

Childhood Speech Delay Rates Have Not Fallen After Post-Pandemic Surge

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Key Findings:

- Speech delay diagnoses among toddlers increased between Q1 2018 and Q4 2021 and remained steady at 16-17% in 2023 and 2024.

We previously reported that the rate of childhood speech delays increased significantly between 2018 and 2023 compared to the 2018 average and had been on an upward trajectory since the beginning of the COVID-19 pandemic.¹ We wanted to understand how that trajectory has trended since that publication: whether rates have continued to rise, have plateaued, or have fallen. We anticipated that the rates would have fallen because children who have turned two in recent years were not exposed to the social and behavioral changes during the height of the pandemic.

We studied 1,343,835 children who turned two between Q1 2018 and Q3 2024. Similar to our prior study, we found that the rate increased most sharply between 2020 and 2021, as seen in Figure 1. Rates continued to rise slowly into 2022 and have remained relatively stable since then.

Speech Delay Diagnosis Rate by Age Two

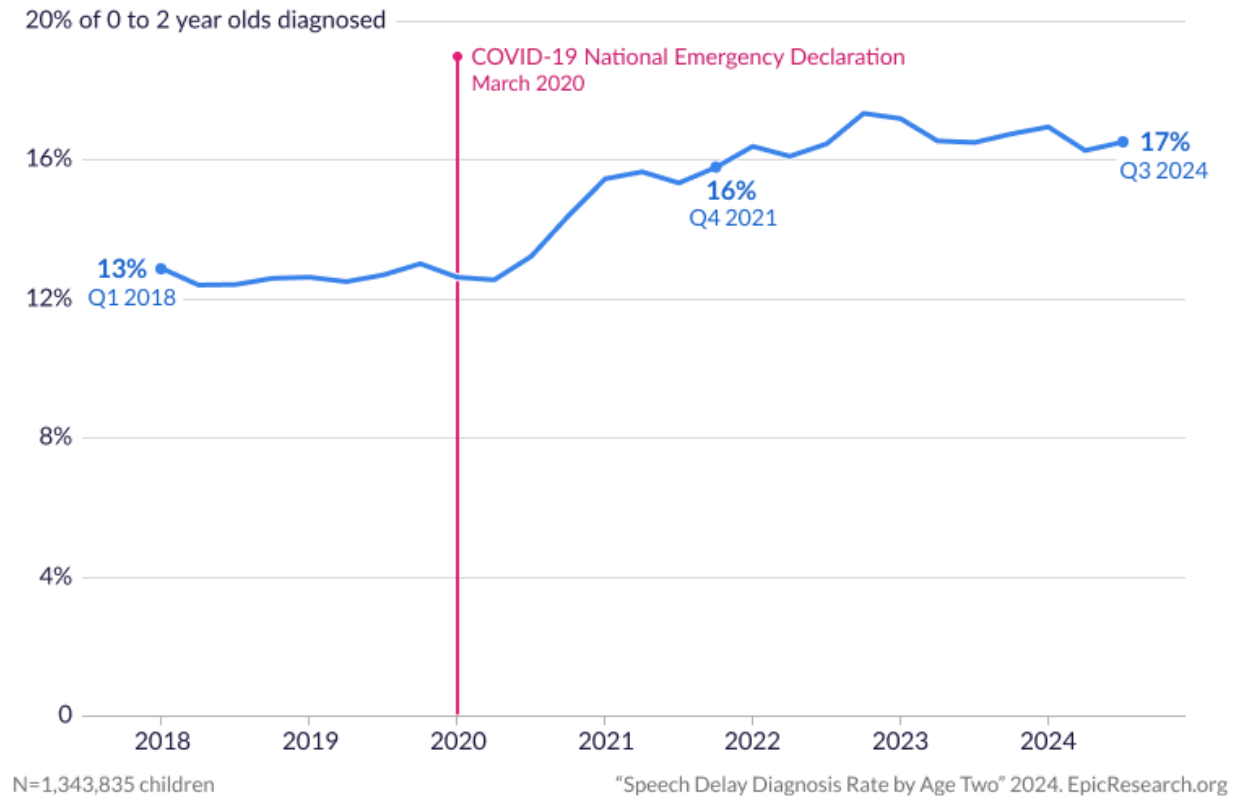


Figure 1. The rate of speech delay diagnoses by age two by quarter.

