PREVALENCE: MILD AND UNILATERAL HEARING LOSS IN SCHOOL-AGE CHILDREN

REFERENCE	DESIGN	RECRUITMENT	CASE DEFINITION	SUBJECTS	PREVALENCE	OTHER FINDINGS
Axelsson A, Aniansson G, Costa O: Hearing loss in school children. A longitudinal study of sensorineural hearing impairment. Scand Audiol. 1987; 16:137–43.	Retrospective, longitudinal.	School children screened for hearing loss in grades 1, 4, and 7, born 1968–1970. If failed any screening, 2nd test given 6 weeks later.	≥20 dB* HL* at one or more frequencies (.5, 1, 2, 4, 6, 8 kHz*).	Total: N = 2,325 With hearing loss: 7 years: N = 297 10 years: N = 325 13 years: N = 288	Percentages are representative of the total number of children tested (2,325). *Bilateral and Unilateral (overall):* 7 years: 12.8% 10 years: 14% 13 years: 12.4%	75% passed hearing test. Most losses slight. Boys had worse hearing with dips at 8 kHz and worsening hearing with age.

* dB = decibel; HL = hearing level; kHz = kilohertz

PREVALENCE: MILD AND UNILATERAL HEARING LOSS IN SCHOOL-AGE CHILDREN

REFERENCE	DESIGN	RECRUITMENT	CASE DEFINITION	SUBJECTS	PREVALENCE	OTHER FINDINGS
Lee D, Gomez-Marin O, Lee H: Prevalence of unilateral hearing loss in children: the National Health and Nutrition Examination Survey II and the Hispanic Health and Nutrition Examination Survey. Ear Hear. 1998; 19: 329–332.	National population-based cross-sectional survey (United States)	Multi-stage sampling design from the Hispanic Health and Nutrition Examination Survey (HHANES) 1982–1984 and the National Health and Nutrition Examination Survey II (NHANES II) 1976–1980	PTA* = .5, 1, 2 kHz*. ≤15 dB* in better ear and >30 dB HL* in poorer ear Moderate–profound = >50 dB in poorer ear.	Age: 6–19 years Total: N = 7888 African American: N = 688 Cuban American: N = 330 Mexican American: N = 2602 Puerto Rican: N = 1025 Hispanic White: N = 3243	Prevalence estimates are nationally representative of children aged 6–19 years of age. *Unilateral only:* *>30dB HL:* African American: 11.8% (0.1–23.4) Cuban American: 12.3% (0.0–26.2) Mexican American: 6.4% (1.6–11.3) Puerto Rican: 6.9% (0.0–14.6) Hispanic White: 7.9% (5.1–10.7) *Moderate–Profound:* African-American: 1.5% (0.0–4.6) Cuban American: 0.0% (0.0–0.0) Mexican American: 2.0% (0.4–3.7) Puerto Rican: 5.2% (0.0–12.8) Hispanic White: 1.7% (0.1–3.2)	2 prevalence rates obtained: Overall and sex + age adjusted, but these were not different. *Author comments:* Limitations are small sample size, no bone conduction test, parents of children with history of hearing loss might be more likely to take their children for testing, so might be an overestimate.

* PTA = pure tone average; kHz = kilohertz; dB = decibel; HL = hearing level;

PREVALENCE: MILD AND UNILATERAL HEARING LOSS IN SCHOOL-AGE CHILDREN

REFERENCE	DESIGN	RECRUITMENT	CASE DEFINITION	SUBJECTS	PREVALENCE	OTHER FINDINGS
Lundeen C: Prevalence of hearing impairment among school children. Lang Speech Hear Ser. 1991; 22: 269–271.	National Speech and Hearing Survey 1968–1969 school year.	Teams of trained evaluators tested the speech and hearing of children in grades 1–12 at 100 school districts in the United States.	PTA* >25 dB* .5, 1, 2, 3, 4 kHz*.	Grades 1–12; actual ages not reported. Total N = 38,568.	Prevalence estimates are nationally representative of children in grades 1–12. *Bilateral and Unilateral (overall):* 2.63% in one or both ears. Sharp decrease at 2nd grade with gradual decrease to 7th grade, then stable. *Bilateral only:* Overall .73% in better ear. Ranged from 1.8% in 1st grade to .22% in 9th grade. *Unilateral only:* Overall 1.9%. Rates declined from 3.71% in 1st grade to 1.33% in 12th grade.	N/A

* PTA = pure tone average; dB = decibel; kHz = kilohertz

PREVALENCE: MILD AND UNILATERAL HEARING LOSS IN SCHOOL-AGE CHILDREN

REFERENCE	DESIGN	RECRUITMENT	CASE DEFINITION	SUBJECTS	PREVALENCE	OTHER FINDINGS
Niskar A, Kiezak S, Holmes A, Esteban E, Rubin C, Brody D: Prevalence of hearing loss among children 6 to 19 years of age. JAMA. 1998; 279: 1071–1075.	National population -based cross-sectional survey.	Stratified multi-stage probability design from the Third National Health and Nutrition Examination Survey, 1988–1994, United States. Mobile examination center and household interview.	Tested air conduction .5, 1, 2, 3, 4, 6 kHz* ≥16 dB* HL*. *Slight:* PTA* 16–25 dB HL. *Mild+:* PTA ≥26dB HL. *LFHL*:* PTA .5, 1, 2 kHz. *HFHL*:* PTA 3, 4, 6 kHz.	6–19 years Total N = 6166	Prevalence estimates are nationally representative of children 6–19 years of age. *Bilateral and Unilateral (overall):* 14.9% LFHL: 7.1% Slight: 5.7% Mild–Moderate: 1.4% Profound: 0.3% HFHL: 12.7% Slight: 10.5% Mild–Moderate: 2.6% Profound: 0.4% Both LFHL and HFHL: 4.9% *Bilateral only:* 4.6 % LFHL: 1.5% HFHL: 3.1% *Unilateral only:* LFHL: 5.6% HFHL: 9.6%	Results reported by demo-graphics and by better and worse ear. Results correlated with possible etiologies (e.g. ear infection, exposure to loud noise).

