

Monitoring by a Tertiary Care Center

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Barbara Davis Center for Diabetes
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

PLACE HOLDER FOR SLIDE OF POLL QUESTION



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Adequate Staffing to Support Monitoring

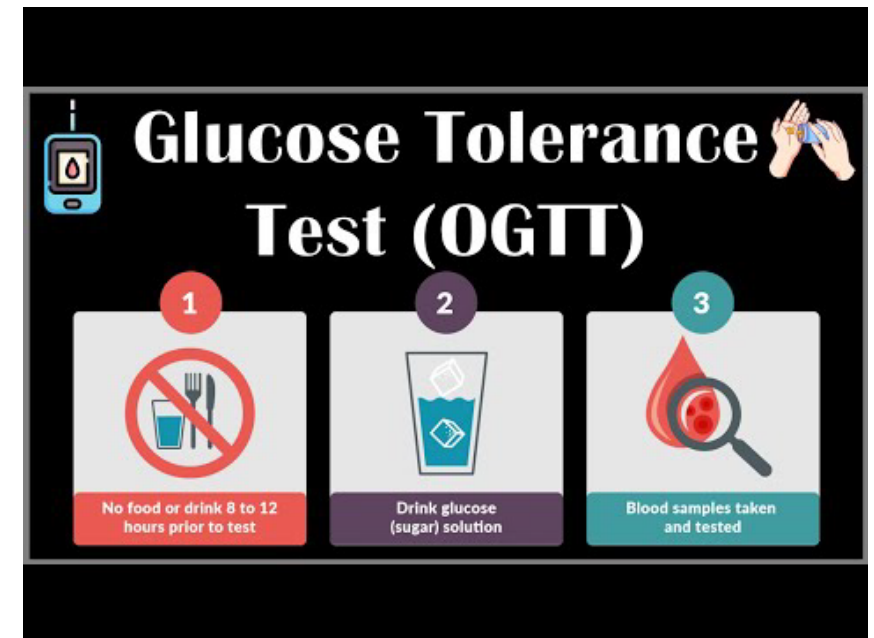
- Recognize physicians and APPs will need a well-trained staff to support monitoring
- Identify other staff who can support
 - CDEs, RNs, NPs, PAs, MAs
 - Contact Ask the Experts to facilitate staff training

www.asktheexperts.org



How to best monitor? Clinic vs Home

- Glucometer (HGT)
- HbA1c
- Continuous Glucose Monitor (CGM)
- Oral Glucose Tolerance Test (OGTT)



Home Based Monitoring

Once a week & daily if ill

Pros	Cons
Easy teaching	Resistance
Accessible	Compliance
Ownership of monitoring	Not ADA criteria
Cloud based result sharing	
Inexpensive	



Goals of Home Monitoring:

Education:

- T1D autoimmunity
- risk prediction

Emphasize the benefits of monitoring:

- prevent DKA
- treatment options or clinical trials to delay onset

Home glucose testing and monitoring for symptoms

Confirm steps to take if impaired BGs appear



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HOME GLUCOSE TESTING

Test 1 time per week and every day during illnesses



Ask the Experts

FOR EARLY T1D ANSWERS AND GUIDANCE

TIME blood glucose (BG) was tested	NORMAL BG	ELEVATED BG	HIGH BG
FASTING No food or drinks with any sugar for at least 8 hours	Below 100	100 – 124	125 or higher
PREFERRED METHOD 2 HOURS after meals	Below 140	140 – 199	200 or higher

Repeat test and contact your healthcare provider

Contact Name: _____

Contact Phone: _____



If the meter displays “**HI**” (no number displayed) your blood sugar reading is **over 300 mg/dL. This is a life-threatening situation and a medical emergency. Contact your nearest urgent care or emergency department.**

Home Glucose Testing Reminders

- A HIGH blood glucose (BG) on home testing is not sufficient to diagnose diabetes; it should be confirmed by a health care provider.
- If your child has a HIGH BG level, wash the child's hands with soap and water again and retest.
- If the BG is still HIGH, follow the instructions in this chart (see reverse).