The plateau in rates was observed across all populations studied, including those living in rural and urban areas, males and females, all races, and all Social Vulnerability Index quartiles. In this study, we modified our methods to reduce selection bias, which resulted in a higher pre-pandemic rate than previously reported.

These data come from Cosmos, a dataset created in collaboration with a community of Epic health systems representing more than 289 million patient records from 1,600 hospitals and more than 37,000 clinics from all 50 states, Lebanon, and Saudi Arabia. This study was completed by two teams that worked independently, each composed of a clinician and research scientists. The two teams came to similar conclusions. Graphics by Brian Olson.

References

1. Bartelt K, Gracianette M, Deckert J, Franklin B, Little D, Barkley E. Childhood Speech Development Delays Increasing Since the Start of the Pandemic. Epic Research. <https://epicresearch.org/articles/childhood-speech-development-delays-increasing-since-the-start-of-the-pandemic>. Accessed on December 3, 2024.

Data Definitions

Term	Definition
Study period	Q1 2018 and Q3 2024
Study population	<p>Patients who had a well child visit between 23 and 27 months of age* that falls in the study period with three or more prior face-to-face encounters.</p> <p>Exclusions:</p> <ul style="list-style-type: none"> Patients with a diagnosis of pervasive developmental delays or hearing loss <p>*The previous version of this study required a visit between 2 and 6 years old instead of a 2-year-old well child visit.</p>
Well child visit	<p>Encounter with one of the following:</p> <ul style="list-style-type: none"> CPT code 99391-99393 or 99381-99383 ICD-10-CM code Z00.1* Encounter type of "well child"
Face-to-face encounter	<p>Encounters of the following types: "Allied Health," "Ancillary Procedure," "Anticoagulation Visit," "Audiology," "Case Management," "Clinical Support," "Confidential," "Consult," "Diagnostic Services," "Education," "Emergency," "Evaluation," "Fetal Care Consult," "Fetal Procedure," "Follow-up," "Genetics," "Home Care Visit," "Hospice F2F Visit," "Hospital," "Hospital Encounter," "Immunization," "Induction," "Infusion," "Initial Prenatal," "Injection," "Lactation Consult," "Lactation Encounter," "Multidisciplinary Visit," "NST," "Nurse Only," "Nursing Home," "Nutrition," "Office Visit," "Oncology Survivorship," "Ophth Exam," "Occupational/Physical Therapy," "Postpartum Visit," "Procedural Consult," "Procedure Visit," "Radiology Appointment," "REI," "Research Encounter," "Routine Prenatal," "Sleep Study," "Social Work," "Speech Therapy," "Surgery," "Surgical Consult," "Telemedicine," "Transplant Evaluation," "Transplant Follow Up," "Treatment," "Urgent Care," "Walk-in," or "Well Child."</p>
Pervasive developmental delays	A diagnosis with ICD-10-CM code F84*
Hearing loss	A diagnosis with ICD-10-CM code F80.4*, H90*, H91*, P09.6, Z46.1, or Z01.110
Speech delays	A diagnosis with ICD-10-CM code F80* (except F80.4*)

Table 1: Speech Delay Diagnosis Rate by Age Two

Patient Turned 2 In Quarter	Speech Delay By 27 Months	Total Patients	Speech Delay Rate
1/1/2018	1,839	14,274	13%
4/1/2018	3,929	31,662	12%
7/1/2018	5,538	44,588	12%
10/1/2018	5,834	46,300	13%
1/1/2019	6,290	49,811	13%
4/1/2019	6,546	52,355	13%

7/1/2019	7,164	56,405	13%
10/1/2019	6,748	51,842	13%
1/1/2020	5,212	41,272	13%
4/1/2020	5,542	44,139	13%
7/1/2020	7,074	53,462	13%
10/1/2020	7,156	49,723	14%
1/1/2021	7,703	49,804	15%
4/1/2021	8,241	52,591	16%
7/1/2021	8,660	56,432	15%
10/1/2021	8,077	51,115	16%
1/1/2022	8,365	50,996	16%
4/1/2022	8,319	51,614	16%
7/1/2022	9,065	55,003	16%
10/1/2022	8,720	50,250	17%
1/1/2023	8,758	50,912	17%
4/1/2023	9,200	55,544	17%
7/1/2023	9,864	59,730	17%
10/1/2023	9,296	55,456	17%
1/1/2024	9,261	54,574	17%
4/1/2024	8,890	54,586	16%
7/1/2024	8,859	53,609	17%