T1DX-QI Pediatric Collaborative Call

July 23, 2026

Agenda

- Welcome and Introductions
- Updates from the Coordinating Center
- Center presentations
  - Johns Hopkins: High Risk DKA Outreach with Dr. Neha Parimi
  - Stanford: T-Zield with Dr. Priya Prahalad

Updates from the Coordinating Center

- 2027 Meeting Schedule
- Learning Session Reminders
  - Abstracts
  - Registration
  - Hotel
- Annual Survey release date: 8/17/2026
- Office Hours with Dr. Wong
- QI Portal Updates

2027 Meeting Schedule

Outlook invitations will be sent by 8/15 to help you plan your 2027 calendar.

Schedule will also be updated on the member website.

Submit an abstract for the November Learning Session

Submit an abstract to share your clinic's work and success stories.

Abstracts will be considered for publication in the *Journal of Diabetes* as well as for oral or poster presentations at the Learning Session.

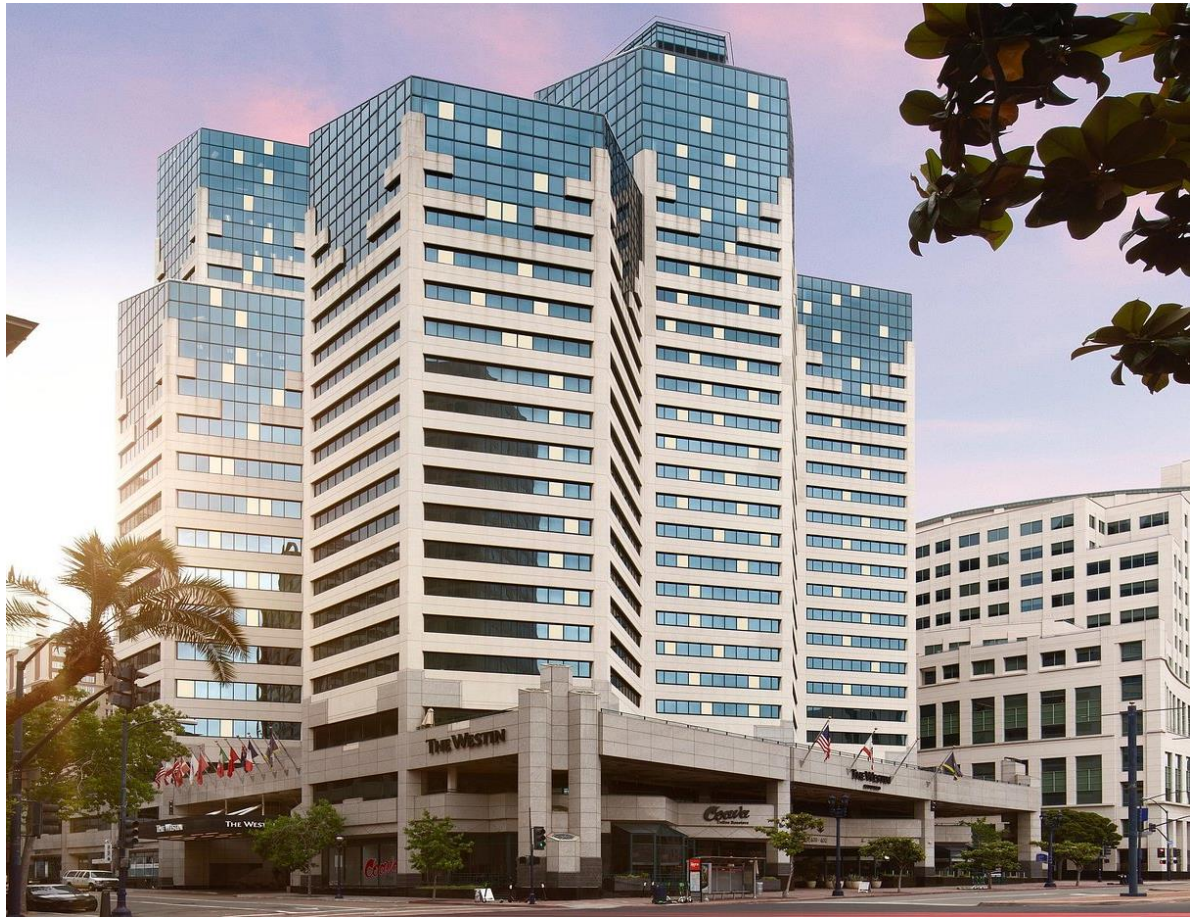
We can accept submissions using abstracts that you have revised/updated from previous submissions in 2026.

Abstracts are due next week! **Friday, July 31st.**

Registration and hotel reminders

1. Register by **October 1st**
2. Book your hotel by **October 12th**

Please reference the FAQ or email qi@t1dexchange.org with any questions.



2026 Annual Survey

- The annual survey will go live **August 17**
- Survey information will be emailed to center PIs and coordinators
- One survey should be completed by each center by **October 1st**
- We thank you for your contributions!

Office hours with Jenise Wong, MD, PhD

Please use the Zoom links below to join office hours:

- First Thursdays 9-11am PT (12-2pm ET) - starting July 2: Zoom Link
- Third Tuesdays 1-3pm PT (4-6 pm ET) - starting June 16: Zoom Link

T1DX-QI Portal Office Hours and Updates

Sign up for office hours with Alyssa and Claire from the QI Team

Portal Updates

- Delay in 2026-2028 metric roll out due to data spec review
- Median HbA1c is now available on the dashboard
- Rankings available among the peer groups (peds and adult)

JOHNS HOPKINS
MEDICINE

Reducing hospital readmissions in youth with high risk of Diabetic Ketoacidosis

Neha Parimi, MBBS,MPH

7/23/2026

Background

- Diabetic ketoacidosis (DKA) is a life-threatening yet avoidable complication of diabetes.

- Approximately, 10% of youth with Type 1 diabetes (yT1D) experience at least one DKA event per year.[1,2]

- Key risk factors of DKA include high HbA1c, low socio-economic status, public insurance, and prior DKA hospitalization.[3]

Cengiz, E. *et al. Pediatr Diabetes*, (2013), Maahs, D.M., J.M. Hermann, N. Holman, et al. *Diabetes Care, (2015)*

Background (JHH)

- At our diabetes center, providers have manually maintained lists of patients with high HbA1c and frequent DKA admissions to provide support and regular follow-ups.

- However, this manual process for identifying high-risk patients is time-consuming and prone to missed communications.

