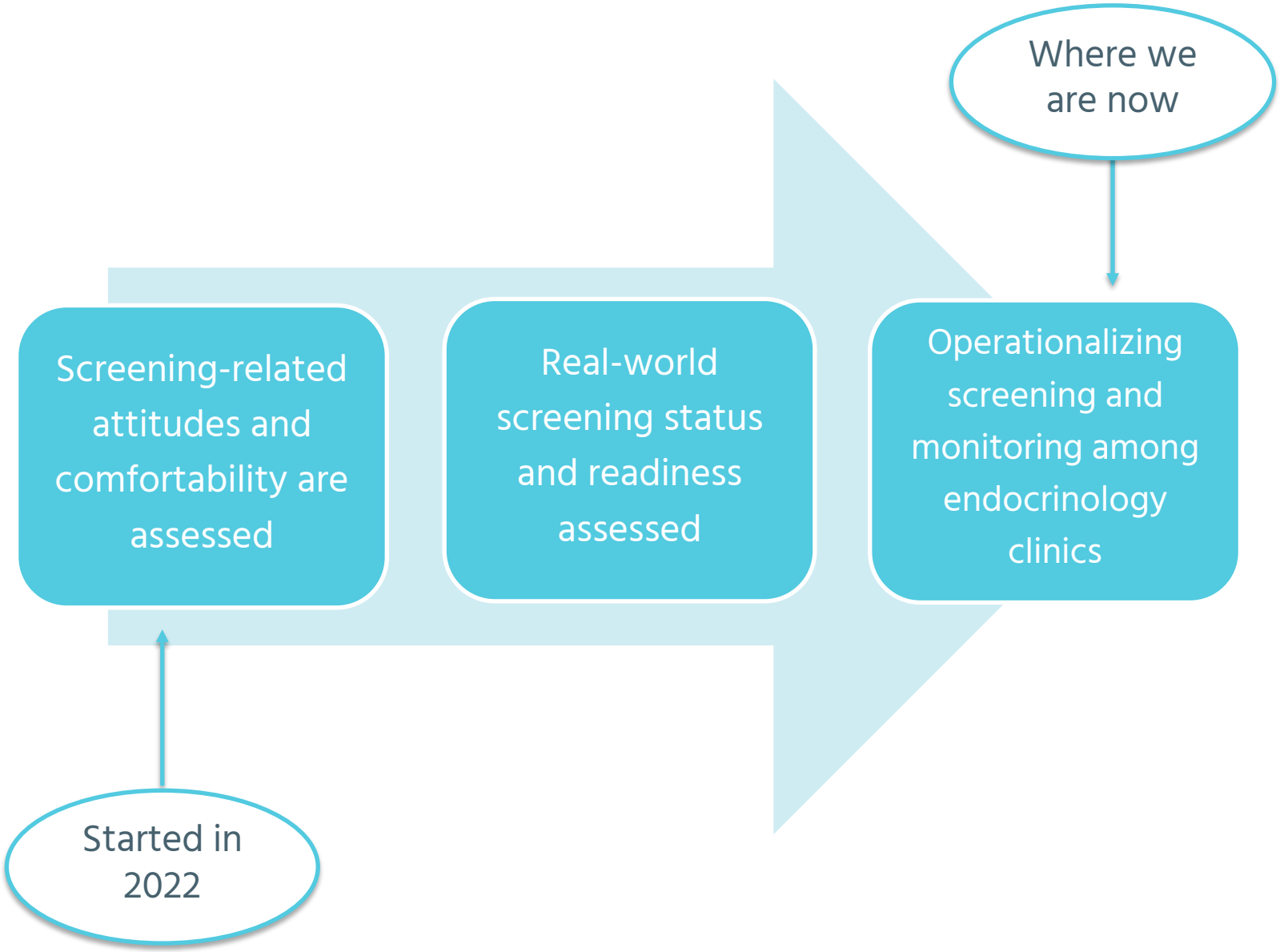
- In November 2022, the FDA approved Teplizumab as the first disease-modifying therapy in T1D.[2] Screening helps to identify eligible individuals for this therapy.

- As screening initiatives become more broadly implemented, they will identify high-risk individuals in the early stages of the disease and either provide a stage-specific intervention or offer clinical trial opportunities.[3]

- These individuals will need monitoring for disease progression, and newly published consensus monitoring guidelines provides this framework.[4]

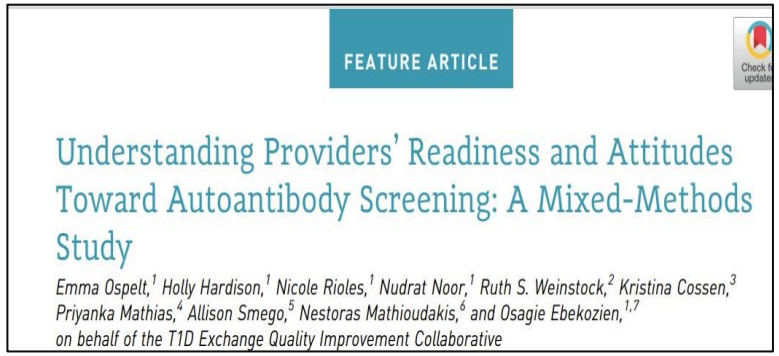
T1D Exchange

An Overview of T1DX-QI's Screening and Monitoring Efforts



Barriers and Facilitators to Screening

- A paper highlighting provider attitudes and awareness of screening, and facilitators and barriers to screening in an endocrinology setting was published in January 2024 in Clinical Diabetes


FEATURE ARTICLE

Understanding Providers' Readiness and Attitudes Toward Autoantibody Screening: A Mixed-Methods Study

Emma Ospelt,[1] Holly Hardison,[1] Nicole Rioles,[1] Nudrat Noor,[1] Ruth S. Weinstock,[2] Kristina Cossen,[3] Priyanka Mathias,[4] Allison Smego,[5] Nestoras Mathioudakis,[6] and Osagie Ebekozien,[1,7] on behalf of the T1D Exchange Quality Improvement Collaborative

