Asthma Counted at School Falls from Age 6 to 17, but 0.601 of the Fall Is Concentrated at the Two Transitions from Elementary to Junior High School (Ages 11→12) and from Junior High to High School (Ages 14→15) — Following the Same Birth Cohorts, the Two School-Change Years Fell All 17 Times (by 0.645 and 0.741 Points on Average), While Single Years Within the Same School Rose in Some Years and Fell in Others [M099]

Fall from age 6 to 17 = steps in school-change years + movement within the same school ── What separates them is whether the child got a year older or changed schools

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Abstract

Using the by-age tables of the Ministry of Education's School Health Statistics Survey (18 school years from 2008 to 2025, "asthma" prevalence at ages 5–17), this paper looked at how asthma counted at school falls with age, both lined up within the same school year (cross-section) and following the same birth cohort one year at a time (followed). No new mathematical theorem and no new law are claimed.

First, prevalence is the estimated share of children with "asthma" recorded on their school health examination record. **In all 18 school years, age 17 is lower than age 6, and age 17 ÷ age 6 is 0.3866–0.5952** (Section 4).

Second, this is the core of the paper. **Averaging the change per year of age over 18 school years, ages 11→12 are −0.590 and ages 14→15 are −0.700 points, nearly an order of magnitude larger than the other 9 single years (−0.139 to −0.031). Of the total fall from 6 to 17, −2.148, these two transitions**

account for −1.290 (0.601). Looking school year by school year, the two largest falls were at 11→12 and 14→15 in 17 of the 18 years (Section 5).

Third, **following the same birth cohorts one year at a time, ages 11→12 fell by −0.645 and ages 14→15 by −0.741 points on average, and they fell all 17 times. The 9 single years within the same school averaged −0.183 to −0.045, and each rose in some years and fell in others.** Of the followed total fall of −2.555, the two transitions account for −1.386 (0.542) (Section 5).

Fourth, **following the 7 cohorts that were age 6 in 2008–2014 up to age 17, age 17 ÷ age 6 is 0.3166–0.4109, smaller in all 7 than the cross-section in the year each cohort turned 17 (0.4199–0.5952).** This is because the value at age 6 itself fell, from 4.17–4.81% in 2008–2014 to 2.94–3.71% in 2019–2025; the followed fall also includes change across school years (Section 6).

Fifth, the standard errors for "asthma" given in the notes are 0.05–0.11 by school type. The average steps in school-change years, 0.590 and 0.700, are far larger (Section 3).

Sixth, what separates them is **whether the child got a year older or changed schools**. "Children's asthma decreases as they grow," in numbers counted at school, does not fall smoothly one year at a time but falls in steps in the two years when school changes. Whether the steps are a change in the children or in how each school keeps records cannot be separated with these tables.

Scope note: **This paper claims no new mathematical theorem and no new law** — prevalence by age is in public tables, and this paper only computed changes per year of age both cross-sectionally and following cohorts, averaged them, and rearranged the same birth cohorts. **This paper is a structural interpretation of the shape of numbers in public aggregate data; it is not medical advice, not a diagnosis, and not a treatment recommendation. The author is not a physician. Decisions about individual health should be discussed with a physician or a medical institution. This is a preprint that has not been peer reviewed. Mindful that children with asthma and their families may read it, this paper states first that its numbers are national estimates for children, not any one child's outlook. It does not touch treatment, medicine, or causes, and does not discuss the effect of air pollution or other environmental factors. It does not evaluate schools, regions, or medical care.** Prevalence is the estimated share of children with the condition recorded on their health examination record; it does not follow individual onset or improvement. Whether the steps in school-change years are a change in the children or in the records cannot be separated with these tables. Each school year's values are estimates from a separate sample; "followed" does not follow the same children but links estimates for the same birth cohort across school years. The standard errors in the notes are by school type; standard errors by age are not in the tables. Sex and city size are not separated. **About the data**: the School Health Statistics Survey (Ministry of Education, Culture, Sports, Science and Technology) was taken from e-Stat and used under the Government of Japan Standard Terms of Use (Version 2.0); the changes per year of age, averages, rearranged birth cohorts, and ratios in this paper were processed from it. What this paper adds: **splitting the fall with age in asthma counted at school into changes per year of age, and showing with 18 school years of cross-sections and 17 followed transitions that 0.601 of it (0.542 followed) is concentrated in the two school-change years**.

1. Notation and question

The numbers here are national estimates for children. They do not represent any one child's outlook or the result of treatment.

- **Prevalence**: the estimated share (%) of children with "asthma" recorded on their health examination record.
- **Change per year of age (cross-section)**: within the same school year, the value at age a+1 − the value at age a.
- **Change per year of age (followed)**: the change from the value at age a in year y to the value at age a+1 in year y+1, i.e., the same birth cohort one year later.
- **School-change years**: ages 11→12 (elementary to junior high school) and 14→15 (junior high to high school).

