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Type 1 Diabetes Incidence and Prevalence in the US

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Introduction

The incidence of type 1 diabetes (T1D) varies markedly across countries.[1,2] Furthermore, national-level incidence and prevalence estimates may mask within-country variation.[1,3] Such data provide vital information for understanding the burden of disease and guide health service delivery and resource allocation to enable equitable access to care irrespective of where individuals live. This study aimed to provide state-level estimates for 2024 of T1D incidence and prevalence in the US for individuals younger than 20 years and for the total population.

Methods

In this cross-sectional study, we applied the Type 1 Diabetes Index (T1D Index) model[2] to derive subnational incident estimates for the US using observed T1D incidence reported by the US SEARCH for Diabetes in Youth Study,[3] complemented by adult incidence estimates[2] and publicly available state-level demographic data on population age distribution and race and ethnicity composition (eMethods in Supplement 1). The T1D Index model[2] is a Markov model that incorporates inputs of all relevant T1D incidence, prevalence, and mortality data, as well as modeled changes in incidence and mortality over time, based on available evidence. Subnational estimates of prevalent cases were then calculated using state-level population data and the T1D Index–derived standardized mortality rate (SMR) for the US,[2] which was assumed to be constant for all states (eMethods in Supplement 1). Corresponding 95% CIs were calculated by running the model 1000 times, with incidence inputs randomly drawn from a log-normal distribution parameterized using the CIs reported in the SEARCH study. To determine the number of pediatric endocrinology specialists per 1000 children and adolescents younger than 18 years living with T1D in each state, we used the method of Aye et al,[4] updated to 2024 from the American Board of Pediatrics dashboard.[5] Analyses were conducted using R, version 4.5.1 (R Foundation for Statistical Computing).

We followed the STROBE reporting guideline. The research was conducted in accordance with the Declaration of Helsinki.

Results

Substantial variations in T1D incidence (**Figure**, A) and prevalence (**Table**) existed among US states in 2024. Incidence estimates for individuals younger than 20 years ranged from 17.0 to 27.8 per 100 000 population across states (Table). States with the lowest estimated incidence per 100 000 were Hawaii (17.0; 95% CI, 14.1-20.5), New Mexico (20.5; 95% CI, 17.8-23.9), and California (20.6; 95% CI, 18.1-23.6), and those with the highest were West Virginia (27.8; 95% CI, 25.7-30.4), Maine (27.4; 95% CI, 25.0-29.8), and Vermont (27.4; 95% CI, 25.4-29.8) (Figure, A; Table). In 2024, states with the highest estimated number of individuals of all ages living with T1D were California (n = 154 949), and Texas (n = 123 329), with the lowest numbers in Wyoming (n = 2720) and the District of Columbia (DC) (n = 2810) (Table). Among children and adolescents younger than 20 years, the highest prevalent counts were again California (n = 20 122) and Texas (n = 18 292).

