T1D Exchange Quality Improvement (T1DX-QI) Adult Quality Metrics 2026-2028

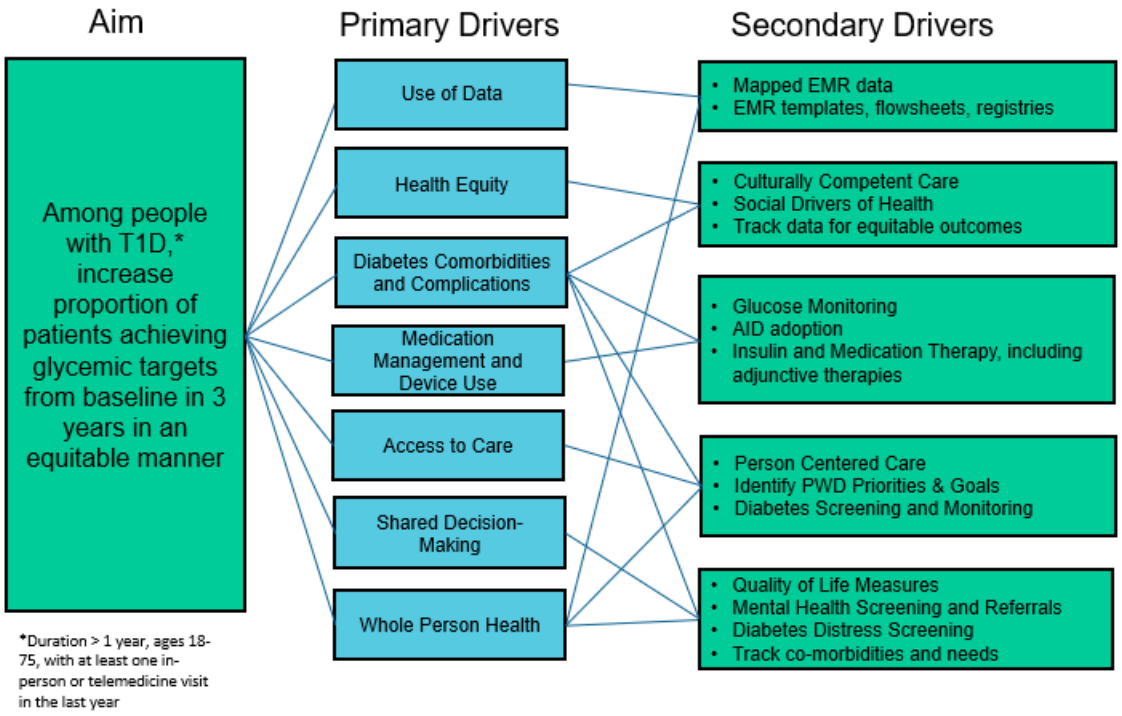
This document outlines quality measures for Adult Centers in the T1DX-QI network. Numerators and denominators for each measure have been defined below. We acknowledge that centers may not be able to report all the measures outlined in this document, report available data on Smart Sheet. These data reported allow for benchmarking and quality improvement projects. For questions, email qi@t1dexchange.org or a T1DX-QI Coach.

Aim Statement for 2026-2028

Among people ages 18-75 with T1D, increase proportion of patients achieving glycemic targets in an equitable manner

1. Optimize glycemic outcomes as measured by HbA1c
    a. Increase % of patients with HbA1c <7 by 5%
    b. Decrease % of patients with HbA1c >9 by 5%
2. Optimize glycemic outcomes as measured by TIR
    a. Increase % of patients with Time in Range >70% by 5%
    b. Increase % of population with GMI <7 by 5%
    c. Decrease % population with Time Below Range (<54) >1% by 5%

Key Driver Diagram for QI Collaborative 2026-2028



Denominator (A): Patients with type 1 diabetes[1] (ages 18-75) with a minimum duration of diabetes ≥ 12 months with at least 1 HbA1c in the preceding 12 months, and an endocrinology related visit (in person or telemedicine) in the reporting month.

Core Numerators. We ask that you prioritize measures 1-7 first.