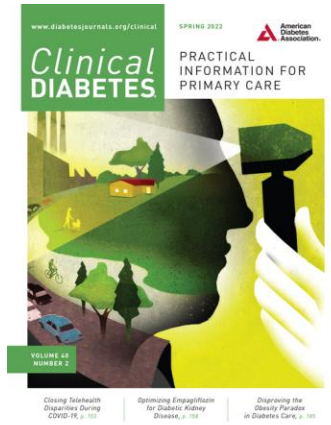
Objectives

The aim of this quality improvement (QI) initiative is to **reduce DKA admissions by 15%:**

1. by developing **a high-risk dashboard** with an automated risk score

2. by providing a **wraparound program** for patients admitted in DKA.

Epic based DKA risk score: the Texas Children's RI-DKA



FEATURE ARTICLES | APRIL 15 2022

An Automated Risk Index for Diabetic Ketoacidosis in Pediatric Patients With Type 1 Diabetes: The RI-DKA

David D. Schwartz; Rosa Banuelos; Serife Uysal; Mili Vakharia; Kristen R. Hendrix; Kelly Fegan-Bohm; Sarah K. Lyons; Rona Sonabend; Sheila K. Gunn; Selorm Dei-Tutu

TABLE 3 Multivariable Logistic Regression of DKA in Training Dataset

Variable	Comparison	Adjusted OR (95% CI)	*P*
Last A1C result*	—	1.29 (1.16–1.45)	<0.0001
Insurance	Public/self-pay vs. private/other	2.27 (1.38–3.74)	0.001
DKA in prior two FYs	Yes vs. no	3.10 (1.81–5.23)	<0.0001

* For A1C, change in odds was associated with each 1% increase in the variable.

RI-DKA score ranged from –3.5 to 14

- TCH continues to iterate and current calculations may have changed

JHH DKA risk-score

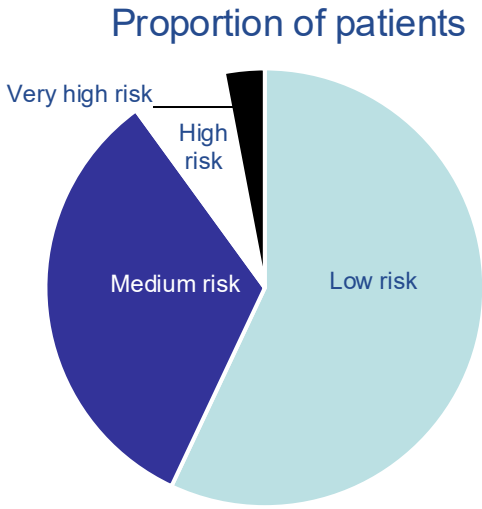
- Same factors associated with DKA as Texas Children's Hospital
  - Only factors that were readily available in the EMR were considered

JH Pediatric DKA score		
Public/no insurance	DKA in prior 2 years	Most recent HbA1c
• 25 points • 0 points for private/commercial	• Excludes new onset • 35 points	• (HbA1c – 8)*5 • Minimum: -10 points; maximum: 40 points

Schwartz DD, Banuelos R, Uysal S, et.al, Clin Diabetes. 2022

JH Pediatric DKA score ranges from -10 to 100

Score Range	Risk Level	Risk factors
-10 to 10	**Low** (~55-60% of patients)	A1c <=10 and no other risk factors (private insurance, no DKA in last 2 years, other than new onset)
10.5 to 40	**Medium** (~33% of patients)	A1c>10 and no other risk factors, or public insurance with A1c<=11 or DKA in prior 2 years with A1c<=9.
40.5 to 65	**High** (~6-8% of patients)	Either public insurance with A1c>11, or DKA in prior 2 years with A1c>9 and <=14. Or, both with an A1c<=9.
65.5 to 100	**Very high** (~2-4% of patients)	DKA in prior 2 year and HbA1c>14, or prior DKA and public insurance and A1c>9



Validation

Validated with JHU pediatric clinic data:

822 Patients seen between 2/2022-1/2024

Follow up care from 2/2024-1/2025

Percentage in validation dataset entering DKA by risk category

Very high:	High:	Medium:	Low:
26%	9%	4%	1%

Available in Epic Hyperspace as of 9/2/2025

- **DKA risk score column can be added to:**

Patient lists:

Last A1C	Last A1C Date	Peds DKA Risk Score
12.0	01/13/2025	45
7.6	10/16/2024	-2
7.6	11/20/2023	-2

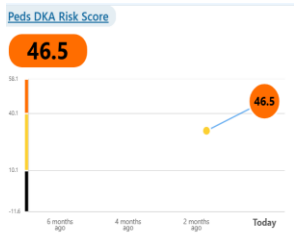
Schedules:

Time	Video	Self-...	Last HBA...	Last HBA1C Dat...	Peds DKA Ris...
8:00 AM			7.8	06/26/2025	-1
8:00 AM			8.9	07/14/2025	4.5
8:30 AM			9.8	10/23/2025	34

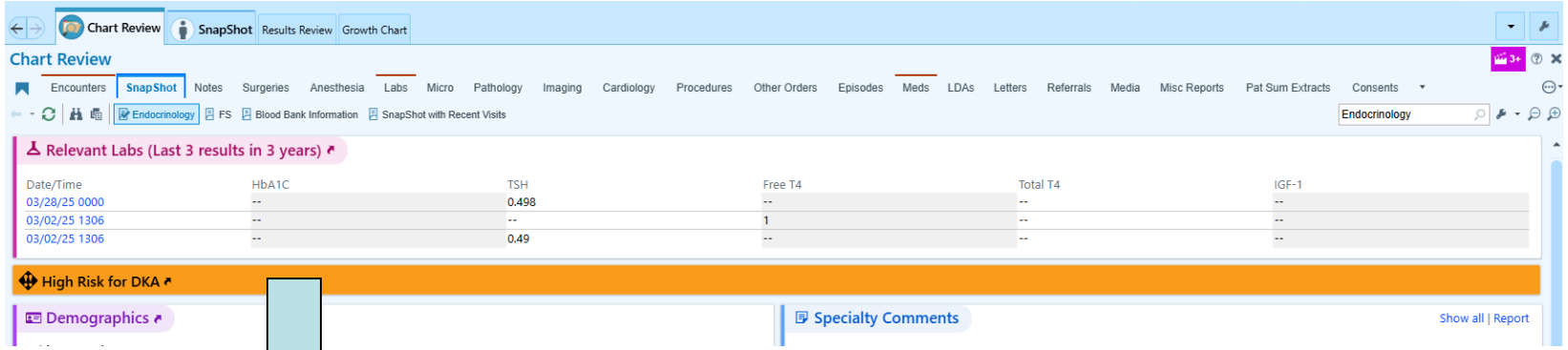
Reports:

