

Autoimmunity Screening for Kids (ASK)

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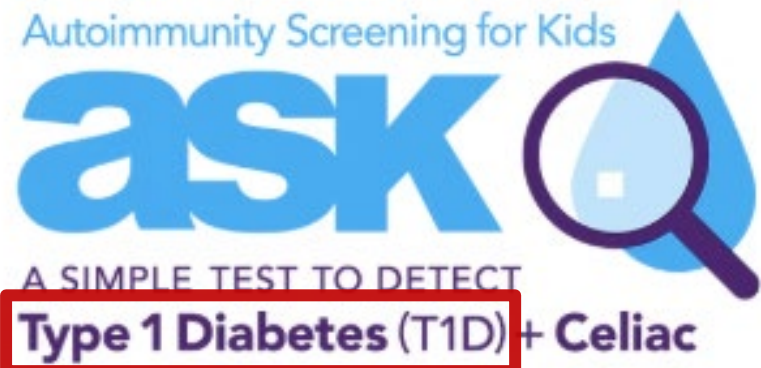


Barbara Davis Center for Diabetes
UNIVERSITY OF COLORADO **ANSCHUTZ MEDICAL CAMPUS**

Disclosure Information

✧ NO DISCLOSURES

Autoimmunity Screening for Kids (ASK) 2017-2025



303-724-1ASK | **ASKhealth.org**
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ASK Eligibility

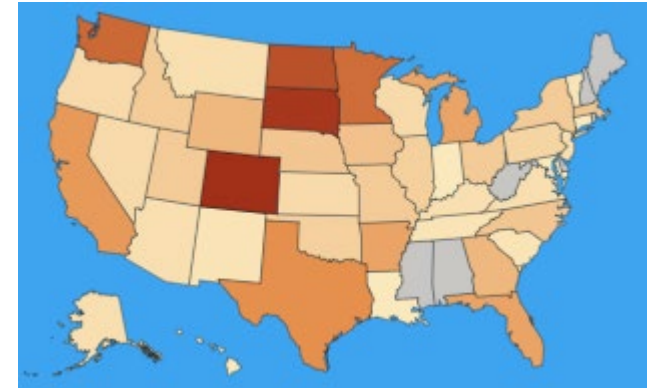
2017-2021

- Children 1-17 years old
- Reside in Colorado
- Not diagnosed with T1D
- Parent/guardian consent



2022-present

- Children & adults
- Reside in the US
- Not diagnosed with T1D
- Parent/guardian consent



As of 11/25:

~38,000 children screened

3311 adults screened

ASK Protocol

SCREENING

5-plex ECL:

IAA, GAD, IA-2, ZnT8
& tTG

Reflex RBA
confirmation of
positives



CONFIRMATION

Repeat 5-plex ECL

RBA: IAA, GAD, IA-2, ZnT8

Islet autoantibodies:

- multiple
- single by 2 methods
(high-affinity)



MONITORING

- HbA1c, CGM, OGTT
- 5-plex ECL

Education:

- symptoms
- Self Monitoring BG



PREVENT:

- DKA
- diabetes



Negative



Not confirmed



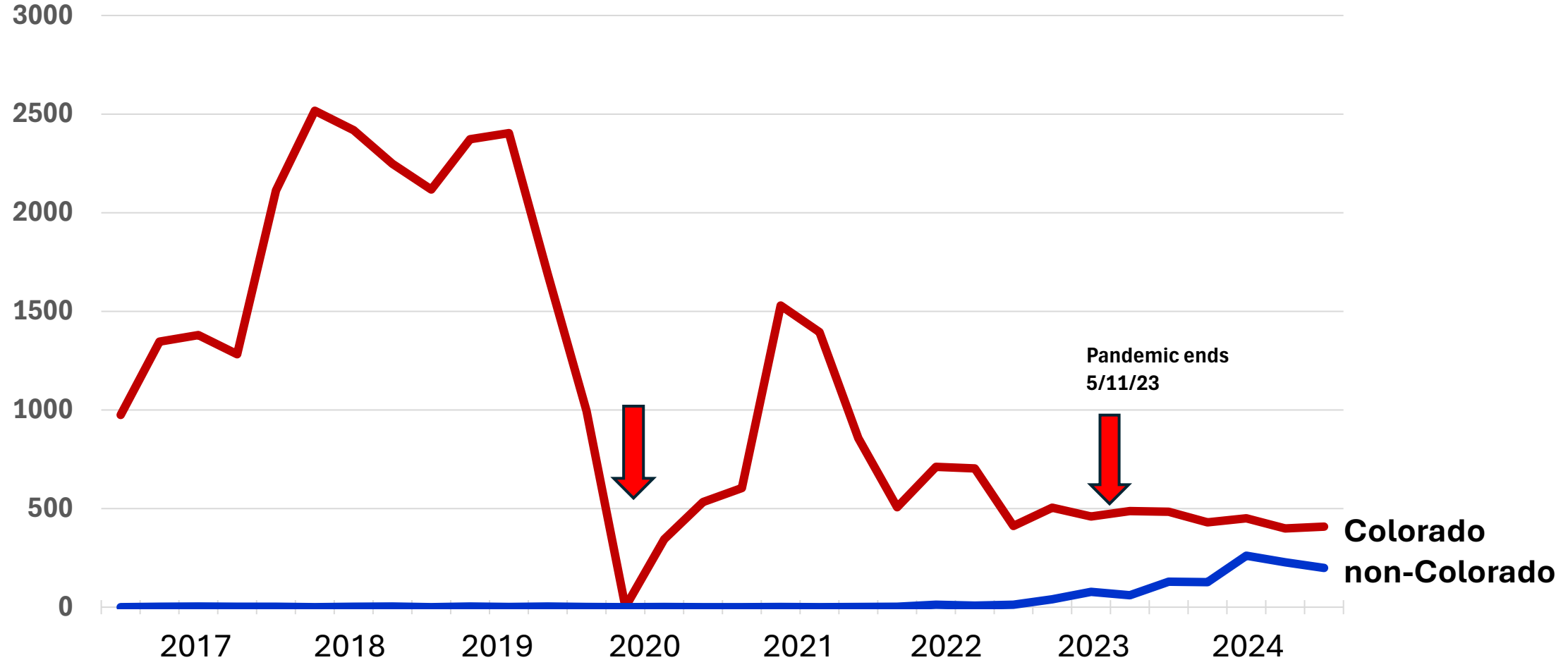
Autoimmunity Screening for Kids



A SIMPLE TEST TO DETECT
Childhood Diabetes
+ Celiac Disease

ASK screening Colorado & non-Colorado children

Unique children screened per quarter

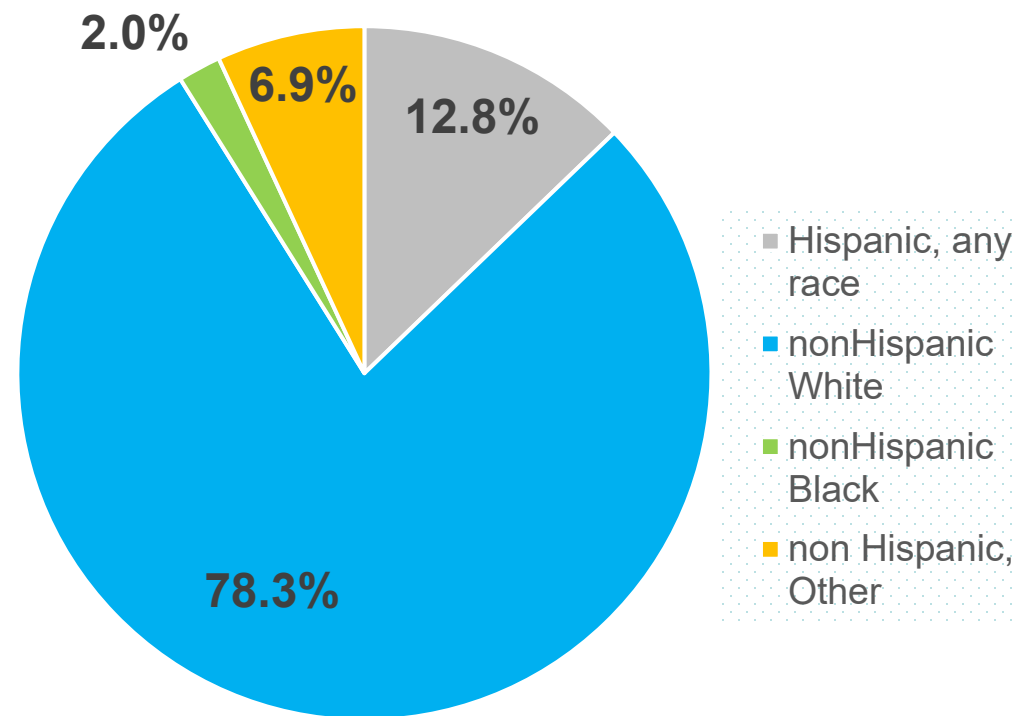
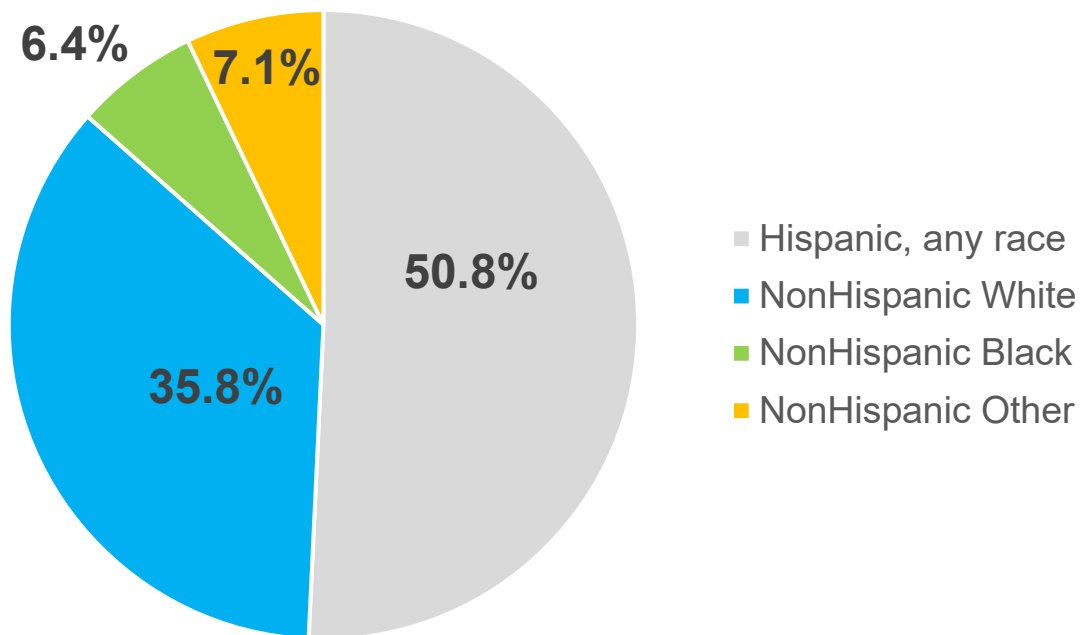