Remember to Monitor for Symptoms of T1D

Most common symptoms include:

- **Excessive thirst**
- **Frequent urination** or getting up at night to urinate
- **Wetting the bed** in a child who was previously dry
- **Unexplained weight loss** or poor weight gain
- **Change in appetite**

+ Additional symptoms people experience include: low energy, blurred vision, yeast infections, mood changes, behavior changes

+ Symptoms that require urgent attention include: heavy breathing, vomiting and confusion

Clinic Based Monitoring

- Blood sugar average for the past 3 months
- May not be a good representation of recent BG changes
- Fluctuations can be difficult to interpret

HbA1c
(every visit)

T1D Antibodies

Celiac Antibodies

GAD	GAD ECL	IA-2	IA-2 ECL	IAA	IAA ECL	ZnT8	ZnT8 ECL	TG	TG ECL	ECL Assay	RBG	A1C
53	0.025	363	1.324	0.025	0.02	0.094	0.316	0.006		Single	91	5.4
45	0.025	334	0.639	0.025	0.024	0.127	0.608	0.005		Single	130	5.5
24	0.013	273	0.039	0.017	0.007	0.101	0.804		-0.003	Uplex	92	5.7
33	0.03	297	0.215	0.017	0.023	0.049	0.369		0	Uplex	100	5.5
30	0.011	383	0.303	0.016	0.01	0.043	0.326		0.001	Uplex		6
27	0.013	275	0.367	0.012	0.007	0.028	0.366		0.001	Uplex		5.7
37	0.011	290	0.564	0.03	0.015	0.035	0.217		0	Uplex		5.4
23	0.015	268	0.441	0.019	0.013	0.03	0.395		0	Uplex		5.7



Home Based Monitoring

Pros	Cons
Easy teaching	Resistance
Accessible	Not ADA criteria
Ownership of monitoring	Psychological distress
Real time result sharing	
Results encourage OGTT	
Daily life data	

CGM
(every 3m)



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Continuous Glucose Monitor (CGM) Instructions

See reverse >

Contact **AsktheExperts** if you note any of the following T1D symptoms.

Most common symptoms include:

- **Excessive thirst**
- **Frequent urination** or getting up at night to urinate
- **Wetting the bed** in a child who was previously dry
- **Unexplained weight loss** or poor weight gain
- **Change in appetite**

Additional symptoms people experience include:

low energy, blurred vision, yeast infections, mood changes, behavior changes

VISIT: [AsktheExperts.org](https://www.AsktheExperts.org)



STAGE 1-T1D / Normal blood glucose levels

Wear the CGM once (for about 10 days) every 3-6 months.
Try to look at the glucose value 2 hours after your largest meal each day.
Set high glucose alert for 300 mg/dL. Do not set a low alert.

HIGH CGM VALUES:

- If CGM glucose is **200 or higher** at TWO HOURS after a meal, please wash hands and check finger-stick blood glucose.
- If sensor or blood glucose continues above 200 mg/dL two hours after a meal, **TEXT or EMAIL AsktheExperts** (see below) the next business day.
- If blood sugar is **>300 for more than two hours in a row**, contact your health care provider—a blood glucose, ketone and HbA1c level should be checked.

LOW CGM VALUES:

- For sensor glucose values **below 55 mg/dL**, the CGM will automatically alarm. In people who are not taking insulin, the body has the ability to raise the blood glucose in response to normal lows. However, if your child feels hungry or has symptoms of a low blood glucose, give a small snack.
- Glucose values may run lower at night. In some cases, these lows are caused by compression of the sensor that happens when laying on the sensor site while sleeping. If this is the case, move off of the sensor. It may take up to 20 minutes for the glucose value to appear/increase.
- If you are **experiencing lows** — blood glucose < 60 mg/dL for more than 2 hrs — **more than 2 days in a row**, **TEXT or EMAIL AsktheExperts** the next business day.

