

UTILIZATION MANAGEMENT MEDICAL POLICY

POLICY: Diabetes – Tzield Utilization Management Medical Policy

- Tzield® (teplizumab-mzwv intravenous infusion – Provention/Sanofi)

REVIEW DATE: 11/12/2025; selected revision 04/29/2026

OVERVIEW

Tzield, an anti-CD3 monoclonal antibody, is indicated to **delay the onset of Stage 3 type 1 diabetes** in adults and pediatric patients ≥ 1 year of age with Stage 2 type 1 diabetes.¹

A patient with Stage 2 type 1 diabetes should be selected for treatment with Tzield to delay the onset of Stage 3 type 1 diabetes based on the confirmation of at least two positive pancreatic islet cell autoantibodies AND dysglycemia without overt hyperglycemia using an oral glucose tolerance test (if not available, an alternative method for diagnosing dysglycemia without overt hyperglycemia may be appropriate).¹ Ensure the patient's diagnosis confirms an autoimmune origin and does not suggest type 2 diabetes or other forms of diabetes. These may include, but are not limited to genetic forms of diabetes, maturity-onset diabetes of the young, latent autoimmune diabetes in adults, or diabetes secondary to medication or surgery.

Prior to initiating Tzield, obtain a complete blood count and liver enzyme tests. Tzield is not recommended in patients with the following: Lymphocyte count $< 1,000$ lymphocytes/mcL; hemoglobin < 10 g/dL; platelet count $< 150,000$ platelets/mcL; elevated alanine aminotransferase or aspartate aminotransferase > 2 -times the upper limit of normal (ULN) or bilirubin > 1.5 -times the ULN; or active serious infection or chronic active infection other than localized skin infections. Additionally, patients with laboratory or clinical evidence of acute infection with Epstein-Barr virus or cytomegalovirus should not receive Tzield.

Tzield is administered by intravenous infusion using body surface area-based dosing, once daily for 14 consecutive days as outlined in Table 1.¹ The infusion is given over 30 minutes in adult and pediatric patients ≥ 8 years of age and over 2 hours in pediatric patients ≥ 1 year to < 8 years of age.

Table 1. Recommended Dosing for Tzield.¹

Treatment Day	Tzield Dose
Day 1	65 mcg/m ²
Day 2	125 mcg/m ²
Day 3	250 mcg/m ²
Day 4	500 mcg/m ²
Days 5 through 14	1,030 mcg/m ²

Clinical Efficacy

Efficacy of Tzield among patients at risk for development of type 1 diabetes was evaluated in one pivotal study called TN-10 (published) [n = 76].² Eligible patients were non-diabetic relatives of patients with type 1 diabetes and were ≥ 8 years of age at the time of randomization. Patients were also required to have two or more diabetes-related autoantibodies (i.e., microinsulin autoantibody [mIAA], glutamic acid decarboxylase 65 [GAD65] autoantibody, and insulinoma-associated antigen-2 [IA-2 or ICA512] autoantibody, islet cell autoantibody (ICA) or zinc transporter 8 [ZnT8] autoantibody), confirmed on at least two occasions, within 6 months before randomization. In addition, patients were required to have had evidence of dysglycemia during an oral glucose tolerance test (OGTT). An abnormal OGTT was defined as meeting one of the following: fasting plasma glucose (FPG) ≥ 110 to < 126 mg/dL; 2-hour postprandial plasma glucose ≥ 140 to < 200 mg/dL; or 30-, 60-, or 90-minute postprandial plasma glucose ≥ 200 mg/dL.

Initially, two OGTTs were required within 52 days of enrollment; however, a protocol amendment was put in place requiring only one abnormal glucose tolerance test result for patients < 18 years of age.

The PETITE-T1D trial is an ongoing, 2-year, single-arm, open-label, multicenter study evaluating the safety and pharmacokinetics of Tzield in children < 8 years of age with Stage 2 type 1 diabetes (n = 23).⁹ Eligible patients were required to have two or more islet autoantibodies, including GAD autoantibody, IA-2 autoantibody, insulin autoantibody, ZnT8 autoantibody, or ICA, and evidence of dysglycemia without overt hyperglycemia. Dysglycemia was defined as FPG $\geq$ 100 mg/dL to $\leq$ 125 mg/dL, a 2-hour plasma glucose of $\geq$ 140 mg/dL to $\leq$ 199 mg/dL, a hemoglobin A_{1c} (HbA_{1c}) of $\geq$ 5.7% to $\leq$ 6.4%, or a $\geq$ 10% increase in HbA_{1c}. Among enrolled patients, 34.8% had three positive autoantibodies and 34.8% had four positive autoantibodies; 13% of patients had two positive autoantibodies and 17.4% of patients had five positive autoantibodies. A family history of type 1 diabetes was present in 87% of patients but was not required for study eligibility. A prespecified interim analysis was conducted after 15 patients completed 1 year of post-treatment follow-up. At the time of the analysis, all 23 patients had received Tzield, with 10 patients completing the full 14-day treatment course. Two patients met criteria for progression to Stage 3 type 1 diabetes. The estimated probability of remaining free from progression to Stage 3 type 1 diabetes was 89.6% (95% confidence interval: 64.3% to 97.3%) at the time of the interim analysis.

