

# How to Differentiate Type 1 Diabetes (T1D) from Type 2 Diabetes (T2D) in Adults

 <p>Misclassification occurs in up to <b>40% of adults with T1D</b>, with the majority initially misdiagnosed as T2D<sup>1-3</sup></p>	 <p>Misdiagnosis may lead to complications such as <b>DKA and delays</b> in commencing appropriate treatment (e.g., insulin therapy)<sup>3,4</sup></p>
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## Prevalence

### Prevalence of T1D<sup>5</sup>

**~8.42 million**

people aged 0–99 years old estimated to be living with T1D worldwide (2021)<sup>5</sup>



### Prevalence of T2D<sup>6</sup>

**~462 million**

people estimated to be living with T2D worldwide (2017)<sup>6</sup>

## Pathophysiology

### T1D<sup>1</sup>

Due to **autoimmune beta-cell destruction**, usually leading to severe insulin deficiency<sup>1</sup>




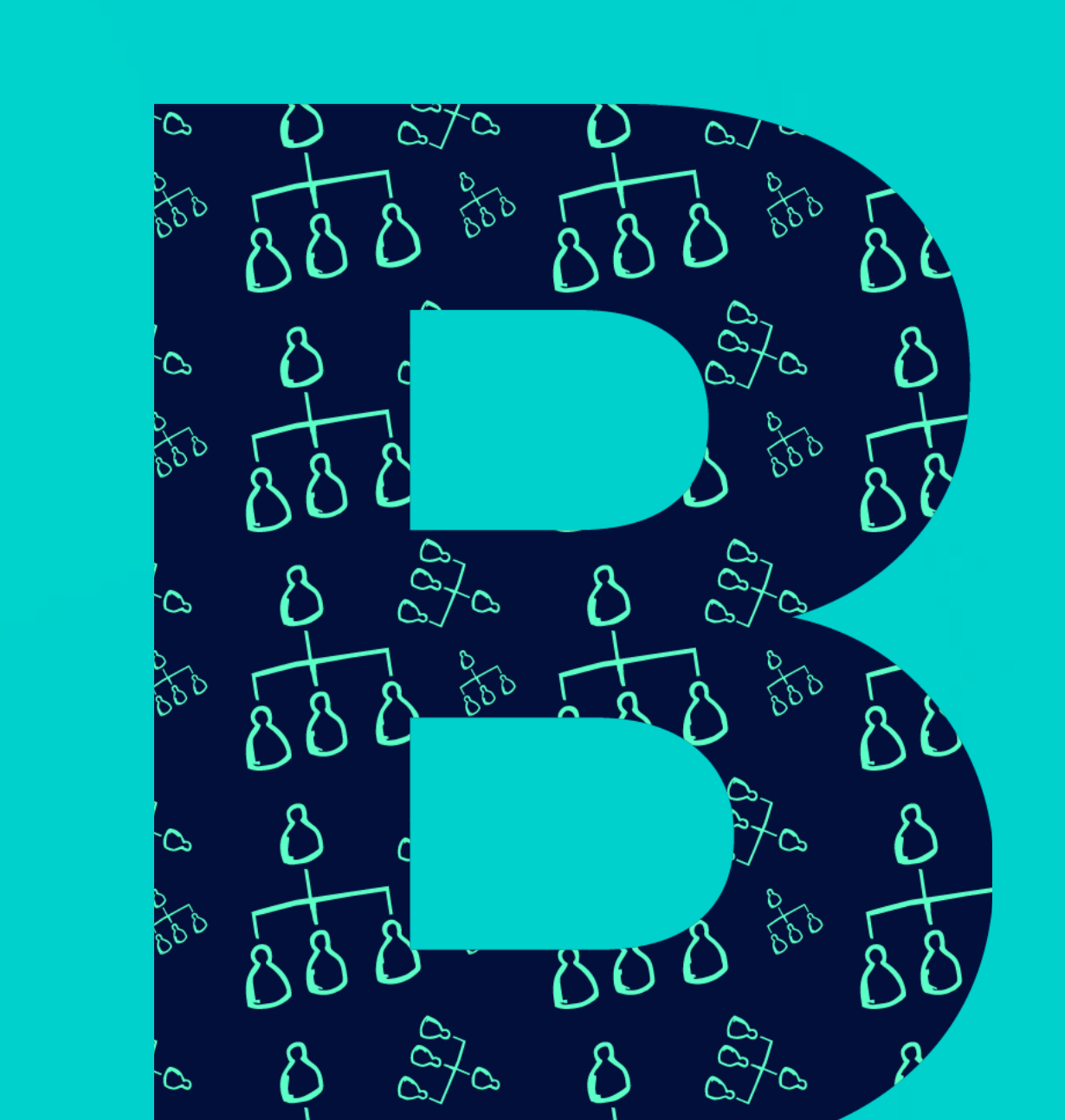
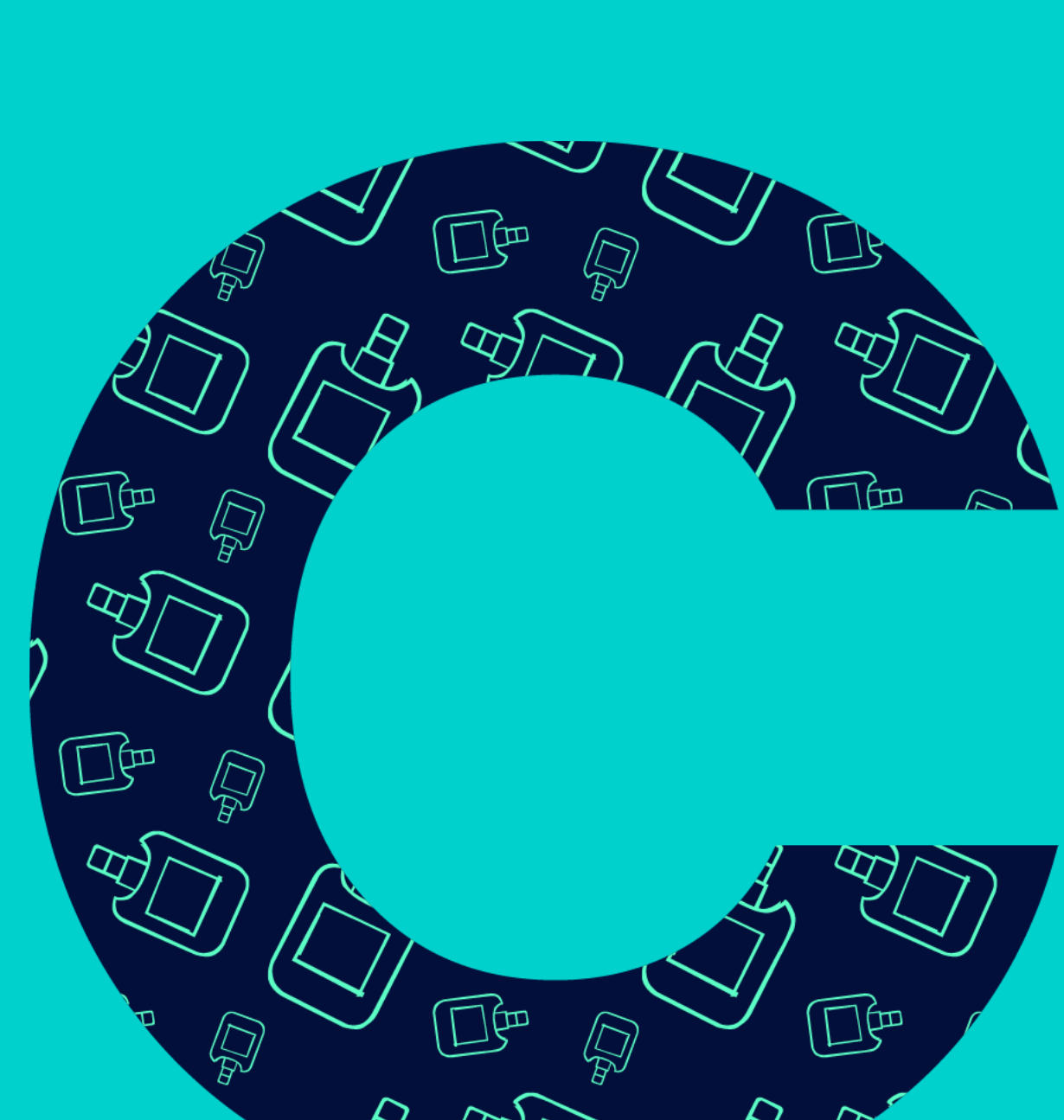
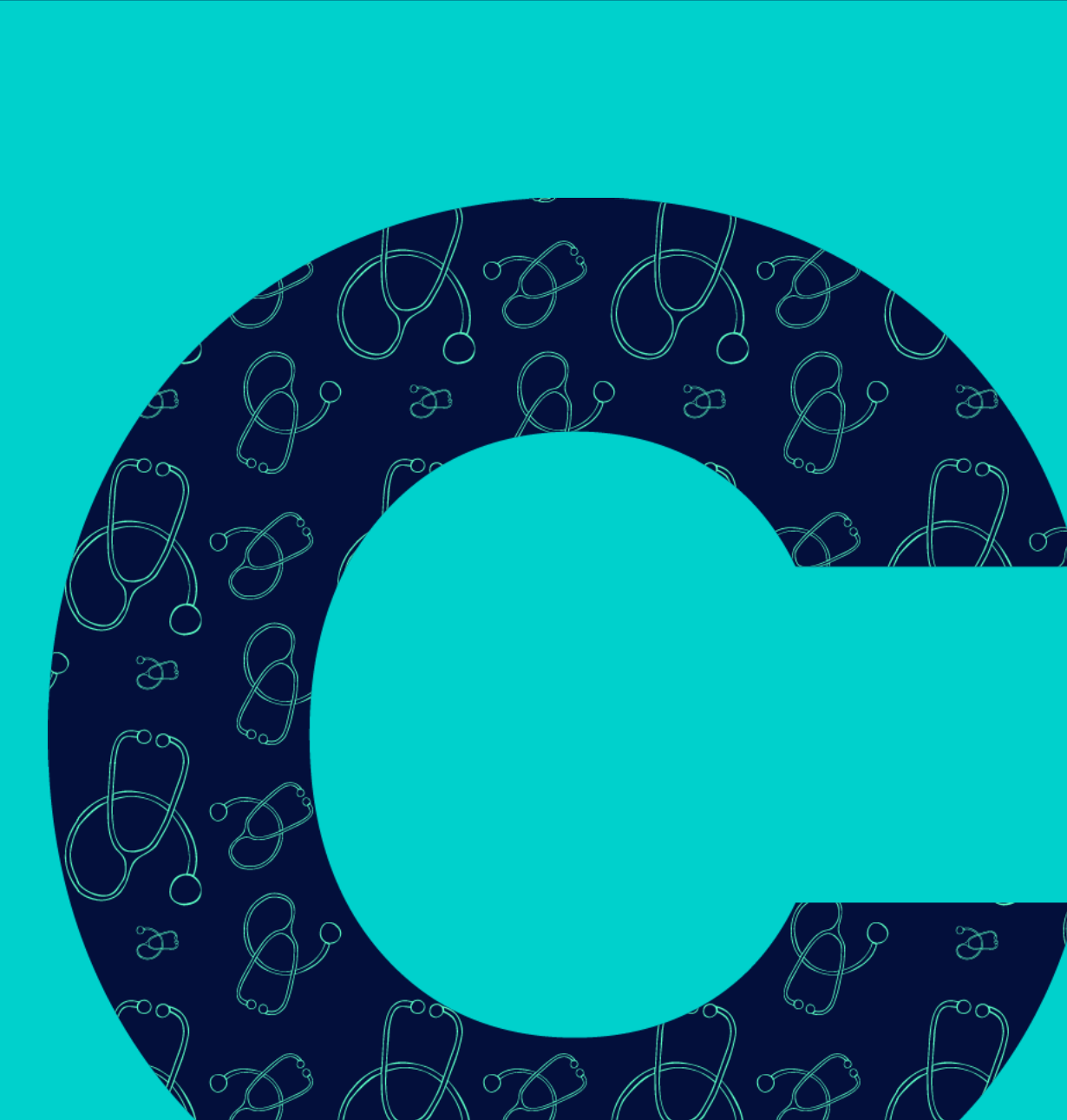


