Early T1D Monitoring: A Balancing Act Between Health Care Professionals and ET1D Individuals

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Disclosure Information

I HAVE THE FOLLOWING RELATIONSHIP WITH THE MANUFACTURER OF COMMERCIAL PRODUCTS DISCUSSED IN THIS CME ACTIVITY:

CONSULTANT-SANOFI

Prevention of DKA

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

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CONSENSUS REPORT

Consensus guidance for monitoring individuals with islet autoantibody-positive pre-stage 3 type 1 diabetes

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Goals of Monitoring

- Increase knowledge and awareness of ET1D stages among 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 optimal?

The elements of optimal monitoring might be different for HCPs than it is for the people, their families and caregivers who are living with ET1D.

Health Care Professional Perspective

EVALUATE FOR MEDICAL SAFETY

Frequency

- Dependent on stage, age and available resources
- **At risk**=SAB+, normoglycemia
  - Periodic glycemic assessment, symptom education
- **Stage 1**=MAB+, normoglycemia
  - <3yrs every 3m
  - 3yrs-9yrs at least every 6m
  - >9yrs every 12m
- **Stage 2**=AB+, dysglycemia
  - glycemic status medically assessed every 3m regardless of age

Health Care Professional Perspective

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Content : Education

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

Health Care Professional Perspective

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Content: Clinical Monitoring

- Hemoglobin A1c (HbA1c)
- Repeat antibody testing
- Oral Glucose Tolerance Test (OGTT)
- Continuous Glucose Monitor (CGM)

Health Care Professional Perspective

Outcomes

- Identify transition in stages
- Clinical trials or treatments
- Prevent DKA

ET1D Community Member Perspective

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

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ET1D Community Member Perspective

Outcomes

- Prevent DKA
- Delay onset
- Prevent high level of psychological distress

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Case #1: GP, 10y, male

- Completed screening and confirmation
- Wasn't interested in screening
- MAB+ results were unexpected
- "Less is better" approach to monitoring

T1D Antibodies

Date	Visit	GAD	GAD ECL	IA-2	IA-2 ECL	IAA	IAA ECL	ZnT8	ZnT8 ECL	RBG	A1C
7/29/2024	Screening	378	0.81	168	0.707		0.002		-0.002		
8/30/2024	Confirmation	376	0.329	219	0.956	0.028	0.023	0.012	0.007	87	5.5

Teaching Track

Visit	Visit date	Teaching date	Teaching type	How given	Staff initials	Students
Confirmation	8/30/2024	8/30/2024	Stages of T1D	In clinic	KB	Subject Mother Father
Confirmation	8/30/2024	8/30/2024	Home Glucose Table	In clinic	KB	Subject Mother Father
Confirmation	8/30/2024	8/30/2024	Home Glucose OneTouch Teaching	In clinic	KB	Subject Mother Father
Confirmation	8/30/2024	8/30/2024	Glucometer App OneTouch Tutorial	In clinic	KB	Subject Mother Father

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What did we do next?

A. Ask if we can contact them in 3 months to see how SMBG is going and assess symptoms

B. Tell them we understand their perspective, stop contact and assume they will monitor with SMBG and symptom review

C. Ask if we can share results with PCP to collaborate with monitoring

D. Both A and C

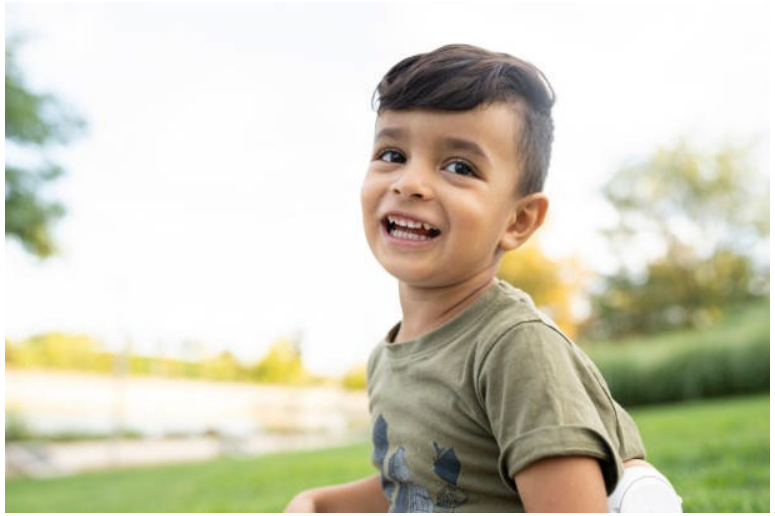
Correct Answer: D. Both A and C

A. Ask the family if we can contact them in 3 months to see how SMBG is going and assess symptoms

C. Ask the family if we can share results with HCP to ensure they collaborate with monitoring

Case #2: GP, 8y, male

- Attended monitoring visits regularly
- Received ET1D educational materials
- Received SMBG training and supplies
- A1c in normal range
- No OGTTs or CGMS
- Diagnosed w/T1D in DKA



T1D Antibodies

Date	Visit	GAD	GAD ECL	IA-2	IA-2 ECL	IAA	IAA ECL	ZnT8	ZnT8 ECL	RBG	A1C
6/20/2022	Screening	683	0.375	302	0.202	0.007	0.003	0.134	1.136		
7/22/2022	Confirmation	686	0.602	416	0.303	0.01	0.009	0.133	0.987	81	5.3
10/20/2022	Baseline	701	0.573	272	0.503	0.018	0.002	0.15	0.506	87	4.9
2/11/2023	Follow-up 2	1207	0.527	379	0.51	0.017	0.018	0.154	0.409	72	4.9
5/19/2023	Follow-up 3	891	0.466	373	0.523	0.027	0.024	0.14	0.46	76	4.8
9/6/2023	Follow-up 4	804	0.349	507	0.249	0.095	0.017	0.152	0.361	83	4.8
1/20/2024	Follow-up 5	858	0.252	377	0.155	0.067	0.029	0.153	0.322	102	4.9
7/24/2024	Follow-up 6	679	0.166	368	0.039	0.053	0.021	0.154	0.497	90	5.3

