PEDIATRICS SUMMARY

Consensus guidance for monitoring children and teens who are islet autoantibody positive[1]

Why monitor:

Detection of one or more islet autoantibodies (IAbs) is currently the earliest indicator that a person **may** develop type 1 diabetes (T1D). Nearly 100% of people who have two or more persistent autoantibodies will progress over time to a T1D diagnosis. Monitoring during the first two years after seroconversion is most critical.

Who should be monitored:

Anyone who is confirmed positive for one or more islet autoantibodies.

How children should be monitored:

Single IAb

For all, IAb status should be confirmed with repeat testing within 3 months; order HbA1c and fasting glucose to assess for dysglycemia

Repeat IAb with HbA1c and random blood glucose (venous or capillary) (BG)

- **Less than 3 years old:** every 6 months for 3 years, then annually for 3 more years
  - If no progression after 6 years, stop
- **3 to 18 years old:** annually for 3 years
  - If no progression after 3 years, stop

For all, educate regarding diabetes symptoms and DKA prevention

If child reverts to negative IAb status during monitoring, monitor for a discrete amount of time, then stop

Multiple IAb

For all, IAb status should be confirmed with repeat testing within 3 months; order HbA1c and fasting glucose to assess for dysglycemia

Self-monitoring of blood glucose (SMBG) on 2 different days over a 2-week period (test either fasting or postprandial on each day); repeat every 1-3 months

Repeat HbA1c and random venous or capillary BG

- **Less than 3 years old:** every 3 months
- **3 to 9 years old:** every 3 to 6 months
- **More than 9 years old:** every 6 to 12 months

For all, consider use of a 10-to- 14-day continuous glucose monitor (CGM) at similar frequency, ideally blinded

If ill, SMBG at home

For all, educate regarding diabetes symptoms and DKA prevention

If patient reverts to single or negative IAb status, continue with monitoring as above

If dysglycemia develops or is present:

- Refer to a specialist
- Monitor HbA1c, random venous or capillary BG, and blinded CGM every 3 months

Metabolic monitoring methods

There are many modalities that can be used to monitor IAb+ individuals. The gold standard is the oral glucose tolerance test (OGTT) that is used in the research setting and to accurately classify diabetes stage. There are other available tools for monitoring including self-monitored blood glucose (SMBG), periodic continuous glucose monitoring (CGM), standard OGTT, random venous glucose, and HbA1c. A detailed description of the pros and cons of the different monitoring tools can be found in the consensus monitoring guidance publication.

Educational advice

People who are at risk for or have early-stage T1D should participate in monitoring education programs to reduce the rate of DKA at diagnosis, minimize need for emergency care at diagnosis, understand available interventions, introduce benefits of research studies, and support general and mental health for affected individuals and their families. Education should accompany all monitoring plans, including home glucose testing (SMBG) and monitoring devices (CGM). See full consensus guidance for more information.

Psychological support

Emotional, cognitive, and behavioral functioning should be assessed in people at risk or with early-stage T1D and their family members. Psychological care should be a part of routine medical visits. Ensure patient and family members understand screening and risk information. When possible, this should be delivered by providers with diabetes-specific training.

Monitoring for T1D can reduce anxiety and depression, and help individuals to manage the unpredictability of T1D development. See full consensus statement for more information.

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Reference: Phillip M, Achenbach P, Addala A, Albanese-O'Neill A, Battelino T, Bell KJ, Besser REJ, Bonifacio E, Colhoun HM, Couper JJ, Craig ME, Danne T, de Beaufort C, Dovc K, Driscoll KA, Dutta S, Ebekozien O, Elding Larsson H, Feiten DJ, Frohnert BI, Gabbay RA, Gallagher MP, Greenbaum CJ, Griffin KJ, Hagopian W, Haller MJ, Hendrieckx C, Hendriks E, Holt RIG, Hughes L, Ismail HM, Jacobsen LM, Johnson SB, Kolb LE, Kordonouri O, Lange K, Lash RW, Lernmark Å, Libman I, Lundgren M, Maahs DM, Marcovecchio ML, Mathieu C, Miller KM, O'Donnell HK, Oron T, Patil SP, Pop-Busui R, Rewers MJ, Rich SS, Schatz DA, Schulman-Rosenbaum R, Simmons KM, Sims EK, Skyler JS, Smith LB, Speake C, Steck AK, Thomas NPB, Tonyushkina KN, Veijola R, Wentworth JM, Wherrett DK, Wood JR, Ziegler AG, DiMeglio LA. Consensus Guidance for Monitoring Individuals With Islet Autoantibody-Positive Pre-Stage 3 Type 1 Diabetes. Diabetes Care. 2024 Jun 24:dci240042. doi: 10.2337/dci24-0042. Epub ahead of print. PMID: 38912694.

