T1D Exchange

QI Collaborative Call, Pediatrics

7/11/23

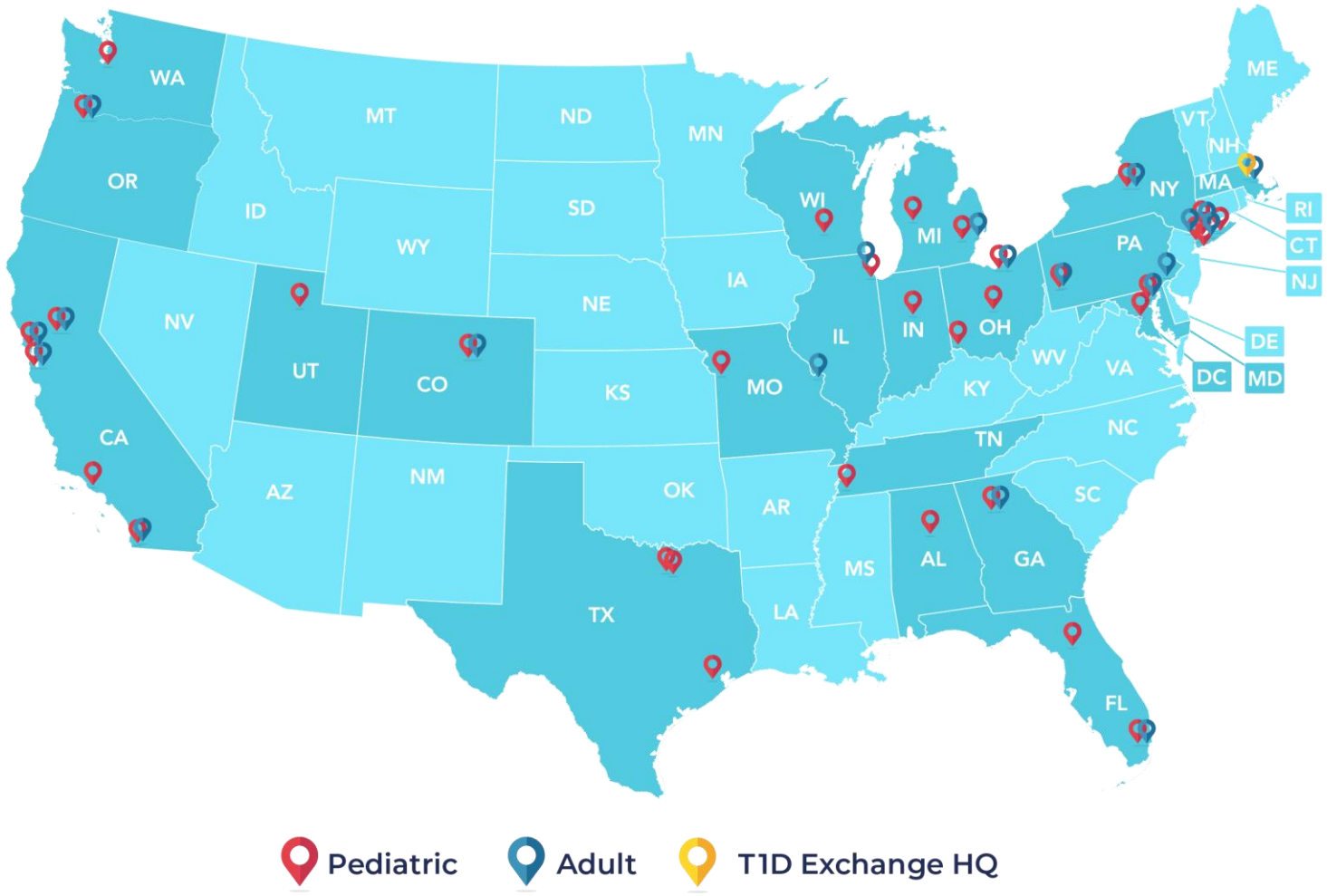
Welcome & introductions

Agenda

- Updates from Coordinating Center
  - PI RSVP reminder
  - Journal of Diabetes/November learning session abstract reminder.
  - ADCES conference
  - Q2 invoicing reminder
- Demo of new QI Portal features
- Indiana University Clinical Presentation
- Le Bonheur Clinical Presentation

T1D Exchange Updates

T1DX-QI network of 55 centers, caring for 85,000+ T1D patients across 21 states and Washington D.C.



Priya Prahalad, Nicole Rioles et al. T1D Exchange Quality Improvement Collaborative: Accelerating Change through Benchmarking and Improvement Science for People with Type 1 Diabetes. Journal of Diabetes. Nov. 2021

35 pediatric clinics – caring for 55,000 patients with T1D

35 participating pediatric clinics

Barbara Davis Center Todd Alonso MD	Helen Devos Children's Donna Eng MD	Rady Children's Carla Demeterco Berggren MD PhD	University of Florida Laura Jacobsen, MD
Children's Mercy Hospital Mark Clements MD PhD	Indiana University Health Anna Neyman MD	Seattle Children's Hospital, Faisal Malik MD, MSHS and Alissa Roberts MD	UPMC Alissa Guarneri, MD, MBOE
Children's Hospital Los Angeles Brian Miyazaki, MD	Johns Hopkins, Risa Wolf MD	Stanford University Priya Prahalad MD	University of Miami Janine Sanchez MD
Cincinnati Children's Hospital Sarah Corathers MD	Le Bonheur Children's, U TN Grace Bazan MD	SUNY Roberto Izquierdo MD	UC Davis Stephanie Crossen MD & Caroline Schulmeister, MD
CHOA Kristina Cossen MD	Lurie Children's Naomi Fogel MD	Texas Children's, Daniel DeSalvo MD	UCSF Jenise Wong MD
Children's Medical Center Abha Choudhary, MD	Mott Children's Joyce Lee MD	NYU Langone: Accacha MD. Hassenfeld Children's Hospital at NYU Mary Pat Gallagher MD	University of Utah, Intermountain Healthcare Vandana Raman MD
Cleveland Clinic, Andrea Mucci MD MASc	Mount Sinai Robert Rapaport MD	Oregon Health & Science University Ines Guttmann-Bauman MD	University of Wisconsin, Madison Liz Mann MD
Cohen Children's Medical Center, Northwell Health, Jennifer Sarhis MD & Allison Mekhoubad MD	Nationwide Children's Manu Kamboj MD	University of Alabama Mary Lauren Scott MD	Weill Cornell Alexis Feuer MD
Cook Children's Paul Thornton MD & Susan Hsieh			

Welcome Children's Medical Center

Abha Choudhary, M.D., Assistant Professor, Department of Pediatrics
Dr. Choudhary completed her pediatric residency training at The Children's Hospital of Philadelphia in 2008 and a fellowship in Pediatric Endocrinology at New York Presbyterian Hospital, Cornell University in 2012.

children's MEDICAL CENTER

T1D Exchange

Learning Session RSVP Reminder

When: November 14-15 (Tues-Wed)

