

What do we need to know to organise health services for older people

- Prevalence and distribution of problems
 - demographics
 - risk factors
- Major research questions to ask about efficacy of interventions?
- Should we transform what we do?

What sort of choices for service provision

- Dedicated services
 - Hearing
 - Vision
 - Chiropody
 - Dental care
 - Hygiene
 - Mobility
 - Mental health
- Integrated services
 - Health<Physical, sensory, mental and social care>
 - a ‘friendly’ environment to promote good patient experience

Hearing disorders and visual impairment are known to

- have effects on activities of daily living
- and in general on the quality of life.
- They can lead to isolation, depression and lack of independence in the elderly.
- Falls and accidental injury are more frequent in those who have either visual or hearing impairment.

Good quality intervention is effective if

- Applied at an appropriate time.
- Take account of other problems / context
- However, typically, a person has been impaired for over a decade by the time they consult anyone about the problems
- that others may have experienced with them at home or at work over a long period of time.

Prevalence of permanent hearing impairment

- Children
 - rare
 - 1 in 850 moderate +
 - 1 in 3000 profound

- Adults
 - common

Reported prevalence % adults UK:
does a problem worry, annoy or upset you

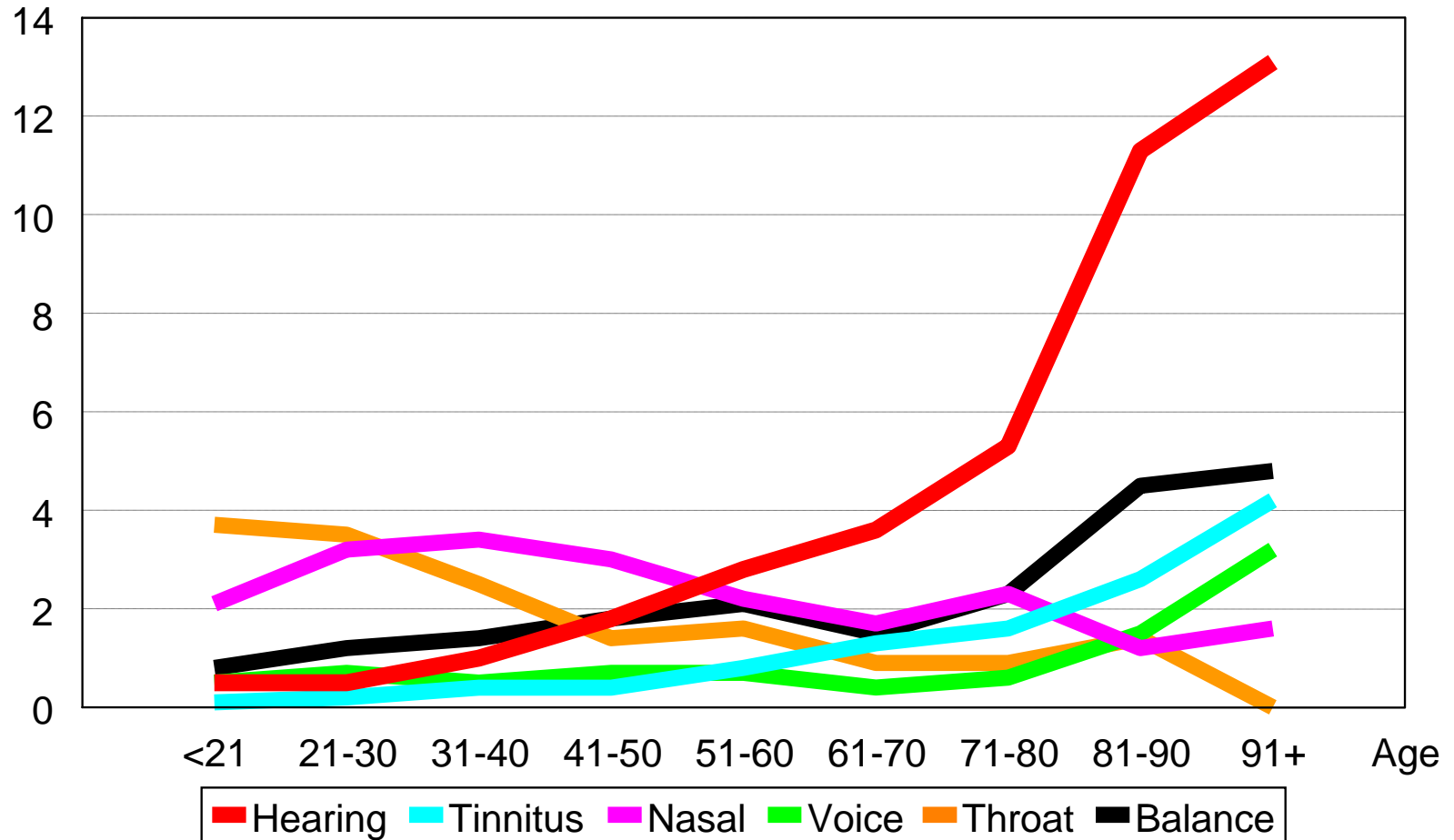
	Slight or worse	Moderate	See physician in last	Seen audiologist in last
Hearing				
Tinnitus				
Balance				12