### T2D<sup>1</sup>

Due to **relative (rather than absolute) insulin deficiency and peripheral insulin resistance** in most (i.e., decreased biological response or sensitivity to insulin)<sup>1</sup>

# The AABCC approach

proposed by the ADA Guidelines is a clinical tool useful for distinguishing diabetes types based on key clinical characteristics:<sup>1</sup>

T1D		T2D
<p>For individuals under 35 years of age, consider T1D<sup>1</sup></p> <p>Incidence is highest in children but can have its onset at any age<sup>7</sup></p>	 <p><b>AGE<sup>1</sup></b></p>	<p>Typically diagnosed in individuals over 35 years of age<sup>1</sup></p> <p>Commonly occurs in adults and is more likely in individuals with a family history of T2D or other risk factors (e.g., obesity)<sup>8</sup></p>
<p>Personal or family history of autoimmune diseases or syndromes<sup>1</sup></p> <p>Persistent presence of ≥2 islet autoantibodies is a near-certain predictor of clinical T1D<sup>1</sup></p> <p>Clinical T1D is defined by hyperglycemia and the presence of ≥1 islet autoantibodies<sup>1</sup></p>	 <p><b>AUTOIMMUNITY<sup>1</sup></b></p>	<p>Autoantibodies are generally absent. T2D is associated with insulin deficiency of unclear etiology and often involves insulin resistance<sup>1</sup></p>
<p>Individuals with lower BMI (&lt;25 kg/m<sup>2</sup>) and unintentional weight loss, assess for T1D<sup>1</sup></p>	 <p><b>BODY HABITUS<sup>1</sup></b></p>	<p>Individuals with increased BMI (≥25 kg/m<sup>2</sup>), absence of weight loss<sup>1</sup></p>
<p>E.g., family history of T1D<sup>1</sup></p>	 <p><b>BACKGROUND<sup>1</sup></b></p>	<p>Often associated with strong genetic predisposition or family history in first-degree relatives<sup>1</sup></p> <p>Common in certain racial and ethnic subgroups (e.g., African American, Native American, Hispanic/Latino, and Asian American)<sup>1</sup></p>
<p>E.g., level of glucose control on non-insulin therapies is poor<sup>1</sup></p>	 <p><b>CONTROL<sup>1</sup></b></p>	<p>Insulin resistance may improve with weight loss, exercise, and/or pharmacologic treatment of hyperglycemia<sup>1</sup></p>
<p>E.g., treatment with immune checkpoint inhibitors for cancer can cause acute onset T1D<sup>1</sup></p>	 <p><b>COMORBIDITIES<sup>1</sup></b></p>	<p>Common in individuals with hypertension or dyslipidemia<sup>1</sup></p>

In clinical practice, understanding how to differentiate T1D from T2D is essential to prevent misdiagnosis and associated complications.<sup>3</sup>

Abbreviations: ADA, American Diabetes Association; BMI, body mass index; DKA, diabetic ketoacidosis; T1D, type 1 diabetes; T2D, type 2 diabetes.

### References

1. American Diabetes Association Professional Practice Committee. Diabetes Care. 2024;47(Suppl 1):S20–42. 2. Holt RIG, et al. Diabetologia 2021;64(12):2609–2652. 3. Muñoz C, et al. Clin Diabetes. 2019;37(3):276–81. 4. Usher-Smith JA, et al. BMJ. 2011 Jul 7;343:d4092. 5. Gregory GA, et al. Lancet Diabetes Endocrinol. 2022;10(10):741–60. 6. Khan MAB, et al. J Epidemiol Glob Health. 2020;10(1):107–11. 7. Lucier J, Dulebohn SC. StatPearls [Internet]. Type 1 Diabetes. 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK507713/> [Last accessed: February 2025]. 8. Goyal R, et al. StatPearls [Internet]. Type 2 Diabetes. 2023. Available from: <https://www.ncbi.nlm.nih.gov/books/NBK513253/> [Last accessed: February 2025]

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