1. HbA1c
    a. Number of patients in (A) with HbA1c <7% (Most recent HbA1c)
    b. Number of patients in (A) with HbA1c >9% (Most recent HbA1c)
    c. Median HbA1c value from all patients
2. Continuous Glucose Monitor (CGM)[2] Use: Number of patients in (A) using CGM at least 14 days in the reporting month at the most recent clinic encounter.
3. Automated Insulin Delivery (AID)[3] Use: Number of patients in (A) using AID at least 14 days in the reporting month at the most recent clinic encounter.
4. Ambulatory Glucose Profile (AGP)[4]: Number of patients in (2)
    a. Time in Range (70-180 mmol/dL) >70%
    b. Time in Hypoglycemia (<70 mmol/dL) <4%
    c. Time in Severe Hypoglycemia (<54 mmol/dL) < 1%
5. Food Insecurity[5]: Number of patients in (A) asked at least one of the questions below or similar questions
    a. "Within the past 12 months we worried whether our food would run out before we got money to buy more."
    b. "Within the past 12 months the food we bought just didn't last and we didn't have money to get more."
        i. Number of patients in (5a) who answered Yes to 5a 1 or 2.
        ii. Number of patients in (5ai) who received a referral for food resources
6. Diabetic Ketoacidosis (DKA)[6] Hospitalization: Number of patients in (A) with at least one DKA hospitalization in the reporting month.
7. Severe Hypoglycemia (SH)[7] Hospitalization/ED Visit: Number of patients in (A) with at least one SH hospitalization in the reporting month, including ED SH visits with discharge at the ED
8. Severe Hypoglycemia Event (SHE) where PWD required assistance or treatment (but did not result in subsequent ED/hospitalization)

Other Numerators, if available,

9. Glucose Management Indicator (GMI)[9] Median GMI among the patients in (2)

10. Diabetes Distress[10]. Number of patients in (A) seen in the reporting month who have been screened for distress in the past 12 months using the T1-DDAS (or comparable screener)
    a. Number of patients in (10) who screened positive for diabetes distress

11. Depression Screening[11].
    a. Number of patients from (A) seen in the reporting month who have been screened for depression (PHQ-2, 4, 8 or 9) in the past 12 months
    b. Number of patients in (11a) who screened positive for depression (PHQ8/PHQ-9 score above 10) in the past 12 months

12. Incretin mimetic drug prescribing[12] GLP-1 and GIP. Number of patients in (A) prescribed an incretin drug.

    The interest in this measure is to demonstrate the numbers and prescribing practices across clinics acknowledging that the use of these medications for T1D is off label and costly. Many PwT1D have insulin resistance, and their TIR is significantly improved by medications like GLP1s. This data, along with TIR/A1C, is helpful for us to track and build a case to support FDA approval for GLP-1s for T1D.

13. Social Drivers of Health Screening[13]. Number of patients in (A) seen in the reporting month who have been screened for SDoH in the past year.
    a. Economics
        i. Number of patients who have been screened for financial needs: “How hard is it for you to pay for the very basics like food, housing, medical care, and heating?” [Sample Responses: Very hard, Hard, somewhat hard, not very hard, Not hard at all, Patient refused, Not asked]
        ii. The number of eligible patients for the reporting month who have been screened for medication affordability. “Are you able to afford your medication?”
            1. Yes
            2. No
    b. Transportation
        i. Number of eligible patients who have been screened for transportation needs. “In the past 12 months, has lack of transportation kept you from medical appointments or getting medication?”
            1. Yes
            2. No
        ii. “In the past 12 months, has lack of transportation kept you from meetings, work or from getting things needed for daily life?”
            1. Yes
            2. No
    c. Housing

i. Number of eligible patients for the reporting month who have been screened for housing needs. “What is your housing situation today?”
    1. I have a steady place to live
    2. I have a stead place to live today, but I am worried about it in the future
    3. I do not have a steady place to live (I am temporarily staying with others, in a hotel, in a shelter, living outside on the street, on a beach, in a car, abandoned building, bus or train station, or in a park)
    4. Unknown

ii. “In the last 12 months, was there a time when you were not able to pay the mortgage or rent on time?”