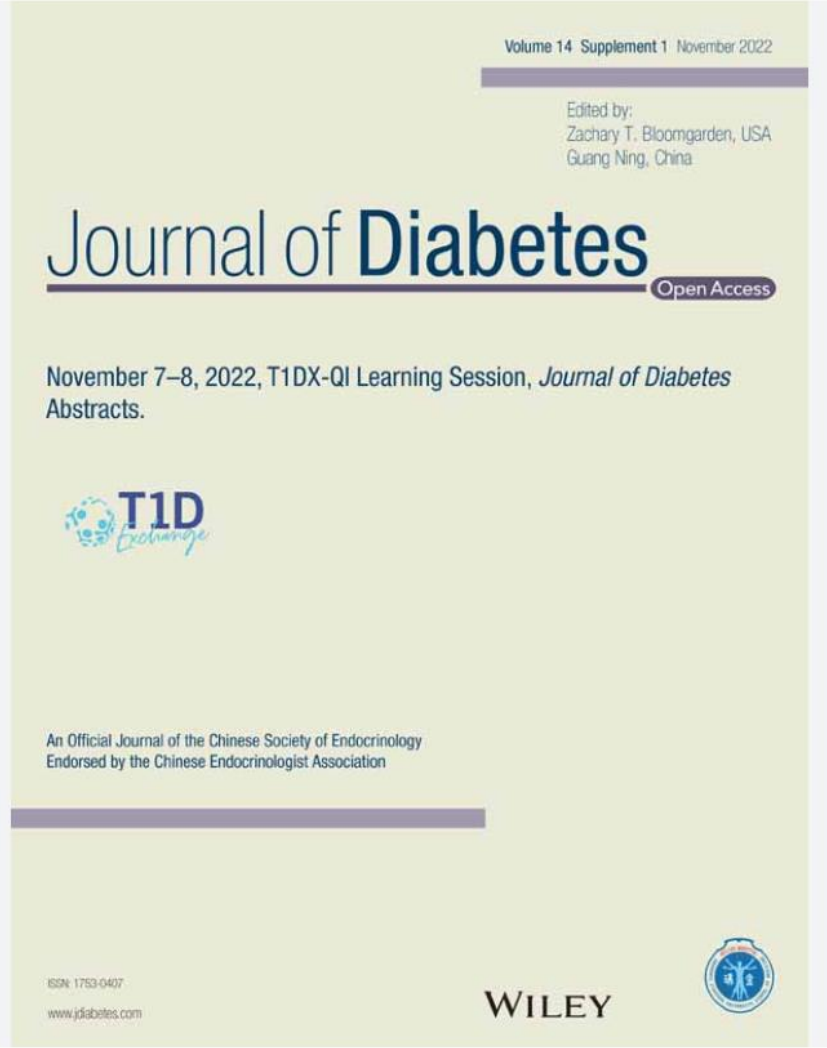
Where: NYC, Westin Grand Central

Who: PI should RSVP on behalf of team

Costs: T1DX will cover costs for two people's hotel for two nights

Submit Abstracts

Journal of Diabetes/November learning session abstract reminder! Share your abstracts now through July 31



Q2 2023 Invoicing

Reminder to submit invoices for January-June 2023 deliverables

Who should invoice?

- Any center that has a deliverable that ends on or before 7/1/2023

ADCES

Tell us if you or a member of your team is joining the ADCES conference. We would love to see you in Houston next month! T1DX will host a breakfast or dinner. More details TBD.

Portal Updates

Clinical Presentation:

Integrated Diabetes Education and Support (IDEAS) Program

Tamara Hannon, MD, Anna Neyman, MD, Kathryn Haberlin-Pittz, MPH, CHES
Division of Pediatric Endocrinology and Diabetology

Learning Objectives

1. Review national incidence of DKA in youth with established diabetes

2. Review rationale for integrating a structured program to improve outcomes in patients following an episode of DKA.

3. Share what did/did not work for us in creating a structured follow-up program for youth who presented in DKA to try and help reduce risk for repeat DKA.

Questions

1. What is the national rate of DKA in youth with established T1D
    a. 1-2%
    b. 6-8%
    c. 10-12%
    d. 25%

2. What are potential complication of DKA
    a. Cerebral Edema
    b. Rhabdomyolysis
    c. Kidney injury
    d. a, b c

Background

- At our Diabetes Center in 2022: % admitted with DKA or severe low
  - 7% of youth with T1D with public insurance
  - 2% of youth with T1D with private insurance
- DKA annual rate nationally 6-8% in youth with established T1D[1]
- This is worrisome, as DKA is a potentially fatal complication of diabetes and has both short-term and long-term health consequences.
- Potential consequences include: cerebral edema, renal injury, electrolyte imbalances, rhabdomyolysis, DVT, PE, among others[2]

[1]EL-Mohandes N, Yee G, Bhutta BS, et al. Pediatric Diabetic Ketoacidosis. [Updated 2023 Apr 9]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2023 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK470282/

[2]Glaser N, Fritsch M, Priyambada L, Rewers A, Cherubini V, Estrada S, Wolfsdorf JI, Codner E. ISPAD clinical practice consensus guidelines 2022: Diabetic ketoacidosis and hyperglycemic hyperosmolar state. Pediatr Diabetes. 2022 Nov;23(7):835-856. doi: 10.1111/pedi.13406. PMID: 36250645.

Youth who presented in DKA in 2022 (n=58)

Demographic Information	
Age at the time of hospitalization, mean [SD], years	12.91 [3.47]
Sex, n (%)	
Female	32 (55%)
Male	26 (45%)
Race/ethnicity, n (%)	
Non-Hispanic Black	11 (18)
Non-Hispanic White	43 (69)
Hispanic	3 (5)
Unknown	5 (8)
Insurance, n (%)	
Public	41 (71%)
Private	17 (29%)

Youth who presented in DKA in 2022 (n=58)

Demographic Information	
Primary language	
English	56 (97%)
Spanish	2 (3%)
Years since diagnosis of diabetes, mean [SD] range	6.43 [3.55] (0-13)
Technology use, n (%)	
CGM prescribed	46 (79%)
Pump	18 (31%)
Most recent HbA1c (%), mean [SD]	10.0% [2.1]
# DKA events*, mean [SD], range (n=45)	1.82 [1.27] (1-5)
# of DKA events (in past year)* mean [SD] (range) (n=47)	1.15 [0.75] (0-5)

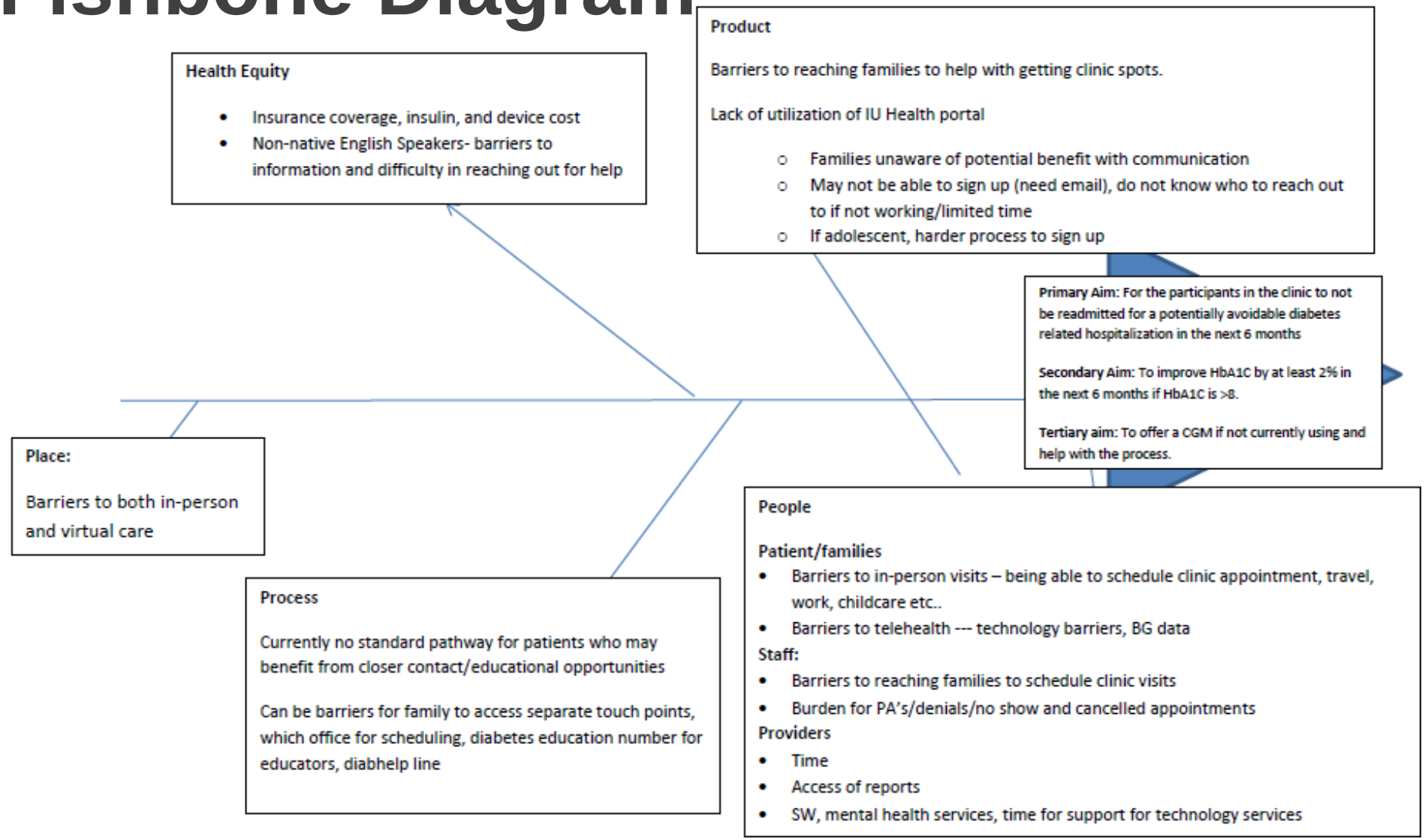
*in our system, not including at dx or DKA event that prompted the referral

