

Early T1D Monitoring: Practical Ways to Monitor for Dysglycemia & Hyperglycemia

Kimberly Bautista, MPH
Research Scientist



Barbara Davis Center for Diabetes
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS



Disclosure Information

NO DISCLOSURES



Barbara Davis Center for Diabetes
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

Prevention of DKA

Study	Frequency of DKA	Reference
Children identified through general population screening programs		
(Germany) Fr1da 	5.6%	Ziegler A-G. JAMA 2020
(Colorado) 	4.5%	Rewers M. EASD 2024
Children diagnosed <u>without</u> prior screening		
Sweden	22%	Wersäll J. Pediatr Diabetes 2021
Finland	23%	Hekkala A. Pediatr Diabetes 2018
Germany	24%	Kamrath C. JAMA 2020
Colorado	40-62%	Rewers A. JAMA 2015 Alonso G. Diabetes Care 2020



Barbara Davis
Center for Diabetes

UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

Goals of Monitoring

- Increase knowledge and awareness of ET1D stages among health care providers (HCPs) and their patients
- Improve outcomes at diagnosis and with long-term disease management
- Develop trusting relationships with ET1D people to effectively monitor
- Provide options to delay onset



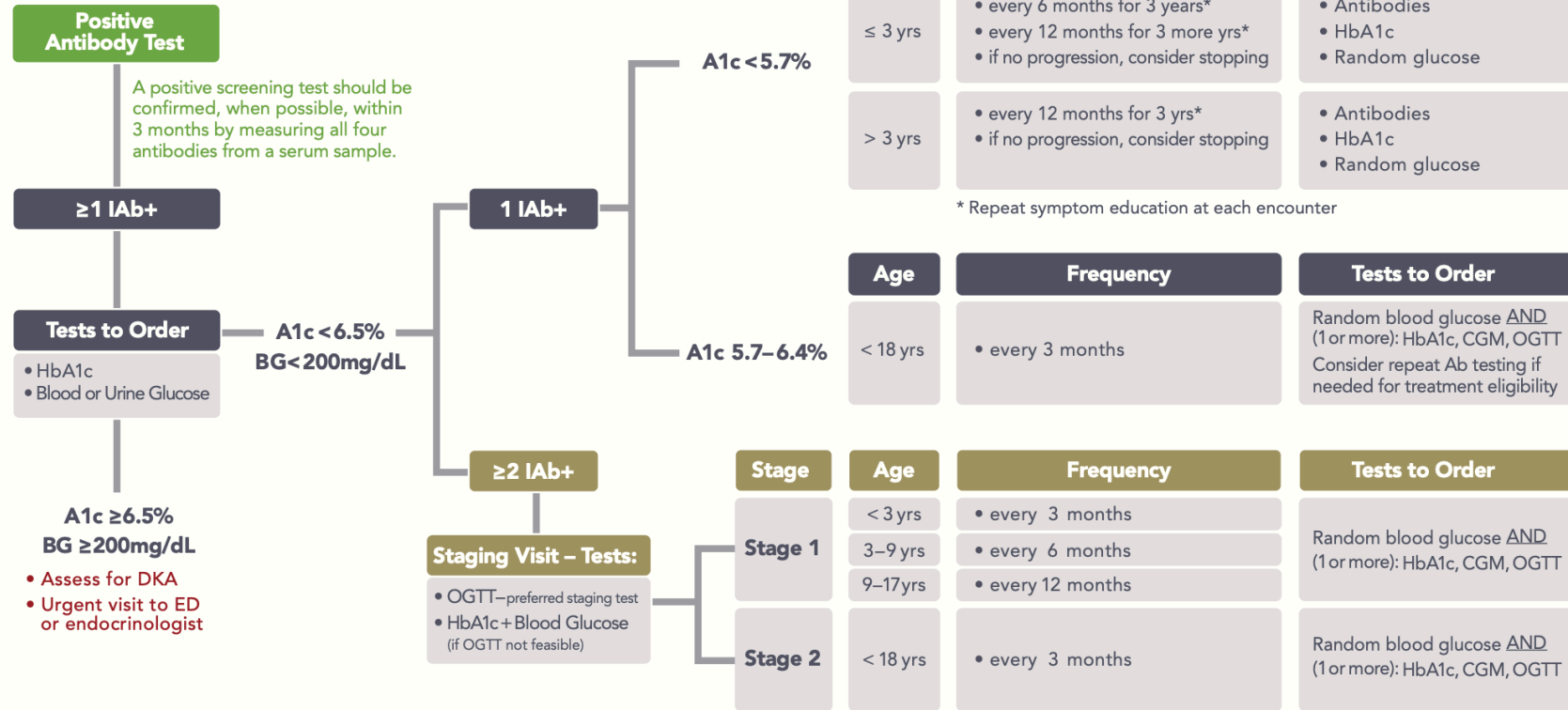
What makes monitoring practical?

Determining the schedule of monitoring visits and the tests that are acceptable, available and feasible for the health care providers and their patients to effectively identify stage of diabetes.