+ Supplemental content

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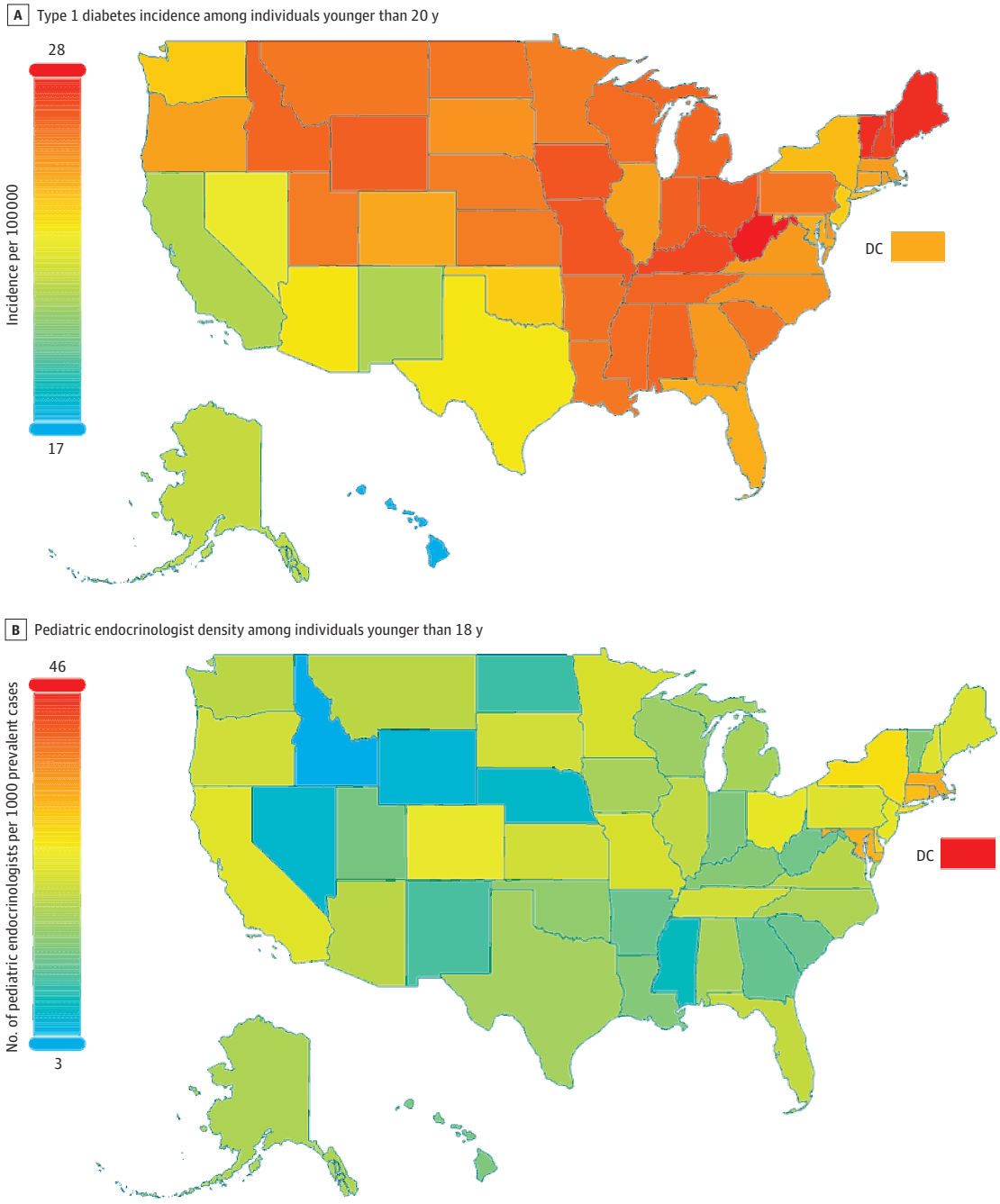
We also found marked differences in the ratio of board-certified pediatric endocrinologists to people living with T1D among states (Figure, B). In 2024, the number of pediatric endocrinologists per 1000 individuals younger than 18 years living with T1D varied from 2.7 (95% CI, 2.7-2.8) per 1000 in Idaho and 3.4 (95% CI, 3.3-3.4) per 1000 in Wyoming. States with fewer than 5.0 pediatric endocrinologists per 1000 included Nebraska, Mississippi, North Dakota, and New Mexico, whereas more than 20.0 per 1000 were observed in some northeastern states (22.5 [95% CI, 21.9-23.1] and 20.7 [95% CI, 20.1-21.3] per 1000 in Rhode Island and Massachusetts, respectively), with DC having

Figure. Heat Maps Showing State-Level Type 1 Diabetes Incidence and Pediatric Endocrinologist Density, 2024



A, Heat map of type 1 diabetes incidence per 100 000 individuals younger than 20 years. B, Heat map of the number of American Board of Pediatrics–certified pediatric endocrinologists per 1000 prevalent cases of type 1 diabetes among individuals younger than 18 years. DC indicates District of Columbia.