Integrated Diabetes Education and Support (IDEAS) Program

- We started the IDEAS program to:
  - Organize the resources and support available for families struggling to maintain metabolic control (financial, social, school, and health behavior support);
  - Increase patient knowledge of how to reduce the risk of having a repeat diabetes related hospitalization;
  - Better direct clinic and outpatient resources toward higher risk patients.

- Pilot program
  - Patients with T1D who were admitted in the hospital/or in the ED for diabetes related reason who are at high risk for readmission in the next 2 years as determined by provider/diabetes educator, can be referred to the IDEAS Program.

Fishbone Diagram



Key Driver Diagram

Primary aim:
IDEAS patients will not require hospitalization for DKA in next 6 months

Secondary Aim:
Improve HbA1c by 2% over 6 months if HbA1c is >8%

Tertiary Aim:
Facilitate use of CGM

Primary drivers

- Health Literacy/Education and support
- Patient/family engagement
- Data systems
- Insulin therapy
- Glucose Monitoring
- Self-management
- Access to Care
- Patient Care Equity
- Psychosocial support

Secondary drivers

- Diabetes educator visit at IDEAS clinic to address #1 concern
- Schedule next 2 follow-ups
- Telehealth option
- Future: patient/family advisory group
- Capture data in the EMR
- Discuss satisfaction/efficacy with mode of insulin delivery
- Help CGM access if not on already Provide handout
- Patient care navigator
- Social work assessment prior to IDEAS visit
- Offer integrative health coaching

PDSA Cycles

#1: Nov	• Started IDEAS program, structured follow-up program.
#2: Dec	• Adjusted appointment to allow patients to be seen by any provider to allow more flexibility (and can be virtual). • Adjusted communication flow.
#3: Jan	• Made further adjustments to scheduling flow; IDEAS appointment to be made prior to patient's d/c from hospital. • Outlined integrative health coaching program.
#4: April	• Adjusted for appt times to be 2-4 weeks, ideally with primary diabetes provider. • Allow SW to help with an intake for those that may benefit from health coaching. • Sick day education as part of annual diabetes education (annual review) and as first part of transition education.
#5: June	• Sick day and technology stations went live

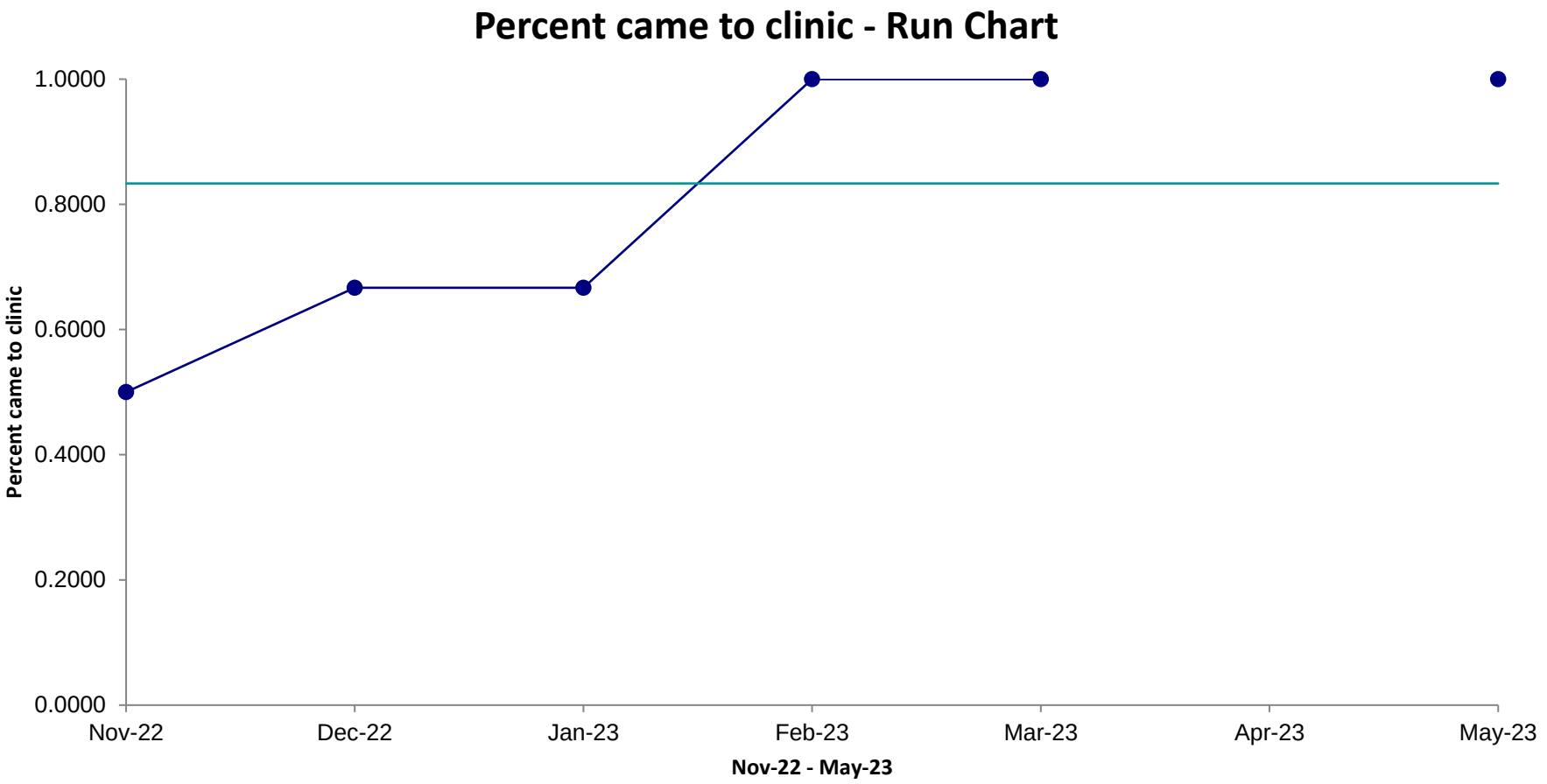
Integrative Health Coaching

- 12-week program
- Participants
  - ≤14: Family coaching with a caregiver participating in all sessions
  - ≥15: Can complete one-on-one coaching
- Families are screened and/or approached by a health coach after IDEAS referral
- Includes:
  - Diabetes education, nutrition, stress management, physical activity
  - Topics selected by participant/family based on participant goals
- Appropriate when pressing social needs are addressed first
- Track number of sessions attended in 12 weeks
- Track HbA1c