HIGH

LOW

Clinic Based Monitoring

Pros	Cons
ADA Gold Standard	Time consuming
	IV placement
	Intolerance to Glucola
	Results can change from visit to visit



What about home OGTTs?

OGTT
(every 6m)



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Next Steps When Glucose Levels are Impaired*

*Random blood glucose 140-199 mg/dl and/or HbA1c 5.7-6.4%

Determine stage of diabetes:

- HbA1c, OGTT, check BG, CGM

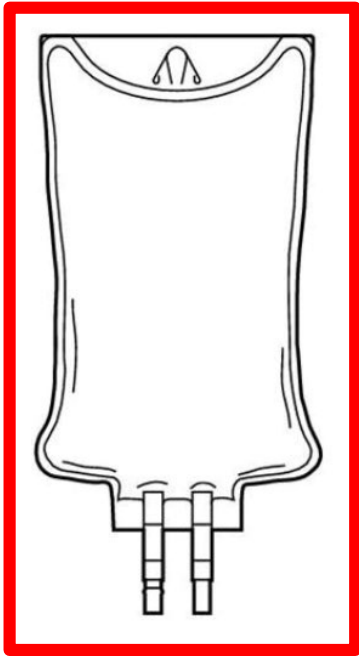
Educate on symptoms of hyperglycemia and DKA

Home glucose testing:

- 2-hours post meal 1x/week
- Daily when ill or with symptoms

Follow-up every 3 months to ensure medical safety.





Options for Treatment or Clinical Trials

What are the available options?

Who to contact to determine eligibility?

Where are these options available?