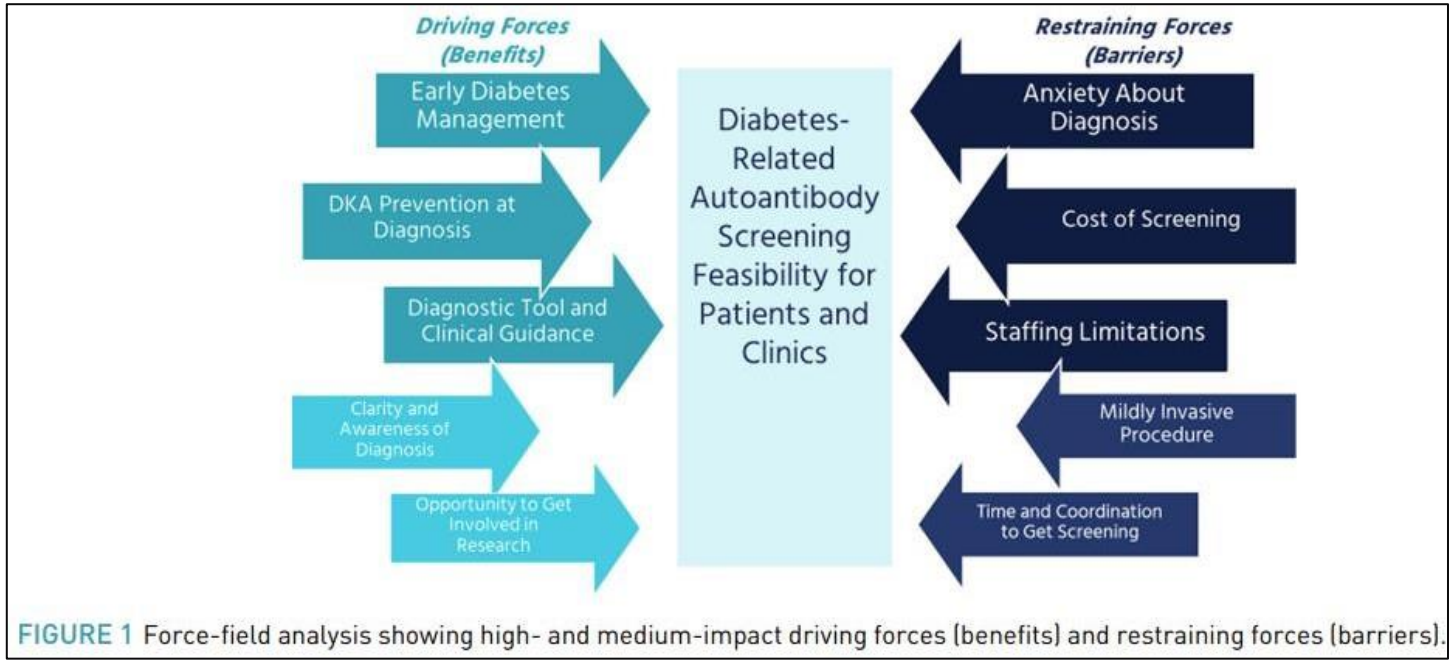


FIGURE 1 Force-field analysis showing high- and medium-impact driving forces (benefits) and restraining forces (barriers).

Highlighting Real-World Status of Autoantibody Screening

- Abstract presented at ADA, 2024 highlighting the real-world status of autoantibody screening and teplizumab administration readiness among T1DX-QI centers.

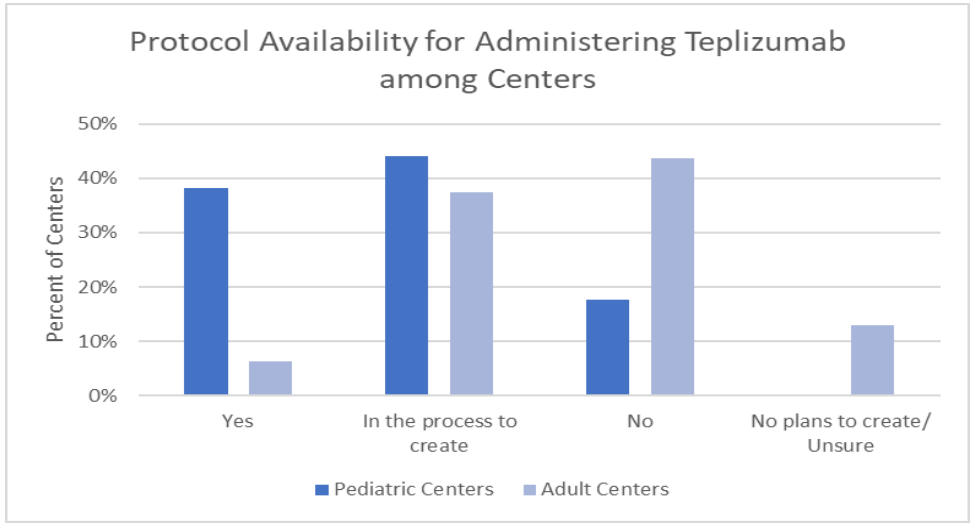
- A survey was administered from July to September 2023 to 55 participating centers.

- 50 centers completed; 68% were pediatric centers and 32% were adult centers.

T1D Exchange

Survey Findings

- 68% of centers had not made any substantive changes to T1D screening practices since the FDA approval of teplizumab.
- Pediatric centers were more prepared to administer teplizumab, with the majority developing and implementing a protocol, in comparison to adult centers (Figure 1).
- Of the centers that had adjusted their screening practices, most developed more specific guidelines and workflows to screen first-degree relatives of people with T1D.
- There was no standard screening laboratory among adult and pediatric centers.



QI Project to operationalize Pre-Symptomatic Screening

- 6 pediatric centers are participating

- **Project aims**:
  1. Increase by at **least 15%** (from baseline) the proportion of people screened for T1D in 18 months (June 2024-December 2025)

  2. Increase by at **least 30%** (from baseline) the proportion of eligible people monitored for progression to stage 3 T1D over 18 months (June 2024-December 2025)

Funded by Sanofi

T1D Exchange

Driver Diagram

Project AIMs

Increase by at least 15% (from baseline) the proportion of people screened for T1D in 18 months (June 2024-December 2025)

Increase, by at least 30% (from baseline,) the proportion of eligible people monitored for progression to stage 3 T1D over 18 months. (June 2024 -December 2025)

Key Drivers

- Workflow
- Equity
- Equipment
- Education

Interventions

- **Education for Families on benefits of Screening**
- **PCP education on T1D screening, staging, and prevention.**
- **Multimodal education on T1D screening for patients and families, including new onset binder, flyers posted in clinic, bulk MyChart message.**