Last HbA1c Value	Last HBA1C Date	CGM Device	Insulin Delivery	No. of DKA Events Past 2 yrs.	Recent DKA Admission Date	Peds DKA Risk Score
11	07/02/2025	Freestyle Libre 3		2	02/16/2025	50
6.7	09/25/2025	Dexcom G7	Omnipod 5	0		-6.5
12.1	08/25/2025	Dexcom G6		0		45.5

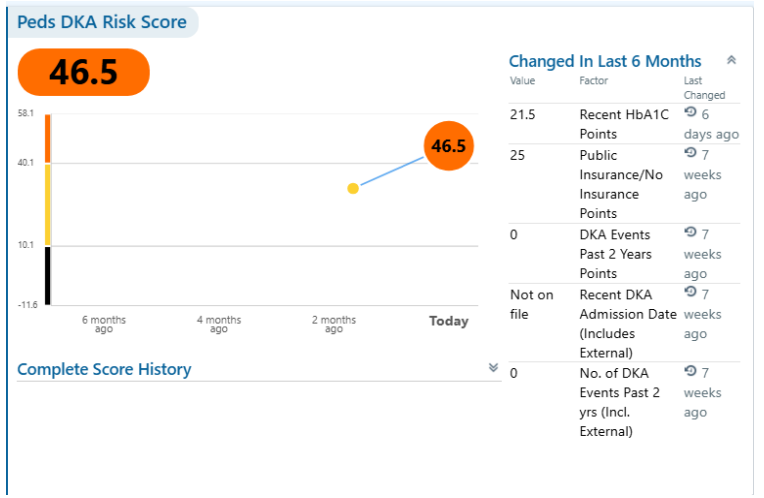
- 2 other columns have also been added to Epic reports
  - Number of DKA events in the past 2 years (includes Care Everywhere hospitals)
  - Most recent DKA date (includes Care Everywhere hospitals)



High Risk Banners in Patient Snapshot (Outpatient) and Summary (Inpatient)



Clicking on orange bar opens the Peds DKA Risk Score report



DKA dashboard with risk-score

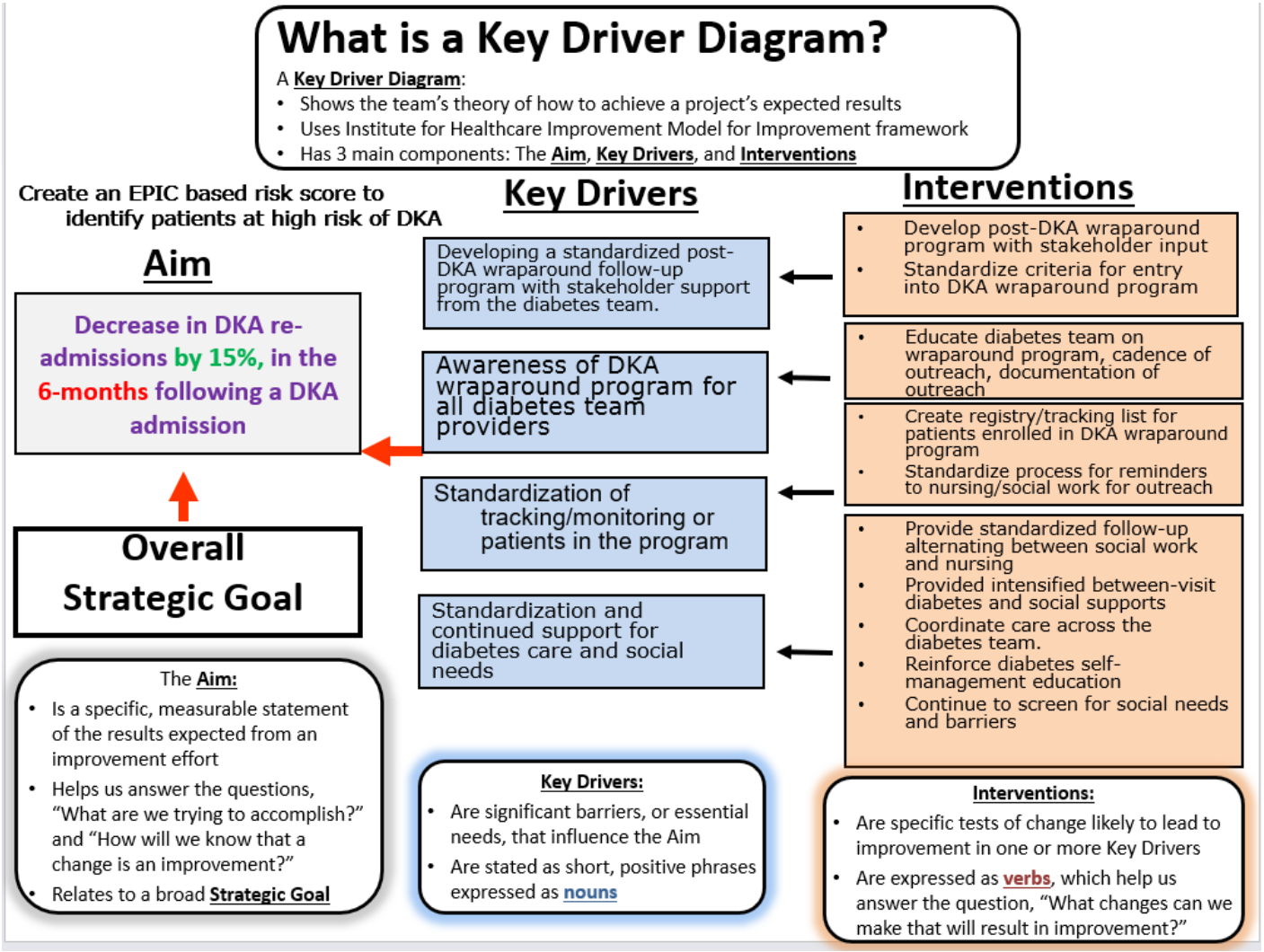
The DKA dashboard with the automated risk-score provided an **accurate and efficient** solution for the care team to identify highest-risk patients.