KIDS

Staging and Monitoring



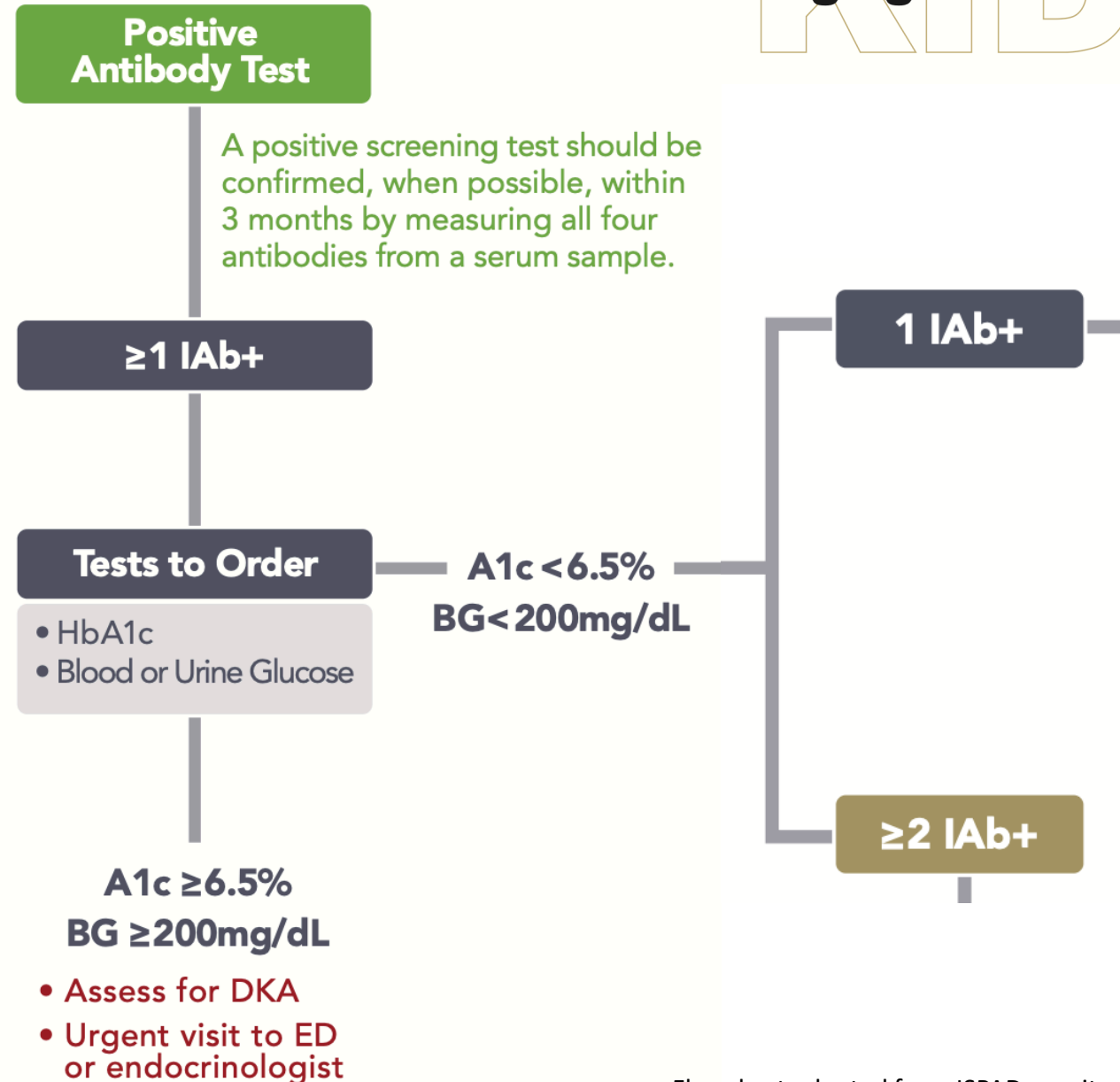
Flowchart adapted from: Haller MJ, Bell KJ, Besser REJ, et al. ISPAD Clinical Practice Consensus Guidelines 2024: Screening, Staging, and Strategies to Preserve Beta-Cell Function in Children and Adolescents with Type 1 Diabetes. *Horm Res Paediatr.* 2024;97(6):529-545. doi:10.1159/000543035

Content adapted from Phillip M, Achenbach P, Addala A, et al. Consensus guidance for monitoring individuals with islet autoantibody-positive pre-stage 3 type 1 diabetes. *Diabetologia.* 2024 Sep;67(9):1731-1759. doi: 10.1007/s00125-024-06205-5. Erratum in: *Diabetologia.* 2024 Sep;67(9):2012-2014. doi: 10.1007/s00125-024-06266-6. PMID: 38910151; PMCID: PMC11410955.