Question: Does asthma counted at school fall smoothly with age, or does it fall in steps in the years when school changes?

Observation 1.1: M043 used the trend by school type in the same School Health Statistics Survey to show that asthma counted at school rose from 1990, and that the number of children who die of it moved separately. This paper looks within each school type, one year of age at a time.

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2. Preview and design

Written honestly: the design was decided after looking at the tables.

	Content
Tables	School Health Statistics Survey, national tables "disease and abnormality prevalence by age, city size, and type of establishment" for 2008–2025 (18 school years), and annual statistics Table 6 (trend by school type)
Noticed in the preview	In the 2025 age sequence, the falls at 11→12 and 14→15 looked larger than at other single years
Noticed in the preview (2)	In tables up to 2020, the "asthma" column is in the lower half of the first sheet, with the heading characters split by spaces and line breaks. Ages are written in full-width digits, sometimes in separate cells
Noticed in the preview (3)	The table notes give standard errors for "asthma" by school type
Comparison	Age shape by school year, average change per year of age (cross-section and followed), the part in the two school-change years, and 7 birth cohorts

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3. Data and checks

Calculation 3.1 The 19 retrieved files were fixed by SHA-256, and the following were checked.

- In all 18 school years, the table title is "disease and abnormality prevalence by age, city size, and type of establishment," and the first sheet is "1 total (1) total." The "asthma" column is found and the 13 ages from 5 to 17 can be read. All values are greater than 0 and less than 10.
- To catch column misreading, it was confirmed for all 18 years × 3 school types that the total by school type in annual statistics Table 6 (trend) lies between the minimum and maximum of that school's age values (e.g., 2025 elementary total 3.22, ages 6–11 2.89–3.52).
- In all 18 years, the notes give standard errors for "asthma" by school type. For elementary, junior high, and high school they are 0.05–0.11 (e.g., 2008: elementary 0.09, junior high 0.09, high school 0.07; 2025: 0.08, 0.07, 0.05).

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4. Age shape

Calculation 4.1 Asthma prevalence (%)

School year	Age 6	Age 11	Age 12	Age 14	Age 15	Age 17
2008	4.21	3.59	3.23	2.86	1.94	1.73
2013	4.39	3.75	3.38	3.01	1.99	1.84
2019	3.58	3.22	2.59	2.65	1.84	1.73
2025	3.52	2.89	2.32	1.94	1.55	1.54

Observation 4.2: **In all 18 school years, age 17 is lower than age 6, and age 17 ÷ age 6 is 0.3866–0.5952.** In the four years in the table, the falls from 11 to 12 and from 14 to 15 are larger than between neighbors within the same school.