Results

	2022 DKA (n=58)	IDEAS Referrals (n=14)
Age at the time of hospitalization, mean [SD], years	12.91 [3.47]	13.9 [1.8]
Sex (%)	45% M	64% M
Race/ethnicity		
Non-Hispanic Black	18%	36%
Non-Hispanic White	69%	57%
Hispanic	5%	7%
Unknown	8%	
Insurance	71% public	71% public
Technology use		
CGM	Prescribed- 79%	Using CGM- 50%
Pump	18%	7%
Most recent HbA1c (%), mean [SD]	10.0% [2.1]	12.2% [2.5]
# DKA events*, mean [SD]	1.82 [1.27]	0.92 [1.5] (insulin omission most common)

Results


Percent came to clinic - Run Chart
1.0000
0.8000
0.6000
0.4000
0.2000
0.0000
Percent came to clinic
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Nov-22 - May-23

Results

- All consulted with a LMSW
- One participated in integrative health coaching; had reduction in HbA1c (-1.9 %).
- Seven had repeat HbA1c ≥1 (mean 3.1 ± 1.3 months) after baseline.
- Trend towards reduction in HbA1c (13.1% vs 10.8%, p=0.16)
- One of eleven had a DKA episode after participation in the program.
    - That participant had a history of 5 DKA episodes in the prior year and has had 1 DKA admission after enrolling in IDEAS. This participant has not been admitted to the hospital in past 4 months and HbA1c has decreased from 14.4% to 12.3%.

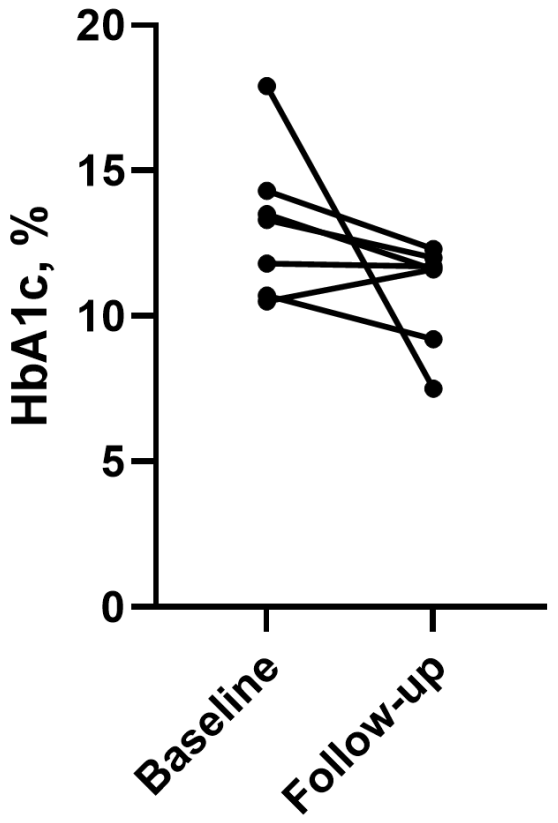


Figure 1: HbA1c at baseline and at most recent follow-up visit.

Modifying Factors

- Social Work Support
  - Four with documented DCS involvement
    - One with hx of multiple DKA's is at home with parent but has significantly more structure/support
    - Another living with different caregiver after cross-country move and long hx of struggling with glucose control
- Technology:
  - Those who were not actively using CGM, started using a CGM

Future

- Expand the program with increasing clinic availability
- Hire additional LMSW (2 additional positions approved)
- Future interventions to include group interventions; group continuing education and support.
- Food is Medicine integration?

Thanks and Acknowledgements

- We want to thank all the amazing team at Riley, including Britney Merchant and our amazing diabetes educators, Jill Booher, Jill Meier, Elizabeth Moran, Lori St. Dennis-Feezle, Linda DiMeglio and our amazing physicians, NP's, nurses, medical assistants, and office staff.

Questions?

Increasing Pump Use in an equitable fashion July 2023

Blake Adams, BSN; Grace Nelson, MD

University of Tennessee Health Science Center and LeBonheur Children's Hospital

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Learning Objectives

- •Discuss baseline data for pump use at LBCH
- •Look at reasons for low pump use
- •Discuss PDSA cycles and outcomes to improve pump use
- •Discuss next steps

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Questions

- What leads to inequity in pump prescriptions
  A) Provider bias
  B) Fear of increased DKA with pump use
  C) Insurance issues/fear of insurance issues
  D) Complicated process to get a pump
  E) All of the above
- We saw A1C get closer to target 1-2 weeks after starting HCL pump therapy
  - True
  - False

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LeBonheur Children's Hospital

❖LeBonheur Children's Hospital is located in Memphis, TN and serves surrounding areas that include Mississippi, Arkansas and Missouri. Our Outpatient practice consists of 6 physicians, 1 fellow and 3 Nurse Practitioners.

❖We have a number of multidisciplinary staff including; 8 nurses, 6 CDCES, 1 social worker, 2 dietitians, 1 community outreach coordinator and 1 child life specialist.

❖We serve approximately 800 patients diagnosed with Type 1 Diabetes and 450 with Type 2. For our Type 1 patients we have 54% with public insurance and 42% with private insurance. 37% of our Type 1 Diabetes patents are black.

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Baseline Data

- 6% of NHB patients and 25% of NHW were in insulin pumps
- Low percentage of patients on pump and large inequity!!!

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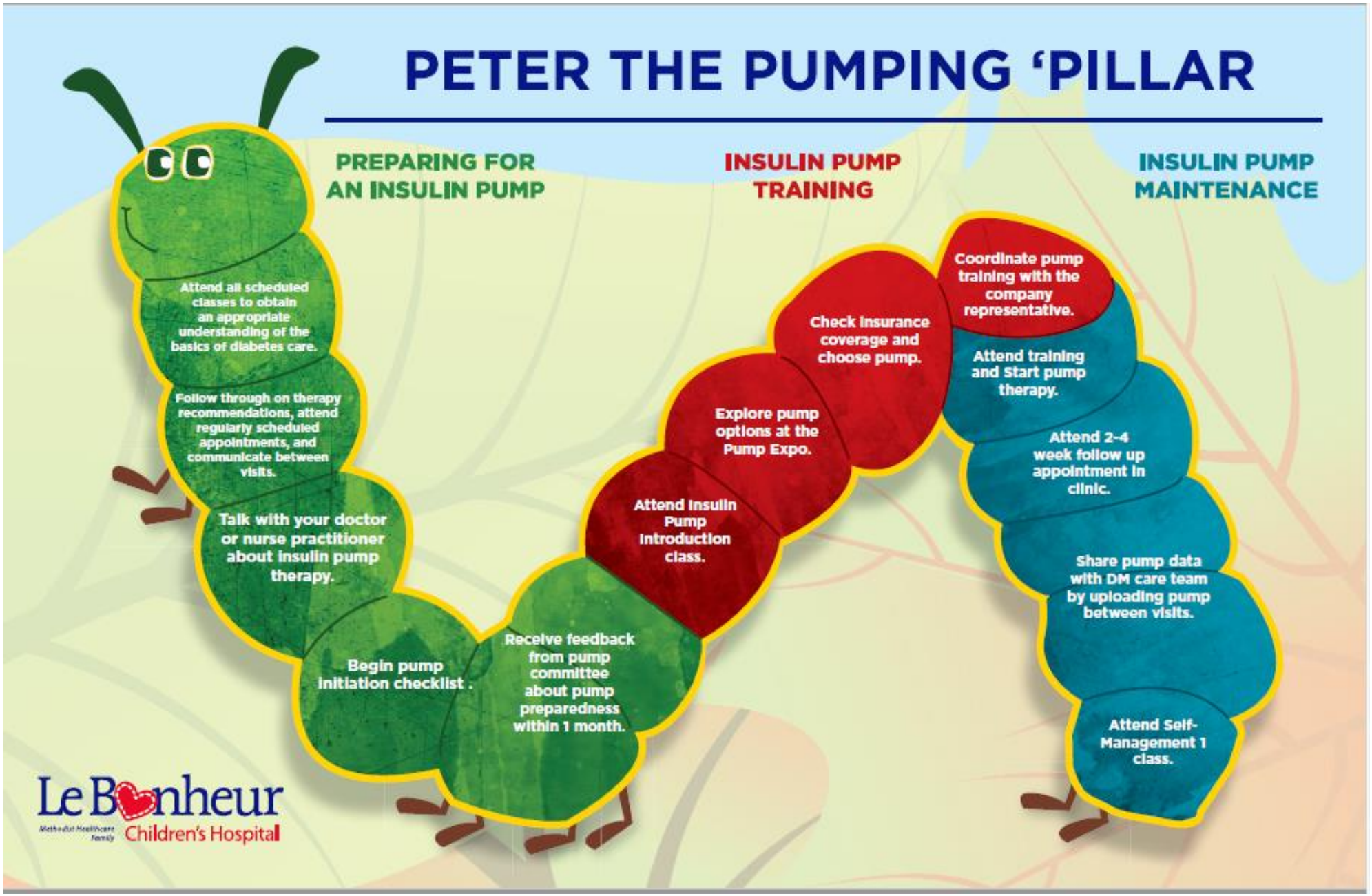