Table. National and State-Specific Type 1 Diabetes Incidence and Prevalent Cases in the US, 2024

State	Incidence rate (95% CI)[a]	Prevalent cases, No. (95% CI)		Pediatric endocrinologists, rate (95% CI)[b]
		Among individuals <20 y	Among all individuals	
US	24.0 (21.5-26.8)	196 778 (191 003-202 604)	1 476 859 (1 427 111-1 526 327)	10.1 (9.8-10.4)
Alabama	25.9 (23.5-28.9)	3207 (3123-3297)	21 445 (20 700-22 260)	8.2 (8.0-8.4)
Alaska	20.9 (17.8-24.5)	430 (413-450)	2987 (2884-3099)	8.6 (8.2-9.0)
Arizona	22.5 (19.8-25.5)	4050 (3922-4177)	30 230 (29 169-31 267)	9.3 (9.0-9.6)
Arkansas	25.7 (23.3-28.5)	1965 (1915-2018)	13 187 (12 713-13 656)	5.7 (5.6-5.9)
California	20.6 (18.1-23.6)	20 122 (19 388-20 827)	154 949 (149 979-159 964)	11.8 (11.3-12.2)
Colorado	24.1 (21.9-26.7)	3347 (3254-3438)	27 740 (26 819-28 658)	12.8 (12.4-13.1)
Connecticut	24.2 (21.8-26.8)	2077 (2020-2135)	17 197 (16 652-17 779)	18.9 (18.4-19.5)
Delaware	24.6 (21.9-27.5)	603 (587-621)	4623 (4452-4787)	16.6 (16.1-17.2)
District of Columbia	23.8 (20.7-27.2)	350 (338-364)	2810 (2718-2907)	46.4 (44.8-48.4)
Florida	23.9 (21.4-26.7)	11 826 (11 449-12 192)	98 778 (95 436-102 172)	9.8 (9.5-10.1)
Georgia	24.5 (21.9-27.7)	6860 (6661-7096)	47 462 (45 783-48 929)	5.5 (5.3-5.7)
Hawaii	17.0 (14.1-20.5)	767 (729-810)	5366 (5155-5574)	6.3 (6.0-6.7)
Idaho	25.9 (23.5-28.4)	1390 (1356-1420)	9525 (9226-9810)	2.7 (2.7-2.8)
Illinois	24.3 (21.8-27.0)	7275 (7048-7491)	55 514 (53 497-57 205)	9.6 (9.3-9.9)
Indiana	26.1 (23.8-28.9)	4557 (4446-4680)	31 844 (30 863-32 990)	6.3 (6.1-6.5)
Iowa	26.4 (24.1-28.9)	2177 (2129-2230)	15 721 (15 232-16 185)	8.1 (7.9-8.3)
Kansas	25.4 (23.1-27.9)	1998 (1948-2050)	13 612 (13 169-14 084)	10.7 (10.4-10.9)
Kentucky	26.8 (24.6-29.3)	2984 (2910-3047)	20 856 (20 123-21 690)	6.7 (6.5-6.8)
Louisiana	25.5 (22.8-28.6)	2876 (2787-2963)	18 528 (17 813-19 232)	6.5 (6.3-6.7)
Maine	27.4 (25.0-29.8)	781 (764-797)	7103 (6858-7365)	11.3 (11.1-11.6)
Maryland	23.9 (21.2-26.9)	3656 (3543-3772)	27 068 (26 214-28 020)	20.1 (19.4-20.8)
Massachusetts	24.4 (22.0-26.9)	3995 (3897-4105)	34 676 (33 624-35 858)	20.7 (20.1-21.3)
Michigan	25.9 (23.4-28.5)	6148 (5985-6308)	46 311 (44 802-47 794)	8.3 (8.1-8.6)
Minnesota	25.3 (22.9-27.9)	3675 (3581-3775)	28 131 (27 265-28 945)	11.2 (10.9-11.5)