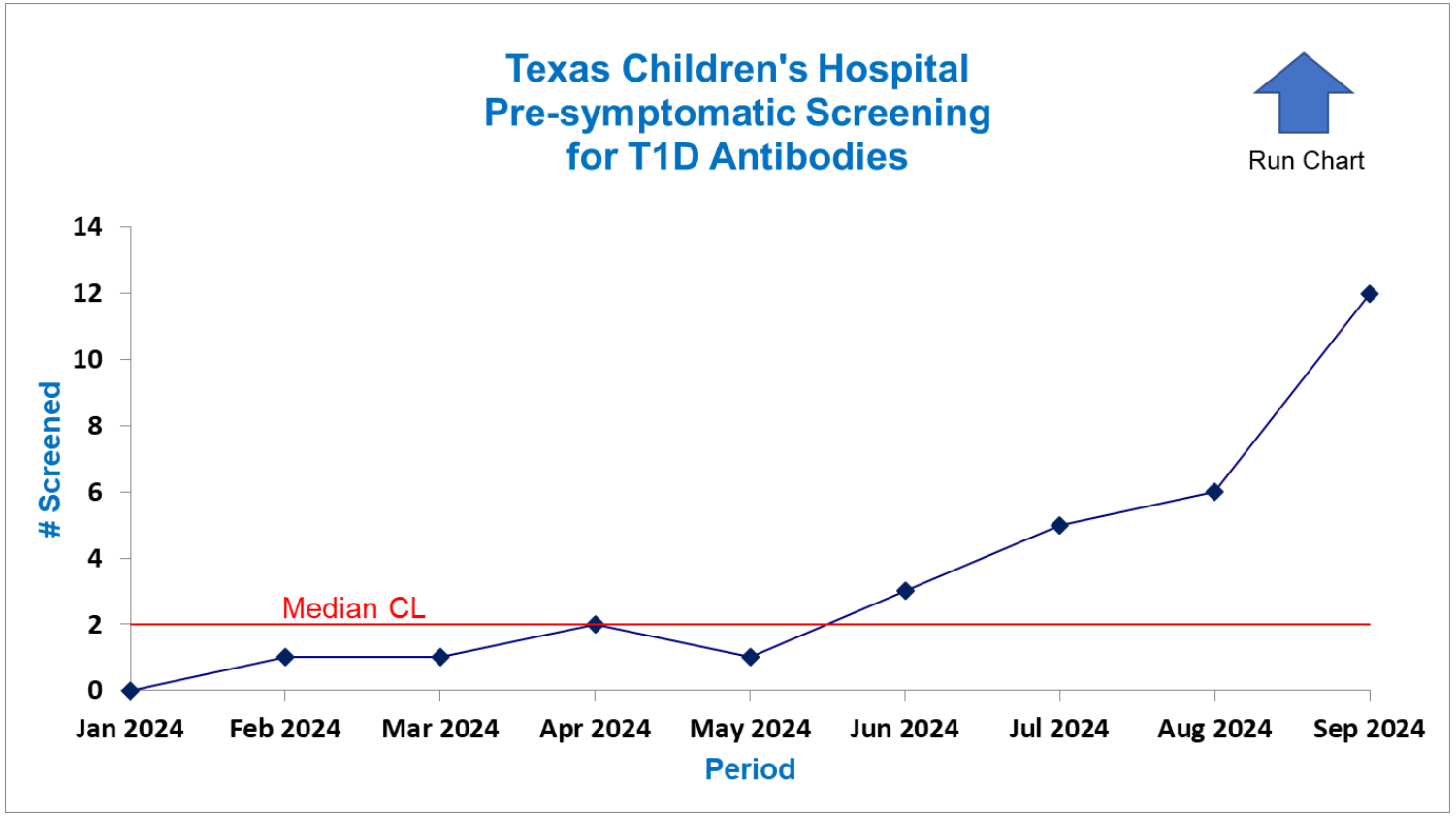
- **Create specific T1D screening and staging as a referral link**
- **Develop consensus guidelines for screening**
- **Mychart message to current T1D patients.**
- **Develop and implement succinct policies and procedures (e.g. outline specific screening guidelines, streamline processes to improve patient follow-up.**
- **Increase the number of appropriate Early-stage clinic (ESC) visits (in-person and virtual) from the referral pool.**
- **Dedicated Screening Appt Slots (telemedicine and in-person).**

- **Create T1Delay flowsheet/power form within EMR system.**
- **Increase the availability of Point-of-care (POC) IAAb screening kits in the outpatient Methodist diabetes clinic.**
- **Offer ASK and Trial Net resources to patients.**
- **Revamp referral mechanism for pre-diabetes to schedule patients with normal BMI in T1D screening clinic.**

- **Help with navigating insurance requirements**
- **Advocacy**
- **Develop, translate, and disseminate screening education materials for patients.**
- **Increase awareness of T1D IAAb screening for families of established T1D patients in our outpatient clinic.**

Pilot Project Preliminary Findings

- **214** individuals have been screened so far among all 6 centers.
- First degree relatives are prioritized for initial screening efforts.
- This project continues through December of 2025.

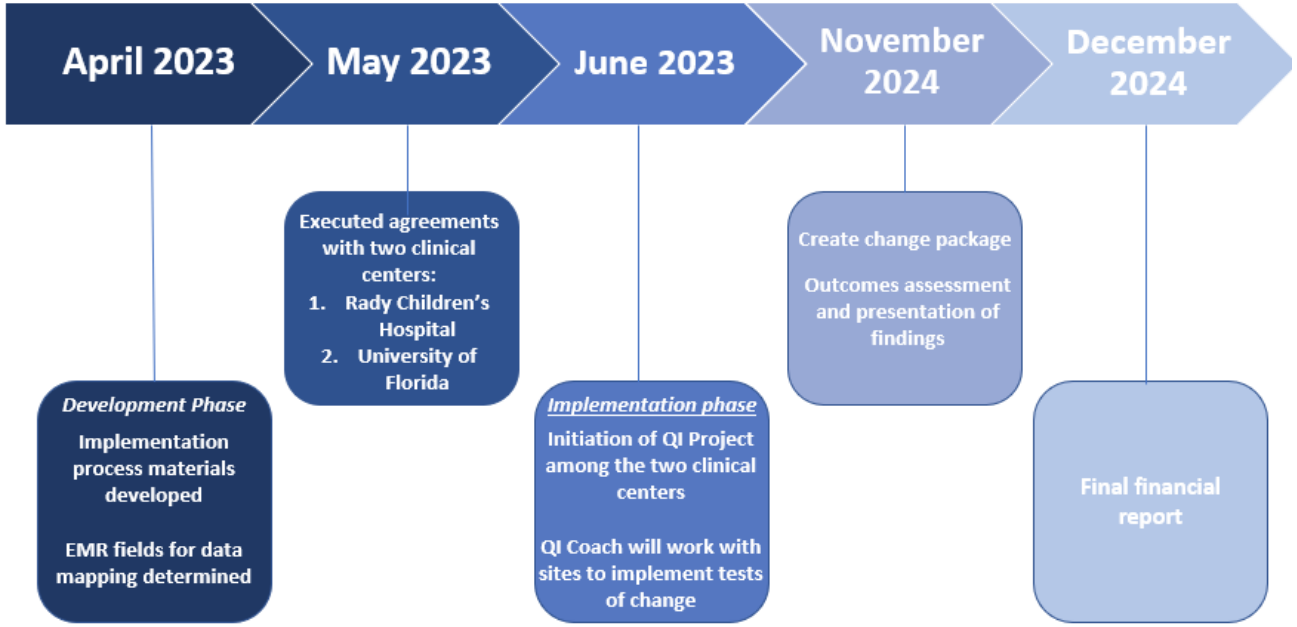


Pre-Symptomatic T1D Monitoring Pilot

- 2 pediatric centers participating
- 18-month project timeline

Project objectives:

1. Develop and test diabetes centers workflows for T1D autoantibody screening and monitoring in the real-world setting.
2. Identify care team perceptions of operational challenges to the screening and monitoring process.