Colorado vs non-Colorado Children: Race and Ethnicity

Colorado Children n= 36282

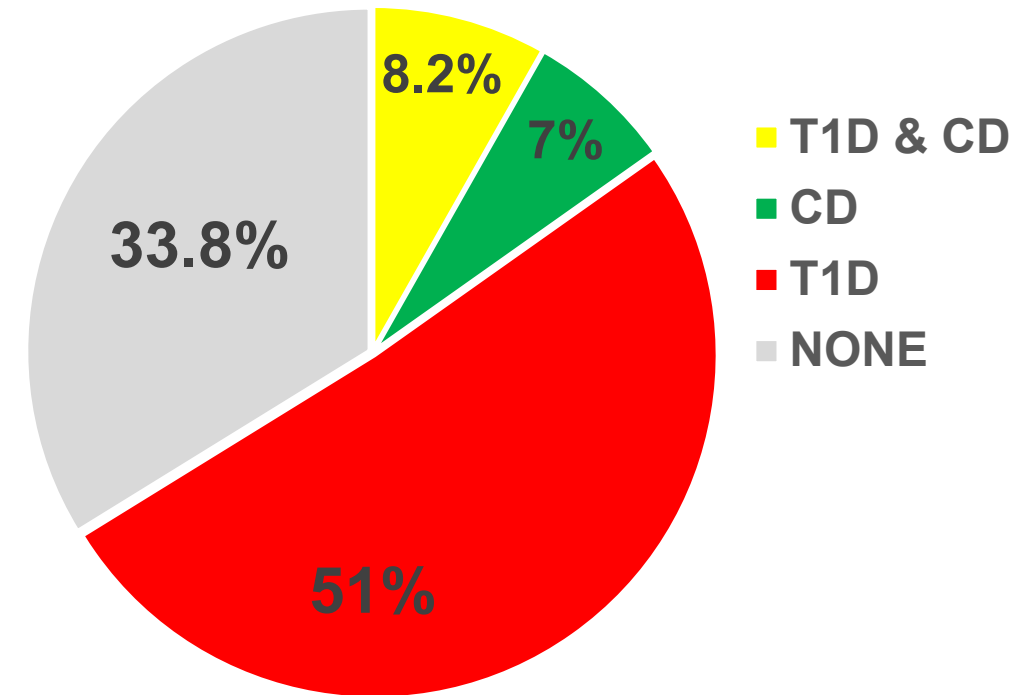
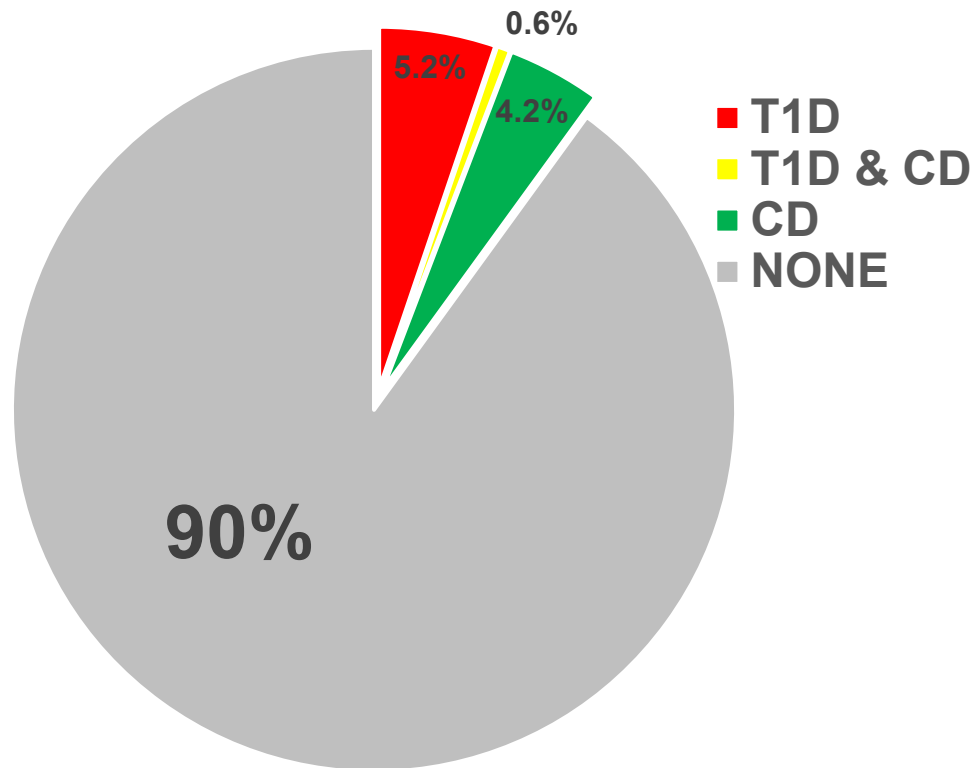
non Colorado Children n=1865



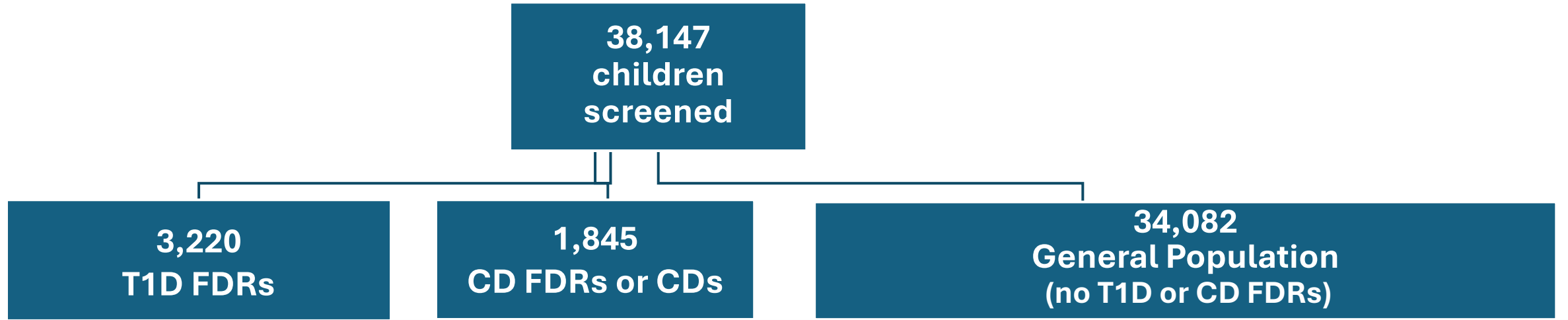
Colorado vs non-Colorado Children: Presence of 1st Degree Relatives with T1D or Celiac Disease

