



Increasing the percentage of blood glucose levels tested in pediatric Type 1 Diabetic patients

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Cincinnati Children's

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BACKGROUND



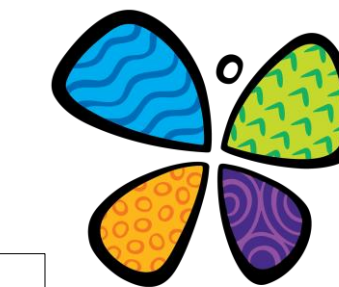
Problem: **Nonadherence** of blood glucose checks (*and recording the value*) in between follow up diabetes appointments is problematic for some children which can lead to **serious medical consequences** and can make treatment planning and optimization difficult for the healthcare providers

Evidence-basis¹: We know from the literature that children who are less compliant with checking their blood glucose at home are **more likely** to be admitted and are at **higher risk** for life-threatening diabetes complications.

Alignment: This project aligns with CCHMC's SP2020 Inpatient Bed Day Disparity project where the goal is reduction of the number of days children spend in the hospital. One focus is on **chronic conditions** (i.e. diabetes) and this work is approached through an **equity lens**.

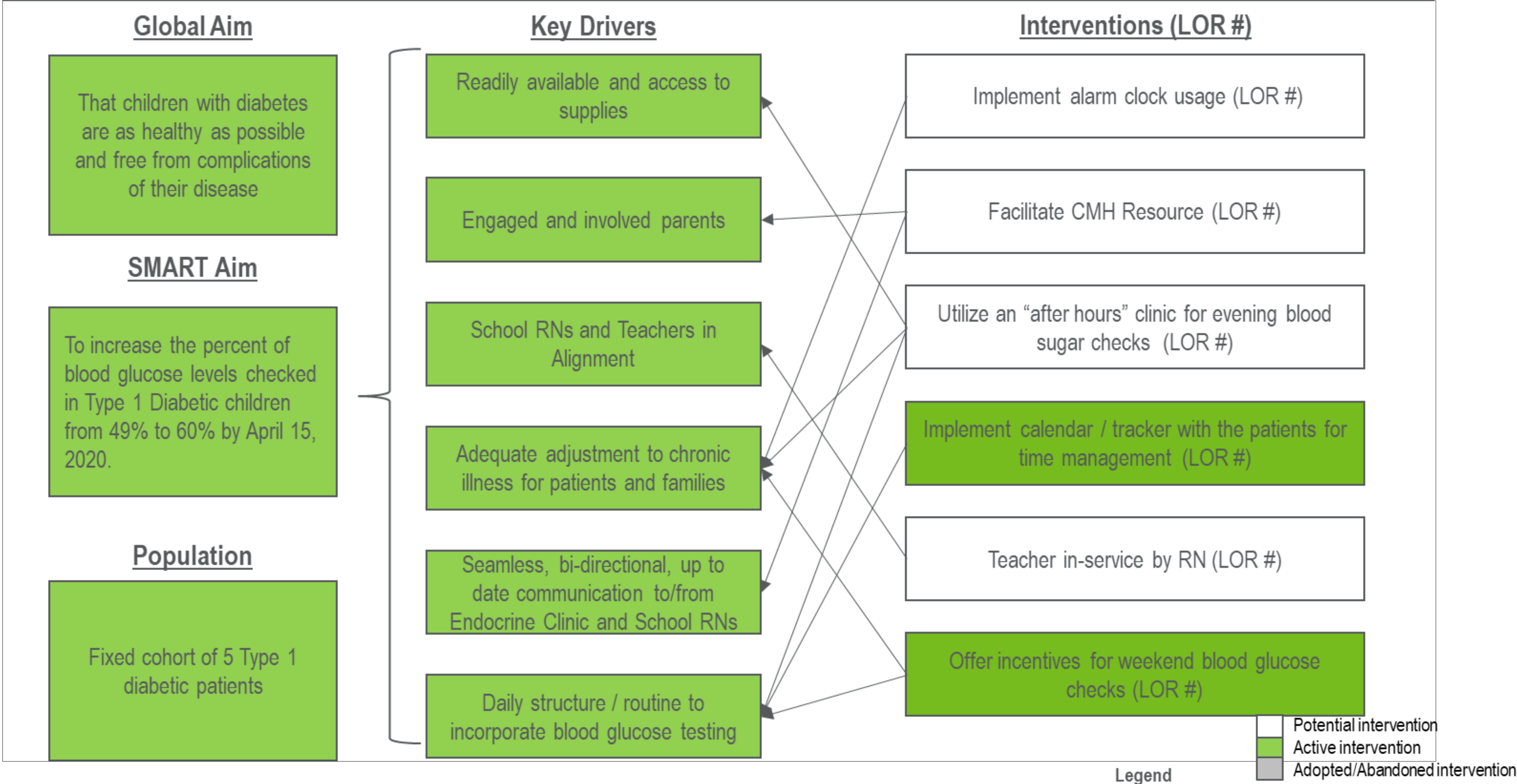
¹ Lack of compliance with home blood glucose monitoring predicts hospitalizations in diabetes. Burge, Mark. *Diabetes Care*, August 2001.