Funded by Breakthrough T1D

KEY DRIVER DIAGRAM - what will drive change?

Study Purpose and Objectives

The **study purpo**se is to operationalize routine Screening and Monitoring for stage 1 and stage 2 T1D in support of clinical monitoring.

Two **primary objectives** of this study is; 1) to identify care team perceptions of operational challenges to the Screening and Monitoring and monitoring process; and 2) to develop and test diabetes centers workflows for T1D autoantibody Screening and Monitoring and monitoring in the real-world setting

Drivers

- **Workflow**
- **Technology**
- **Equity**
- **Education**

Interventions

Workflow

- Create specific T1D Screening and Monitoring a referral code
- Determine how to practically use the published consensus guidelines for Monitoring
- Patient Portal message to curent T1D patients.
- Develop and implement succinct policies and procedures (e.g. outline specific Screening and Monitoring guidelines, streamline processes to improve patient follow-up.
- Increase the number of appropriate Early-Stage Clinic (ESC) visits (in-person and virtual) from the referral pool.
- Dedicated Screening and Monitoring Appt Slots (telemedicine and in-person).

Technology

- Create T1Delay flowsheet/power form within EHR system.
- Increase the availability of Point-of-care (POC) IAAb Screening and Monitoring kits in the outpatient diabetes clinic.
- Offer ASK and Trial Net resources to patients.
- Revamp referral mechanism for pre-diabetes to schedule patients with normal BMI in T1D Screening and Monitoring clinic.
- Have CGM Samples available for high risk, stage 2 individuals

Equity

- Help with navigating insurance requirements
- Advocacy
- Develop, translate, and disseminate Screening and Monitoring education materials for patients.
- Increase awareness of T1D IAAb Screening and Monitoring for families of established T1D patients in our outpatient clinic
- Establish weekend screening events on-site and off-site

Education

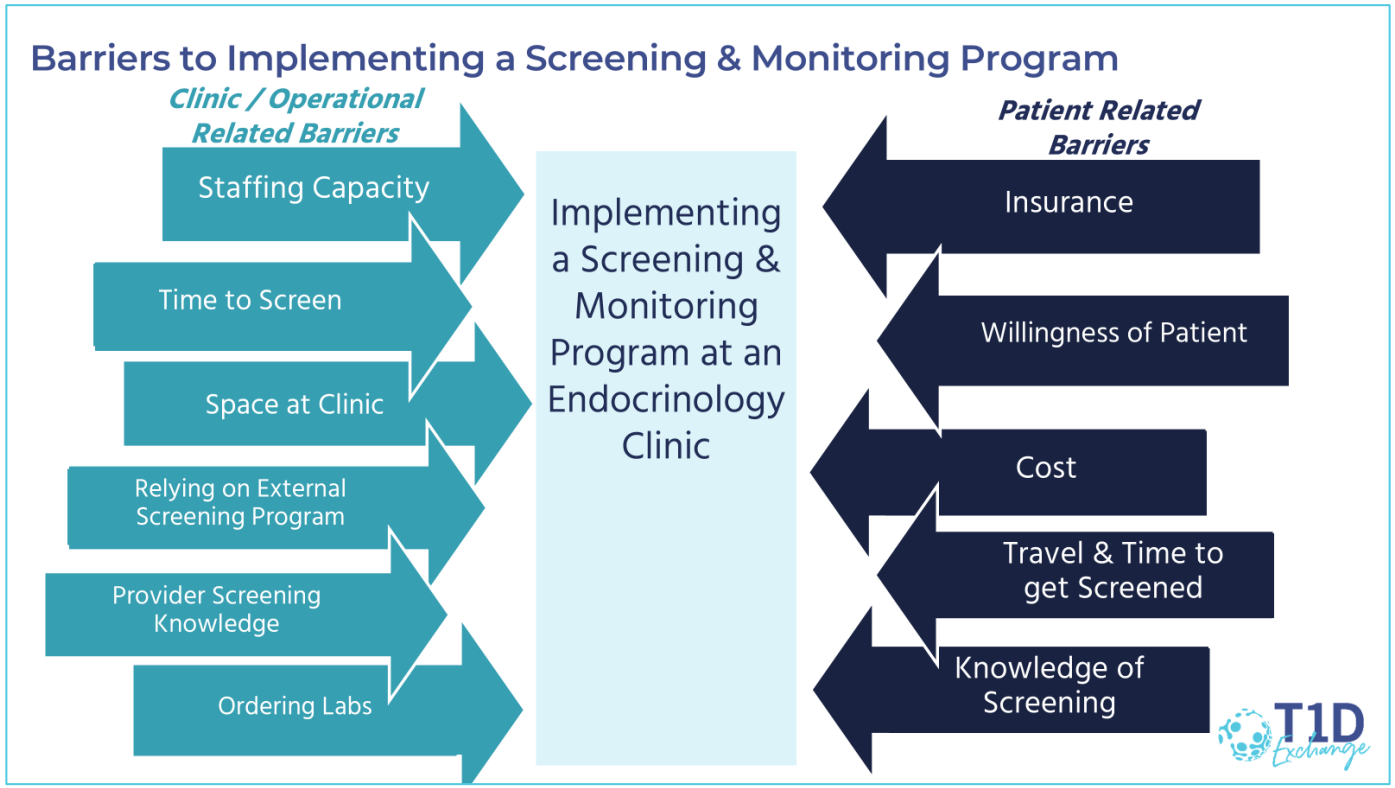
- Education for Families on benefits of Screening and Monitoring
- Endocrinology physician / care team / department education on T1D Screening and Monitoring, staging, and prevention.
- Multimodal education on T1D Screening and Monitoring for patients and families, including new onset binder, fliers posted in clinic, bulk Patient Portal message.

T1D Exchange

Focus Group Findings - Barriers & Facilitators

Facilitators:

- Strong communication channels to inform both the healthcare and patient community about screening and monitoring.
- Engaged individuals at pilot centers.
- Advocating for insurance coverage for screening.
- Knowing which patients, when, and how frequently to approach and reminding them of the importance of screening is crucial.