Assess Glycemic status

Add first steps of flowchart



KIDS

Staging and Monitoring

1 IAb+

A1c < 5.7%

Age	Frequency	Tests to Order
≤ 3 yrs	<ul style="list-style-type: none"> • every 6 months for 3 years* • every 12 months for 3 more yrs* • if no progression, consider stopping 	<ul style="list-style-type: none"> • Antibodies • HbA1c • Random glucose
> 3 yrs	<ul style="list-style-type: none"> • every 12 months for 3 yrs* • if no progression, consider stopping 	<ul style="list-style-type: none"> • Antibodies • HbA1c • Random glucose

* Repeat symptom education at each encounter

A1c 5.7–6.4%

Age	Frequency	Tests to Order
< 18 yrs	<ul style="list-style-type: none"> • every 3 months 	Random blood glucose <u>AND</u> (1 or more): HbA1c, CGM, OGTT Consider repeat Ab testing if needed for treatment eligibility



KIDS

Staging and Monitoring



Content : Education

- T1D autoimmunity
- Risk of progression
- Staging
- Self-monitored blood glucose (SMBG) testing
- Symptom review
- Psychological support



ENSURE MEDICAL SAFETY WHILE ALSO MAINTAINING “NORMAL” LIFE

Frequency

- Some will follow monitoring recommendations
- Adjust recommendations based on feasibility of life demands
- Acceptance and understanding of need for monitoring will vary

Content

- Many families agree to CGM
- Many families refuse OGTT
- SMBG will be variable
- Verbalizing need for psychosocial support will vary



New Monitoring Research

New Monitoring Research

- C2 Protocol
 - Home OGTTs
 - Capillary collection of c-peptide
 - CGMs

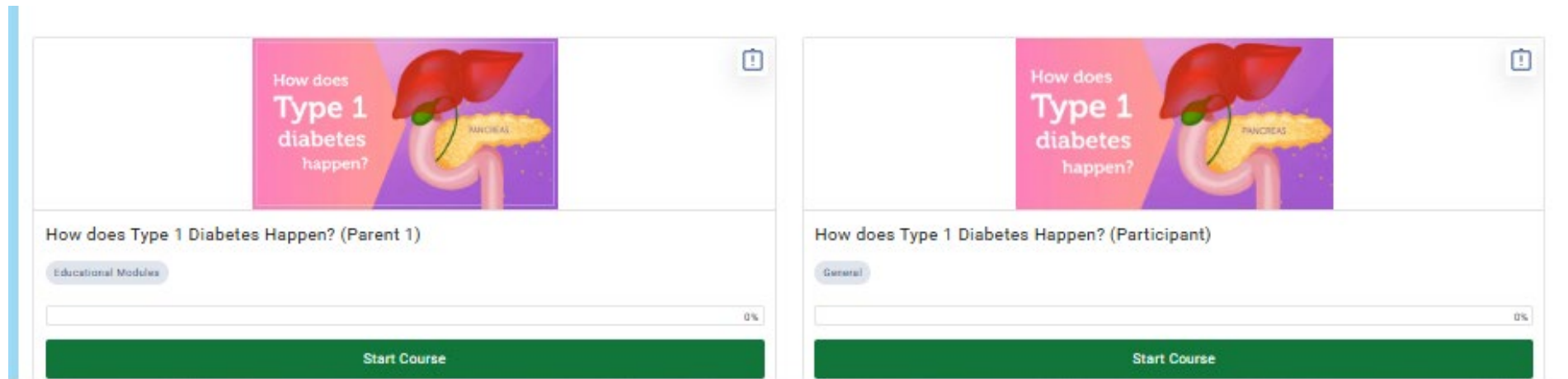


Barbara Davis
Center for Diabetes
UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS





New Monitoring Research

- Early Stage T1D Education + Support (ESTES)
 - Develop new ways to educate and monitor
 - Learning Module System (LMS)



Family Smith*

Name Diagnosis info	 Edison T1D Dx 14y, MMR vaccine August had reaction, A1c normal, October A1c 14%	 Chad T1D dx 10y6m April A1c 5.5, May contracted mono progressed to diagnosis June, A1c 5.7, BGs over 300, No DKA
First screen (ASK)	Never screened	9y9m Nov 5 th 2024 MAB+
Confirmation (Quest)	N/A	9y9m Nov 27 th 2024 MAB+
Consensus recommendations	N/A	Repeat A1c at least annually. SMBG teaching, consider CGM periodically and consider OGTTs
<p>Mom's opinion is that both kids progressed rapidly to a diagnosis. She is concerned about her other children progressing rapidly.</p>		




Do you think she should have other children screened for islet autoantibodies?

Options

- Yes
- No
- I need more information



Family Smith*

	
Name	Billy
Current age	8y5m
First screen (ASK)	7y8m, GAD+ Screened Single High Affinity (by 2 methods)
Confirmation/Re-screen (Quest)	7y9m Confirmation test ZnT8+, GAD- A1c 4.8
What next?	

Mom wants to know if he is considered MAB+ since he was positive for two different antibodies?
Thoughts?



Would you call Billy
MAB+?

Options

- Yes
- No
- I need more information



Would you call Billy
stage 1?

Options

- Yes
- No
- I need more information



If you don't think he is stage 1, do you think he's at increased risk?