Colorado Children n= 36282

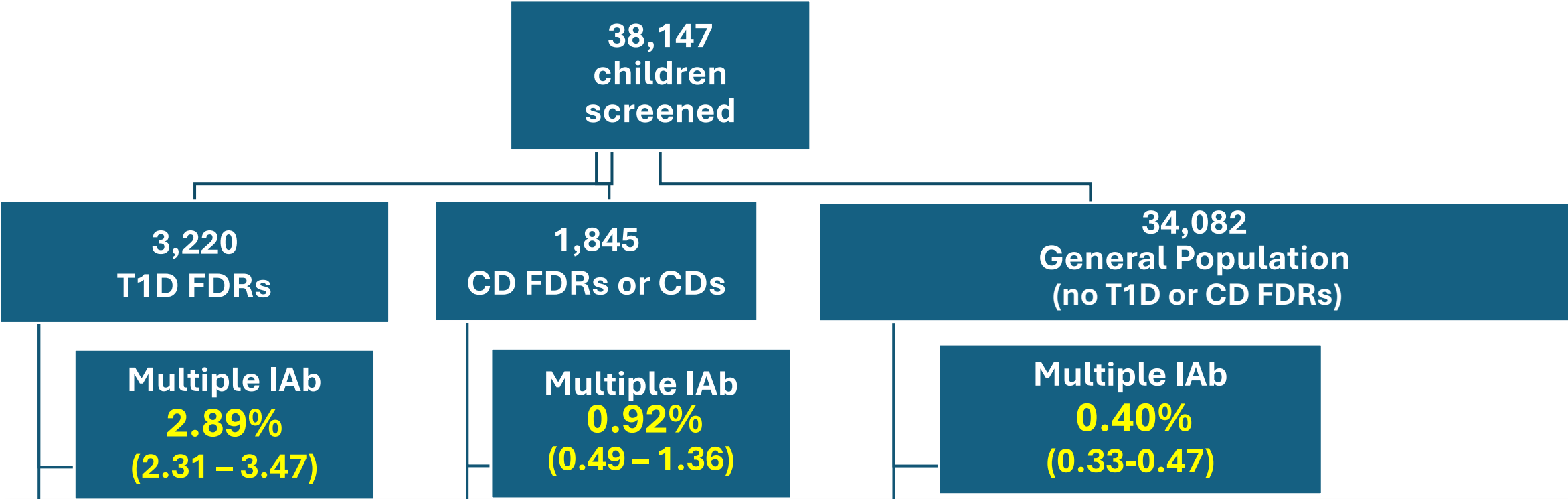
non-Colorado Children n=1865



Prevalence of Islet Autoantibodies (IAb) at Screening



Prevalence of Islet Autoantibodies (IAb) at Screening

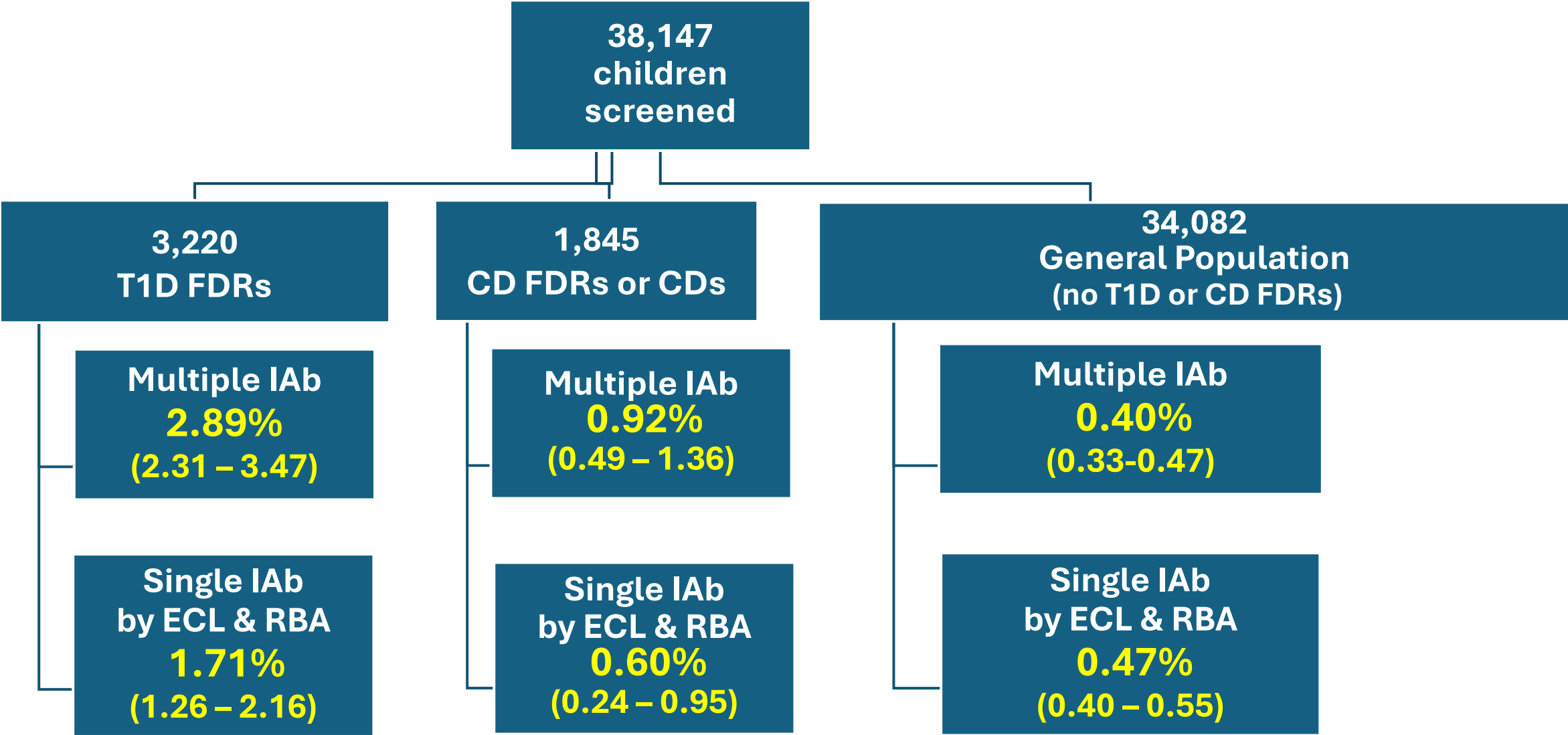


Data as of 9/30/2025



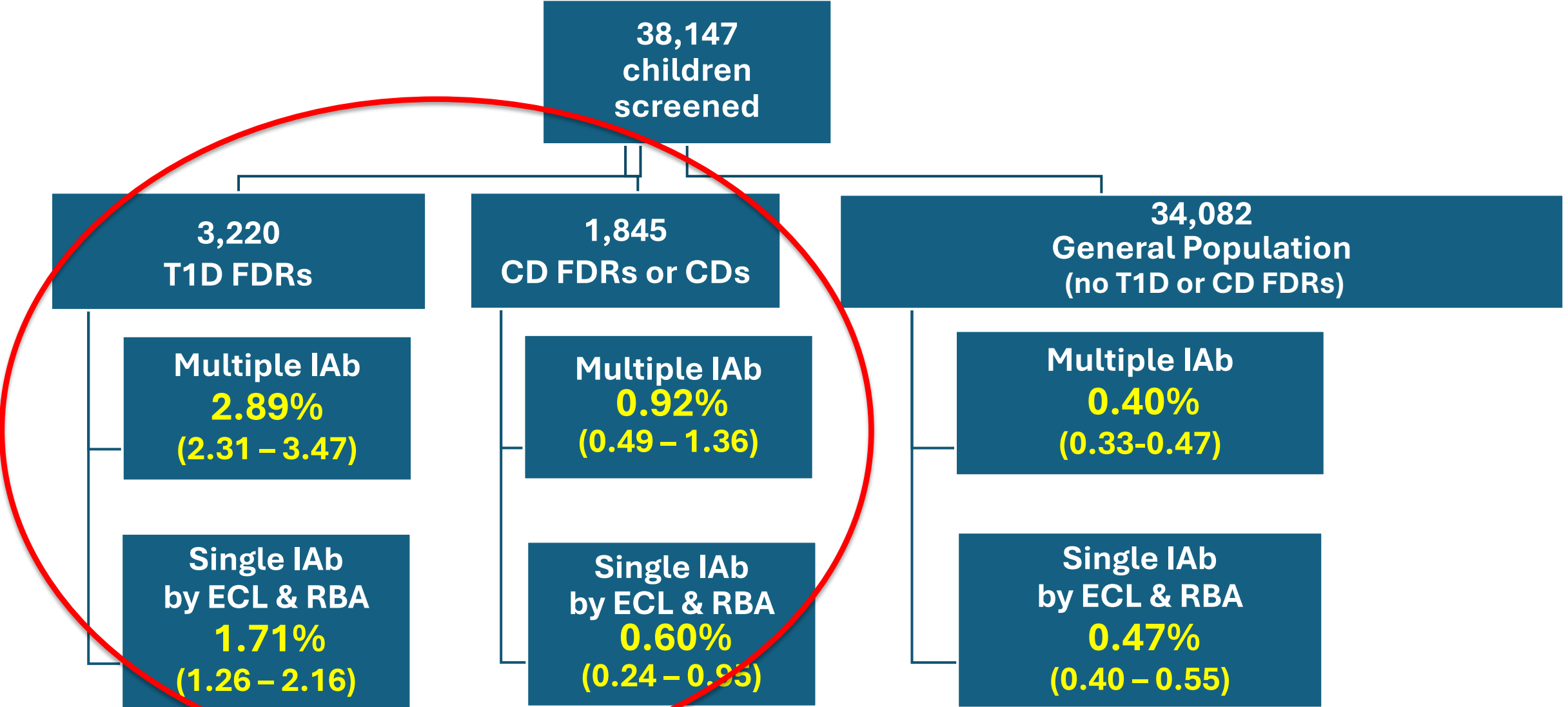
A SIMPLE TEST TO DETECT
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Prevalence of Islet Autoantibodies (IAb) at Screening