Guidelines

American Diabetes Association (ADA) Standards of Care (2026) state that Tzield should be considered in selected individuals $\geq$ 8 years with stage 2 type 1 diabetes to delay the onset of symptomatic type 1 (stage 3) diabetes (Level B recommendation) [the Standards were published prior to approval of a lower age indication for Tzield].³ Management should be in a specialized setting with appropriately trained personnel. According to the ADA Standards, screening for pre-symptomatic type 1 diabetes may be done by detection of autoantibodies to insulin (IAA), glutamic acid decarboxylase (GAD, GAD65), islet antigen-2 (IA-2 and IA-2b), or ZnT8 (Level B recommendation).³ Autoantibody-based screening for presymptomatic type 1 diabetes should be offered to those with a family history of type 1 diabetes or otherwise known elevated genetic risk (Level B recommendation). In individuals with screening results positive for one or more islet autoantibody, further evaluation for Stage 3 type 1 diabetes is recommended (Level B recommendation). Individuals with multiple confirmed islet autoantibodies and without overt type 1 diabetes have a high risk for progression to Stage 3 type 1 diabetes and should be referred to a specialized center for further evaluation and/or consideration of a clinical trial or approved therapy to potentially delay the development clinical diabetes should be considered (Level B recommendation). Individuals with a single confirmed IA-2 autoantibody should be monitored similarly to individuals with multiple islet autoantibodies because IA-2 autoantibody positivity is an independent risk factor for progression (Level B recommendation). Other scientific statements and/or guidelines provide similar recommendations for screening pre-symptomatic type 1 diabetes by detection of autoantibodies (i.e., GAD autoantibodies, IAA, IA-2 autoantibodies, or ZnT8 autoantibodies).^{5,6}

A consensus guidance for monitoring individuals with islet autoantibody-positive pre-stage 3 type 1 diabetes (2024) state that when patients who are insulin autoantibody positive are initially identified, there is a need for confirmation using a second sample.⁴ Similar to the ADA Standards of Care, the guidance recommends that interested patients with stage 2 type 1 diabetes be offered trial participation or approved therapies.

Table 1. Autoantibodies Against Islet Autoantigens Detected in Stage 1 to 3 Type 1 Diabetes.⁴

Autoantibody	Islet Specificity	Typical Characteristics
IAA	Insulin	• Common as a first autoantibody in young children • More common in younger children • Frequency decreases with age • Not informative for individuals treated with insulin
GADA	GAD	• Common as a first autoantibody in childhood to age 15 years • Adult-onset cases most often present with GADA • Associated with slower progression to type 1 diabetes and often found as a single positive islet autoantibody, especially in adults.
IA-2A (also called ICA512)	Tyrosine phosphate islet antigen-2	Associated with more advanced islet autoimmunity and faster progression to stage 3 type 1 diabetes
ZnT8A	Zinc transporter type 8, a transmembrane protein in the β -cell granule	Presence can improve risk stratification in individuals with single GADA+, IAA+, or IA-2A+ status
ICA	Multiple antigens, undefined	Detected by indirect immunofluorescence on islet cell tissue. While not frequently measured other than in research studies, it does add to risk determination in the presence of other biochemical autoantibodies

IAA – Insulin autoantibody; GADA - Glutamic acid decarboxylase autoantibody; IA-2A – Insulinoma antigen-2 autoantibody; ICA512 – Islet cell autoantigen 512; ICA – Islet cell autoantibodies.