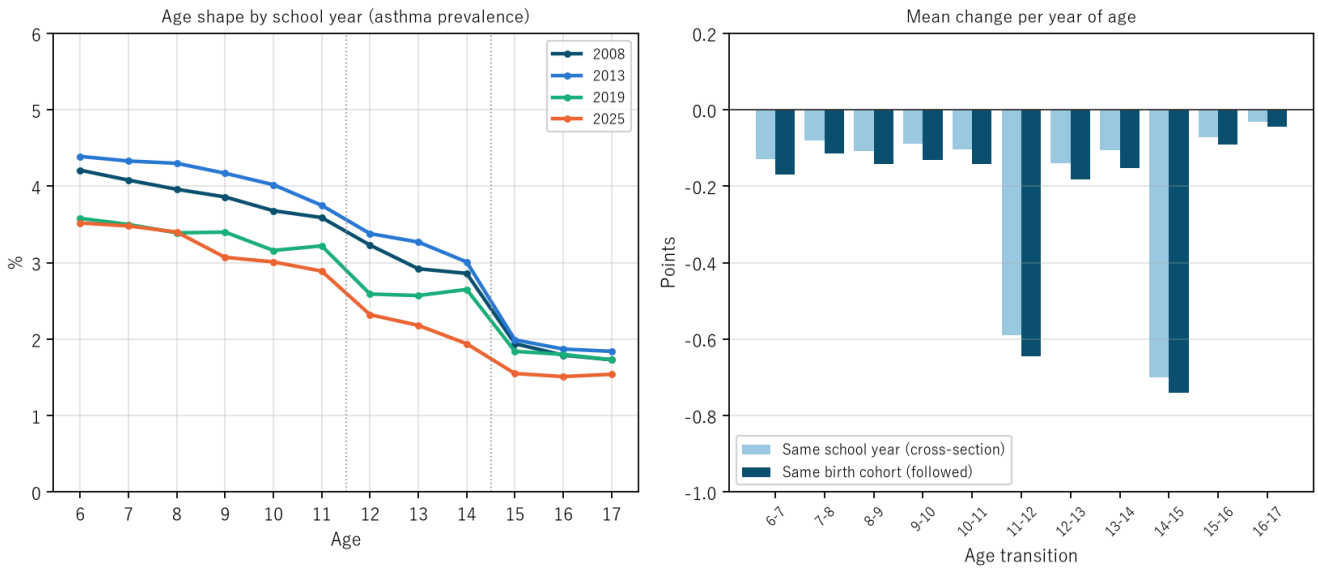


Figure 1: Left, age shape by school year (dotted lines are school-change years). Right, average change per year of age; light blue is the cross-section within the same school year, navy is the same birth cohort followed.

5. The core — change per year of age

Calculation 5.1 Change per year of age (points)

Age	Cross-section average (18 years)	Followed average (17 times)	Followed smallest to largest
6→7	−0.128	−0.169	−0.50 to +0.17
7→8	−0.081	−0.114	−0.46 to +0.46
8→9	−0.108	−0.142	−0.51 to +0.07
9→10	−0.089	−0.131	−0.51 to +0.22
10→11	−0.103	−0.143	−0.50 to +0.27
11→12	−0.590	−0.645	−1.00 to −0.27
12→13	−0.139	−0.183	−0.52 to +0.17
13→14	−0.106	−0.152	−0.40 to +0.12
14→15	−0.700	−0.741	−0.94 to −0.28
15→16	−0.072	−0.091	−0.35 to +0.08
16→17	−0.031	−0.045	−0.22 to +0.11

Observation 5.2: **Both cross-sectionally and followed, the two largest average falls are at 11→12 and 14→15. Of the total fall from 6 to 17 (cross-section −2.148, followed −2.555), these two account for −1.290 (0.601) cross-sectionally and −1.386 (0.542) followed, more than half in both. Followed, these two years fell all 17 times. The 9 single years within the same school average −0.139 to −0.031 cross-sectionally and −0.183 to −0.045 followed, and each has both rises and falls.** Looking school year by school year, the two largest falls were at 11→12 and 14→15 in 17 of the 18 years.

6. Following the same birth cohort from age 6 to 17

Calculation 6.1 7 cohorts (%)

Birth (school year)	Age 6	Age 12	Age 15	Age 17	17 ÷ 6 (followed)	Cross-section that year
2002	4.21	3.21	1.96	1.73	0.4109	0.4832
2003	4.32	3.20	1.76	1.73	0.4005	0.4663
2004	4.71	3.02	1.84	1.70	0.3609	0.5120
2005	4.81	2.82	1.76	1.75	0.3638	0.5952
2006	4.43	2.78	1.67	1.59	0.3589	0.5129
2007	4.39	2.59	1.66	1.39	0.3166	0.4199
2008	4.17	2.67	1.51	1.54	0.3693	0.4375

Birth is the school year at age 6 − 6. "Cross-section that year" is age 17 ÷ age 6 in the year the cohort turned 17 (2019–2025).

Observation 6.2: **In all 7 cohorts, the followed age 17 ÷ age 6 (0.3166–0.4109) is smaller than the cross-section in the year the cohort turned 17 (0.4199–0.5952).** This is because the value at age 6 fell from 4.17–4.81% in the cohorts' first years (2008–2014) to 2.94–3.71% in the years they turned 17 (2019–2025); the followed fall includes change across school years in addition to the part due to age.