High-Risk DKA wraparound program

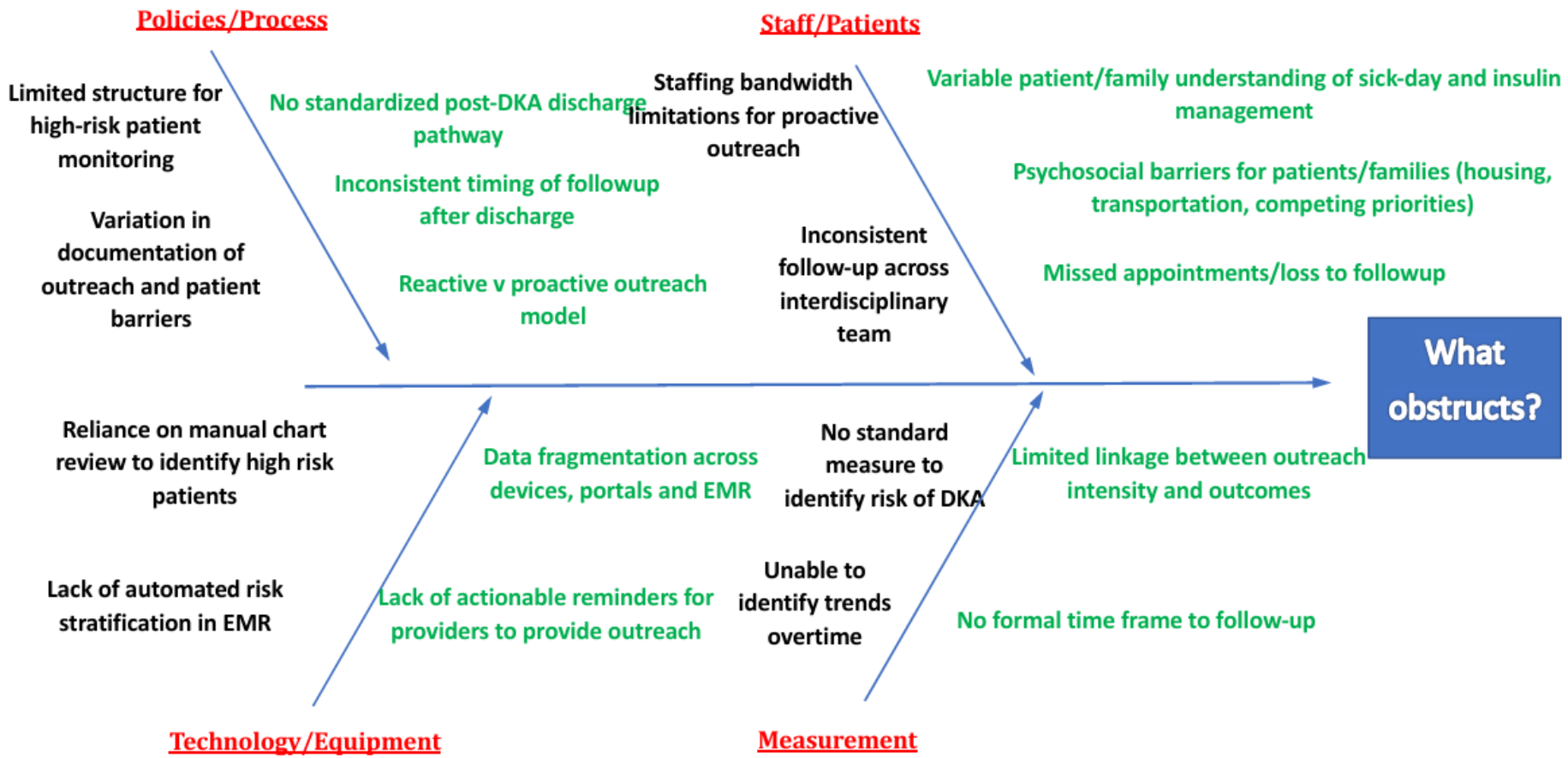
High Risk DKA wraparound program

- Patients on our manual TLC lists were getting intermittent follow-up after DKA admissions
- No standardization of follow-up
- Many patients with DKA admissions have social needs
- Previous programs - time intensive and resource demanding

Key Drivers


What is a Key Driver Diagram?
A Key Driver Diagram:
• Shows the team's theory of how to achieve a project's expected results
• Uses Institute for Healthcare Improvement Model for Improvement framework
• Has 3 main components: The Aim, Key Drivers, and Interventions
Create an EPIC based risk score to identify patients at high risk of DKA
Aim
Decrease in DKA re-admissions by 15%, in the 6-months following a DKA admission
Overall Strategic Goal
Key Drivers
Developing a standardized post-DKA wraparound follow-up program with stakeholder support from the diabetes team.
Awareness of DKA wraparound program for all diabetes team providers
Standardization of tracking/monitoring or patients in the program
Standardization and continued support for diabetes care and social needs
Interventions
• Develop post-DKA wraparound program with stakeholder input
• Standardize criteria for entry into DKA wraparound program
• Educate diabetes team on wraparound program, cadence of outreach, documentation of outreach
• Create registry/tracking list for patients enrolled in DKA wraparound program
• Standardize process for reminders to nursing/social work for outreach
• Provide standardized follow-up alternating between social work and nursing
• Provided intensified between-visit diabetes and social supports
• Coordinate care across the diabetes team.
• Reinforce diabetes self-management education
• Continue to screen for social needs and barriers
The Aim:
• Is a specific, measurable statement of the results expected from an improvement effort
• Helps us answer the questions, "What are we trying to accomplish?" and "How will we know that a change is an improvement?"
• Relates to a broad Strategic Goal
Key Drivers:
• Are significant barriers, or essential needs, that influence the Aim
• Are stated as short, positive phrases expressed as nouns
Interventions:
• Are specific tests of change likely to lead to improvement in one or more Key Drivers
• Are expressed as verbs, which help us answer the question, "What changes can we make that will result in improvement?"

Fishbone


Policies/Process
Limited structure for high-risk patient monitoring
No standardized post-DKA discharge pathway
Inconsistent timing of followup after discharge
Variation in documentation of outreach and patient barriers
Reactive v proactive outreach model
Staff/Patients
Staffing bandwidth limitations for proactive outreach
Variable patient/family understanding of sick-day and insulin management
Psychosocial barriers for patients/families (housing, transportation, competing priorities)
Inconsistent follow-up across interdisciplinary team
Missed appointments/loss to followup
What obstructs?
Reliance on manual chart review to identify high risk patients
Data fragmentation across devices, portals and EMR
No standard measure to identify risk of DKA
Limited linkage between outreach intensity and outcomes
Lack of automated risk stratification in EMR
Lack of actionable reminders for providers to provide outreach
Unable to identify trends overtime
No formal time frame to follow-up
Technology/Equipment
Measurement

Protocol development

Multiple stakeholder meetings to develop a feasible protocol

- Clinicians
- Nurses
- Nurse practitioners
- Social workers

Protocol

- **DKA admission -**
  - Inpatient service team notifies primary team, (nurse/provider) coordinator (Neha Parimi)
  - Notification should include concerns that need to be addressed and best phone number to contact/how and when best to reach the patient.

  Day after DKA discharge-
  - nurse calls patient (with social worker if possible)
  - Confirms patient's follow-up appointment. If the patient's appointment is far out, (>1 month), or additional diabetes care social needs should schedule sooner virtual visit or appointment.
  - If no answer, check if patient caregiver typically reads MyChart messages. And if yes, send a MyChart message. If no answer, call again the following day.