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Pump Comitee

- Put in place to avoid “misuse” of insulin pumps and decrease need to “remove” insulin pumps from patients not doing well
- Worked great, our rate of removal of pumps was basically zero..
- Criteria:
  - A1c less than 9, ideally less than 8
  - Evidence of regular premeal blousing
  - Good attendance to classes
  - No admissions
  - No “social” concerns

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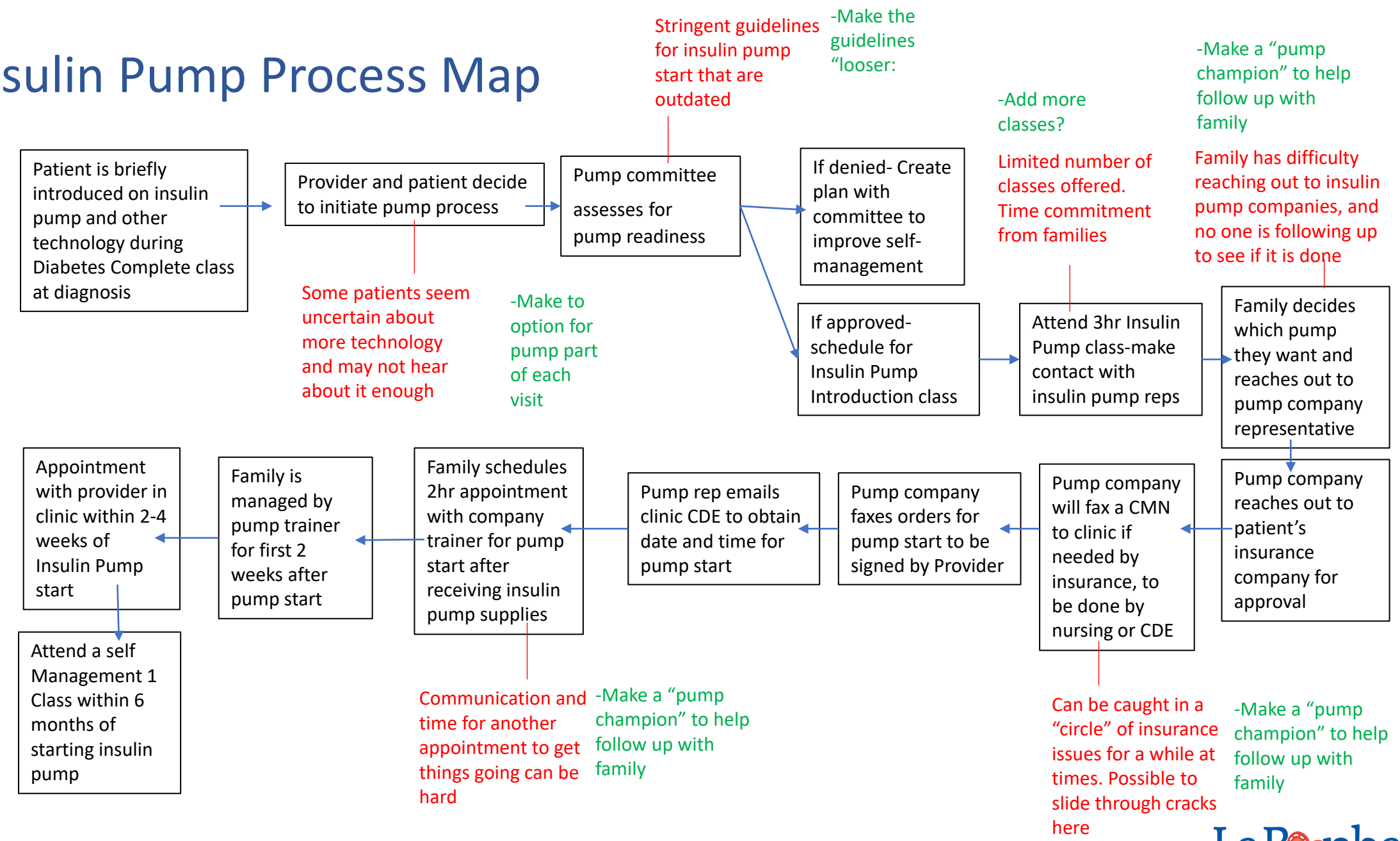
Insulin Pump Process Map



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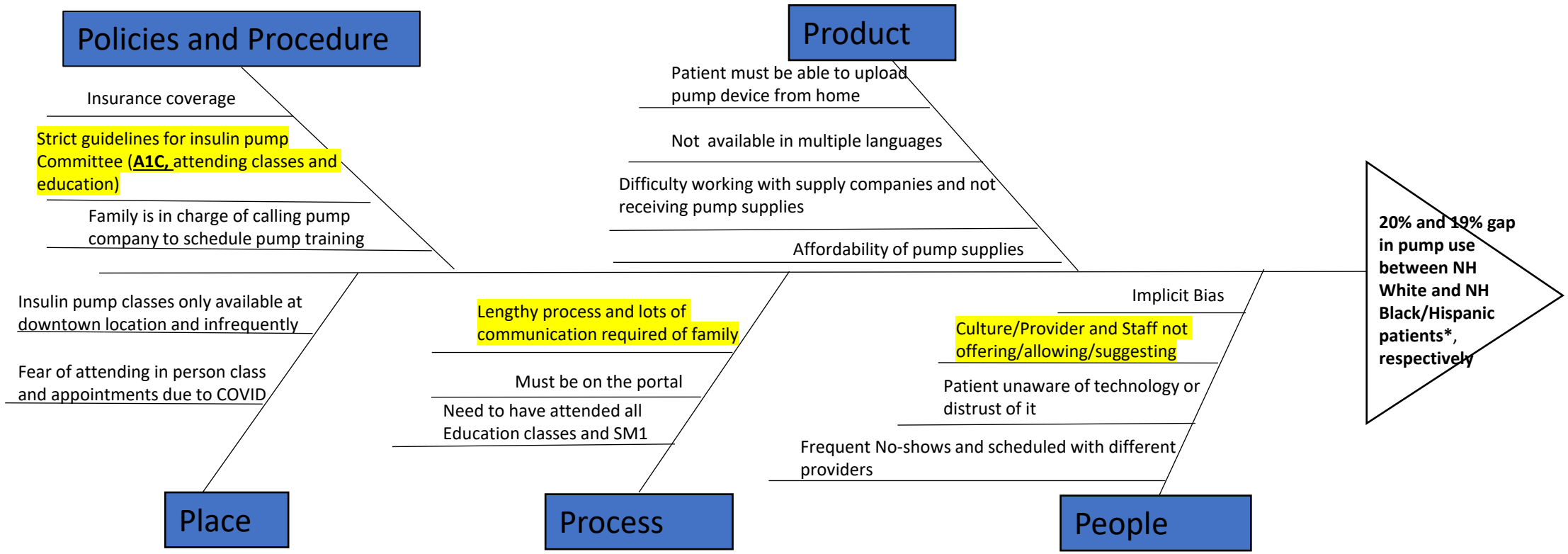
Insulin Pump Process- Fishbone Diagram