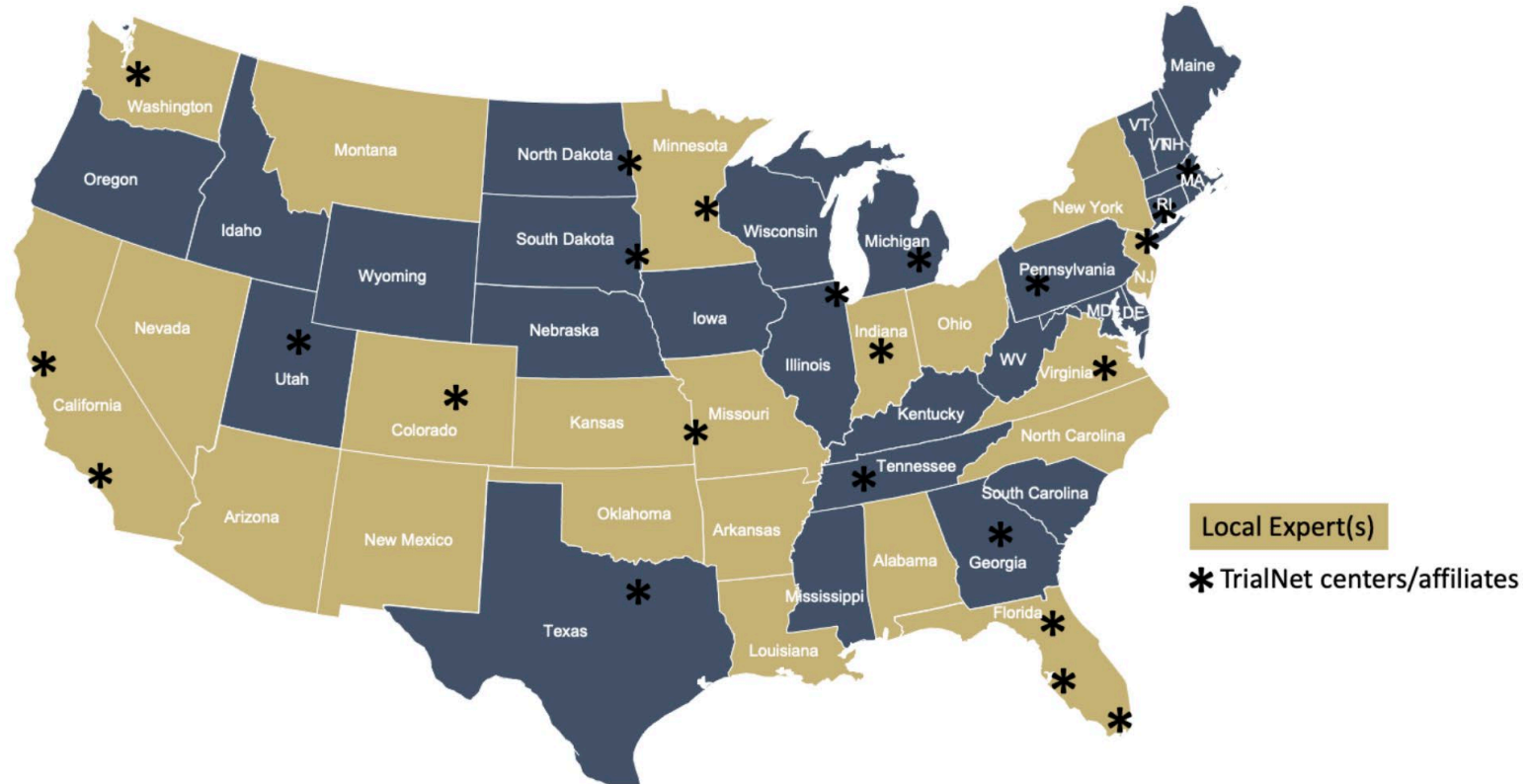
Case Review

- 7y, FDR (FOC Proband), Pennsylvania resident
- Identified as Stage 1 through TrialNet
- MOC contacted Ask the Experts to get additional support with CGMs and HGT
- MOC wanted to collaborate with local HCP to monitor
- Referred to Endocrinology: Completed OGTT with diabetes team
CGM prescribed



Resource for healthcare providers and patients and with our national network of clinical and research partners

- Education + support
- Monitoring resources + guidance
- Access to early treatment interventions



Train healthcare providers throughout the United States to be comfortable identifying and managing people in the early stages of type 1 diabetes.



- www.asktheexperts.org
 - 303-724-1212
- Kimberly.bautista@cuanschutz.edu

Healthcare Providers: Become a MEMBER to access additional resources

First Name *

Last Name *

Email *

Phone *

City

Region/State/Province

Profession

Profession

I am interested in becoming a "Local Expert"
partner

Submit



Monitoring Steps: Summary

- **Identify at risk individuals through antibody screening and confirmation**
- **Inform individual of risk**
- **Explain importance of consistent monitoring**
- **Engage in monitoring activities**
- **Identify clinical trials or treatments to delay onset**



Acknowledgements

Marian Rewers, P.I.
Cristy Geno Rasmussen
Kim Bautista
Judy Baxter
Amber Corr
Fran Dong
Daniel Felipe-Morales
Isabel Flores Garcia
Brigitte Frohnert
Tricia Gesualdo
Michelle Hoffman
Xiaofan Jia
Rachel Karban

Maricela Munoz
Holly O'Donnell
Meghan Pauley
Flor Sepulveda
Crystal Silva
Kimber Simmons
Andrea Steck
Iman Taki
Kathy Waugh
Joey Wong
Liping Yu

Brett McQueen
Rick Bacher
David Roth
Laura Pyle
Jill Norris

Sponsors



Patten-Davis Foundation

**Our ASK
participants,
families, and
ASK provider
partners**

Partners



Edwin Liu, Marisa Stahl
Michelle Corrado, Mary Shull, Pooja Mehta,
Ed Hoffenberg, Monique Germone,
Sadie Nagle, Erin Sandene, Kevin Carney,
Amy Lewis, Chrisann Karr, Sondra Valdez,
Chris Martin, Alison Brent

Dan Feiten
Tracy Brekken

Martha Middlemist
Rebekah Phillips

Holly Frost
Sonja O'Leary
Kathy Love-Osborne



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Autoimmunity Screening for Kids



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