Options

- Yes
- No
- I need more information

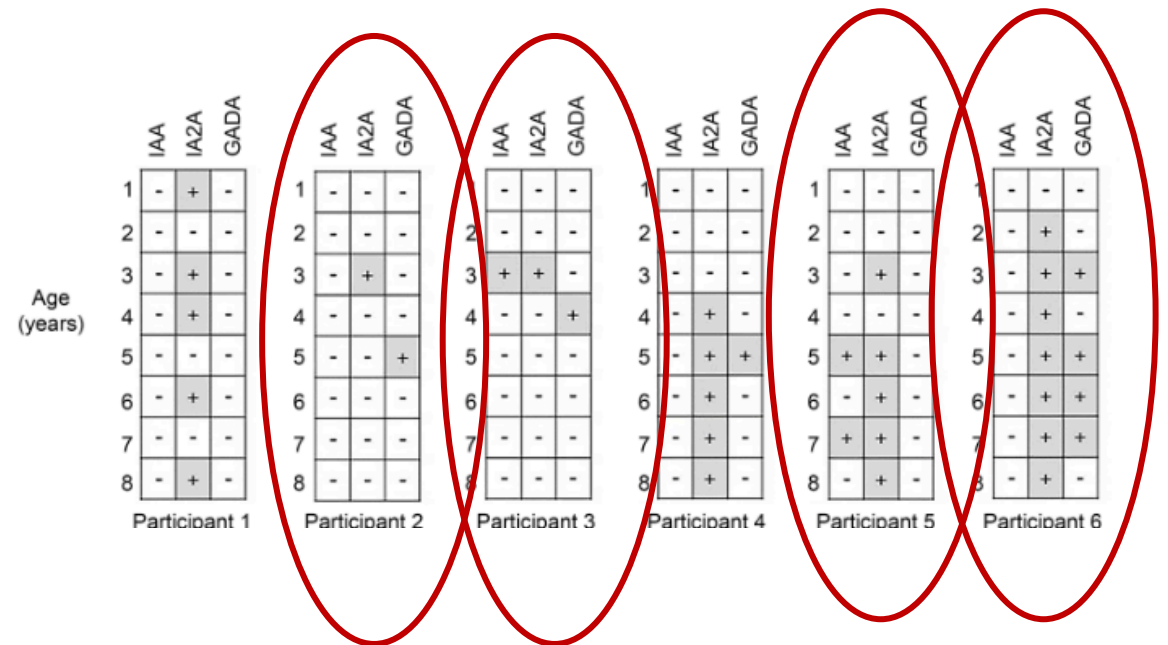


What is “multiple”? What is stage 1?

- ❖ Stage 1 (10 year risk of 75%) is based on *multiple* IAb *confirmed* at a consecutive visit
- ❖ Other “multiple” positive situations, 10-year risk:
 - ❖ Two or more, only one persists: 45%.
 - ❖ Two or more at same visit, not confirmed at next: 40%
 - ❖ Billy: Two different antibodies at two different visits: 18%

❖ Over the next two years, many with “intermediate” scenarios will evolve into *multiple confirmed*

➔ Following up over time is helpful



KIDS

Staging and Monitoring

A1c < 5.7%

> 3 yrs

- every 12 months for 3 yrs*
- if no progression, consider stopping



- Antibodies
- HbA1c
- Random glucose

* Repeat symptom education at each encounter

1 IAb+



Family Smith*

<p>Name Current age</p>	<p>Billy 8y5m</p> 	<p>Duncan 13y</p> 
<p>First screen (ASK)</p>	<p>7y8m, GAD+ Screened Single High Affinity (by 2 methods)</p>	<p>11y11m, ZnT8 Screened Single High Affinity (by 2 methods)</p>
<p>Confirmation/Re-screen (Quest)</p>	<p>7y9m Confirmation test ZnT8+ but GAD-</p>	<p>12y4m, MAB+ GAD+, ZnT8+, IAA+, IA-2+ A1c 4.5</p>
<p>Consensus recommendations</p>	<p>Annual AB testing and metabolic monitoring for 3 years. If no progression, stop and counsel for risk of disease. T1D education, psychosocial assessment/support</p>	<p>What next for Duncan?</p>



What stage is Duncan?

Options

- Stage “0”
- Stage 1
- I need more information



How soon should
Duncan be seen for
follow up?

Options

- In 0-3 months
- In 3-6 months
- In 6-9 months
- Annually



KIDS

Staging and Monitoring

≥2 IAb+




Staging Visit – Tests:

- OGTT—preferred staging test
- HbA1c+ Blood Glucose (if OGTT not feasible)

Stage	Age	Frequency	Tests to Order
Stage 1	< 3 yrs	• every 3 months	Random blood glucose <u>AND</u> (1 or more): HbA1c, CGM, OGTT
	3–9 yrs	• every 6 months	
	9–17 yrs	• every 12 months	



Family Smith*

<p>Name Current age</p>	<p> Billy 8y5m</p>	<p> Duncan 13y</p>	<p> Astrid 14y2m</p>
<p>First screen (ASK)</p>	<p>7y8m, GAD+ Screened Single High Affinity (by 2 methods)</p>	<p>11y11m, ZnT8 Screened Single High Affinity (by 2 methods)</p>	<p>13y2m, Screened AB- Of note, MOC has randomly checked some BGs and some have been above 200</p>
<p>Confirmation/Re-screen (Quest)</p>	<p>7y9m Confirmation test ZnT8+ but GAD-</p>	<p>12y, MAB+ GAD+, ZnT8+, IAA+, IA-2+</p>	<p>Not completed</p>
<p>Consensus recommendations</p>	<p>Annual AB testing and metabolic monitoring for 3 years. If no progression, stop and counsel for risk of disease. T1D education, psychosocial assessment/support</p>	<p>Repeat A1c at least annually. SMBG teaching, consider CGM periodically and consider OGTTs</p>	<p>What next?</p>




Would you rescreen
Astrid?