* kHz = kilohertz; dB = decibel; HL = hearing level; PTA = pure tone average; LFHL = low frequency hearing loss; HFHL = high frequency hearing loss

PREVALENCE: MILD AND UNILATERAL HEARING LOSS IN SCHOOL-AGE CHILDREN

REFERENCE	DESIGN	RECRUITMENT	CASE DEFINITION	SUBJECTS	PREVALENCE	OTHER FINDINGS
Niskar AS, Kieszak SM, Holmes AE, Esteban E, Rubin C, Brody DJ: Estimated prevalence of noise-induced hearing threshold shifts among children 6 to 19 years of age: the Third National Health and Nutrition Examination Survey, 1988–1994, United States. Pediatrics. 2001; 108: 40–3.	National population-based cross-sectional survey.	Stratified multi-stage probability design from the Third National Health and Nutrition Examination Survey, 1988–1994, United States. Mobile examination center and household interview.	NITS* = 3 criteria met for at least 1 ear: (1) Threshold at .5 and 1 kHz* ≤15 dB*, (2) Maximum threshold at 3, 4, or 6 kHz at least 15 dB higher than highest threshold for .5 and 1 kHz, (3) Threshold at 8 kHz at least 10 dB lower than maximum threshold for 3, 4, or 6 kHz. *Slight:* 16–25dB HL*. *Mild:* 26–40dB HL. *Moderate–Profound:* ≥40dB HL.	6–19 years. Total N = 5249 With NITS: N = 597	Prevalence estimates are nationally representative of children 6–19 years of age. *Overall NITS in 1 or both ears:* 12.5% 6–11 years: 8.5% 12–19 years: 15.5% Male: 14.8% Female: 10.1% *Bilateral only:* Of 597 children with NITS: Bilateral: 14.6% Of those with bilateral NITS: Slight: 57.1% Mild: 19.8% Moderate–profound: 4.9%	Results reported by demographics. Age and sex most significant differences.

* NITS = noise induced threshold shift; kHz = kilohertz; dB = decibel; HL = hearing level

PREVALENCE: MILD AND UNILATERAL HEARING LOSS IN SCHOOL-AGE CHILDREN

REFERENCE	DESIGN	RECRUITMENT	CASE DEFINITION	SUBJECTS	PREVALENCE	OTHER FINDINGS
Rytzner B, Rytzner C: Schoolchildren and noise. The 4 kHz dip-tone screening in 14,391 schoolchildren. Scand Audiol. 1981; 10(4): 213–6.	Pure tone screening performed on schoolchildren at 3 age levels: 7, 10, and 13 years in grades 1, 4, and 7.	Screenings done in context of ordinary school hearing conservation program.	4 kHz dip >20 dB.	1, 10, 13 years. Total N = 14,391 With 4 kHz dip: N = 331	Percentages are representative of the total number of children tested. *Bilateral and Unilateral (overall):* 2.3% (N = 331) *Bilateral only:* 0.7% (N = 109) *Unilateral only:* 1.6% (N = 230)	N/A

PREVALENCE: MILD AND UNILATERAL HEARING LOSS IN SCHOOL-AGE CHILDREN

REFERENCE	DESIGN	RECRUITMENT	CASE DEFINITION	SUBJECTS	PREVALENCE	OTHER FINDINGS
Sorri M, Rantakallio P: Prevalence of hearing loss at the age of 15 in a birth cohort of 12,000 children from northern Finland. Scand Audiol. 1985; 14(4): 203–7.	Questionnaire administered to 11,780 children born in northern Finland (birth cohort from 1966). Audiometry screening results obtained from schools.	Cohort of 12,000 children born in 1966 followed from pregnancy to present through health care system; medical and social factors followed.	Air conduction thresholds measured at .25, .5, 1, 2, 3, 4, 6, and 8 kHz*. PTA*: .5, 1, 2 kHz. *Normal:* ≤20 dB* *Slightly abnormal:* >20 dB at some frequency, but not belonging to group (2) or (3). *Minor hearing loss:* >25 dB at 4 kHz but PTA ≤25 dB in better ear. *Marked impairment:* PTA >25 dB in better ear.	Mean age at examination: 15 years. Only 25 children <11 years. Total: N = 11,748 With hearing loss: N = 1708 Random Sample without hearing loss: N = 959	Percentages are representative of the total number of children tested (11,780). *Bilateral and unilateral (overall):* 14.5% had some degree of hearing loss (predominantly one loss at one frequency in one ear). Slightly abnormal: 10.4% Minor hearing loss: 3.6% Marked impairment: 0.5%	Sex differences found with more hearing loss found in boys than girls.

* kHz = kilohertz; PTA = pure tone average; dB = decibel