ADULTS SUMMARY

Consensus guidance for monitoring persons who are islet autoantibody positive[1]

Why monitor:

Detection of one or more islet autoantibodies (IAbs) is currently the earliest indicator that a person **may** develop type 1 diabetes (T1D) and can be used to accurately classify T1D versus type 2 diabetes (T2D). Nearly 100% of people who have two or more persistent autoantibodies will progress over time to a T1D diagnosis. Monitoring during the first two years after seroconversion is most critical.

Who should be monitored:

Anyone who is confirmed positive for one or more islet autoantibodies.

How adults should be monitored:

Single IAb

For all, IAb status should be confirmed with repeat testing within 3 months; order HbA1c and fasting glucose to assess for dysglycemia

Repeat IAb with HbA1c and random venous or capillary BG

- Every 3 years
- Annually if one or more of the following T1D risk factors are present:
  - First-degree relative with T1D (parent, sibling, child)
  - Elevated genetic risk for T1D
  - Dysglycemia
  - History of stress hyperglycemia

For all, educate regarding diabetes symptoms and DKA prevention

If adult patient reverts to negative IAb status during monitoring, no further monitoring is required; continue with T2D risk screening per ADA guidelines

Multiple IAb

For all, IAb status should be confirmed with repeat testing within 3 months; order HbA1c and fasting glucose to assess for dysglycemia

Repeat HbA1c and random venous or capillary BG

- Patient with normoglycemia: annually
- Dysglycemia present: every 6 months

Consider C-peptide monitoring if diagnosis of T1D vs. T2D is unclear

For all, educate regarding diabetes symptoms and DKA prevention

If adult patient reverts to single or negative IAb status, continue with monitoring as above

If dysglycemia develops or is present:

- Refer to specialist
- Monitor HbA1c and random venous or capillary BG every 6 months
- Plus, blinded CGM or OGTT every 6 months, or high-frequency SMBG

Metabolic monitoring methods

There are many modalities that can be used to monitor IAb+ individuals. The gold standard is the oral glucose tolerance test (OGTT) that is used in the research setting and to accurately classify diabetes stage. There are other available tools for monitoring including self-monitored blood glucose (SMBG), periodic continuous glucose monitoring (CGM), standard OGTT, random venous glucose, and HbA1c. A detailed description of the pros and cons of the different monitoring tools can be found in the consensus monitoring guidance publication.

Educational needs

People who are at risk or with early-stage T1D should receive individualized education to reduce the rate of DKA at diagnosis, minimize need for emergency care at diagnosis, understand available interventions, introduce benefits of research studies, and support general and mental health for affected individuals and their families. Education should accompany all monitoring plans, including home glucose testing (SMBG) and monitoring devices (CGM). See full consensus statement for more information.

Psychological support

Emotional, cognitive and behavioral functioning should be assessed in people at risk or with early-stage T1D and their family members. Psychological care should be a part of routine medical visits. Ensure patient and family members understand the screening and risk information. When possible, this should be delivered by providers with diabetes-specific training.

Monitoring for T1D can reduce anxiety and depression, and help individuals to manage the unpredictability of T1D development. See full consensus statement for more information.

Monitoring during pregnancy

Please see the full guidelines for expert clinical advice for monitoring IAb+ women during pregnancy and post-partum.

Ask the Experts

Ask the Experts is a free resource to support practicing clinicians to monitor individuals living in the United States who screen positive for T1D associated antibodies or celiac disease.

Learn more at BreakthroughT1D.org/screening

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