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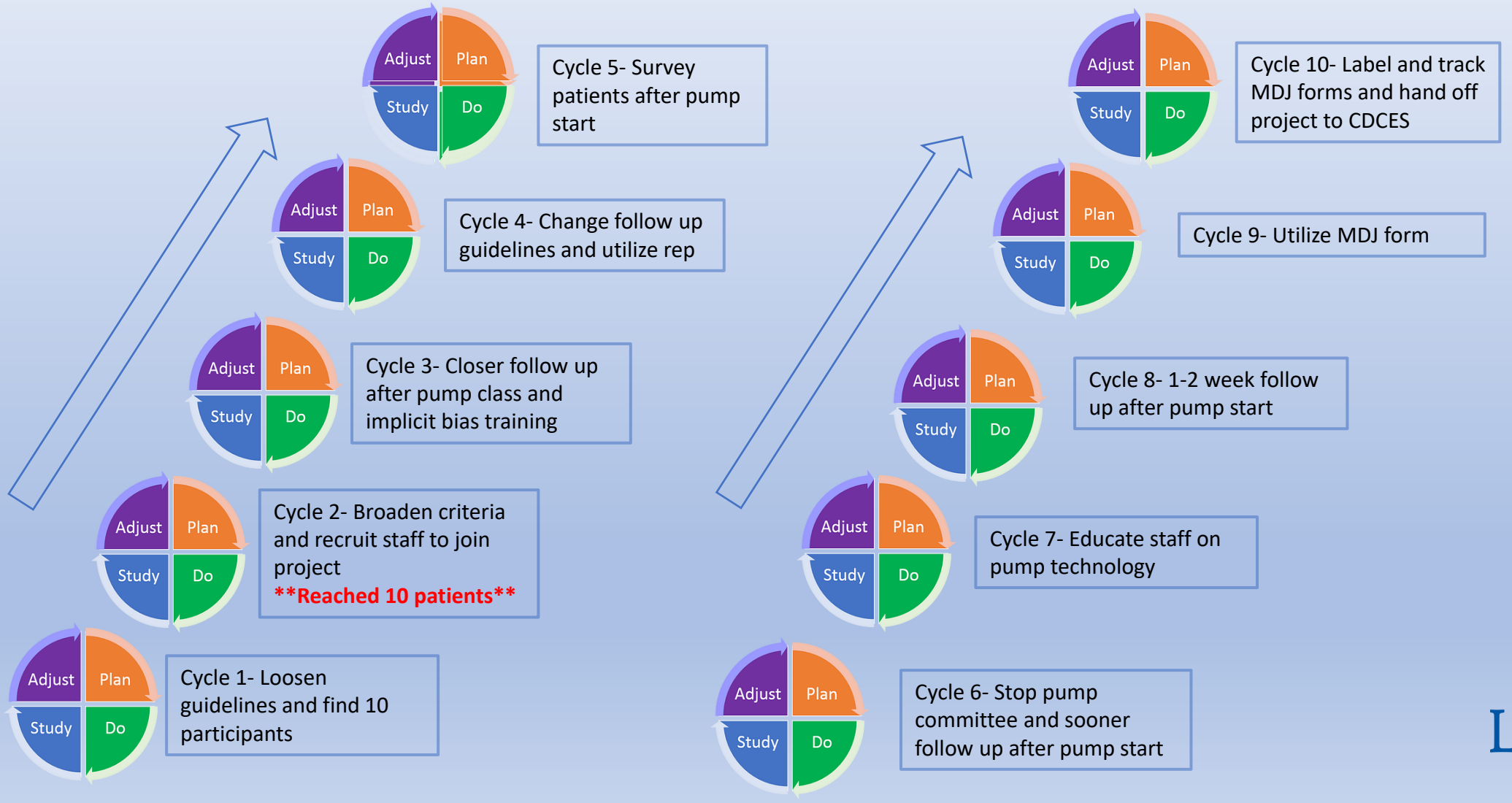
PDSA Cycles- 10



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Hybrid Closed Loop Insulin Pump Project:

- Started with a group of 10 patients (focused on non-white) who would not normally be considered for an insulin pump based on previous clinic standards.
- We met with a multidisciplinary group to established criteria and were able to add 10 patients over time to our project.
- We monitored them closely throughout the process from CGM start to pump initiation, specifically closer follow up after pump start.
- We surveyed staff for insulin pump knowledge and collaborated with CDCES to offer insulin pump education to staff and updated our nursing binder
- 30 patient, 19 attended class, 14 current HCL users

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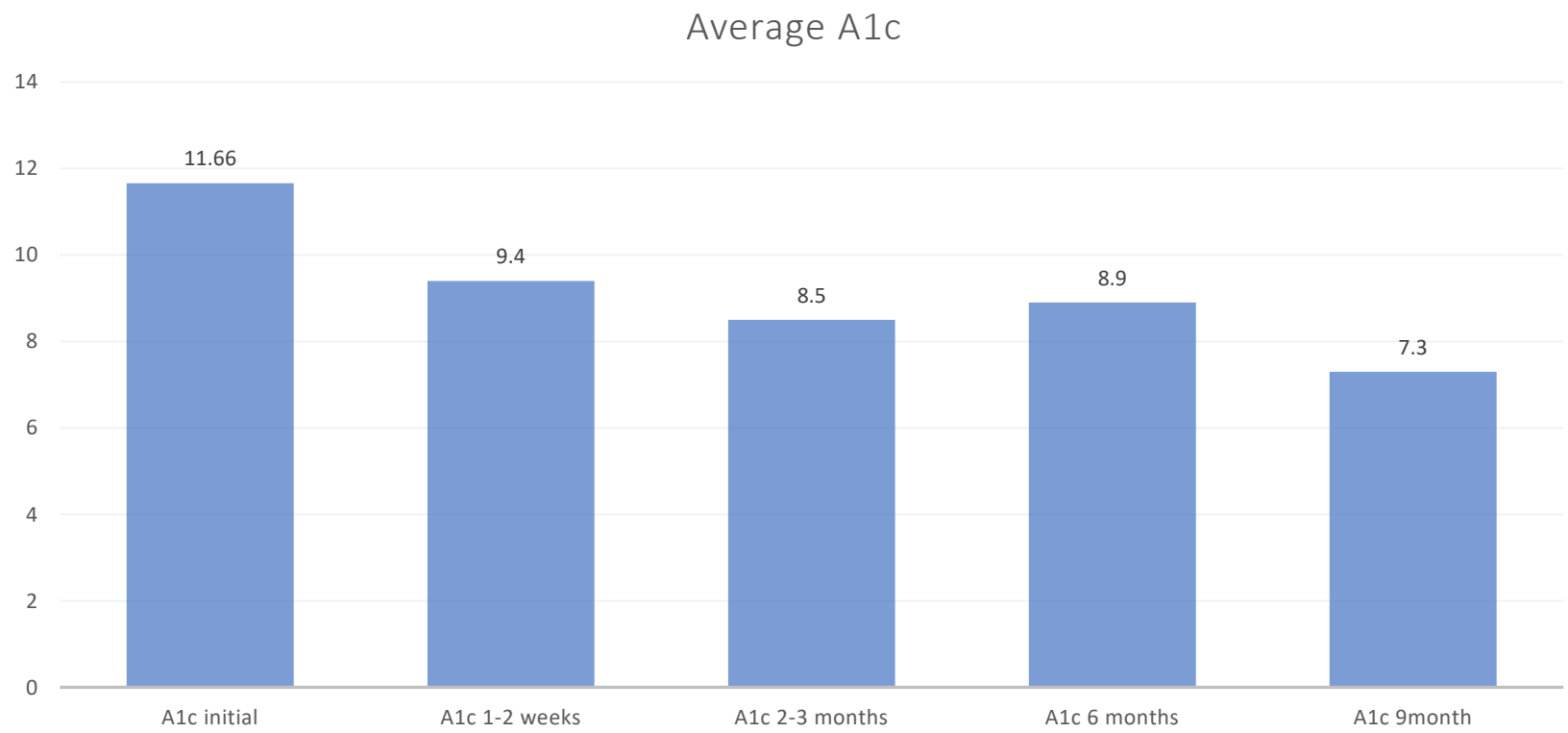
Hybrid Closed Loop patients