  Month1 - weekly phone calls alternating between nurse and social work.
  - Nurse calls every two weeks,
  - social work calls every two weeks.

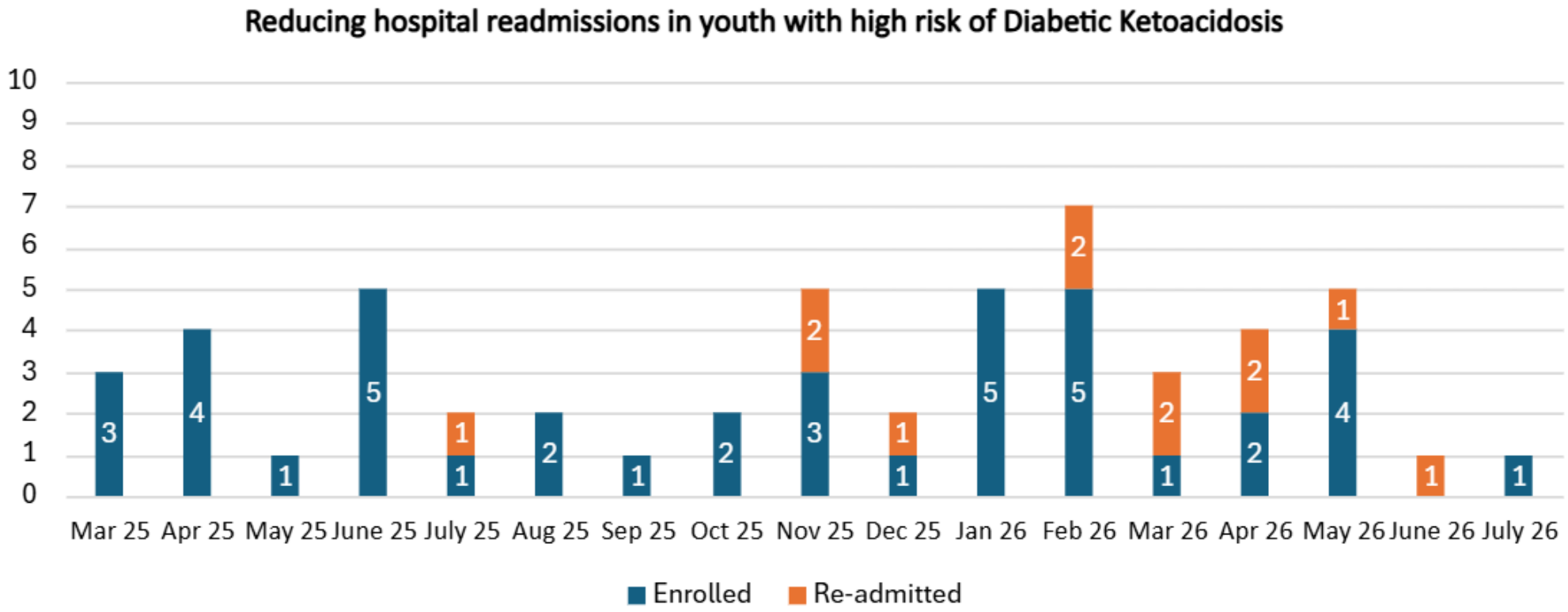
  Months 2 and 3, bi-weekly phone calls alternating between nurse and social work.
  - Nurse calls once a month, social work calls once a month.

  Months 4, 5, and 6, Monthly contact with the patient alternating between nurses and social work, (1 call per month).
  - Nurse calls once in month 4,
  - Social work calls once in month 5.
  - Nurse calls once in month 6.

  During this phase, ask patients to call back in a set time frame monthly. Ask them to put a reminder on the calendar and to call message us to check in. And with any concerns, and if they do not reach out to us within that time frame, then we will reach out to them.

Gift cards for patients enrolled in cohort

Initial Results



PDSA cycles are ongoing

Results

- Program initiated in March 2025
- Of the **48 patients enrolled** through July 23, 2026
- **12 were re-admitted for DKA**
  - Additionally, 6 patients were re-enrolled in the program.

Patient characteristics	(N=48)
Male sex, n (%)	26 (54.2%)
Age (y), Mean (SD)	13.4 (3.8)
Race/ethnicity, n (%)	
Non-Hispanic Black	33 (68.8%)
Non-Hispanic White	4 (8.3%)
Hispanic	6 (12.5%)
Unknown	1 (2.1%)
Public insurance, n (%)	41 (85.4%)
Baseline HbA1c (%), Mean (SD)	11.7 (2.4)

Initial Results compared to historical cohort

- Of the 48 patients enrolled in our program, **28 have completed 6 months of follow-up.**
- Of these 28 patients, **21.4% (6 yT1D)** were readmitted in DKA during the 6-month program.
- Historical cohort - the 2 years prior to QI program initiation (Jan 2023-Feb 2025)
  - **34.7% (17/49)** were readmitted DKA
- We saw a 13.3 percentage-point reduction in readmissions.

Conclusions

- DKA risk score in EPIC provides an accurate and efficient solution for the care team to identify highest-risk patients.
- The DKA wraparound program provides a feasible, sustainable intervention to provide standardized follow-up and support to patients after DKA admission.
- Together, they have the potential to reduce DKA-related admissions for youth with T1D.
- Future Directions –
  - QI with the Dashboard
  - Expand the wrap-around program to all patients in the high-risk/very high-risk group.
  - Further evaluate effect of DKA wraparound program compared to prior years

THANK YOU!