Options

- Yes, once more
- Yes, more than once
- No



Family Smith*

<p>Name Current age</p>	<p> Billy 8y5m</p>	<p> Duncan 13y</p>	<p> Astrid 14y2m</p>
<p>First screen (ASK)</p>	<p>7y8m, GAD+ Screened Single High Affinity (by 2 methods)</p>	<p>11y11m, ZnT8 Screened Single High Affinity (by 2 methods)</p>	<p>13y2m, Screened AB- Of note, MOC has randomly checked some BGs and some have been above 200</p>
<p>Confirmation/Re-screen (Quest)</p>	<p>7y9m Confirmation test ZnT8+ but GAD-</p>	<p>12y, MAB+ GAD+, ZnT8+, IAA+, IA-2+</p>	<p>Not completed</p>
<p>Consensus recommendations</p>	<p>Annual AB testing and metabolic monitoring for 3 years. If no progression, stop and counsel for risk of disease. T1D education, psychosocial assessment/support</p>	<p>Repeat A1c at least annually. SMBG teaching, consider CGM periodically and consider OGTTs</p>	<p>Rescreen PRN based on symptoms/concern or per local schedule</p>

Ask the Experts Website



Where to turn when your patient or child has screened positive for type 1 diabetes (or T1D).



Ask the Experts is a program for health care providers and individuals/families living in the United States who screen positive for type 1 diabetes (T1D) related islet autoantibodies (IAb). Together with our national network of clinical and research partners, we provide: (1) education + support; (2) monitoring resources + guidance; and (3) access to early treatment interventions.

HEALTH
CARE
PROVIDERS

< SELECT >

INDIVIDUALS
& FAMILIES



Ask the Experts Website

“Virtual Expert”



Barbara Davis
Center for Diabetes

UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

Hi. I'm your “Virtual EXPERT” — here to answer your early-stage T1D questions and guide you to the information you're looking for. Click one of the options shown to start... or type your question into the space at the bottom.



Ask a question in any language. Preguntar en Español. Poser une question en Français.

This is for informational purposes only; it uses content from this website (with specific additional documents). Communication via the chat feature is unencrypted and therefore, not HIPAA compliant. As such, no confidential information, including PHI, should be shared or referenced. For medical advice or diagnosis, consult a professional.



Start with one of these... or type your question below.

What is the purpose of the Ask the Experts program?

I'm looking for guidance on monitoring my patient who has screened positive for T1D islet autoantibodies.

I'm interested in learning more about teplizumab and how it can delay the onset of Stage 3 T1D. Tell me more...

Ask me about T1D or Celiac...



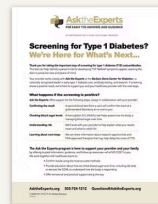
CHAT: Ask me anything...

Early-Stage T1D Resources + Tools

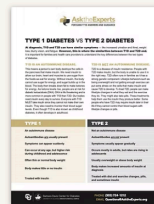
Here you'll find resources (and downloadable files) from Ask the Experts — to guide you through the process of early T1D. We invite you to download and explore these materials.

Provider Kit — the materials you need for an early-stage T1D patient visit

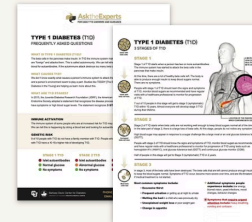
Quick-Reference



We're Here for What's Next...



T1D vs T2D

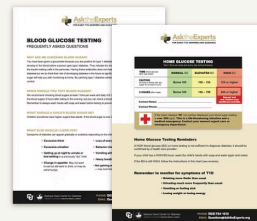


3 Stages of T1D / FAQs?

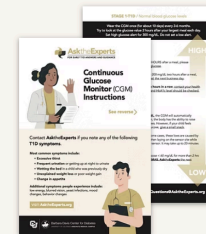


T1D Symptoms (magnet)

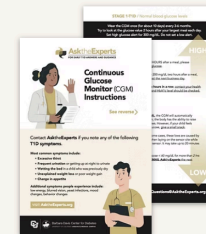
Testing Tools + Guides



Blood Glucose Testing FAQs / Table



Continuous Glucose Monitor (CGM) Instructions for Stage 1-T1D / for Stage 2-T1D



TIME	NORMAL GC	ELEVATED GC	HIGH GC
FASTING 8-10 hours fast	Below 100	100 - 124	125 or higher
2 HOURS after meals	Below 140	140 - 199	200 or higher

Home Glucose Testing (magnet)