Appendix: Variable Definition and Additional Resources

T1D Inclusion Criteria: Type 1 Diabetes Diagnosis Inclusion criteria
Eligible patients meet one of more of the following criteria [1]:

- Positive for autoimmune marker:
    - GAD (GAD65)
    - Tyrosine Phosphatases IA-2 and IA-2β
    - ZnT8, OR
- T1D diagnosis determined using clinical judgment, OR
- Idiopathic Type 1 diabetes (negative autoantibodies but with permanent insulinopenia and prone to ketoacidosis)

(Inclusion) Test or condition	Type of code	ICD/LOINC Code
GAD65 autoimmune marker	LOINC	13926-1; 56540-8; 58451-6; 81725-4; 72523-4
Idiopathic Type 1 Diabetes (Type 1 diabetes mellitus without complications)	ICD-10	E10.9
Tyrosine Phosphatases IA-2 and IA-2β autoimmune marker	LOINC	31209-0; 56718-0; 81155-4; 32636-3; 70253-0; 70252-2
ZnT8 autoimmune marker	LOINC	76651-9

T1D Exclusion criteria

1. Patients are excluded from the T1D population if they meet any of the criteria below.

    - Cystic Fibrosis related diabetes (CFRD)
    - Steroid induced/Glucocorticoid
    - Genetic evidence of Monogenic Diabetes (MODY)/neonatal diabetes
    - Gestational diabetes
    - Type 2 diabetes

(Exclusion) Test or condition	Type of code	ICD/LOINC Code
Cystic Fibrosis	ICD-10	E84.*

Steroid induced/glucocorticoid	ICD-10	E09*
Gestational diabetes	ICD-10	024.*
Monogenic Diabetes (MODY; neonatal diabetes)	ICD-10	P70.2
Type 2 Diabetes	ICD-10	E11.*

2. *CGM use can be patient reported or confirmed through device data download and can be report/measured in multiple ways, including but not limited to:*
    - ❖ *CGM in the medication list within the last 12 months,* ***OR***
    - ❖ *CGM in flow sheet as Yes/No,* ***OR***
    - ❖ *CGM company models updated in the last 12 months (see Table 2 for examples),* ***OR***
    - ❖ *CGM data available (Yes/No, for example from Abbott Libre, Dexcom Clarity, Glooko, or Tidepool,* ***OR***
    - ❖ *Center-specific measure that is accurate and frequently updated*

3. AID systems can be confirmed through device data download and can be reported/measured in multiple ways, including but not limited to:
    i. AID system prescribed in the medication list within the last 12 months, OR
    ii. AID use in flow sheets, OR
    iii. AID company models updated in the last 12 months (see Table 2 for examples), OR
    iv. AID data available (Yes/No, e.g., from Tandem t:connect, Medtronic Carelink, Sequel Med Tech, Beta Bionics, Roche, Insulet, Glooko, or Tidepool, OR
    v. Data download from Medtronic CareLink, Tandem, Glooko, Tidepool, OR
    vi. Center-specific measure that is accurate and frequently updated

4. AGP Ambulatory Glucose Profile (AGP): Number of patients in (2)
    - Time in Range (70-180 mmol/dL) >70%
    - Time in Hypoglycemia (<70 mmol/dL) <4%
    - Time in Significant Hypoglycemia (<54 mmol/dL) < 1%

5. Hunger Vital Sign, SDOH. Developed by Children's HealthWatch https://childrenshealthwatch.org/hunger-vital-sign/ (accessed September 17, 2025) There is no fee or license required to use the Hunger Vital Sign™. We only ask that parties properly cite the tool as follows: Hager, E. R., Quigg, A. M., Black, M. M., Coleman, S. M., Heeren, T., Rose-Jacobs, R., Cook, J. T.,

Ettinger de Cuba, S. A., Casey, P. H., Chilton, M., Cutts, D. B., Meyers A. F., Frank, D. A. (2010). Development and Validity of a 2-Item Screen to Identify Families at Risk for Food Insecurity. Pediatrics, 126(1), 26-32. doi:10.1542/peds.2009-3146.

6. DKA can be measured as: Electronic Medical Record or patient reported and confirmed by lab result**, OR**
    - Elevated serum or urine ketones (greater than the upper limit of the normal range), **AND**
    - Serum bicarbonate below 15 mmol/L, **OR**
    - Blood pH below 7.3.
    - DKA recorded in problem list during reported month
7. Severe Hypoglycemia hospitalizations/ED visits: can be measured via the Electronic Medical Record or patient-reported.
8. Severe Hypoglycemic event: Only count events where the patient needed assistance but did not result in a subsequent hospitalization. If a subsequent hospitalization DID occur, count them under measure 7.
9. GMI: https://diabetesjournals.org/care/article/41/11/2275/36593/Glucose-Management-Indicator-GMI-A-New-Term-for
10. Diabetes Distress https://behavioraldiabetes.org/scales-and-measures/ The T1-DDAS has two parts, which can be used independently based on specific clinical or research needs: the Core scale and the Sources scale. The Core scale contains 8 items and assesses the central, unalloyed element of DD as an emotional experience of diabetes-related distress. The Sources scale is 22 items, and it evaluates the relative impact of 10 common sources of DD that may be driving the distress.