- Investigator - Risa Wolf, MD
- Statistician - Elizabeth Brown

Nurse practitioners/ Diabetes Nurses Educators

- Amanda Palmer
- Sarah Velazquez de Leon
- Catherine Evason
- Julia Tracey

Social worker team

- Jerilyn Almonte
- Shaine Jones

Research team

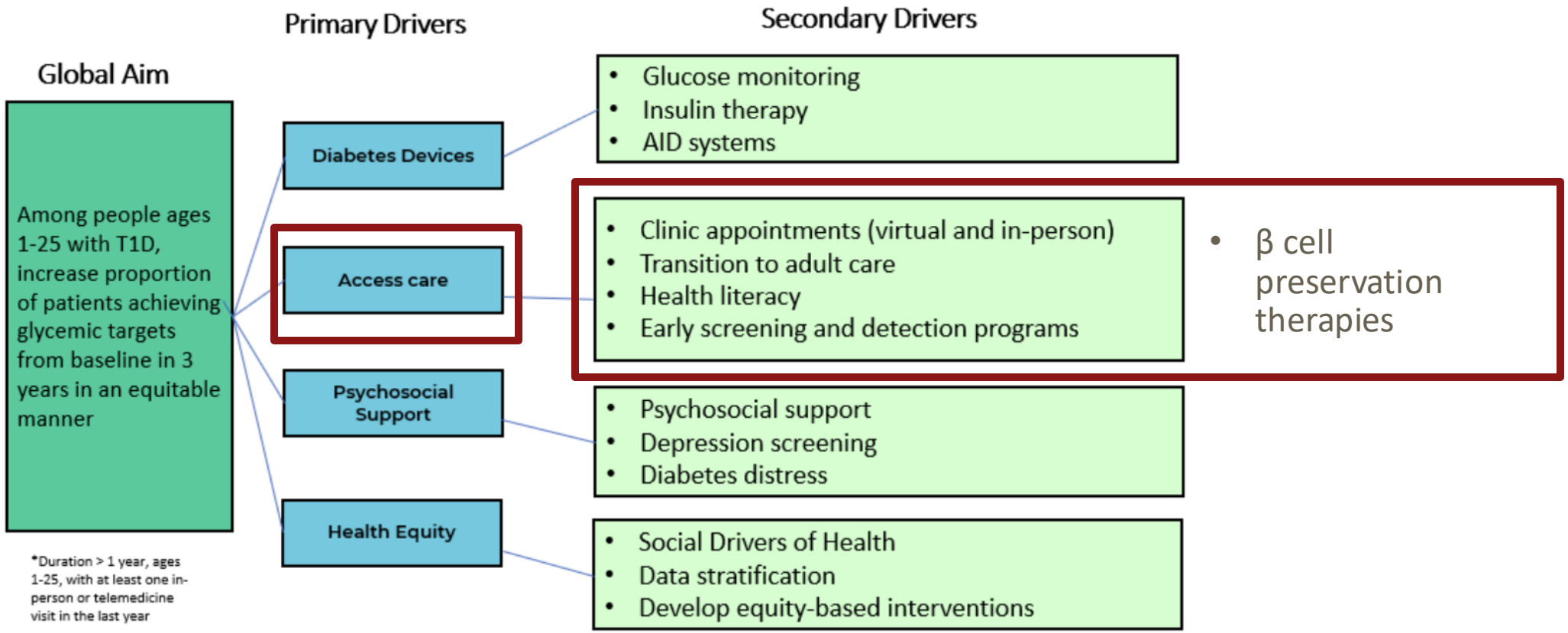
- Lorencia Pak
- Mahad Mohamed

β-Cell Preservation Tηerapy Workflows at Stanford Medicine Children's Health for Stage 2 and Stage 3 T1D

Priya Prahalad, MD, PhD

July 11, 2026

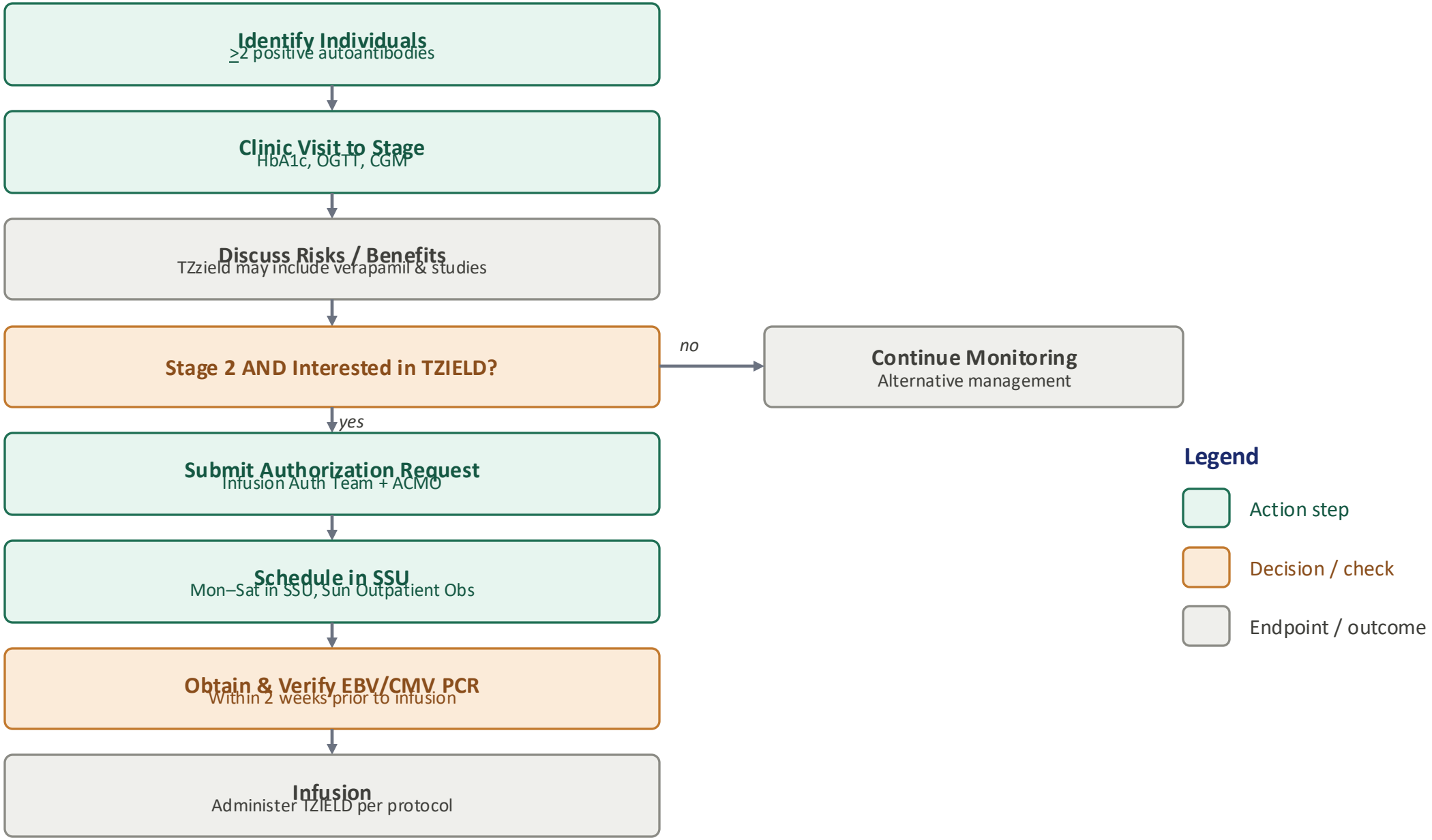
T1DX QI KDD


Global Aim
Among people ages 1-25 with T1D, increase proportion of patients achieving glycemic targets from baseline in 3 years in an equitable manner
*Duration > 1 year, ages 1-25, with at least one in-person or telemedicine visit in the last year
Primary Drivers
Diabetes Devices
Access care
Psychosocial Support
Health Equity
Secondary Drivers
Glucose monitoring
Insulin therapy
AID systems
Clinic appointments (virtual and in-person)
Transition to adult care
Health literacy
Early screening and detection programs
Psychosocial support
Depression screening
Diabetes distress
Social Drivers of Health
Data stratification
Develop equity-based interventions
β cell preservation therapies