THEORY




Increasing Blood Glucose Checks Key Driver Diagram (KDD)

Project Leader(s): Stephen Fortson, Community Health Worker

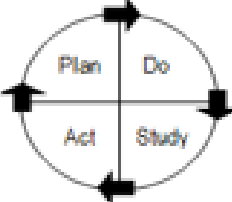


LEARNING CYCLES





PDSA Worksheet – Blood Glucose Testing



Ramp Name: Daily structure	Test Name: Calendar/Log	Test Start Date: 11/18/19	Test Complete Date: 12/02/19
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Project SMART Aim: To increase the percent of blood glucose levels checked in Type 1 Diabetic children from 49% to 60% by April 15, 2020.

What key driver does this test impact? Daily structure / routine to incorporate blood glucose testing	What is the objective of the test? To help the kid's self-regulate/manage their BG checks
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PLAN:

A. Briefly describe the test:

B. What would the successful test look like?

C. How will you measure the success of this test?

D. What do you predict will happen?

E. Plan for collection of data:

F. Tasks:

List the tasks necessary to complete this test (what)	Person responsible (who)	When	Where
Create tracking log	Stephen	11/13/19	CCHMC
Distribute log to each patients	Stephen	11/15/19	
Instruct patient, caregivers, School RNs on log	Stephen	11/15/19	
Patients record daily BG and send log to Stephen each week	Patients	11/18 – 12/2/19	

DO: Test the changes.

Was the cycle carried out as planned? Yes or No

Record data and observations.

What did you observe that was not part of the plan?

STUDY:

Did the results match your predictions? Yes or No

Compare the result of your test to your previous performance:

What did you learn?

ACT: Decide to Adapt, Adopt or Abandon (shade one box).

Adapt. Improve the change and continue testing the plan. Plan/changes for next test:

Adopt. Select changes to implement on a larger scale and develop an implementation plan and plan for sustainability.

Abandon. Discard this change idea and try a different one.

