Healthy People 2001–2020: Tracking Age-Related Measures of Hearing Health in the New Millennium

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HEARING LOSS AND HEALTHY AGING:
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“Unlike most government initiatives in health, the Healthy People initiative of the U.S. federal government was crafted and sustained not as a federal initiative, but as a ‘national initiative’ eliciting participation from nongovernmental national organizations, state health agencies, professional associations, multiple agencies of the U.S. Department of Health and Human Services, and other federal agencies, such as Agriculture, and increasingly engaging academia and state and local stakeholders in adapting the objectives for their own efforts to enact and evaluate state and local policies and programs.”

“The quantified objectives at the center of the initiative were a product of continuous balancing of changing science and political or social concerns and priorities along with national and state or special population needs.”

Genesis of U.S. Healthy People Initiative

1973 – Laframboise, *Can Med J* - conceptual framework and Lalonde report introducing “the new public health” or “the third epidemiological revolution”

1979 – WHO announces virtual eradication of smallpox

1979 – *Surgeon General’s Report on Healthy People (HP)* and IOM Report provide rationale for redirecting health policy towards prevention and health promotion.

First plan (drafted in June 1979 for HP 1990) included
- 5 objectives in health promotion
- 5 in health protection and
- 5 in preventive health services

1982 – Ed Brandt, Ass’t Sec Health, mandates the Public Health Service prepare FY 1983 budget requests using Healthy People objectives as justification, thus institutionalizing this procedure for future administrative cycles

Healthy People 2020 Topics Areas (n=42)

A
Access to Health Services
Adolescent Health\textsuperscript{New}
Arthritis, Osteoporosis, and Chronic Back Conditions

B
Blood Disorders & Blood Safety\textsuperscript{New}

C
Cancer
Chronic Kidney Disease

D
Dementias, Including Alzheimer's Disease\textsuperscript{New}
Diabetes
Disability and Health

E
Early and Middle Childhood\textsuperscript{New}
Educational and Community-Based Programs
Environmental Health

F
Family Planning
Food Safety

G
Genomics\textsuperscript{New}
Global Health\textsuperscript{New}

H
Health Communication and Health Information Technology
Healthcare-Associated Infections\textsuperscript{New}
Health-Related Quality of Life & Well-Being\textsuperscript{New}
\textbf{Hearing and Other Sensory or Communication Disorders}
Heart Disease and Stroke
HIV

I
Immunization and Infectious Diseases
Injury and Violence Prevention

L
Lesbian, Gay, Bisexual, and Transgender Health\textsuperscript{New}

M
Maternal, Infant, and Child Health
Medical Product Safety
Mental Health and Mental Disorders

N
Nutrition and Weight Status

O
Occupational Safety and Health
Older Adults\textsuperscript{New}
Oral Health

P
Physical Activity
Preparedness\textsuperscript{New}
Public Health Infrastructure

R
Respiratory Diseases

S
Sexually Transmitted Diseases
Sleep Health\textsuperscript{New}
Social Determinants of Health\textsuperscript{New}
Substance Abuse

T
Tobacco Use

V
Vision

Visit website:
<table>
<thead>
<tr>
<th>Agency/Department</th>
<th>Name and Title</th>
</tr>
</thead>
</table>
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NHIS hearing supplements or periodic modules

1990–91 Hearing Supplements

1999 Hearing Module – 9 questions; adult sample

2002 Hearing Module – 6 questions; adult & child

2007 Hearing Module – 54 questions; adult sample

2014 Hearing Module – adult & child samples (in the field now)

NIDCD, NIH co-funded/collaborated with NCHS, CDC on each of the above (except 1999 NHIS).
Question: *What was the MAIN cause of your hearing loss or deafness?*

<table>
<thead>
<tr>
<th>Cause</th>
<th>Percent</th>
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<tbody>
<tr>
<td>Present at birth (genetic, rubella, etc.)</td>
<td>3.1</td>
</tr>
<tr>
<td>Ear infections/other infections</td>
<td>8.8</td>
</tr>
<tr>
<td>Ear injury or surgery</td>
<td>3.1</td>
</tr>
<tr>
<td>Brief, loud sound</td>
<td>10.3</td>
</tr>
<tr>
<td>Noise exposure</td>
<td>25.3</td>
</tr>
<tr>
<td>Age/aging</td>
<td>29.9</td>
</tr>
<tr>
<td>Some other cause</td>
<td>10.7</td>
</tr>
<tr>
<td>Don’t know cause</td>
<td>8.8</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
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*Source: 2002 NHIS Hearing Module (adults 18+ years); analysis by NIDCD Epidemiology & Statistics Program, 2004.*
• NHANES III, 1988–1994
  – Children, 6–19 years (n ≈ 5,300)
• NHANES, 1999–2004
  – Adults, 20–69 years (n ≈ 5,300)
  – Older Adults, 70–85+ years (n ≈ 1,700)
• NHANES, 2005–2010
  – Adolescents, 12–19 years (n ≈ 3,600)
• NHANES, 2011–2012
  – Adults, 20–69 years (n ≈ 4,000)

NIDCD, NIH funds and collaborates with NCHS, CDC & NIOSH, CDC on design and implementation of NHANES Hearing Protocols.
Hearing Health Information derived from NHIS and NHANES