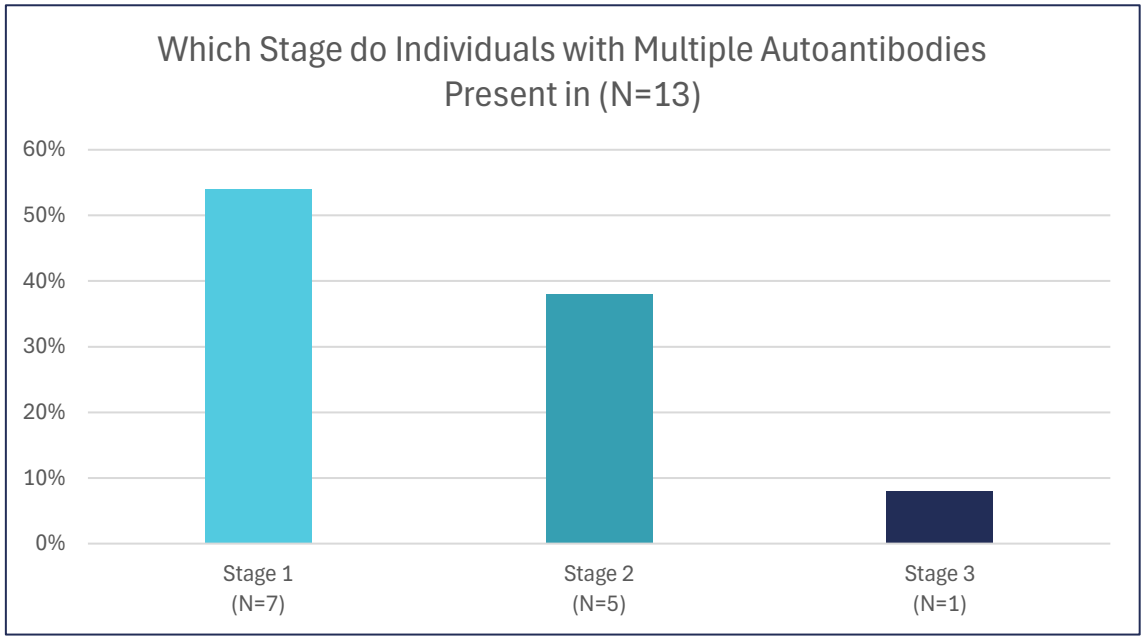


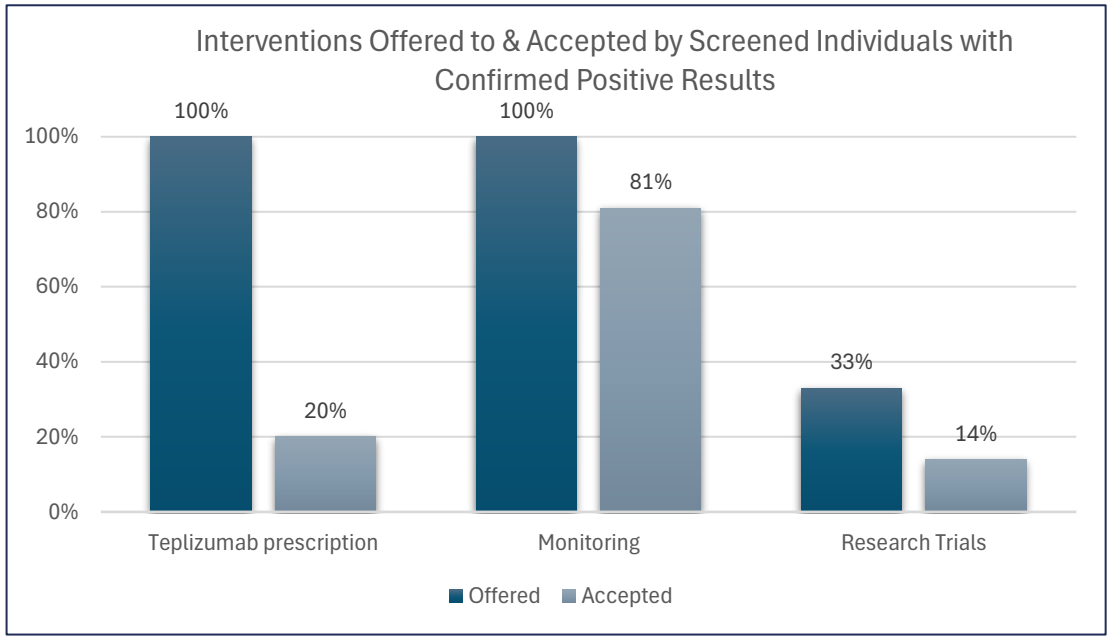
*"It's a little more **labor-intensive** than just antibodies, because it's timed lab results with a drink." –Pediatric Endocrinologist*

T1D Exchange

Aggregate Data Collected among Screened Individuals

- 100 individuals aged 1-25 years old were screened for autoantibodies across two centers
- 13% had confirmed positive results with multiple autoantibodies present
  - Most common autoantibody was GADA (75%)





Summary

- Provider awareness and clinic readiness for screening has been observed and identified among T1DX-QI centers.
- Barriers and facilitators (both clinic and patient related) to screening and monitoring have been identified.
- Operationalizing screening and monitoring in real-world endocrinology clinics has begun and care teams are sharing their experiences with this process.
- The number of individuals being screened and put on a monitoring regimen is increasing over time as centers address barriers and develop and implement workflows.

T1D Exchange

Best Practice Advisory Insights

Trevon Wright MHA

November 11, 2024

Project Team

T1D Exchange:

Chief Medical Officer
Osagie Ebekozien, MD, MPH, CPHQ

Senior Director of Clinical Partnerships
Nicole Rioles, MA

QI Project Manager
Trevon Wright, MHA

Senior Data Analyst
Emma Ospelt, MPH

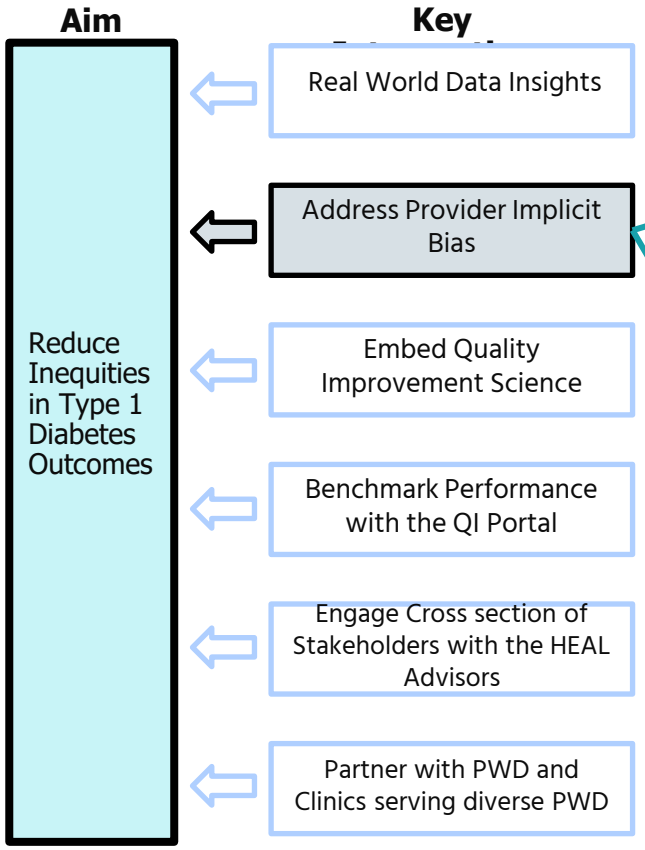
Johns Hopkins University (Co-PIs):