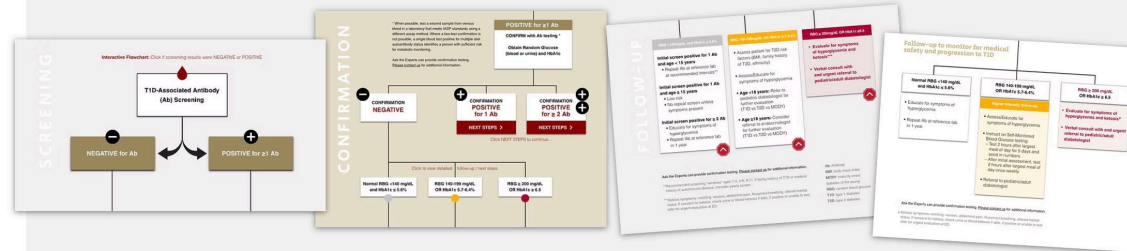


Ask the Experts Website

Early T1D Resources + Tools

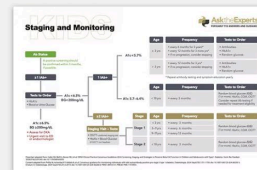
Protocols and Next Steps:

Interactive (online) Screening + Follow-Up Tool

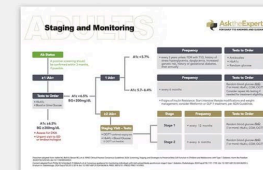


Click through each step to plan your patient's care (Screening > Confirmation > Follow-Up > Treatment).

Below are additional downloadable/printable resources:



Staging and Monitoring for KIDS



Staging and Monitoring for ADULTS

Islet Autoantibody Testing + Confirmation



CHAT: Ask me anything...



Barbara Davis Center for Diabetes

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

Ask the Experts Website

Early T1D Resources + Tools



Barbara Davis
Center for Diabetes

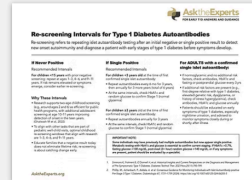
UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

HCP Antibody Confirmation Guidance

Step-by-step confirmation of IAb+ results.

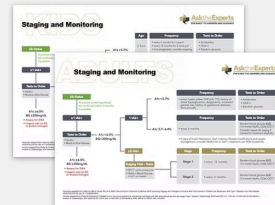
T1D vs T2 Prediabetes

Metabolic Monitoring + Follow-Up Care

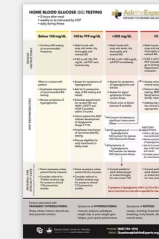


Re-screening Intervals for T1D Autoantibodies

Repeat testing guidelines.



Staging and Monitoring for KIDS / ADULTS



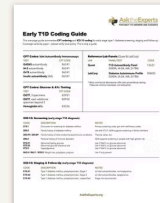
Home Blood Glucose Testing



Oral Glucose Tolerance Test (OGTT)

Additional Resources

Billing + Documentation



Early T1D Coding Guide

CPT and ICD-10

Laboratory Standards



CLIA and CAP Certification

How to verify laboratory status.

CHAT: Ask me anything...

Ask the Experts Website

FAQs

Frequently Asked Questions

01

What's the best way to get someone screened for type 1 diabetes?



02

How do I confirm positive antibody results?



03

If a prior antibody screen was negative, when should I re-screen?



04

What should I do if the HbA1c or glucose level is elevated or the patient is symptomatic?



05

How do I stage early T1D after antibodies are confirmed?



06

What's the monitoring plan for pediatric Stage 1 T1D?



07

What's the monitoring plan for pediatric Stage 2 T1D?



Barbara Davis
Center for Diabetes

UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

Ask the Experts Website

Interactive "Local Experts" MAP



Barbara Davis Center for Diabetes

UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

Ask the Experts
FOR EARLY T1D ANSWERS AND GUIDANCE

Search...

- Clinical Follow-Up
- Research Study Follow-Up
- Treatment to Delay Progression

- Barbara Davis Center Early T...
- Children's National Hospital ...
- Cincinnati Children's Hospital...
- Corewell Health Childrens, H...
- Cotton O'Neil Diabetes and E...
- Dayspring Clinic, Middlebury ...
- Dayton Children's Hospital
- Dumfries Pediatrics
- ENDO4LIFE PLLC
- Hasbro Children's Brown Uni...
- Lurie Children's Hospital at C...
- Molly Center for Children wit...
- Primary Children's Eccles Ou...
- The Diabetes Center, Ocean ...
- UCSF Health
- University of Florida

Children's National Hospital T1Delay Program

Clinical Follow-Up
Treatment to Delay Progression

(click to email)
Shideh Majidi, MD, MSCS
Specialty: Pediatric Endocrinology
Ages served: children and adolescents
202-476-2121

WEBSITE

CHAT: Ask me anything...

Ask the Experts Website Community

Levels of Engagement:

We offer four levels of engagement with Ask the Experts and invite you to join us:

EXPERT

Prescribing clinicians (MD, DO, NP, PA) who actively manage early-stage type 1 diabetes (Stage 1 or 2).

- Eligible for public map listing if providing monitoring and/or Teplizumab (Tzield®) infusions
- Access to monthly case-based meetings
- Full access to protocols, clinical tools, and referral pathways
- Option to be recognized as a Research-Engaged Expert if involved in prevention or immunotherapy trials

DELEGATE

Non-prescribing healthcare professionals (e.g., RN, CDCES, RD, LCSW) involved in education, care coordination, or staging.