- National estimates and age-specific prevalence(s) of...
  - Hearing loss (impairment; “hard-of-hearing”)
  - Tinnitus (bothersome; duration, frequency, etc.)
  - Hearing exams (how recent?)
  - Use of hearing protection with noise exposure
  - Use of hearing aids (by degree of hearing loss)

- Co-morbidities with other illnesses/conditions
- Risk factors using RR or ORs, confidence intervals
Hearing and Other Sensory or Communication Disorders

Ear, Nose and Throat - Voice, Speech and Language (ENT-VSL)

- Newborn Hearing Screening
- Ear Infections (Otitis Media)
- **Hearing**
  - Tinnitus (Ringing in the Ears or Head)
  - Balance and Dizziness
  - Smell and Taste (Chemosenses)
- Voice, Speech, and Language
- Internet Health Care Resources for ENT-VSL
<table>
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<tr>
<th>Objective</th>
<th>Description</th>
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<tbody>
<tr>
<td>ENT-VSL-3</td>
<td>Increase the proportion of persons with hearing impairments who have ever used a hearing aid or assistive listening devices or who have cochlear implants.</td>
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</tbody>
</table>
| ENT-VSL-3.1 | Increase proportion of adults aged 20–69 years with hearing loss who have ever used a hearing aid.  
  - Baseline in 2007: 16.3%  
  - Target in 2020: 17.9% (10% improvement) |
| ENT-VSL-3.2 | Increase the proportion of persons (all ages) who are deaf or very hard of hearing and who have new cochlear implants.  
  - Baseline in 2004: 0.77%  
  - Target in 2020: 0.85% (10% improvement) |
| ENT-VSL-3.3 | Increase proportion of adults age 70 years and older with hearing loss who have ever used a hearing aid.  
  - Baseline in 2007: 28.9%  
  - Target in 2020: 31.8% (10% improvement) |
Hearing Objectives (selected) in Healthy People 2020 (cont’d)

ENT-VSL-4 Increase the proportion of persons who have had a hearing examination on schedule

ENT-VSL-4.1

- Increase proportion of adults aged 20–69 years who have had a hearing examination in the past 5 years
  ... Baseline in 2003–04: 28.6%
  ... Target in 2020: 31.5% (10% improvement)

- Increase proportion of adults age 70 years and older who have had a hearing examination in the past 5 years
  ... Baseline in 2003–04: 38.5%
  ... Target in 2020: 42.4% (10% improvement)
Hearing Examination in the Past 5 years
Among Adults, 2003-04

Adults 20-69 years

- Total
- Female
- Male
- 20-39 years
- 40-59 years
- 60-69 years

Adults 70+ years

- Total
- Female
- Male
- 70-79 years
- 80+ years

Note: I = 95% confidence interval. Data are for adults aged 20 years and over who have had a hearing exam within the past 5 years.

2010 Target: 35
2010 Target: 41

Obj. 28-14a, b
| Race and ethnicity* | Non-Hispanic black  
|                    | Non-Hispanic white  
|                    | Hispanic or Latino  
|                    | American Indian or Alaskan Native  
|                    | Asian  
|                    | Native Hawaiian and other Pacific Islander  
|                    | Two or more races  
| Education          | Less than high school  
|                    | High-school graduate  
|                    | At least some college  
| Income             | Poor  
|                    | Near poor  
|                    | Middle/high income  
| Gender             | Male  
| Gender             | Female  
| Geographic location | Urban or metropolitan  
| Geographic location | Rural or nonmetropolitan  
| Disability status  | Persons with disabilities  
| Disability status  | Persons without disabilities  

*These are the principal race/ethnicity groups outlined by the Office of Management and Budget. Ref: Sondik, et al., 2010.
Use of Hearing Aids by Adults with Hearing Loss

Note: Data are preliminary. Data are for adults aged 20+ years with hearing impairments (defined as pure-tone average of thresholds at 1, 2, 3, and 4 kHz > 35 dB HL in either ear) who have ever used a hearing aid. For adults 20-69 years old data are age adjusted to the 2000 standard population. Data sources: U.S. National Health and Nutrition Examination Survey (NHANES) and U.S. National Health Interview Survey (NHIS), CDC, NCHS. Slide courtesy Asel Ryskulova, NCHS; updated from HP Progress Review Meeting, 10/2008.
New Cochlear Implant (CI) Surgeries* Each Year

Healthy People 2010
Objective 28-11

Percent of infants with hearing screening during first year of life

a. Newborn hearing screening age <1 month
b. Audiological evaluation age <3 months
c. Enrolled in intervention services age <6 months

Data collected by the EHDI Program, NCBDDD, CDC.
Healthy People 2010/2020 provides national focus on goals for **Hearing Health & Other Communication Disorders**.

HP goals must be **national in scope, objective, quantifiable** and **ascertained periodically** across each decade.

HP tracking charts and tables provide a quick summary of progress for objectives showing **improvement (or not) over time** and by key demographic groups: race or ethnicity, education, income, gender, geography, and disability status.

Review of the HP 2010 Hearing objectives showed some made steady progress, e.g., **newborn hearing screening**, audiological evaluation, and treatment of infants born with hearing loss.

How useful will HP tracking goals be in monitoring and improving hearing outcomes for older adults? Tracking of hearing aid use shows **gradual improvement from 2001–2012** for adults aged 70+ years. Are there strategies that can accelerate this trend?
Healthy People References

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