Associate Professor of Pediatrics, Division of Endocrinology
Director, Pediatric Diabetes Center
Risa Wolf, MD

Associate Professor of Medicine Endocrinology, Diabetes & Metabolism Nestoras Mathioudakis, MD MHS

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,[1,*] Ananta Addala, DO, MPH,[2,*] Grace Nelson, MD,[3]
Rachel Hopkins, MD,[4] Kristina Cossen, MD,[5] Jessica Schmitt, MD,[6] Justin Indyk, MD, PhD FAAP,[7]
Nana-Hawa Yayah Jones, MD,[8] Shivani Agarwal, MD, MPH,[9]
Saketh Rompicherla, MS,[1] and Osagie Ebekozien, MD, MPH[1]

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

	Insurance bias	P	*Race/ethnicity bias*	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	**1.08 (1.02, 1.16)**	**0.02**[#]	1.00 (0.95, 1.06)	0.8
Recognize own bias (agree/strongly agree)	1.54 (0.66, 3.57)	0.3	**5.25 (1.83. 19.01)**	**0.004**[#]

[#]*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., & Ebekozien, 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*

BPA Reducing Lab Tests

Results from the beta-binomial model indicated that the intervention reduced the overall duplicates by 18%. Percent reductions in 9 of the 17 lab tests were statistically significant. Additionally, important cost savings were realized from the reduction of duplicates for each lab test with an estimated overall savings of $72,543 over 17 months in the post-intervention period.

The role of a best practice alert in the electronic medical record in reducing repetitive lab tests

Harini Bejjanki [1], Lazarus K Mramba [2], Stacy G Beal [3], Nila Radhakrishnan [1], Rohit Bishnoi [1], Chintan Shah [1], Nikhil Agrawal [4], Neil Harris [3], Robert Leverence [1], Kenneth Rand [3]

Affiliations + expand

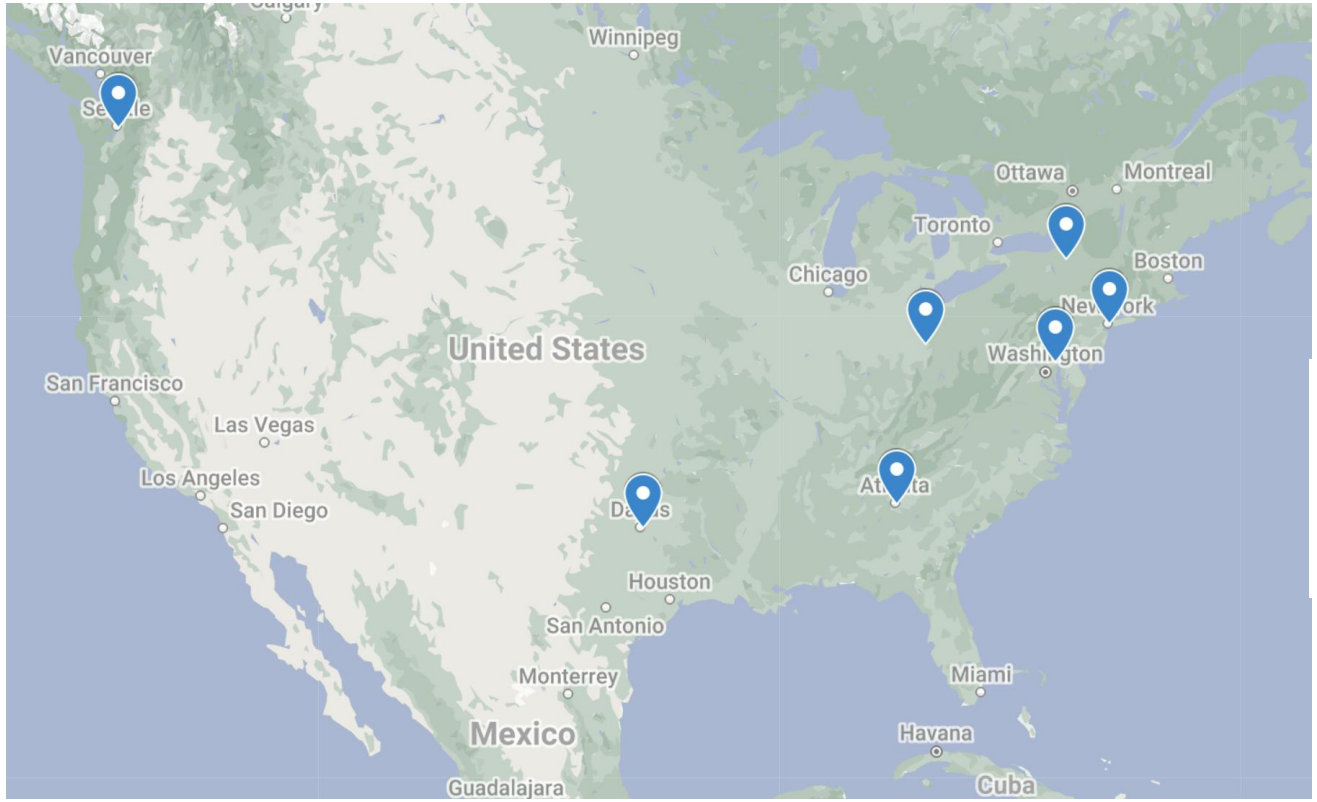
PMID: 30323637 PMCID: PMC6181108 DOI: 10.2147/CEOR.S167499

Bejjanki, H., Mramba, L. K., Beal, S. G., Radhakrishnan, N., Bishnoi, R., Shah, C., Agrawal, N., Harris, N., Leverence, R., & Rand, K. (2018). The role of a best practice alert in the electronic medical record in reducing repetitive lab tests. ClinicoEconomics and outcomes research : CEOR, 10, 611–618. https://doi.org/10.2147/CEOR.S167499

Current Breakthrough T1D/ Helmsley Charitable Trust funded QI Project Scope

Best Practice Advisories for Tech Equity (BPA-TECH)

Participating Centers



Grady

Seattle Children's
HOSPITAL · RESEARCH · FOUNDATION

HASSENFELD CHILDREN'S HOSPITAL AT NYU LANGONE

UT Southwestern Medical Center

Joslin Diabetes
Affiliate at SUNY Upstate Medical University

Nationwide Children's
When your child needs a hospital, everything matters.