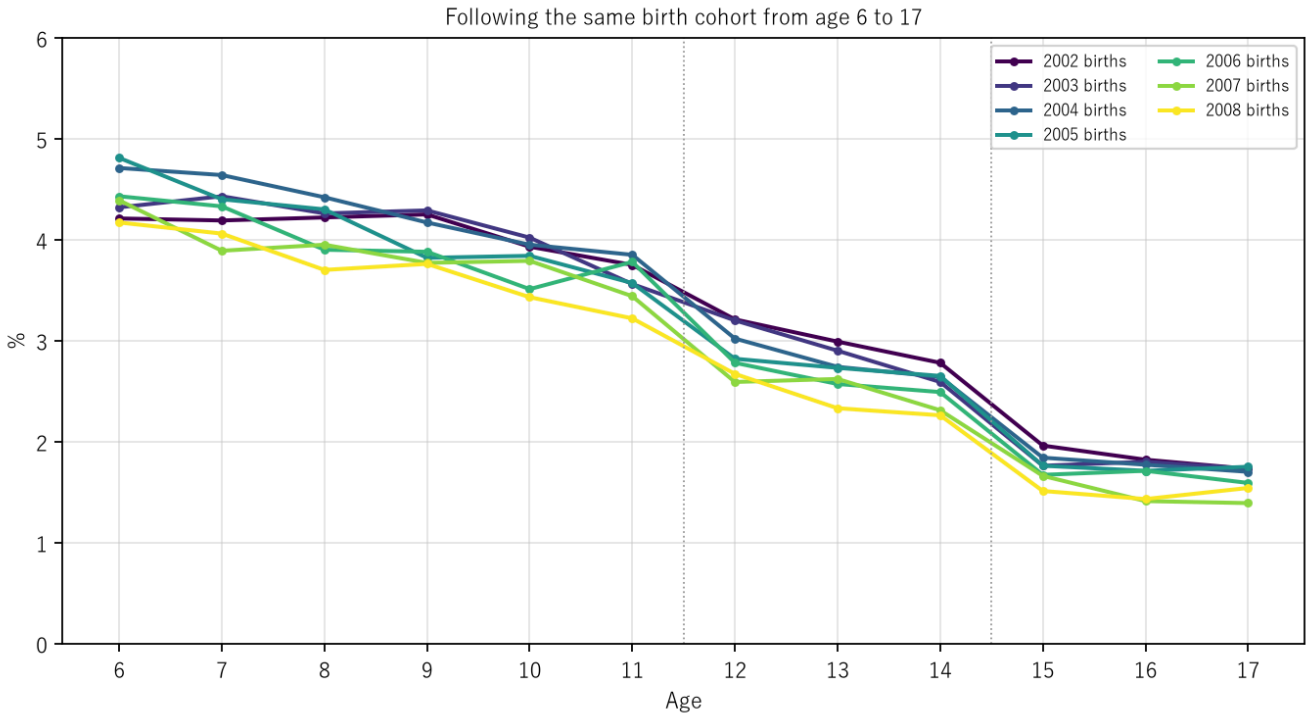


Figure 2: Prevalence at ages 6–17 for the 7 cohorts that were age 6 in 2008–2014. Dotted lines are school-change years.

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7. Limitations

1. **The numbers in this paper are national estimates for children and are not any one child's outlook.** Treatment, medicine, causes, and environmental effects are not touched.
2. **Whether the steps in school-change years are a change in the children or in the records cannot be separated with these tables.** Prevalence is the estimated share with the condition recorded on the health examination record, not a count that follows onset or improvement.
3. "Followed" does not follow the same children; it links estimates from separate samples in each school year by birth cohort.
4. The standard errors in the notes are by school type; standard errors by age are not in the tables.
5. Sex, city size, and type of establishment are not separated. Schools, regions, and medical care are not evaluated.

Conclusion

Asthma counted at school falls from age 6 to 17, but 0.601 of the fall (0.542 followed) was concentrated at the two transitions from elementary to junior high school (ages 11→12) and from junior high to high school (ages 14→15). Following the same birth cohorts, these two years fell all 17 times, while single years within the same school rose in some years and fell in others.

What separates them is one thing — whether the child got a year older or changed schools.

When you hear that "children's asthma decreases as they grow," **check together whether the number was counted at school, and whether the fall is smooth year by year or a step in school-change years.**

Data and reproduction

Data	School Health Statistics Survey, 2008–2025 national tables "disease and abnormality prevalence by age, city size, and type of establishment," and annual statistics Table 6 (Ministry of Education, Culture, Sports, Science and Technology, e-Stat) (retrieved 26 September 2026)
Terms of use	e-Stat follows the Government of Japan Standard Terms of Use (Version 2.0). The changes per year of age, averages, rearranged birth cohorts, and ratios in this paper were processed from it and are not numbers produced by the government
Coverage	Japan, both sexes, ages 5–17, 18 school years from 2008 to 2025; birth cohorts are the 7 that were age 6 in 2008–2014
Verification	`検算/M099.py` (`--zu` also draws the figures). Every number in the text is taken from `検算/M099_output.txt`
Raw data	`data/` holds the retrieved files and `SOURCES.md` (URLs, retrieval date, SHA-256, terms of use, definitions and how the calculations were set up)
Figures	`図/M099_zu1`, `図/M099_zu2` (png, svg, English versions)

References

- Ministry of Education, Culture, Sports, Science and Technology. School Health Statistics Survey, FY2008–FY2025, national tables, disease and abnormality prevalence by age, city size, and type of establishment; annual statistics Table 6, trend in disease and abnormality prevalence by school type (in Japanese). e-Stat (accessed 26 September 2026). https://www.e-stat.go.jp/
- Yamagishi, Y. (2026). Asthma Counted at School Rose 2.35–3.91-Fold from 1990 to 2014–2024, While the Asthma Death Rate at Ages 5–19 Fell to 0.019 Times over the Same Span — The Number of Children with Asthma and the Number Who Die of It Moved Separately [M043]. Zenodo. https://doi.org/10.5281/zenodo.22974442