Indications for Teplizumab Stage 2

- FDA approved for:
  - Ages 1-8y (Apr 2026) & ≥ 8 yo (Nov 2022)
  - ≥ 2 autoantibodies
  - Evidence of dysglycemia
    - Fasting glucose 100-125 mg/dL
    - 2 hr OGTT glucose 140-199 mg/dL
    - 60 min OGTT glucose ≥ 200 mg/dL
    - HbA1c 5.7-6.4%
    - Dysglycemia on CGM

Stage 2 Teplizumab Referral Pathway



Teplizumab – Stage 2

(teplizumab-mzwv) · 14-Day Infusion Protocol

Dose escalation · pre-medication tiers · lab monitoring · safety stops

DAY 1	DAY 2	DAY 3	DAY 4	DAY 5	DAY 6	DAY 7
65 mcg/m²	125 mcg/m²	250 mcg/m²	500 mcg/m²	1030 mcg/m²	1030 mcg/m²	1030 mcg/m²
L P	L P	L P	L P	L P	L P	L P

DAY 8	DAY 9	DAY 10	DAY 11	DAY 12	DAY 13	DAY 14
1030 mcg/m²	1030 mcg/m²	1030 mcg/m²	1030 mcg/m²	1030 mcg/m²	1030 mcg/m²	1030 mcg/m²
L P	L P	L P	L P	L P	L P	L P

● L = full labs (CBC w/diff, AST, ALT, DBili) ● L = AST/ALT/DBili only ○ L = no labs ● P = premeds given ○ P = premeds optional

PRE-MEDICATION TIERS

Days 1–5 — full premeds

Acetaminophen or ibuprofen, diphenhydramine, ondansetron

Days 6–14 — premeds optional

Given at clinician discretion prior to each infusion

LABORATORY MONITORING

Days 1, 2, 4, 9, 14 — full panel

CBC with diff, AST, ALT, direct bilirubin (+ urine pregnancy test, Day 1, if of reproductive age)

Day 6 — liver panel only

AST, ALT, direct bilirubin

Days 3, 5, 7, 8, 10–13 — no labs

SAFETY & STOPPING CRITERIA

Common: headache, rash, lymphopenia

Serious: cytokine release syndrome, serious infections

Emergency meds: acetaminophen, Benadryl, epinephrine, albuterol, hydrocortisone

Discontinue permanently if:

- ALT/AST > 5× ULN or bilirubin > 3× ULN
- Serious infection develops
- Severe lymphopenia (<500 cells/µL ≥ 1 wk)
- Severe hypersensitivity reaction

Indications for Stage 3 Tzield

1. Ages 8-17 yo
2. ≥ 1 Positive Autoantibody
3. C-peptide ≥ 0.2
4. No active EBV, CMV infection
5. 1st dose within 8 weeks of diagnosis

B-Cell Preservation

AIM

Increase the percentage of newly diagnosed (Stage 3) T1D patients offered β-cell preservation therapy at diagnosis

[10% → 80% by end of 2026]

Provider Awareness & Standardized Screening

- **Eligibility criteria defined & disseminated —** *presentations at division and CDCES meetings*
- **New-onset T1D order set prompts beta-cell preservation —** *incorporate c-peptide testing*

Timely Lab Confirmation Within Treatment Window

- **C-peptide testing at diagnosis —** *incorporation into the new onset order set*
- **Rapid results turnaround —** *biobanking if available (otherwise clinical lab)*

Streamlined Referral-to-Infusion Pathway

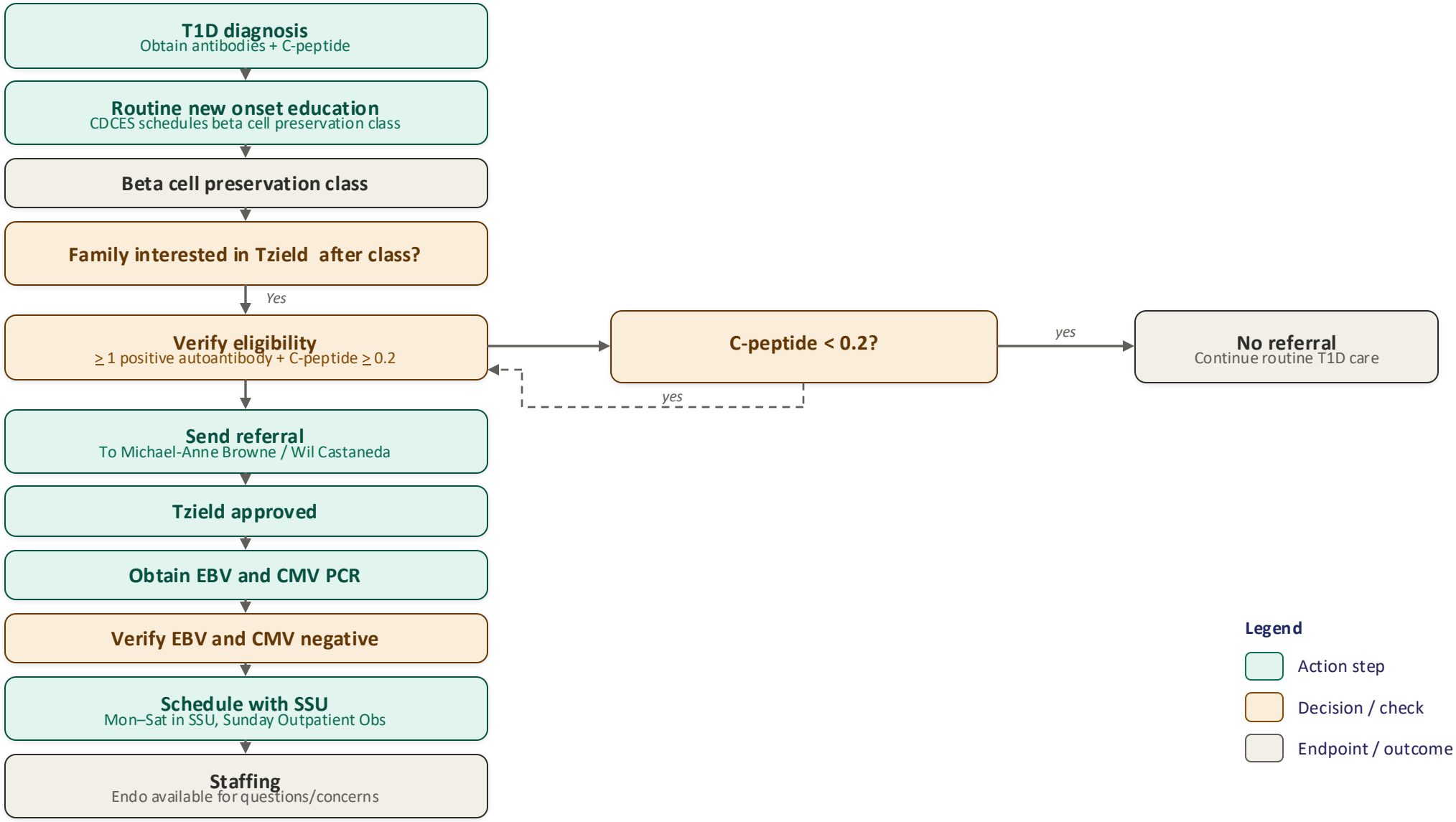
- **Schedule for β-cell preservation class —** *offered every 2 weeks – discuss Tzield and Verapamil. Scheduled by CDCES at diagnosis.*
- **Rapid authorizations —** *direct email to infusion authorization in collaboration with ACMO*
- **Cross-team coordination —** *e-mail list with ACMO, authorizations, hospitalists, SSU and pharmacists*