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Barriers to Monitoring

Case #2:
GP, 8y, male

- Denial
- Refused CGMs
- Refused OGTTs
- SMBG frequency unknown

Case #3: GP, 4y, male

- Actively engaged in monitoring since screening at 14m
- OGTTs, CGMs, SMBG

T1D Antibodies

Date	Visit	GAD	GAD ECL	IA-2	IA-2 ECL	IAA	IAA ECL	ZnT8	ZnT8 ECL	RBG	A1C
9/3/2021	Screening	203	0.192	174	0.509	0.117	0.041	0.052	0.061		
9/17/2021	Confirmation	311	0.169	226	0.23	0.14	0.033	0.054	0.114	76	5.2
12/10/2021	Baseline	313	0.139	363	0.981	0.535	0.062	0.133	0.288	91	5.1
3/10/2022	Follow-up 2	210	0.184	330	1.997	0.793	0.071	0.207	0.23	84	5.1
6/10/2022	Follow-up 3	275	0.265	288	1.275	0.532	0.047	0.649	1.246	84	5
9/16/2022	Follow-up 4	269	0.314	241	3.907	0.27	0.035	0.742	0.617	76	5.3
12/21/2022	Follow-up 5	167	0.234	302	0.785	0.098	0.02	0.59	0.564	81	5.7
3/1/2023	Follow-up 6 *CGM*	160	0.112	326	1.446	0.074	0.019	0.519	0.83	108	5.7
6/1/2023	Follow-up 7 *OGTT CGM*	137	0.09	253	1.654	0.734	0.078	0.508	2.059	85	5.5
8/23/2023	Follow-up 8 *CGM*	98	0.109	427	1.352	0.078	0.057	0.456	1.19	100	5.2
10/18/2023	Follow-up 9 *CGM*	55	0.04	348	1.041	0.065	0.014	0.309	0.461	84	5.8
1/17/2024	Follow-up 10 *CGM*	93	0.065	376	0.911	0.123	0.076	0.239	0.623	92	5.8
4/19/2024	Follow-up 11 *CGM*	85	0.076	493	1.215	0.021	0.006	0.286	1.228	98	5.8
7/17/2024	Follow-up 12 *OGTT CGM*	57	0.041	593	0.29	0.039	0.043	0.33	0.253	43	6

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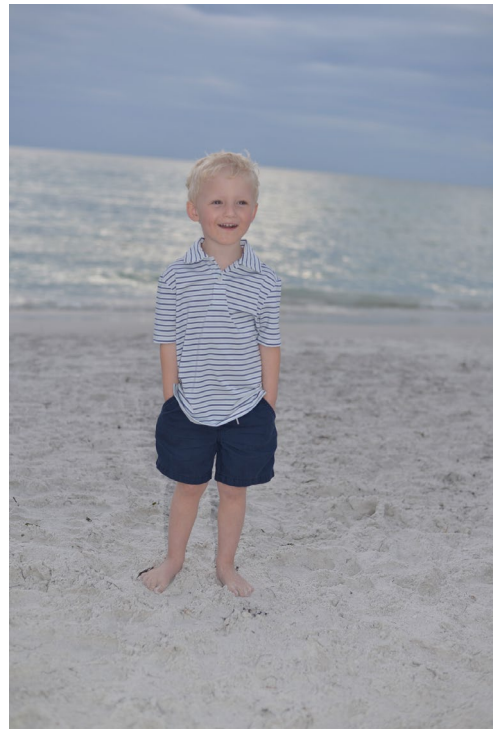
Case #2: GP, 4y, male

- A1c drop to 5.5
- No symptoms
- 2hr hemocue 212
- Enrolled in PETITE June 2023
- T1D diagnosed July 2024

A1C: 5.7

CGM: 3/1/2023 - 3/11/2023
Result: Impaired

Hyper 140:	26%
Target 140:	74%
Hypo 60:	0%
Peaks >= 200:	Yes
Average:	126



Visit: Follow-up 7 **Visit Date:** 6/1/2023 **Glucola dosage:** 69 mL **A1C:** 5.5

Clinic OGTT: 6/1/2023 **Result: Impaired ADA**

Timepoint	Time collected	BG	Hemo Cue	C-Peptide	Insulin	Glucose
-10	08:10	85	86	0.6	11	80
0	08:20		97	0.9	16	91
30	08:50		208	1.9	24	202
60	09:20		241	2.6	28	216
90	09:50		233	2.7	24	216
120	10:20	197	212	2.7	25	197

CGM: 6/1/2023 - 6/11/2023
Result: Impaired

Hyper 140:	26%
Target 140:	74%
Hypo 60:	0%
Peaks >= 200:	Yes
Average:	128

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Lessons Learned

Lessons Learned

- OGTT importance
- CGM importance
- SMBG reminders
- Educate Caregivers
- Risk score for low compliance
- Assess readiness
- ET1D community support

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What makes monitoring optimal?

Balance between meeting the highest standards of expert recommendations and respecting quality of life for those living with ET1D while achieving the common goal of preventing DKA and providing options to delay onset.

Thank you!

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