CORE SCALE

Living with diabetes can be tough. Listed below are many of the stresses and worries that people with diabetes often experience. These are issues that can often be tough to acknowledge and to talk about, but please be as open and honest as you can. Thinking back over the past month, please indicate how much each of the following items were a problem for you by marking the appropriate column.

For example, if an item was not a problem for you over the past month, place a mark in the first column: "Not a Problem" (1). If it was a very tough problem for you, place a mark in the last column: "A Very Serious Problem" (5).

	Not A Problem (1)	A Little Problem (2)	A Moderate Problem (3)	A Serious Problem (4)	A Very Serious Problem

					(5)
1. I feel burned out by all of the attention and effort that diabetes demands of me.					
2. It bothers me that diabetes seems to control my life.					
3. I am frustrated that even when I do what I am supposed to for my diabetes, it doesn't seem to make a difference.					
4. No matter how hard I try with my diabetes, it feels like it will never be good enough.					
5. I am so tired of having to worry about diabetes all the time.					
6. When it comes to my diabetes, I often feel like a failure.					
7. It depresses me when I					

realize that my © BDI. v3, 7.31.2023 diabetes will likely never go away.					
8. Living with diabetes is overwhelming for me.					

11. Depression PQ2, 4, 8, and 9 are available on a website managed by Pfizer: https://www.phqscreeners.com/ and are in the public domain. Pfizer asks users to consent to their use terms.

PHQ-2

TOOL 1. The Patient Health Questionnaire-2 (PHQ-2)

Instructions: Print out the short form below and ask patients to complete it while sitting in the waiting or exam room.

Use: The purpose of the PHQ-2 is not to establish a final diagnosis or to monitor depression severity, but rather to screen for depression as a "first-step" approach.

Scoring: A PHQ-2 score ranges from 0 to 6; patients with scores of 3 or more should be further evaluated with the PHQ-9, other diagnostic instrument(s), or a direct interview to determine whether they meet criteria for a depressive disorder.

Patient Name: _____ Date of Visit: _____

Over the past 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than one-half of the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3

Patient Name: _____ Date of Visit: _____

Over the past 2 weeks, how often have you been bothered by any of the following problems?	Not at all	Several days	More than one-half of the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling asleep, staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you're a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed; or the opposite—being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead or of hurting yourself in some way	0	1	2	3

10. If you checked off any problems listed above, how difficult have those problems made it for you to do your work, take care of things at home, or get along with other people? ❒ Not difficult at all ❒ Somewhat difficult ❒ Very difficult ❒ Extremely difficult

PHQ-9 SCORE	PROVISIONAL DIAGNOSIS	TREATMENT RECOMMENDATION (Patient preference should be considered)
0-4	None – minimal	None
5-9	Minimal symptoms[a]	Support, educate to call if worse, return in 1 month
10-14	• Minor depression[b]	Support, watchful waiting
	• Dysthmia[a]	Antidepressant or psychotherapy
	• Major depression, mild	Antidepressant or psychotherapy
15-19	Major depression, moderately severe	Antidepressant or psychotherapy
> 20	Major depression, severe	Antidepressant AND psychotherapy (especially if not improved on monotherapy)

12. Incretin mimetic drug prescribing GLP-1 and GIP

Generic names	Brand names
Tirzepatide	Mounjaro (for type 2 diabetes) and Zepbound (for weight loss)
Semaglutide	Ozempic and Rybelsus (for type 2 diabetes), and Wegovy (for weight loss)
Dulaglutide	Trulicity (for type 2 diabetes)
Liraglutide	Victoza (for type 2 diabetes) and Saxenda (for weight loss)

Exenatide	Byetta (for type 2 diabetes) and Bydureon (for type 2 diabetes) Bydureon BCise
Lixisenatide	Adlyxin (for type 2 diabetes)

13. https://www.ahrq.gov/sdoh/practice-improvement.html
    - Social drivers vs social determinants : Social Drivers vs. Social Determinants: Using Clear Terms - NACHC