Johns Hopkins Medicine

T1D Exchange

Project Aims

Aim 1: To develop and implement an EHR-based BPA using stakeholder feedback to standardize the approach for prescribing and documenting advanced diabetes technologies (ADT,) including CGM, insulin pump, AID, among adult and pediatric PwT1D.

Aim 2: To determine the effectiveness of an EMR-based BPA in reducing racial inequities in ADT.

Aim 3: To explore the reasons identified for providers decision to not prescribe ADT and whether they were PwT1D or provider led decisions, and the association between the reason provided and the PwT1D's race/ethnicity.

Study Timeline

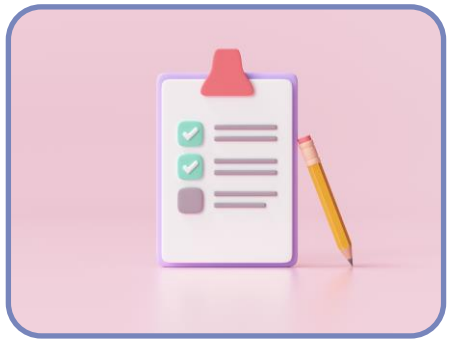
Milestones	Apr-24	Jul-24	Oct-24	Jan-25	Apr-25	Jul-25	Oct-25	Jan-26	Apr-26	Jul-26	Oct-26	Jan-27
Start-up	x											
Aim 1												
Qualitative Study		x	x									
BPA develop/impl.			x	x	x							
Publication				x								
Aim 2												
BPA deployed					x	x	x	x	x			
Data collection						x	x	x	x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

AIM 1: Qualitative Research

Aim 1: Qualitative Research

Focus groups/ structured interviews:

- Pediatric and adult endocrine providers, Diabetes care team members (RNs, CDCES), and IT Specialists who are part of T1DX-QI
- PwT1D/caregivers
- Scheduling focus groups with providers.



People with T1D surveys

- T1D Exchange Registry

BPA Focus Group Findings

- 8 focus groups conducted with 8 clinics

- Focus groups comprised:
  - Providers (MDs, APPs)
  - Diabetes care team members (RNs, CDCES)
  - IT specialists

- We asked questions relating to :
  - BPA for prescribing CGMs for PwT1D

  - BPA for prescribing automated insulin delivery (AID) systems for PwT1D

Criteria for Triggering

- All individuals with Type 1 Diabetes

“"I think it should fire for **everyone [appointment]**, have that conversation,' underscoring the need to keep these technological dialogues alive and relevant.”

- Individuals with T1D **AND** no devices on med list, and then only CGM on med list

"I think for CGM, diagnosis of type 1 diabetes, this BPA should be triggered for everyone, have that conversation."

"I think one would be maybe type 1s that don't have any technology use because that's really like a gap in the standard of care."

Who should it fire to?

We asked: Who should the BPA be targeted to on your care team?

- Targeted to the prescribing provider ***OR*** provider ***AND*** educator

"See, that's my fear. If it's the first to open, it's not the right person." "Either the educator or the provider."

"**If we had all the support**, in my mind, the nurse. Seeing as **we don't** have that, I would just say I would want the ability to fill that out. Or right now, maybe just every provider in our team has the ability to fill that out."

"I think the provider, right? So for us, it could be an APN or it could be the physician. So both see patients separately. I think that would be the case. We do have diabetes educators involved in this process, but I'm guessing if they don't want it, then it's probably the provider's job to convince, and then the diabetes educators can take it on. **But yeah, I wouldn't want it with everybody.** I don't know that it would help for the MA. So mainly the provider, maybe some additional person potentially, but not a big group."

"I think all providers. So that would be endocrinologists, fellows, educators, for sure, all our educators. Our pharmacist, we have a full-time pharmacist because he could be talking about it to them. So I think our pharmacists, our nurse and dietitian educators, our APPs, our fellows, and our attendings."

T1D Exchange

When should it fire?

- Before encounter begins/pre-charting
- At the beginning of the clinical encounter and then can snooze?

“The BPA would appear when you open up the patient chart at the **beginning of the visit.**”

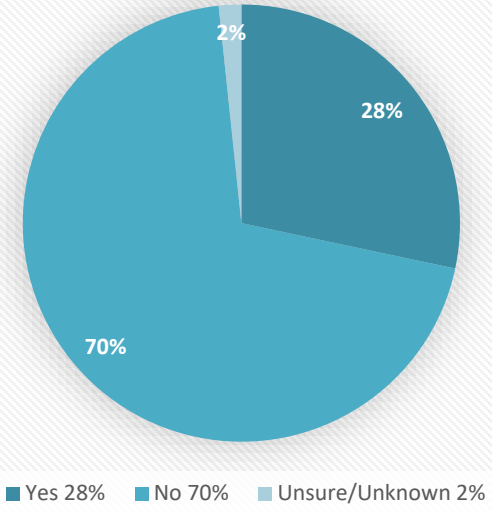
'I want it to remind me in the **beginning** prominently to say, 'Hey, this one's not on a pump, and have you thought about it?’

“If there's a snooze button, say, 'Okay, I don't want to talk about this now… But **remind me again** in three to five minutes.'”

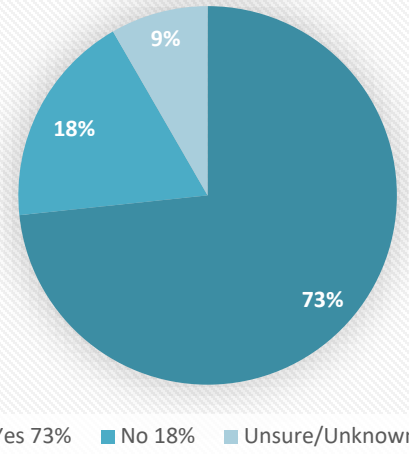
Preliminary Annual Survey BPA Insights from the T1DX-QI Collaborative

Preliminary BPA Insights

At your center, do you have any existing BPAs related to diabetes technologies?