RESULTS



Data Tracker & Learning

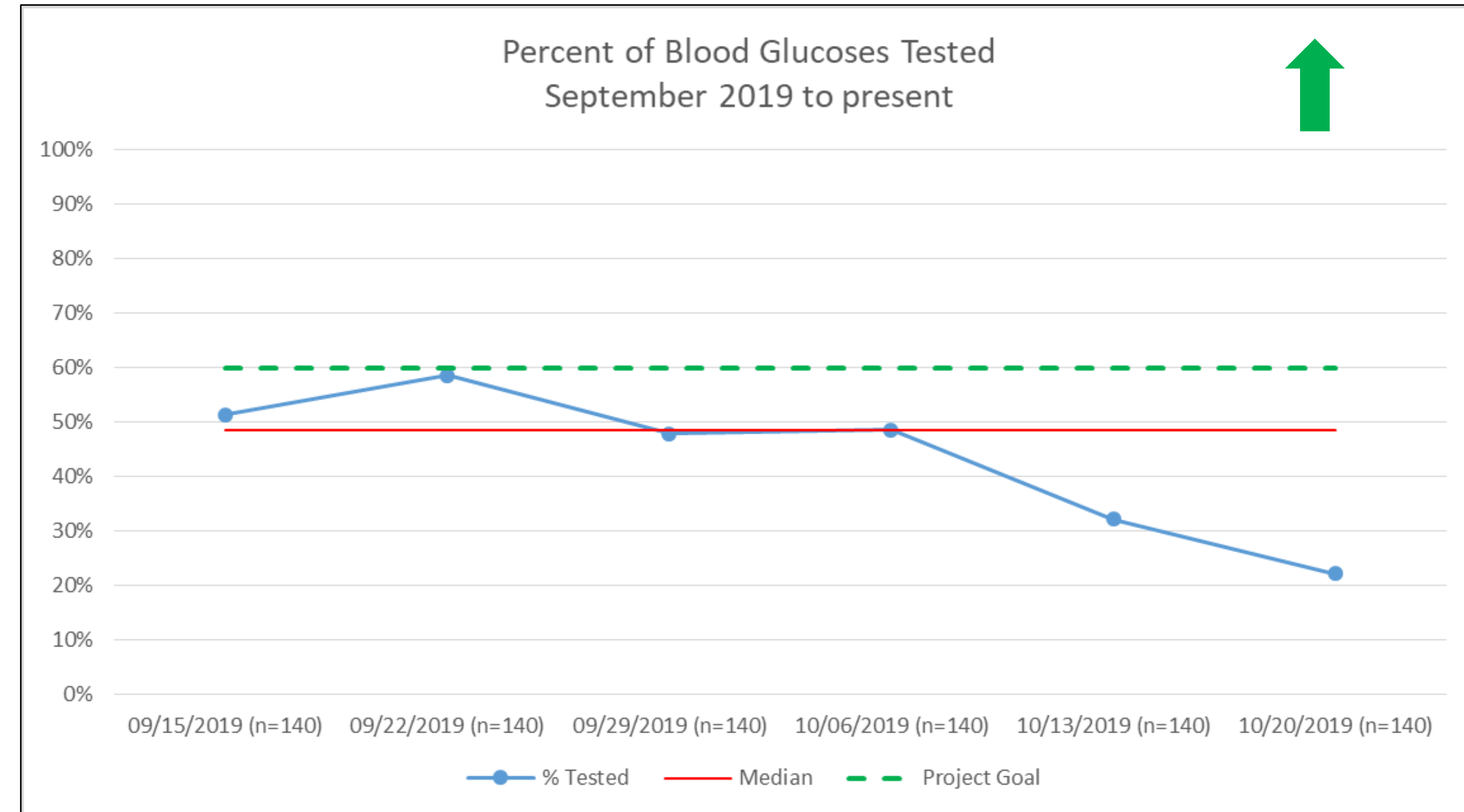
Day of Week	Date	Morning	Lunch	Dinner	Bedtime
Saturday	9/21/2019				
Sunday	9/22/2019				
Monday	9/23/2019	384	141		
Tuesday	9/24/2019	352	337		
Wednesday	9/25/2019	200	158		
Thursday	9/26/2019	277	283		
Friday	9/27/2019	236	109		
Saturday	9/28/2019				
Sunday	9/29/2019				
Monday	9/30/2019	370	283		
Tuesday	10/1/2019	600	268		
Wednesday	10/2/2019	600	106	362	309
Thursday	10/3/2019	194	308	600	
Friday	10/4/2019	427	500	88	
Saturday	10/5/2019	327	600		600
Sunday	10/6/2019	111	600	227	
Monday	10/7/2019	379	236		
Tuesday	10/8/2019	270	94	223	115
Wednesday	10/9/2019	232			
Thursday	10/10/2019			400	
Friday	10/11/2019				
Saturday	10/12/2019		400		350
Sunday	10/13/2019				
Monday	10/14/2019	124	464		
Tuesday	10/15/2019	114	88		
Wednesday	10/16/2019	78	206		
Thursday	10/17/2019	124	111		
Friday	10/18/2019	226	600		

Snapshot from one child's tracker.

Seeing trends in **missing** blood sugar checks at bedtime and on weekends predominantly.

Morning and lunch are usually done at school.

Run Chart



- Stratifying data
- Identifying **patterns** and opportunities for testing!