Overall 32.8 have a reported problems of hearing, tinnitus or balance

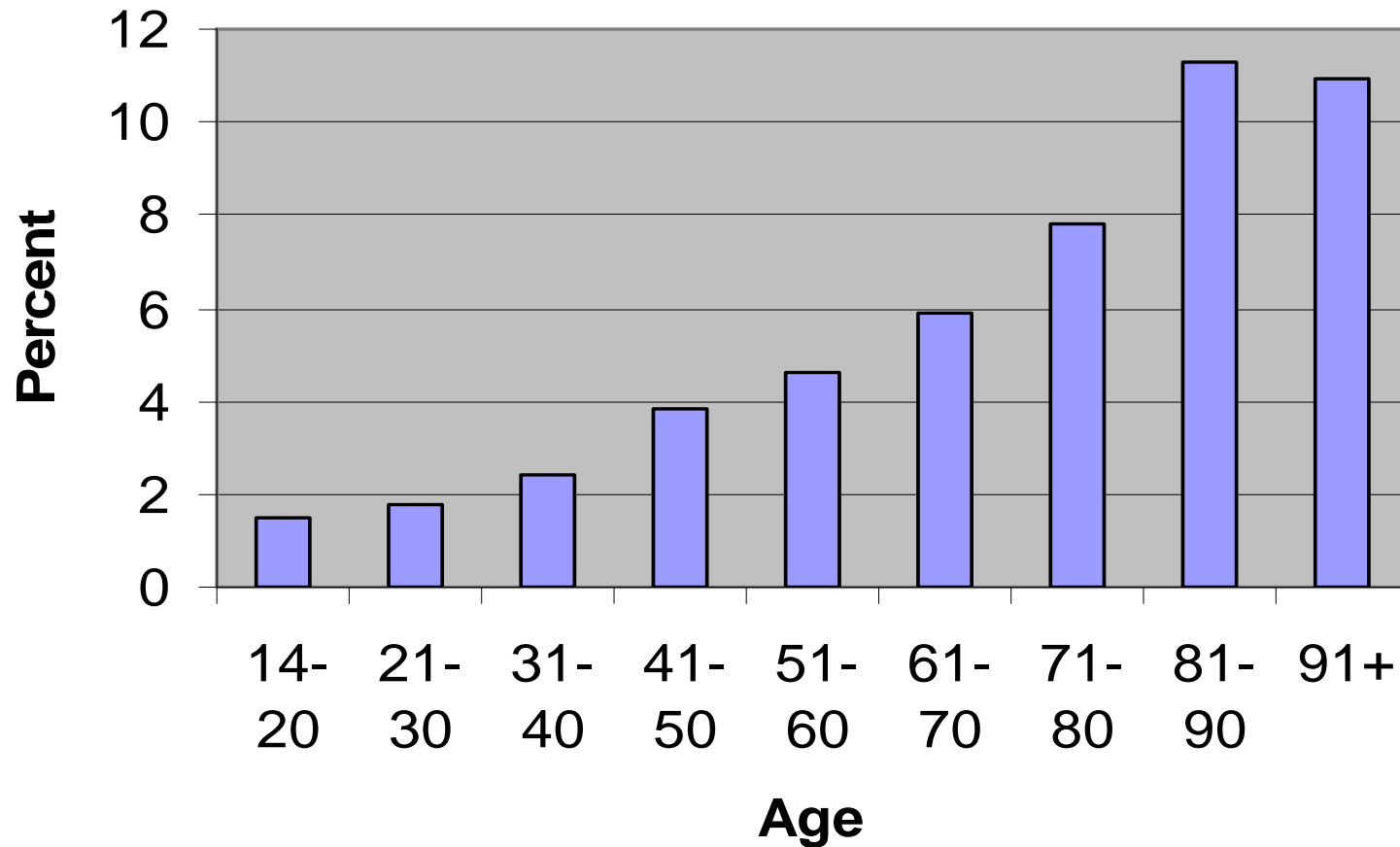
And 53% have an ENT symptom that worries, annoys or upsets them and 1.5% have 6

symptoms!