Mississippi	25.8 (23.0-29.0)	1882 (1824-1938)	11 550 (11 107-11 983)	4.0 (3.9-4.1)
Missouri	26.4 (24.1-29.0)	4002 (3906-4101)	28 554 (27 650-29 550)	11.2 (10.9-11.5)
Montana	25.5 (22.8-28.2)	663 (646-682)	5237 (5054-5427)	9.4 (9.2-9.7)
Nebraska	25.4 (23.0-27.9)	1361 (1328-1395)	9448 (9148-9753)	3.7 (3.6-3.8)
Nevada	22.0 (19.4-24.7)	1737 (1680-1790)	13 752 (13 279-14 228)	3.6 (3.4-3.7)
New Hampshire	26.9 (24.6-29.3)	773 (756-789)	7289 (7046-7545)	11.5 (11.2-11.7)
New Jersey	23.1 (20.6-25.7)	5139 (4980-5291)	41 303 (39 999-42 661)	12.3 (12.0-12.7)
New Mexico	20.5 (17.8-23.9)	1035 (997-1076)	7285 (7000-7556)	4.9 (4.7-5.1)
New York	23.6 (21.0-26.4)	10 528 (10 191-10 834)	87 060 (84 023-89 952)	15.3 (14.8-15.8)
North Carolina	24.7 (22.0-27.8)	6546 (6360-6756)	48 154 (46 544-49 762)	8.6 (8.4-8.9)
North Dakota	25.6 (23.1-28.4)	538 (524-551)	3750 (3629-3869)	4.7 (4.5-4.8)
Ohio	26.4 (24.0-29.1)	7532 (7344-7723)	54 961 (52 989-56 961)	12.3 (11.9-12.6)
Oklahoma	23.1 (20.5-26.0)	2631 (2547-2720)	16 919 (16 227-17 521)	7.1 (6.9-7.4)
Oregon	24.3 (22.1-26.8)	2376 (2313-2435)	20 453 (19 808-21 153)	10.6 (10.3-10.8)
Pennsylvania	25.6 (23.2-28.3)	7805 (7588-8007)	61 011 (58 803-63 008)	11.6 (11.3-11.9)
Rhode Island	24.4 (22.1-27.1)	625 (608-642)	5381 (5204-5565)	22.5 (21.9-23.1)
South Carolina	25.6 (23.1-28.8)	3285 (3188-3383)	23 062 (22 267-23 822)	5.7 (5.6-5.9)
South Dakota	24.7 (21.9-27.7)	591 (574-608)	4072 (3939-4205)	10.5 (10.2-10.8)
Tennessee	26.0 (23.4-28.6)	4429 (4321-4542)	31 646 (30 587-32 782)	10.7 (10.4-11.0)
Texas	22.4 (19.7-25.1)	18 292 (17 704-18 901)	123 329 (119 090-127 223)	7.9 (7.7-8.2)
Utah	25.4 (23.4-28.0)	2676 (2615-2746)	16 659 (16 155-17 182)	6.1 (5.9-6.3)
Vermont	27.4 (25.4-29.8)	385 (377-394)	3385 (3277-3493)	6.7 (6.5-6.8)
Virginia	24.5 (22.0-27.3)	5245 (5101-5399)	40 128 (38 735-41 404)	9.1 (8.8-9.3)
Washington	23.2 (20.7-26.0)	4498 (4371-4627)	37 572 (36 448-38 923)	9.4 (9.1-9.7)
West Virginia	27.8 (25.7-30.4)	1090 (1067-1113)	8104 (7780-8443)	5.8 (5.6-5.9)
Wisconsin	25.8 (23.5-28.3)	3622 (3536-3713)	28 413 (27 559-29 316)	7.6 (7.4-7.8)
Wyoming	26.1 (23.7-28.8)	375 (366-384)	2720 (2618-2815)	3.4 (3.3-3.4)

[a] Rate per 100 000 individuals younger than 20 years.