- Also tracking **clinical outcome** measures like HgA1C

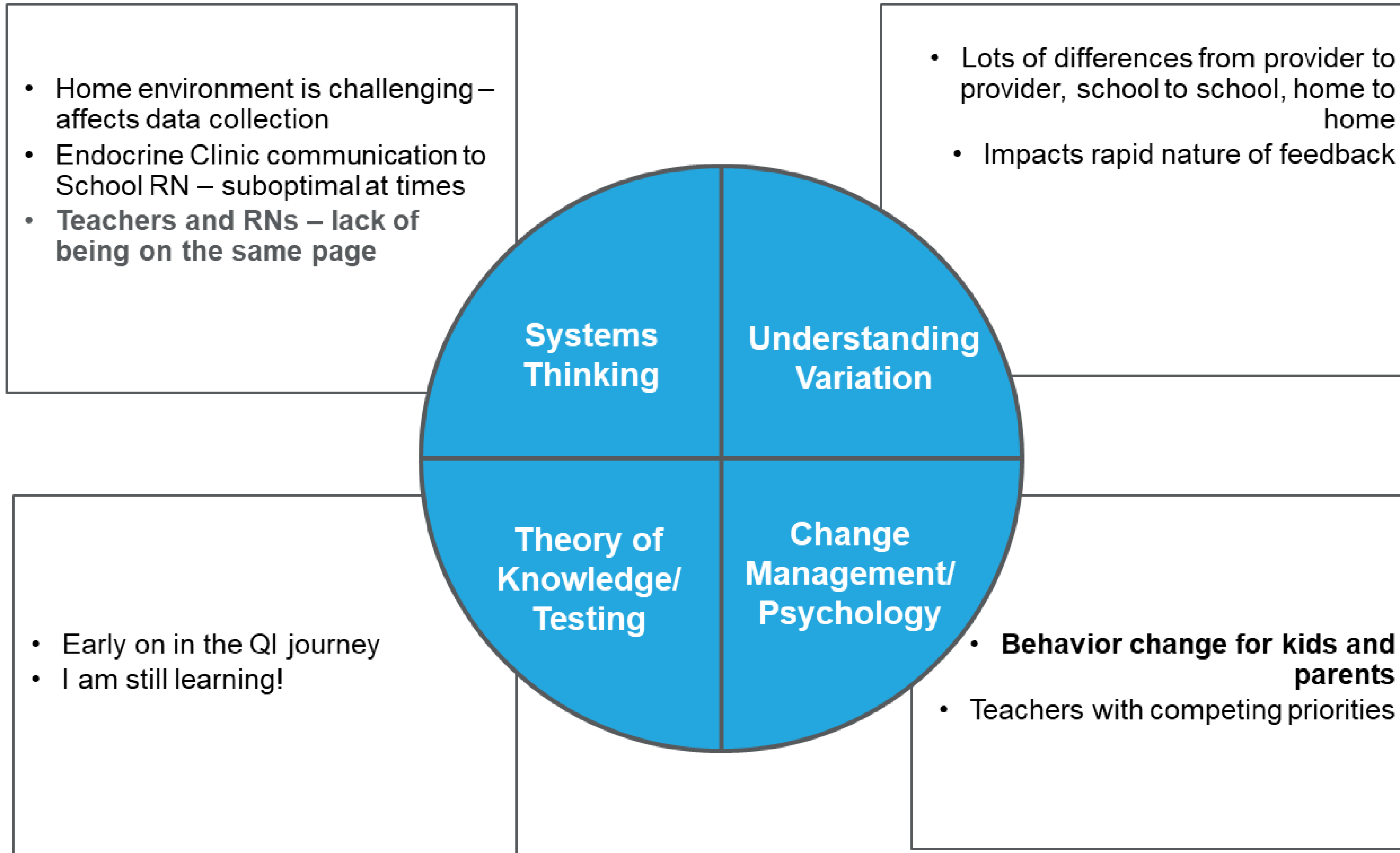
MOST PROUD & WHY



QI Learning (Ex. Learned benefits of failing on a small scale)	Leadership Learning (Ex. Importance of communicating with stakeholders)	Project Process Learning (Ex. Importance of documenting throughout the project)
QI Learning 1 • Hands-on approach helps accelerate learning (i.e. practicing the tools)	Leadership Learning 1 • Helps to tie in RN with provider and families	Project Process Learning 1 • Staying flexible is important – had to tweak initial project and scope
QI Learning 2 • Process Map / sFMEA – new to learn • Looking at failures + interventions has been helpful	Leadership Learning 2 • Beyond just communicating with, but making sure I have the right stakeholders	Project Process Learning 2 • Self collecting data is time consuming and challenging
QI Learning 3	Leadership Learning 3 • Networking across systems is very important (e.g. CHD school nurses supervisor)	Project Process Learning 3

- ❖ Proud of all the learnings
- ❖ Knowing that this work will make a difference for children with T1DM for their health and wellbeing

GREATEST CHALLENGE



With thanks



TEAM MEMBERS

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Dr. Nana Jones, CCHMC Endocrine Clinic

Dr. Yao, CCHMC Endocrine Clinic

School RNs

Parents and Families

Teachers