- Access to monthly meetings case-based meetings
- Full access to protocols, clinical tools, and referral pathways
- Not individually listed on the map (can be affiliated with an Expert-site)

PRIMARY CARE AFFILIATE

Primary care providers interested in screening, learning, and referring for early-stage T1D

- Access to monthly case-based meetings
- Full access to protocols, clinical tools, and referral pathways
- Can be mentored toward Expert status
- Not listed on the map unless providing clinical monitoring or treatment

AMBASSADOR

Patients / Caregivers / Advocates (non-clinicians) who support early T1D education and outreach

- Complete a brief training module and help raise awareness in their communities
- Not listed on the map

**** Please indicate your level of interest in the upper-right section of the FORM below ****



Ask the Experts

Office Hours



Zoom Workplace Meeting View Edit Window Help

herbertbravo Rick Bacher Rachel Karban Kimberly Bautista

Emily Shupe Talley Veronique Mead Roxana Hutchcroft Christina Johnson (she/her)

Kimber Simmons Shenkman, Deborah /US Neff, Sara /US Kinnersley, Tami /US

Bob Fell ludmilaemerson Patrick Rizzuto hutchcroftm hutchcroftm

Shamisa Honarmand

Valerie Lewis Shamisa Honarmand

Wed Oct

Ask the Experts

Office Hours



Barbara Davis
Center for Diabetes

UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS



We invite you to our first session of "Office Hours" with Ask the Experts

The session will be held on
Wednesday October 22nd, 2025
from **12PM-1PM MST** via Zoom.

Hosted by: **Dr. Kimber Simmons, MD, MS**
and **Kimberly Bautista, MPH**

Please come prepared to discuss early type 1 diabetes cases you may have questions about. Attendees will also have the opportunity to ask general questions related to early T1D screening and follow-up monitoring.

We look forward to your attendance and participation!

[REGISTER to Join](#)

Please **SAVE-THESE-DATES** of our upcoming "Office Hours"

November 19, 2025

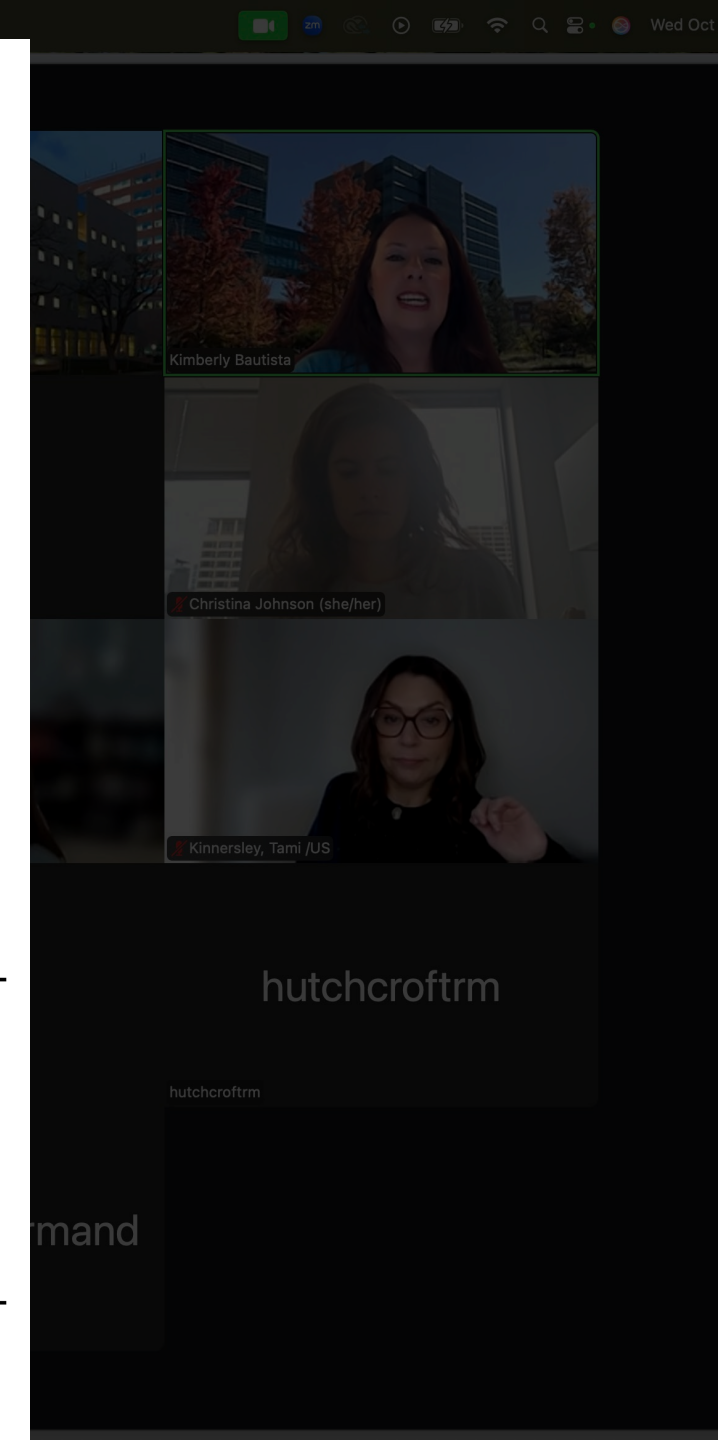
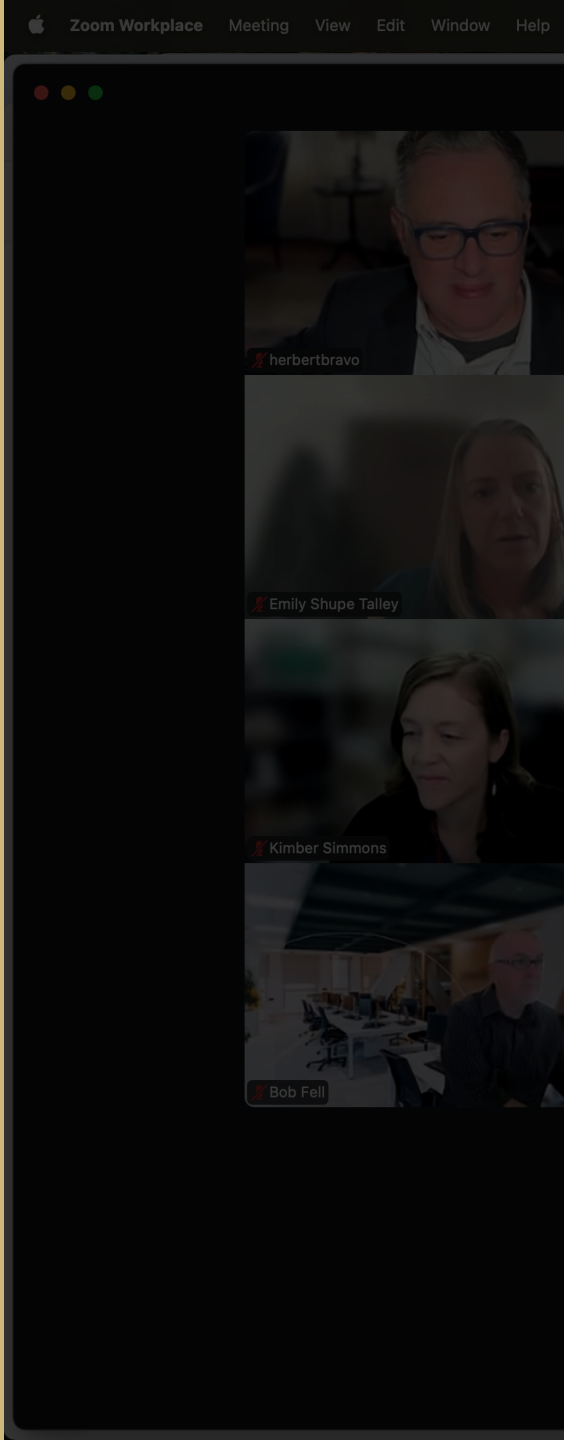
December 17, 2025