Data as of 9/30/2025

Prevalence of Islet Autoantibodies (IAb) at Screening

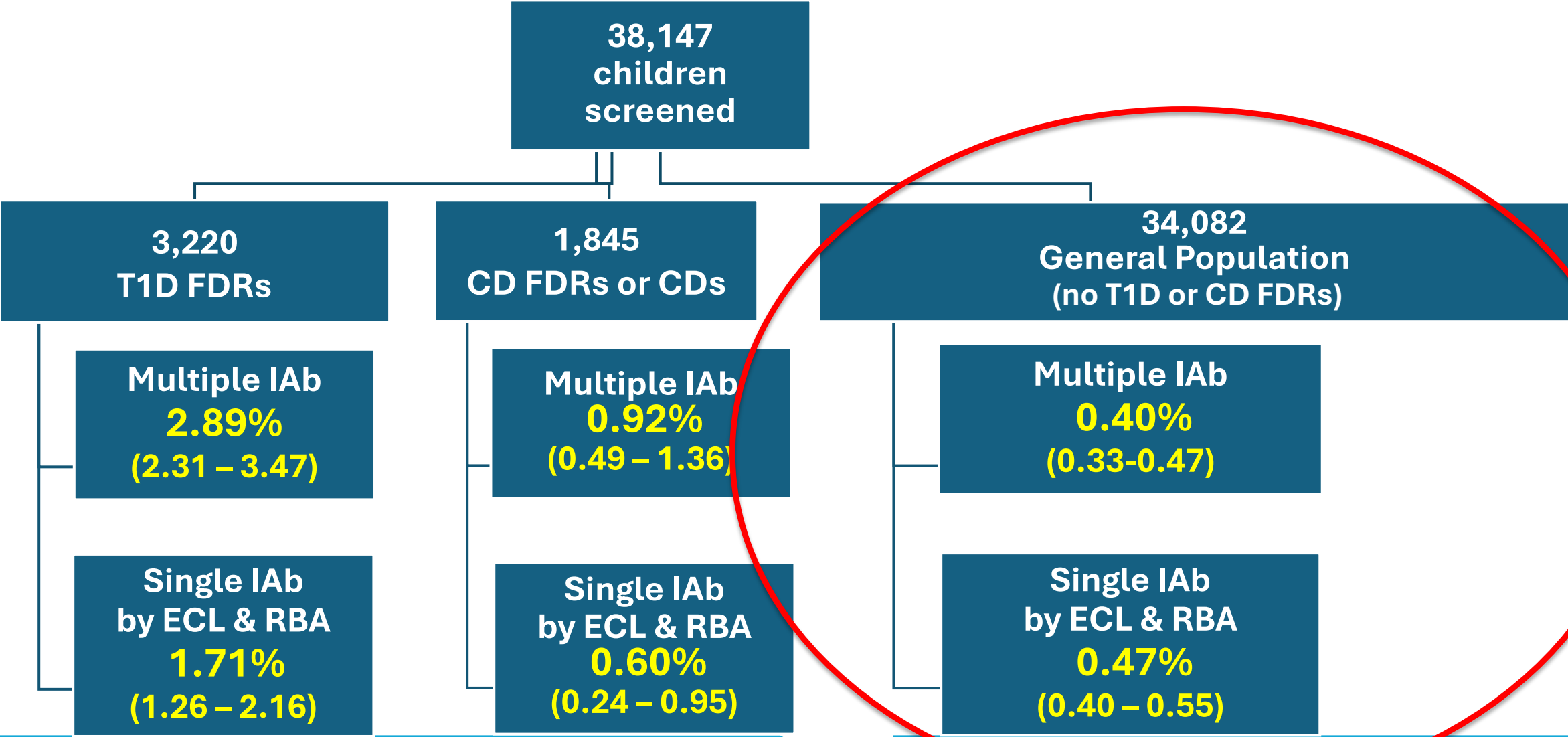


Data as of 9/30/2025



A SIMPLE TEST TO DETECT **Childhood Diabetes + Celiac Disease**

Prevalence of Islet Autoantibodies (IAb) at Screening



ASK Protocol

SCREENING

5-plex ECL:

IAA, GAD, IA-2, ZnT8
& tTG

Reflex RBA confirmation of positives



CONFIRMATION

Repeat 5-plex ECL

RBA: IAA, GAD, IA-2, ZnT8

Islet autoantibodies:

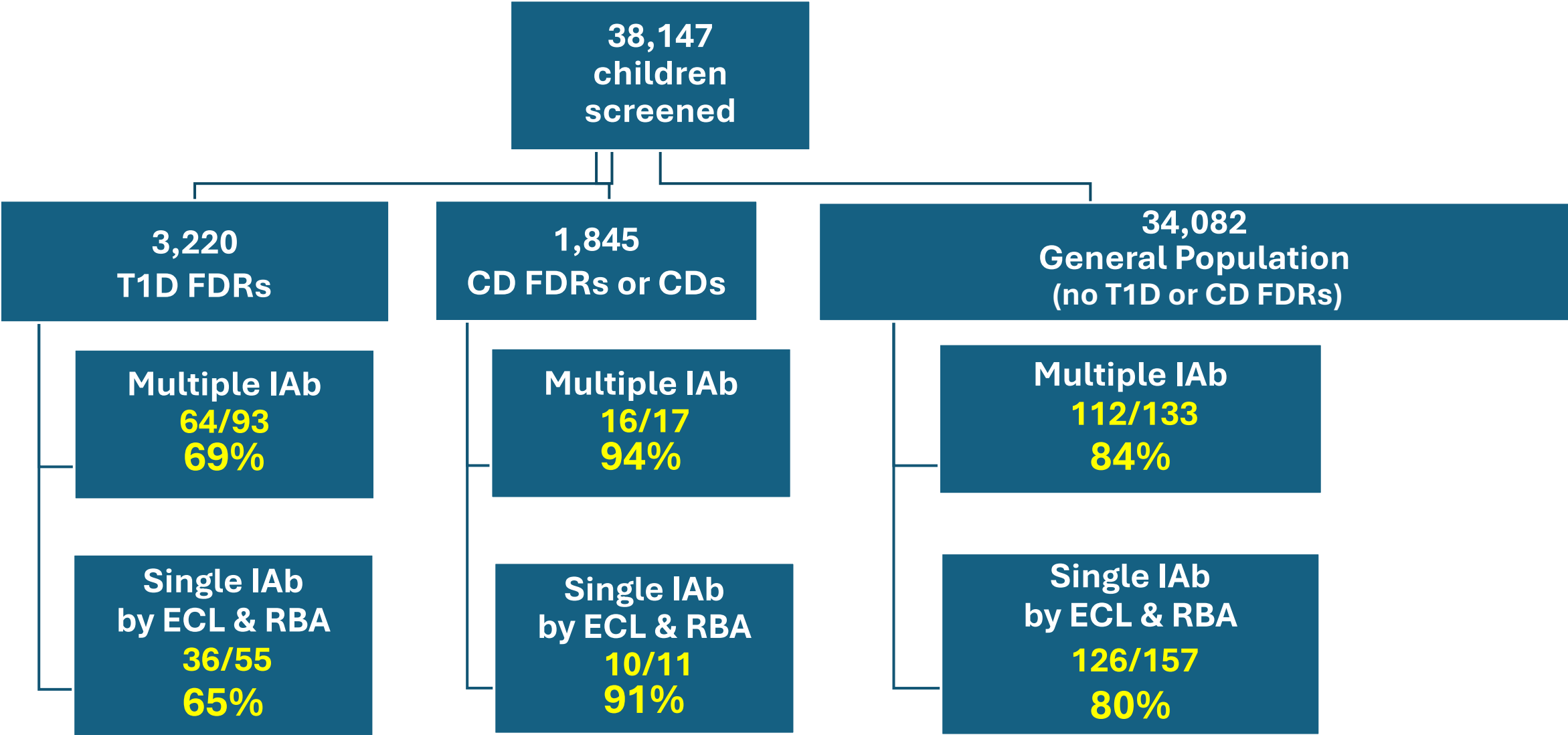
- multiple
- single by 2 methods (high-affinity)



Negative



Participation in Confirmation Visit

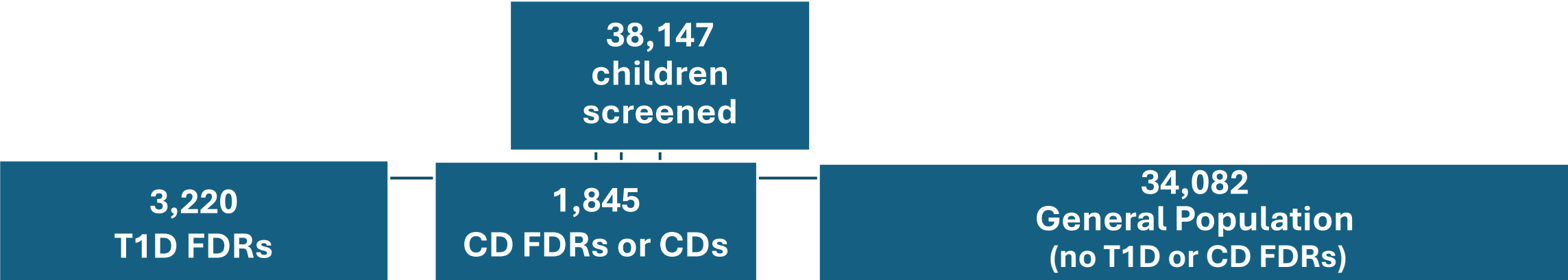


Data as of 9/30/2025



A SIMPLE TEST TO DETECT
Childhood Diabetes
+ **Celiac Disease**

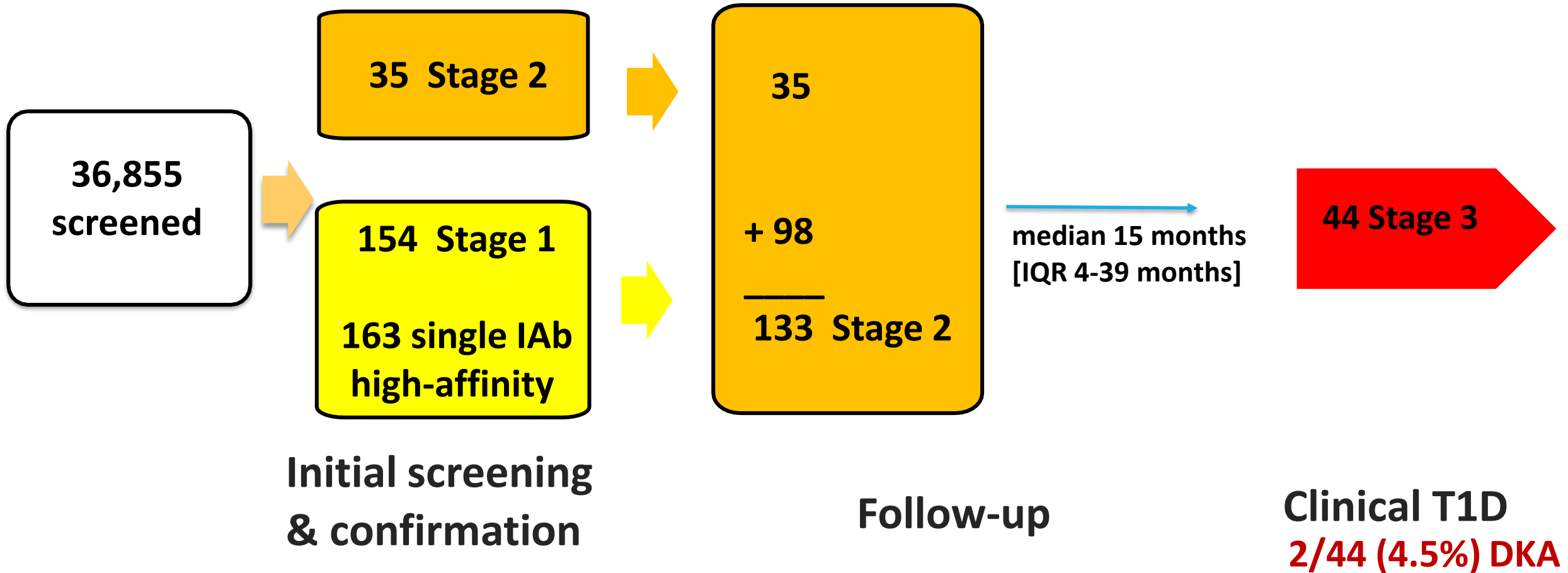
Predictors of Non-Participation in Confirmation Visit