According to the ADA Standards, three distinct stages of type 1 diabetes can be identified.³ Clinical type 1 diabetes is referred to as “Stage 3 type 1 diabetes” and is characterized by overt hyperglycemia and the presence of symptoms. Diagnostic criteria include one of the following: fasting plasma glucose (FPG) $\geq$ 126 mg/dL; 2-hour postprandial glucose $\geq$ 200 mg/dL during an OGTT (75 grams); hemoglobin A_{1c} (HbA_{1c}) $\geq$ 6.5%; or random plasma glucose $\geq$ 200 mg/dL for a patient with classic symptoms of hyperglycemia or hyperglycemic crisis. “Stage 1 type 1 diabetes” and “Stage 2 type 1 diabetes” are pre-symptomatic states characterized by autoimmunity (i.e., multiple autoantibodies) but no overt diabetes symptoms. In Stage 1 disease, patients have a normal glycemic level. In Stage 2 disease, dysglycemia is present but below the threshold considered overt for Stage 3 type 1 diabetes. Dysglycemia in Stage 2 type 1 diabetes involves FPG 100 to 125 mg/dL; 2-hour postprandial glucose 140 to 199 mg/dL; HbA_{1c} 5.7% to 6.4%; or a $\geq$ 10% increase in HbA_{1c}.

Screening for Type 1 Diabetes Risk

Multiple studies indicate that measuring islet autoantibodies in relatives of those with type 1 diabetes or in children from the general population can effectively identify those who will develop type 1 diabetes.³ A study reported the risk of progression to type 1 diabetes from the time of seroconversion to autoantibody positivity in pediatric cohorts from three countries. Of the 585 children who developed more than two autoantibodies, nearly 70% developed type 1 diabetes within 10 years and 84% developed type 1 diabetes within 15 years. These findings are highly significant because while the one group of patients was recruited from children of parents with type 1 diabetes, the other two groups were recruited from the general population. The findings in all three groups were the same, suggesting that the same sequence of events led to clinical disease in both “sporadic” and familial cases of type 1 diabetes. The risk of type 1 diabetes increases as the number of relevant autoantibodies detected increases. In several cohort studies, up to 50% of children with only a single autoantibody revert to being islet autoantibody negative during follow-up. Therefore, it is recommended that the first autoantibody-positive test be confirmed with a second test within 3 months,

Family history of autoimmune diabetes and personal or family history of allergic diseases or other autoimmune diseases increases risk of autoimmune diabetes compared with the general population.³ Individuals who test autoantibody positive should be either provided with or referred for counseling about the risk of developing diabetes, diabetes symptoms, diabetic ketoacidosis prevention, and consideration of

additional testing as applicable to help determine if they meet criteria for intervention aimed at delaying progression.

POLICY STATEMENT

Prior Authorization is recommended for prescription benefit coverage of Tzield. Approval is recommended for those who meet the **Criteria** and **Dosing** for the listed indication. Requests for doses outside of the established dosing documented in this policy will be considered on a case-by-case basis by a clinician (i.e., Medical Director or Pharmacist). All approvals are provided for the duration noted below. Because of the specialized skills required for evaluation and diagnosis of patients treated with Tzield as well as the monitoring required for adverse events and long-term efficacy, approval requires Tzield to be prescribed by or in consultation with a physician who specializes in the condition being treated. For certain criteria, verification is required as noted by **[verification required by prescriber]**. All reviews (approvals and denials) will be forwarded to the Medical Director for evaluation.

Documentation: Documentation is required where noted in the criteria as **[documentation required]**. Documentation may include, but is not limited to chart notes, laboratory tests, claims records, and/or other information. All documentation must include patient-specific identifying information.

Automation: None.

RECOMMENDED AUTHORIZATION CRITERIA

Coverage of Tzield is recommended in those who meet the following criteria:

FDA-Approved Indication

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1. **Type 1 Diabetes (Clinical/Stage 3), Delay of Onset.** Approve for a one-time per lifetime course (14-day course) if the patient meets ALL of the following (A, B, C, D, E, F, G, H, and I):
 - A) Patient is ≥ 1 year of age; AND
 - B) Patient does NOT have a clinical diagnosis of type 1 diabetes (i.e., Stage 3 type 1 diabetes); AND
Note: Clinical type 1 diabetes is also referred to as Stage 3 type 1 diabetes. “Stage 1 type 1 diabetes” and “Stage 2 type 1 diabetes” are considered preclinical states and would not fall into the category of clinical type 1 diabetes.
 - C) Patient has tested positive for at least TWO of the following type 1 diabetes-related autoantibodies on two separate occasions: glutamic acid decarboxylase 65 (GAD65) autoantibody; islet antigen-2 (IA-2) autoantibody [also referred to as insulinoma-associated antigen-2 autoantibody {IA-2A}]; islet-cell autoantibody (ICA); insulin autoantibody (IAA); zinc transporter 8 (ZnT8) autoantibody **[documentation required]**.
Note: The patient needs to have tested positive on two separate occasions, with at least two positive autoantibodies per occasion; however, the patient does not have to be positive for the same two antibodies on both occasions. For example, a positive test for GAD65 and IA-2 on one occasion, and positive test for ICA and IAA on another occasion would satisfy the requirement.
 - D) Patient meets ONE of the following (i, ii, or iii) **[documentation required]**:
 - i. Patient has a 2-hour postprandial glucose level ≥ 140 to < 200 mg/dL during an oral glucose tolerance test in the preceding 2 months; OR
 - ii. Patient has a fasting plasma glucose level ≥ 100 to < 126 mg/dL in the preceding 2 months; OR
 - iii. Patient has an $HbA_{1c} \geq 5.7\%$ to $< 6.5\%$ in the preceding 2 months; AND
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- E) At baseline (prior to the initiation of Tzield), patient does NOT have evidence of hematologic compromise, as defined by meeting ALL of the following (i, ii, iii, and iv) **[documentation required]**:
- i. Lymphocyte count $\geq 1,000$ lymphocytes/mcL; AND
 - ii. Hemoglobin ≥ 10 g/dL; AND
 - iii. Platelet count $\geq 150,000$ platelets/mcL; AND
 - iv. Absolute neutrophil count $\geq 1,500$ neutrophils/mcL; AND
- F) At baseline (prior to the initiation of Tzield), patient does NOT have evidence of hepatic compromise, as defined by meeting ALL of the following (i, ii, and iii) **[documentation required]**:
- i. Alanine aminotransferase ≤ 2 times the upper limit of normal; AND
 - ii. Aspartate aminotransferase ≤ 2 times the upper limit of normal; AND
 - iii. Bilirubin ≤ 1.5 times the upper limit of normal; AND
- G) According to the prescriber, the patient does NOT have any of the following (i, ii, or iii):
- i. Laboratory or clinical evidence of acute infection with Epstein-Barr Virus or cytomegalovirus; OR
 - ii. Active serious infection; OR
 - iii. Chronic active infection (other than localized skin infection); AND
- H) Patient has NOT received Tzield in the past **[verification required by prescriber]**; AND
Note: Verify through claims history that the patient has not previously received Tzield AND, if no claim for Tzield is present, the prescriber must attest that the patient has not previously received Tzield.
- I) The medication will be prescribed by an endocrinologist.

Dosing. Approve a one-time, 14-day course of Tzield with the following regimen (A, B, C, D, and E):

- A) 65 mcg/m² body surface area (BSA) given intravenously on Day 1; AND
- B) 125 mcg/m² BSA given intravenously on Day 2; AND
- C) 250 mcg/m² BSA given intravenously on Day 3; AND
- D) 500 mcg/m² BSA given intravenously on Day 4; AND
- E) 1,030 mcg/m² BSA given intravenously once daily on Days 5 through 14.

CONDITIONS NOT RECOMMENDED FOR APPROVAL

Coverage of Tzield is not recommended in the following situations:

1. **Type 1 Diabetes (Clinical/Stage 3), Treatment.** Note: Clinical type 1 diabetes is also referred to as Stage 3 type 1 diabetes. “Stage 1 type 1 diabetes” and “Stage 2 type 1 diabetes” are considered preclinical states and would not fall into the category of clinical type 1 diabetes. Tzield is not indicated for patients with a diagnosis of clinical type 1 diabetes (i.e., Stage 3 type 1 diabetes). The PROTECT trial randomized patients ≥ 8 to < 18 years of age with stage 3 type 1 diabetes to Tzield or placebo for two 12-day courses of therapy (n = 328). Patients had been diagnosed with type 1 diabetes within 6 weeks of randomization. In addition, patients had at least one autoantibody associated with type 1 diabetes (antibodies against glutamic acid decarboxylase, zinc transporter 8, insulin, islet cell, or islet antigen-2) and a peak stimulated C-peptide level of ≥ 0.2 pmol/mL. The primary endpoint was the change from baseline in C-peptide levels at Week 78. Key secondary endpoints were: the mean of patients’ daily insulin dose (units/kg/day), the mean daily percentage of time in the target glucose range, the change from baseline in the mean hemoglobin A_{1c}, and clinically important hypoglycemic events (defined as a blood glucose level < 54 mg/dL, severe cognitive impairment requiring assistance for recovery, or both) at Week 78. The mean change from baseline in C-peptide area under the concentration time curve levels at Week 78 was significantly larger with

Tzield vs. placebo. No significant differences were shown for the secondary endpoints, intended to determine the effect of Tzield on clinical variables. The BETA PRESERVE trial has been initiated to assess the change in glycemic control and prandial insulin dependency with Tzield vs. placebo in patients with recently diagnosed stage 3 type 1 diabetes.⁸

2. **Type 2 Diabetes.** Tzield is not indicated for type 2 diabetes.¹
3. Coverage is not recommended for circumstances not listed in the Recommended Authorization Criteria. Criteria will be updated as new published data are available.