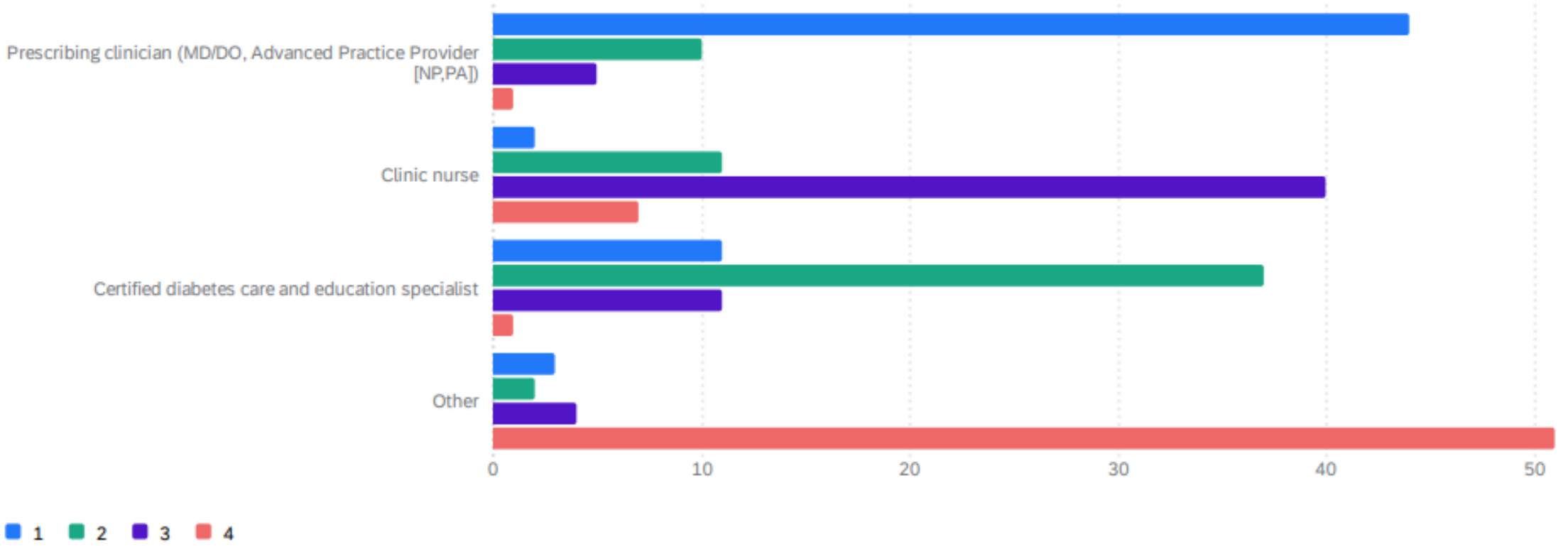


Does your center routinely offer Automated Insulin Delivery (AID) within 6 months of diagnosis?

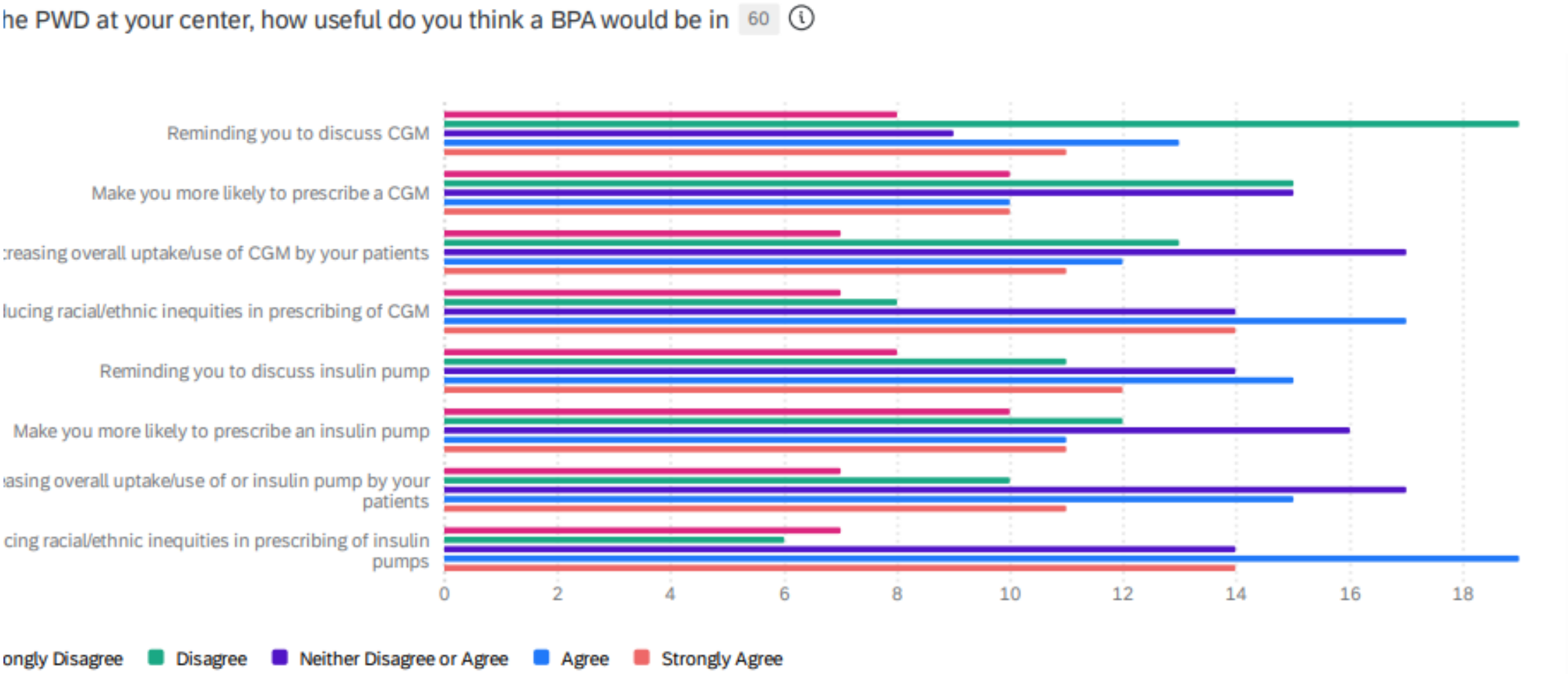


Preliminary BPA Insights

For the PWD at your center, who is the best person on the healthcare team for the BPA to target? Rank in order (1= most appropriate to 4= least appropriate): 60



Preliminary BPA Insights



Next Steps

- Meeting with the participating centers to discuss and map out the integration of the BPA into their Electronic Medical Records (EMR) systems.
- Collaborate with IT specialists and clinical team members to align on integration requirements. The group will also discuss barriers and share initial findings.
- Begin the implementation and data collection for AIMs 2 and 3.

Questions/Feedback