- Age >10 years
- non-Colorado Children

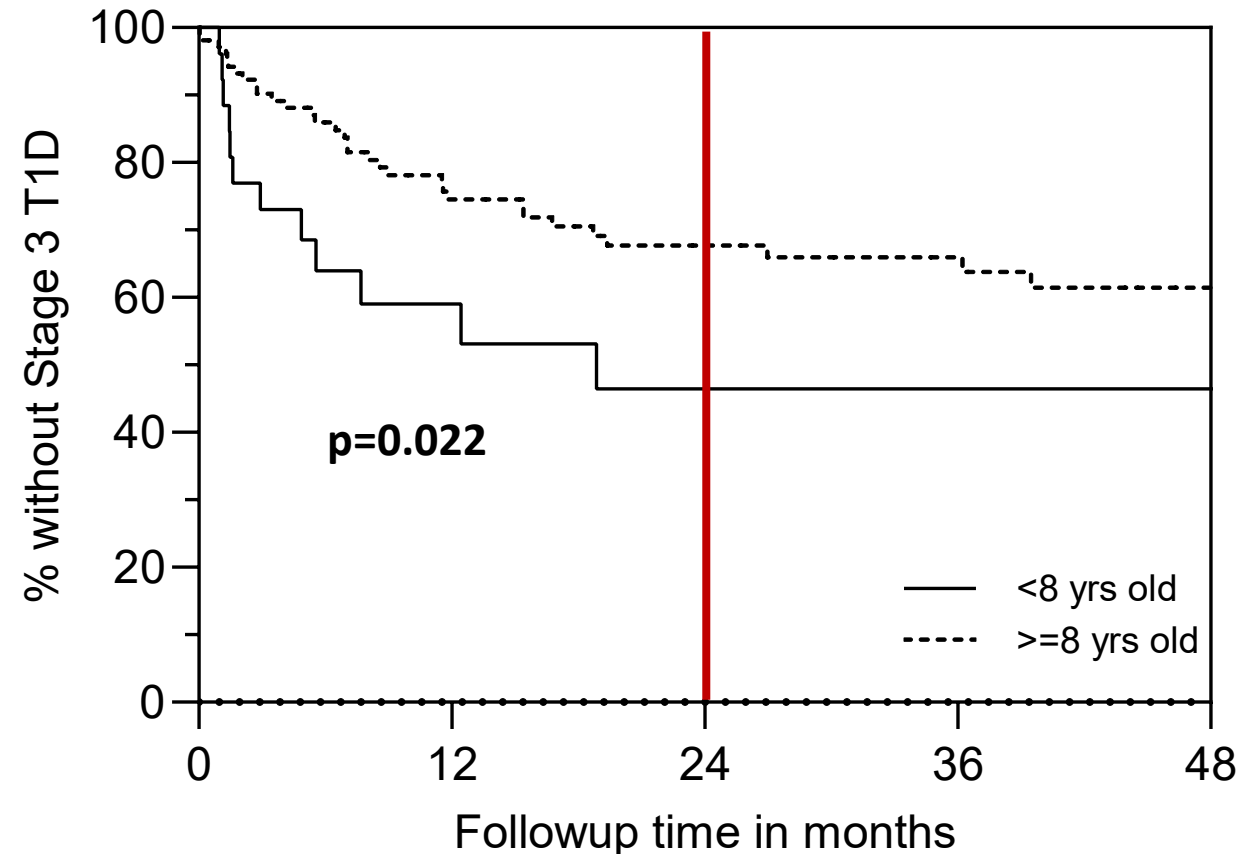
- Ethnic minority
- Single vs multiple IAb

Progression from Stage 2 to Stage 3 T1D



Data as of 3/1/2025; presented at EASD 2025

Age younger than 8 vs ≥8 y predicts faster progression



number at risk:

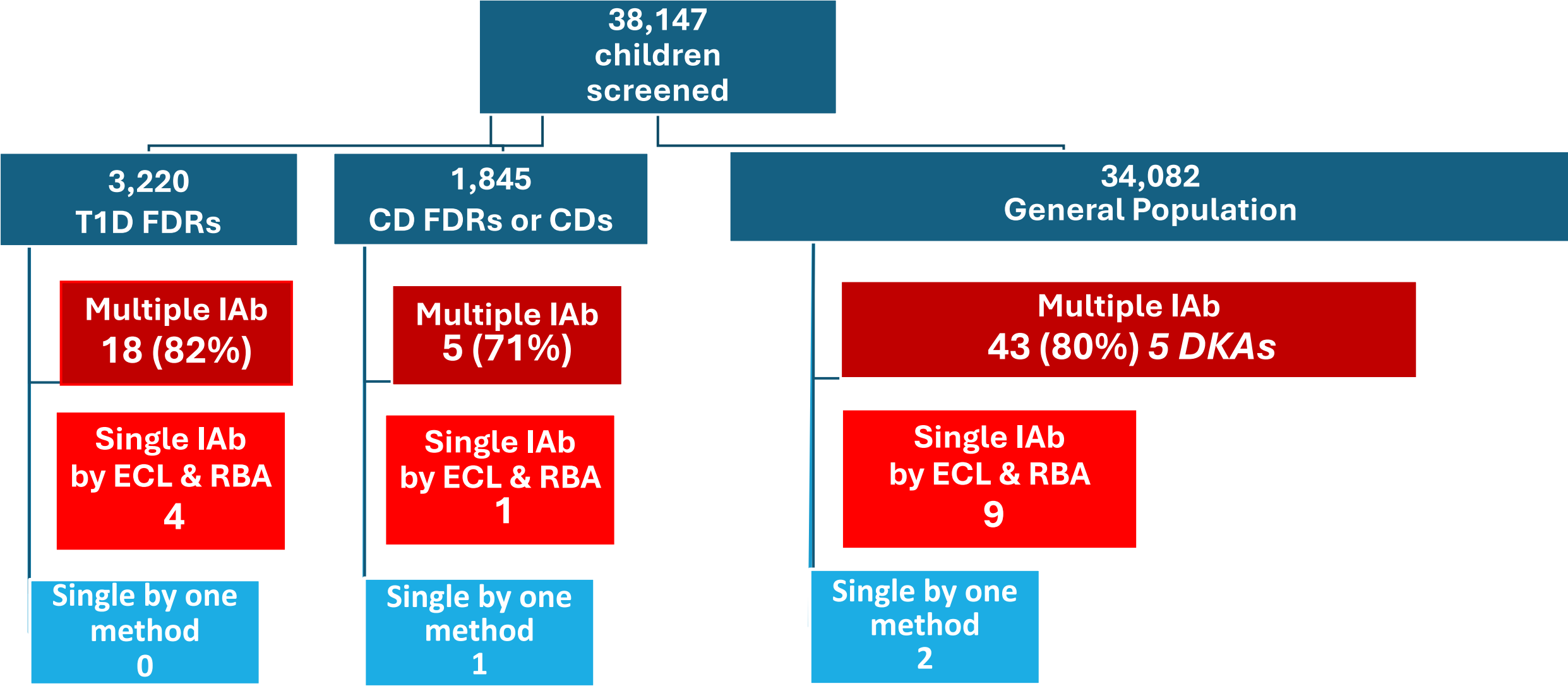
<8 years old	27	10	7	7	6
≥8 years old	106	61	42	30	21

Predictors of progression from stage 2 to stage 3 T1D

- **Age younger than 8 vs ≥ 8 y**
- **Multiple vs single islet autoantibodies**
- **Higher HbA1c**

Family history of T1D, race/ethnicity or sex of the child did not influence the rate of progression from stage 2 to stage 3.