[b] Per 1000 prevalent cases among individuals younger than 18 years.

the highest ratio at 46.4 (95% CI, 44.8-48.4). Excluding DC, where pediatric endocrinologists are concentrated, these findings indicate the number of pediatric endocrinologists in some states was 6 to 8 times higher than in others. These relative differences are substantially higher than those for primary care physicians (2 times as high) and for specialist physicians of all types (2 to 4 times as high).[6]

Discussion

This cross-sectional study provides US state-level incidence and prevalence data for T1D and shows marked variation across the country. The results also demonstrate substantial inequity in the distribution of pediatric endocrinologists. Demand for pediatric endocrinologists (and multidisciplinary team members, such as diabetes educators and dietitians) will likely increase as T1D screening identifies more individuals at risk for T1D, new drug interventions are approved, and diabetes technologies advance. Therefore, steps should be taken to address this inequity and prevent it from widening.

Limitations included lack of data on population estimates by race and ethnicity and state before 1990, race and ethnicity–specific incidence before 2002 and after 2018, national and state-specific adult incidence, and state-specific T1D SMR data. The T1D Index model has more general limitations, including lack of input data for some periods (therefore requiring extrapolation), and the variable diagnosis methods used in adults.[2] Despite these limitations, this study supports the use of subnational estimates for informing the delivery of equitable care for people living with T1D and identifying geographic disparities that need to be addressed.

ARTICLE INFORMATION

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Author Contributions: Drs Wang and Ogle had full access to all of the data in the study and take responsibility for the integrity of the data and the accuracy of the data analysis.

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Acquisition, analysis, or interpretation of data: Wang, Haynes, Dabelea, Pihoker, Magliano, Pearson, Turner-Phifer, Ogle.

Drafting of the manuscript: Wang, Ogle.

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Supervision: Haynes, Dabelea, Magliano, Pearson, Ogle.

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REFERENCES

1. Tuomilehto J, Ogle GD, Lund-Blix NA, Stene LC. Update on worldwide trends in occurrence of childhood type 1 diabetes in 2020. *Pediatr Endocrinol Rev*. 2020;17(suppl 1):198-209.

2. Ogle GD, Wang F, Haynes A, et al. Global type 1 diabetes prevalence, incidence, and mortality estimates 2025: results from the International Diabetes Federation Atlas, 11th Edition, and the T1D Index Version 3.0. *Diabetes Res Clin Pract*. 2025;225:112277. doi:10.1016/j.diabres.2025.112277

3. Wagenknecht LE, Lawrence JM, Isom S, et al; SEARCH for Diabetes in Youth study. Trends in incidence of youth-onset type 1 and type 2 diabetes in the USA, 2002-18: results from the population-based SEARCH for Diabetes in Youth study. *Lancet Diabetes Endocrinol*. 2023;11(4):242-250. doi:10.1016/S2213-8587(23)00025-6

4. Aye T, Boney CM, Orr CJ, Leonard MB, Leslie LK, Allen DB. Child health needs and the pediatric endocrinology workforce: 2020-2040. *Pediatrics*. 2024;153(suppl 2):e2023063678J. doi:10.1542/peds.2023-063678J

5. American Board of Pediatrics. Pediatric subspecialty U.S. state and county maps. 2025. Accessed September 2, 2025. https://www.abp.org/dashboards/pediatric-subspecialty-us-state-and-county-maps

6. KFF. Professionally active physicians. 2025. Accessed September 2, 2025. https://www.kff.org/state-health-policy-data/state-indicator/total-active-physicians/

SUPPLEMENT 1.

eMethods.
eReferences

SUPPLEMENT 2.

Data Sharing Statement