January 21, 2026

February 18, 2026

March 18, 2026

Participants may earn 1 CME credit (for each of the 6 planned monthly "Office Hours" Zoom calls, for a total of up to 6 CME credits)



Ask the Experts Website



Barbara Davis Center for Diabetes
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

Where to turn when your patient or child has screened positive for type 1 diabetes (or T1D).



Ask the Experts is a program for health care providers and individuals/families living in the United States who screen positive for type 1 diabetes (T1D) related islet autoantibodies (IAb). Together with our national network of clinical and research partners, we provide: (1) education + support; (2) monitoring resources + guidance; and (3) access to early treatment interventions.

HEALTH
CARE
PROVIDERS

< SELECT >

INDIVIDUALS
& FAMILIES

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



Barbara Davis
Center for Diabetes

UNIVERSITY OF COLORADO
ANSCHUTZ MEDICAL CAMPUS

Acknowledgements

Marian Rewers, PI
Tricia Gesualdo, Manager
Marwa Ahmadzai
Kimberly Bautista
Zia Clark
Fran Dong
Matthew Espinosa
Daniel Felipe-Morales
Theodore Fleury
Brigitte Frohnert
Clarissa Jamie Gonzalez

Xiaofan Jia
Rachel Karban
Jamie Katchen
Brett McQueen
Maricela Munoz
Jill Norris
Jayden Nguyen
Kristen Olivas
Leah Ortowski
Holly O'Donnell
Meghan Pauley
Flor Sepulveda

Kimber Simmons
Andrea Steck
Iman Taki
Jessica Venditti
Kathleen Waugh
Joey Wong
Liping Yu

*Judy Baxter
Cristy Geno
Michelle Hoffman
Laura Pyle
Crystal Silva*

Sponsors



THE LEONA M. AND HARRY B.
HELMSLEY
CHARITABLE TRUST

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



Edwin Liu, Marisa Stahl
Monique Germone
Pooja Mehta,
Erin Sandene, Aneesa Syed,
David Higgins



*Dan Feiten
Tracy Brekken*



Stephanie Roehm
Emily Swant
Caitlin Jones-Bamman
Martha Middlemist



Honora Burnett
Tom Gray
Yami Mendoza
*Sonja O'Leary
Holly Frost
Yael Gottlieb*



Rick Bacher
David Roth



Barbara Davis Center for Diabetes
UNIVERSITY OF COLORADO ANSCHUTZ MEDICAL CAMPUS