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My Diabetes Journey

- We incorporated this form to be an opportunity for shared decision making between provider and family, to help guide discussion during clinic appt. and to introduce technology in an equitable manner.

Date:_____

My Diabetes Journey Handout:

My Diabetes Journey

For my diabetes, I am doing well with:

_____

_____

I am _____ (circle any number of choices):

Skipping insulin for food because of the math	Skipping insulin for high sugar because of the math	Not sure how to take care of diabetes when I am sick	Not sure how to take care of diabetes outside of home or school
"Over" diabetes	Needing more help taking care of diabetes at home	Tired of checking blood sugar	Having a hard time taking my rapid-acting (bolus) insulin
Afraid of low blood sugars	Having a hard time taking long-acting (basal) insulin	Needing more help taking care of diabetes at school	Not sure how to take care of diabetes when I exercise or play

I currently have and/or am using _____ (circle any number of choices):

A continuous glucose monitor	Smart insulin pen	A sliding scale for high blood sugar corrections (rather than a correction factor)
An insulin pump	Alarms for insulin doses	Fixed insulin doses for meals (rather than a carb ratio)

I would like to try or have _____ (circle any number of choices):

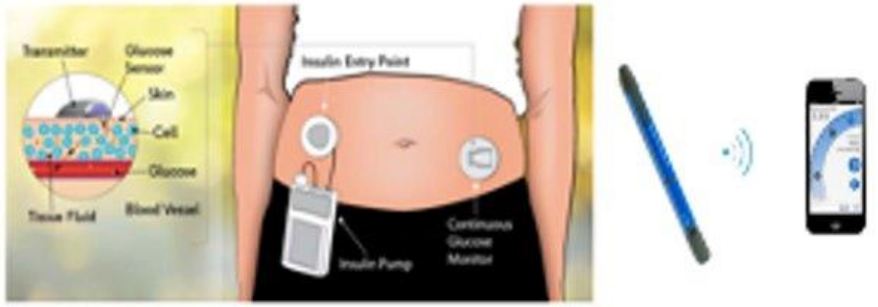
A continuous glucose monitor	Smart insulin pen	A sliding scale for high blood sugar corrections (rather than a correction factor)	More school nurse supervision	Less school nurse supervision
An insulin pump	Alarms for insulin doses	Fixed insulin doses for meals (rather than a carb ratio)	More parent/ caregiver supervision	Less parent/ caregiver supervision

I think _____ has most helped me improve my diabetes self-management.

New Diabetes Technology form

- Provided patients a baseline so they could help "start" the conversations

Diabetes Technology



Benefits of Insulin pump:

-Basal changes for time of day

-Bolus options

-Site changes every 2-3 days rather than 4+ shots

Benefits of Continuous Glucose Monitor:

-Updated glucose readings every 5 minutes

-BG threshold alarms

-Reduction of finger sticks

Benefits of Smart Insulin Pen:

-Rapid-acting insulin dose calculator

-Tracks active insulin

-Built-in reporting software

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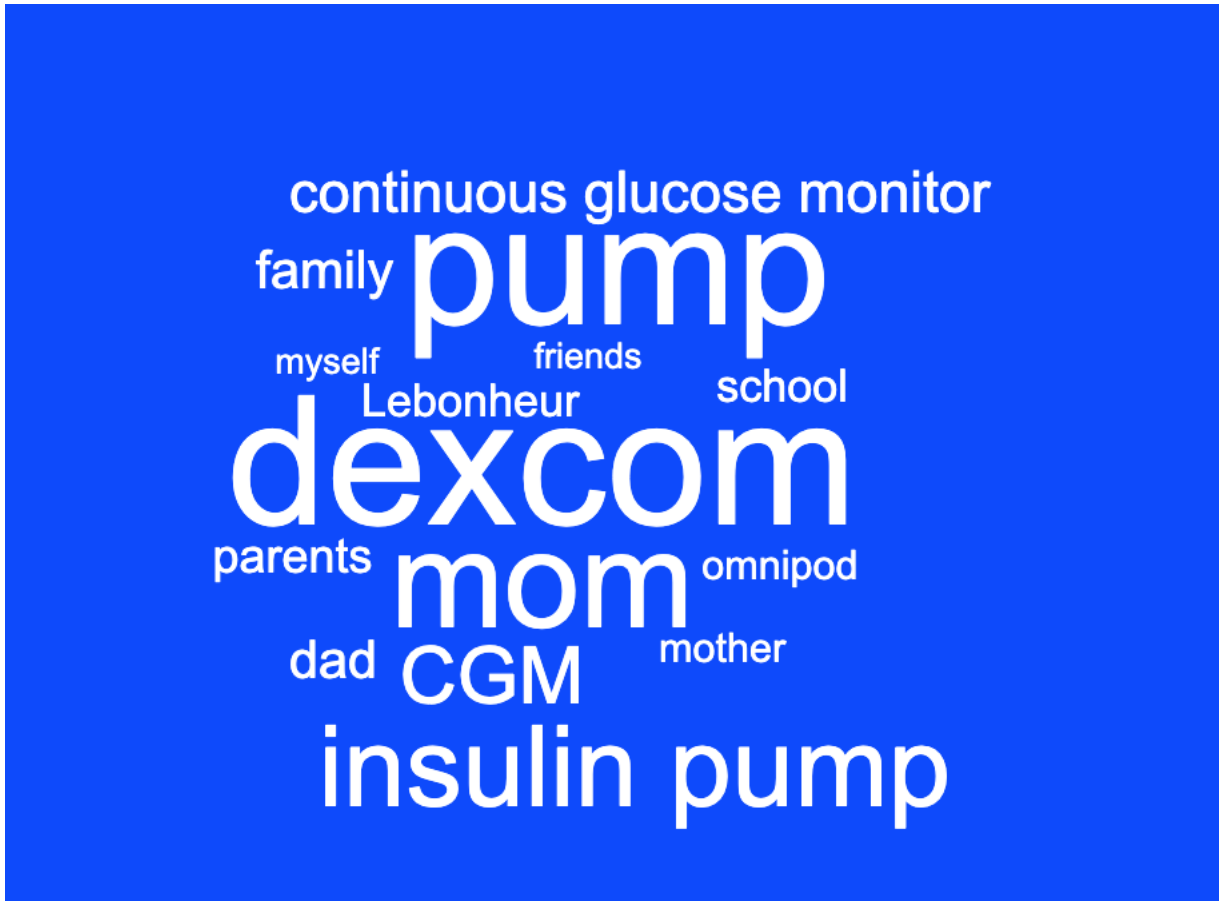
“I think ____ has most helped me improve my diabetes self-management.”