Patient & Family Engagement in Shared Decision-Making

- **Standardized plain-language education (AVS) —** *handout covering benefits, risks, logistics*
- **Structured shared decision-making conversation —** *class + discussion with other providers*
- **Financial / logistical navigation —** *early prior-auth initiation, navigator referral*

Beta cell preservation referral pathway

New onset T1D → Tzield (teplizumab) eligibility and scheduling



Teplizumab – Stage 3

(teplizumab-mzwv) · 12-Day Infusion Protocol

Dose escalation · pre-medication tiers · lab monitoring · safety stops

DAY 1

106

mcg/m²

L P

DAY 2

425

mcg/m²

L P

DAYS 3–5

850

mcg/m²

Full labs Days 3–4; AST/ALT/DBili only Day 5. Premeds continue.

DAYS 6–12

850

mcg/m²

Full labs Days 8, 9, 10, 12; no labs Days 6, 7, 11. Premeds not specified beyond Day 5.

● L = full labs (CBC, AST, ALT, DBili) ● L = AST/ALT/DBili only ○ L = no labs ● P = premeds given ○ P = not specified

PRE-MEDICATION TIERS

Days 1–5 — full premeds

Acetaminophen with ibuprofen, or acetaminophen alone; diphenhydramine (Benadryl); ondansetron (Zofran)

Days 6–12 — not specified

Not specified in this protocol beyond Day 5; give per clinician discretion

LABORATORY MONITORING

Days 1, 2, 3, 4, 8, 9, 10, 12 — full panel

CBC, AST, ALT, direct bilirubin

Day 5 — liver panel only

AST, ALT, direct bilirubin

Days 6, 7, 11 — no labs

SAFETY & STOPPING CRITERIA

Common: headache, rash, lymphopenia

Serious: cytokine release syndrome, serious infections

SSU emergency meds: acetaminophen, Benadryl, epinephrine, albuterol, hydrocortisone

Discontinue permanently if:

- ALT/AST > 5× ULN or bilirubin > 3× ULN
- Serious infection develops
- Severe lymphopenia (<500 cells/µL ≥ 1 wk)
- Severe hypersensitivity reaction

Verapamil – Not FDA Approved

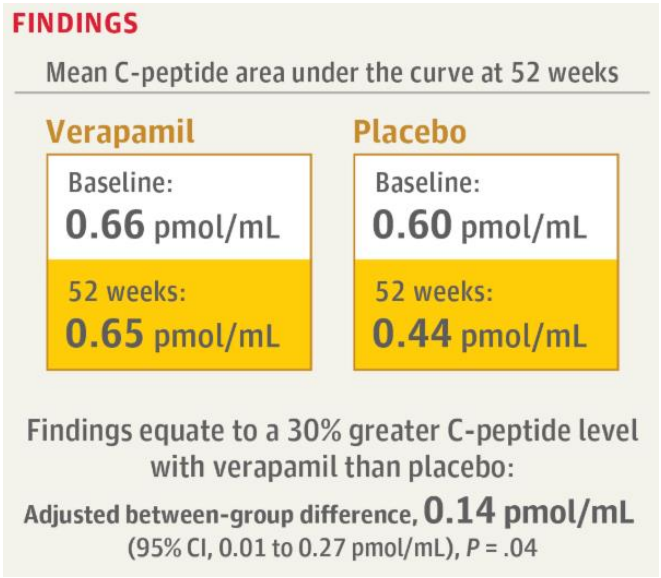
Protocol:

1. Weight >30 kg (based on lowest practical dose with verapamil ER tablets), and initiate with weight-based dose and increase incrementally up to a maximum of 7.2 mg/kg/day, but not greater than 360 mg per Table 1.

2. Check for normal creatinine, AST, ALT, and ECG before starting

3. Assess AST, ALT and ECG two weeks after maximum dose, at 6 months, and yearly thereafter (with annual labs).

4. When starting new medications, assess for their interaction with verapamil.



Forlenza et al. JAMA 2023.

Weight (kg)	Initial Dose (mg/day)	Dose escalation	Dose escalation	Dose escalation	Max Dose	Max Dose mg/kg/day
30-34	60 X 4 wks	120 mg			120	3.5-4
35-49	60 X 2 wks	120 X 2 wks	180 X 2 wks	240 mg	240	4.9-6.9
≥50	120 X 2 wks	180 X 2 wks	240 X 2 wks	300 X 2 wks	360	7.2

Verapamil Side Effects

Verapamil is generally well tolerated, but there could be some side effects to be aware of:

1. Right upper quadrant pain and jaundice

2. Low blood pressure, constipation, headache, nausea, paresthesia, and gingival hyperplasia

3. Verapamil can slow the metabolism of alcohol and can increases the time spent above the legal limit by a factor of five.

4. Verapamil should not be taken with grapefruit juice which increases verapamil concentrations by 30% and orange juice increases concentrations by 10%.

Challenges

1. 12-14 consecutive days of infusion can be burdensome for patients/families
2. Scheduling on short notice may give undesirable infusion times
3. Insurance coverage
4. Tight window to decide on stage 3 infusion

Next Pediatric Collaborative Call

Tuesday September 22nd 3:30-5pm EST

Thank you!

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t1dexchange.org