REFERENCES

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5. Mehta S, Ryabeta-Linehard A, Patel N, et al. Pediatric Endocrine Society statement on consideration for use of teplizumab (Tzield™) in clinical practice. *Horm Res Paediatr*. 2025;98:597-608.
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7. Ramos EL, Dyan CM, Chatenoud L, et al; for the PROTECT Study Investigators. Teplizumab and β -cell function in newly diagnosed type 1 diabetes. *N Engl J Med*. 2023;389:2151-2161.
8. Sanofi. A study to investigate efficacy and safety of teplizumab compared with placebo in participants 1 to 25 years of age with stage 3 type 1 diabetes (BETA PRESERVE). In: ClinicalTrials.gov [Internet]. Bethesda (MD): National Library of Medicine (US). 2000- [cited 2025 11 Nov]. Available at: [Study Details | NCT07088068 | A Study to Investigate Efficacy and Safety of Teplizumab Compared With Placebo in Participants 1 to 25 Years of Age With Stage 3 Type 1 Diabetes | ClinicalTrials.gov](https://clinicaltrials.gov/study/NCT07088068). NLM Identifier: NCT07088068.
9. Gitelman SE, Simmons K, Sherr JL, et al. Safety and pharmacokinetics of teplizumab in children less than 8 years of age with stage 2 type 1 diabetes. *Diabetologia*. 2025;69:330-342.

HISTORY

Type of Revision	Summary of Changes	Review Date
Annual Revision	Type 1 Diabetes (Clinical/Stage 3), Delay of Onset. Glycemic criteria for the diagnosis of Stage 2, Type 1 diabetes was revised. The criterion related to fasting plasma glucose was modified to remove the requirement that the result of the test comes from an oral glucose tolerance test. Additionally, the definition of the fasting plasma glucose value was modified to ≥ 100 mg/dL to < 126 mg/dL (previously, fasting plasma glucose was defined as a value of ≥ 110 mg/dL to < 126 mg/dL). The criterion for an intervening postprandial glucose level at 30, 60, or 90 minutes of > 200 mg/dL based on an oral glucose tolerance test within the preceding 2 months was removed. A new criterion was added, such that an HbA_{1c} of $\geq 5.7\%$ to $< 6.5\%$ in the preceding 2 months is an option for diagnosis. The updated set of glycemic criteria for the diagnosis of Stage 2, Type 1 diabetes now reads that the patient meets ONE of the following [documentation required]: Patient has a 2-hour postprandial glucose level ≥ 140 mg/dL to < 200 mg/dL during an oral glucose tolerance test in the preceding 2 months (no change to this criterion); OR, Patient has a fasting plasma glucose level of ≥ 100 mg/dL to < 126 mg/dL in the preceding 2 months (see change described above); OR, Patient has an HbA_{1c} of $\geq 5.7\%$ to $< 6.5\%$ in the preceding 2 months (new criterion, see above).	11/15/2023
Annual Revision	No criteria changes.	11/13/2024

HISTORY (CONTINUED)

Type of Revision	Summary of Changes	Review Date
Annual Revision	Type 1 Diabetes (Clinical/Stage 3), Delay of Onset. The criterion related to autoantibodies was revised with current nomenclature for diabetes-related autoantibodies; the intent of the criterion was not changed. The term “anti-” was removed preceding the name of the following (autoantibody was added after each): glutamic acid decarboxylase 65 (GAD65) autoantibody; islet antigen-2 (IA-2) autoantibody; and zinc transporter 8 (ZnT8) autoantibody. For islet antigen-2 (IA-2) autoantibody, clarification was added that this is also referred to as insulinoma-associated antigen-2 autoantibody (IA-2A). Microinsulin was changed to insulin autoantibody (IAA).	11/12/2025
Selected Revision	Type 1 Diabetes (Clinical/Stage 3), Delay of Onset. The age requirement was changed to ≥ 1 year (previously ≥ 8 years). The requirement that the patient has at least one biological relative with a diagnosis of type 1 diabetes was removed. The requirement that the patient does NOT have type 2 diabetes was removed (moved to Conditions not Recommended for Coverage). Conditions Not Recommended for Approval. Type 2 Diabetes was added as a Condition Not Recommended for Approval.	04/29/2026