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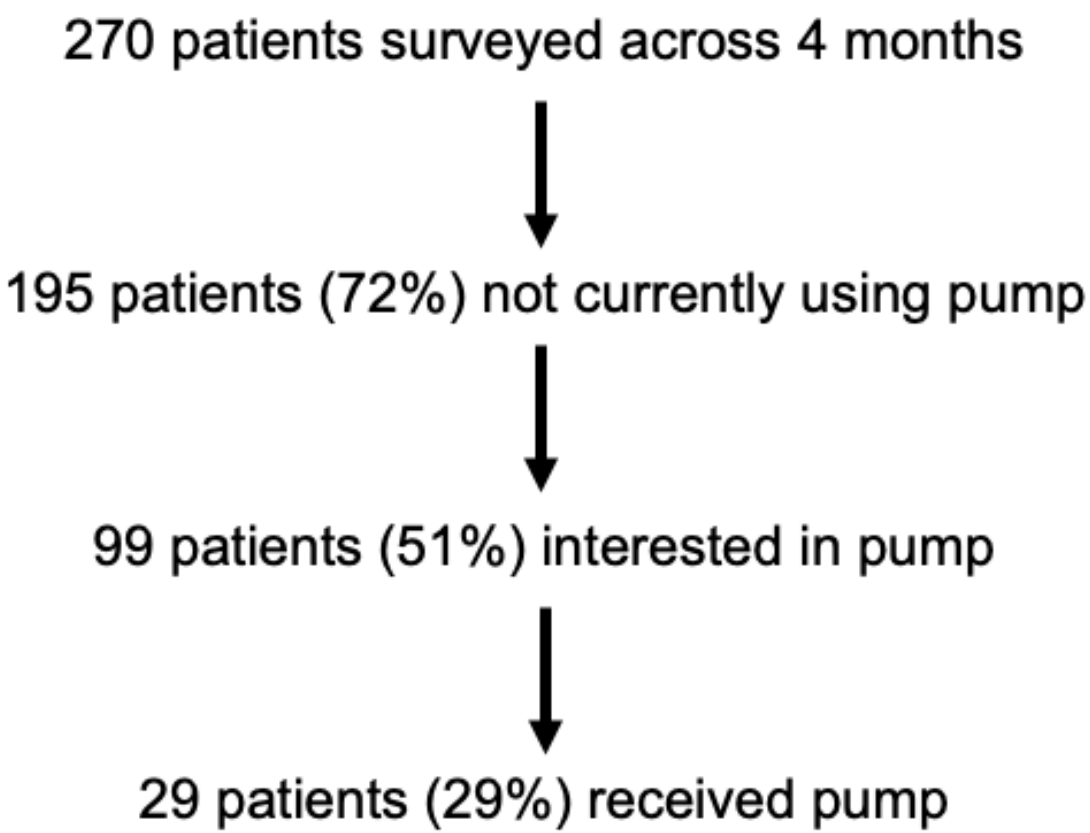
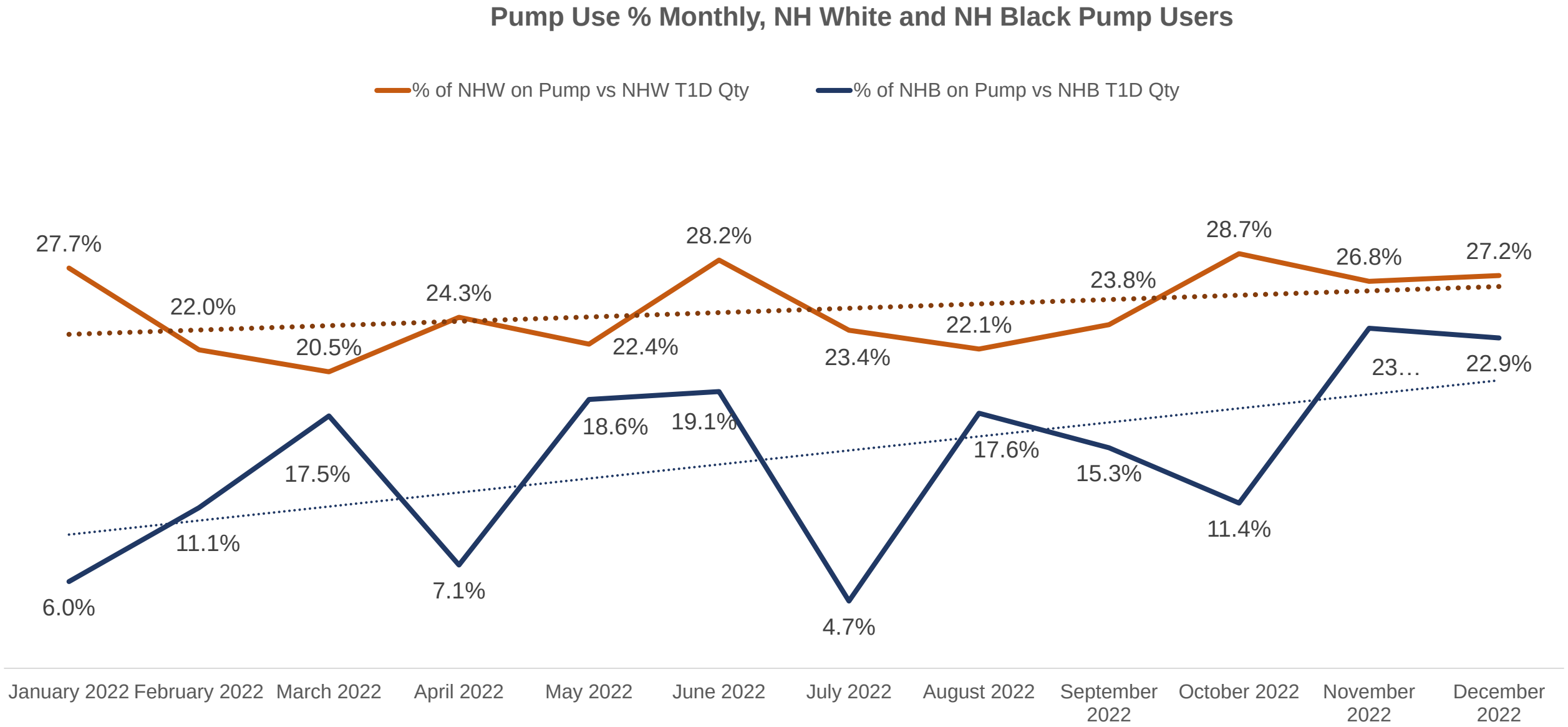
Survey Results




Pump Use % Monthly, NH White and NH Black Pump Users
% of NHW on Pump vs NHW T1D Qty
% of NHB on Pump vs NHB T1D Qty
27.7%
22.0%
20.5%
24.3%
22.4%
28.2%
23.4%
22.1%
23.8%
28.7%
26.8%
27.2%
6.0%
11.1%
17.5%
7.1%
18.6%
19.1%
4.7%
17.6%
15.3%
11.4%
23…
22.9%
January 2022
February 2022
March 2022
April 2022
May 2022
June 2022
July 2022
August 2022
September 2022
October 2022
November 2022
December 2022

Next Steps

- Closer follow up with patients with A1c above target with the general CDEs, but not as a limitation to starting pump
- Change in Education Curriculum, from Day1 through Pump Education
- Post pump start education to review common pitfalls

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Questions?

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Pre/Post learning