Progression to Stage 3 T1D (N=83)

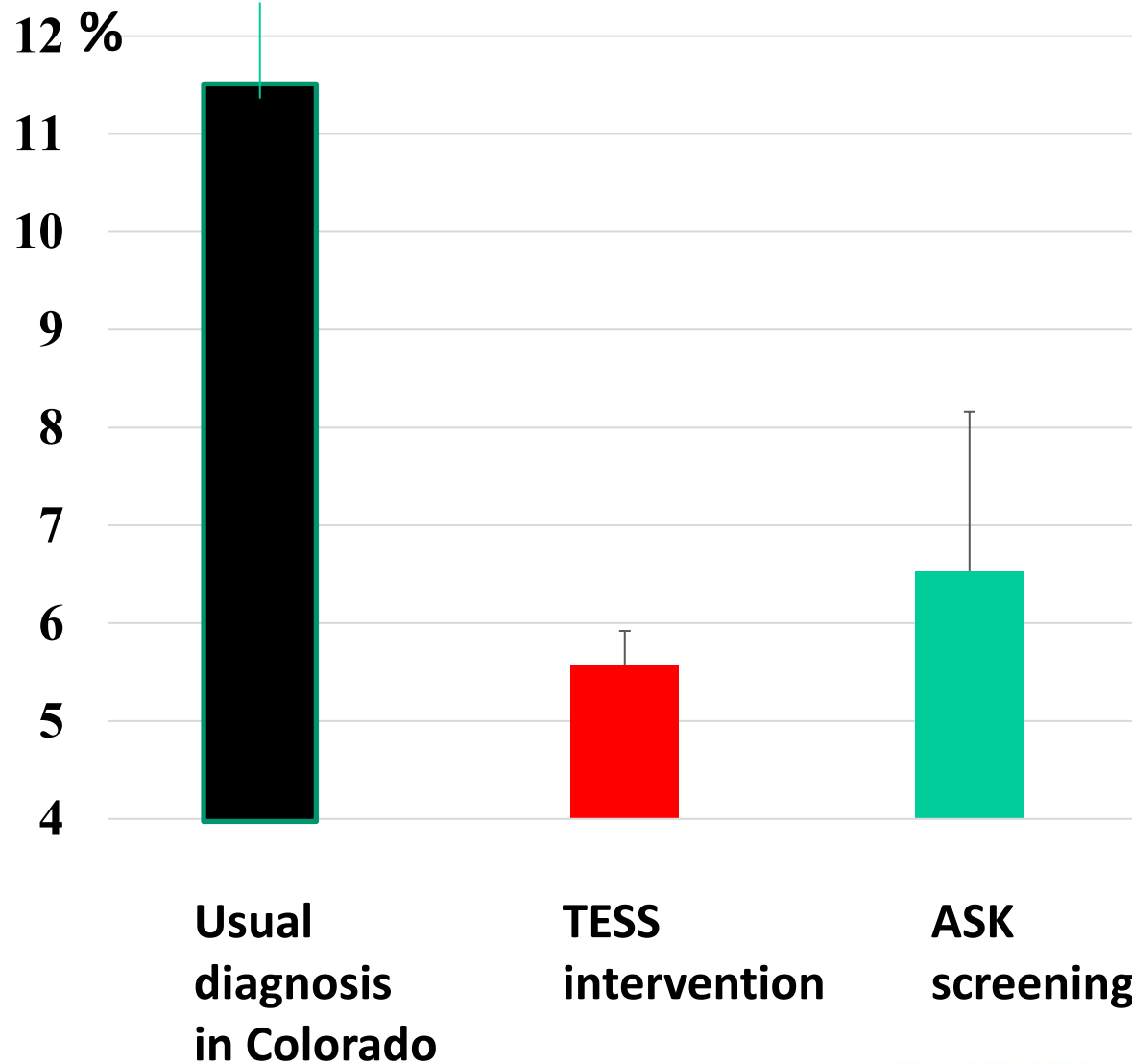


Data as of 9/30/2025



A SIMPLE TEST TO DETECT
Childhood Diabetes
+ **Celiac Disease**

HbA1c at Diagnosis



Intervention (6 months):

Unblinded CGM-guided education

3 planned educational visits


Monthly check-in to review CGM

CGM-guided insulin start



courtesy: Brigitte Frohnert, MD, PhD

Screening, monitoring and education can prevent DKA at onset

Study	Frequency of DKA	Reference
Children identified through general population screening programs		
 (Colorado)	4.5%	(2017-2024) Rewers M. EASD 2024
Children diagnosed <u>without</u> prior screening		
USA (SEARCH)	41%	(2010-2016) Jensen E. Diabetes Care 2021
Colorado	46% 59%	(2012) Rewers A. JAMA 2015 (2017) Alonso G. Diabetes Care 2020

Cost-effectiveness analysis

- Current rate of DKA at diagnosis in Colorado
46% (2012) → 59% (2017) → 62% (2020) <5% in ASK
- The screening is cost-effective, if it:
 - decreases the rate of DKA by 1/5, e.g., from 50% to 40%; *and*
 - subsequently decrease the HbA1c by 1%
- ASK screening cost:
 - per case detected = \$4,700 (vs. ~\$20,000 cost of DKA)

Anxiety and Risk Perception in Parents of Children Identified by Population Screening as High Risk for Type 1 Diabetes

Parents of children with one or more islet autoantibodies (IAs) are very anxious about their child's risk for type 1 diabetes.

Approximately half of parents view their child as being at increased risk for type 1 diabetes.



Parents with fewer years of education and children who identify as racial/ethnic minorities have higher anxiety about child's diabetes risk.

Family history of type 1 diabetes and multiple IAs⁺ are strongly associated with perceiving one's child at increased risk.

Intervention to reduce anxiety and support parents' understanding of their child's risk for developing type 1 diabetes is critical to screening and monitoring programs.

Autoimmunity Screening for Kids (ASK), 2017-2025

- Screened >38,000 unique children 1-17 y old
- Prevalence of early T1D:
 - T1D FDRs : 4.6%
 - CD FDRs/CD : 1.5%
 - General population : 1.0%
- DKA at diagnosis of diabetes 6% vs 59% in screened vs not screened
- HbA1C is lower at diagnosis in ASK compared to Colorado children

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Sponsors



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**Our ASK
participants,
families, and
ASK provider
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