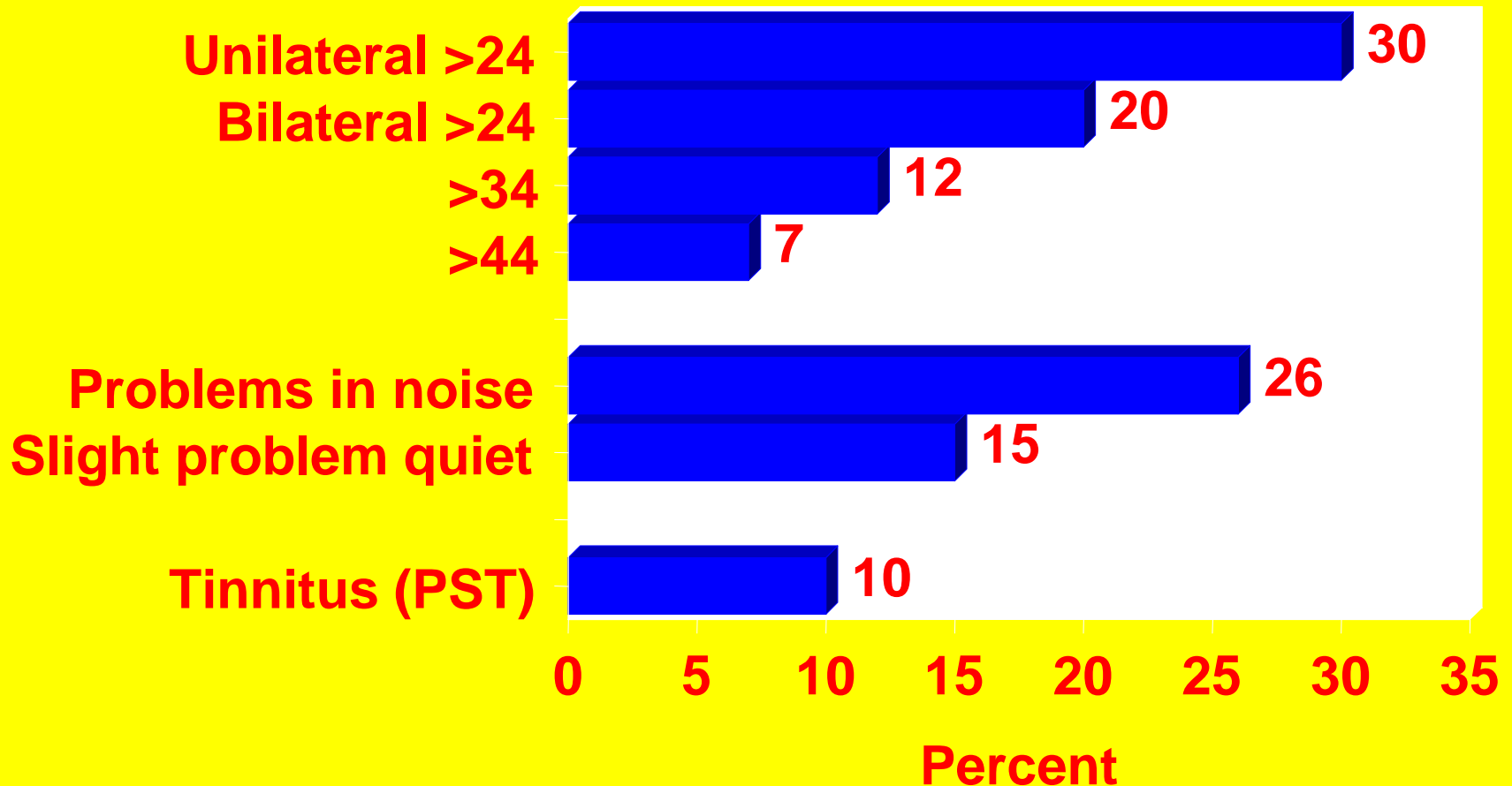
Prevalence of being severely annoyed, worried or upset in MRC National ENT symptom survey, 1998/9, n=34362



Prevalence of hearing, tinnitus and balance problem that affects life



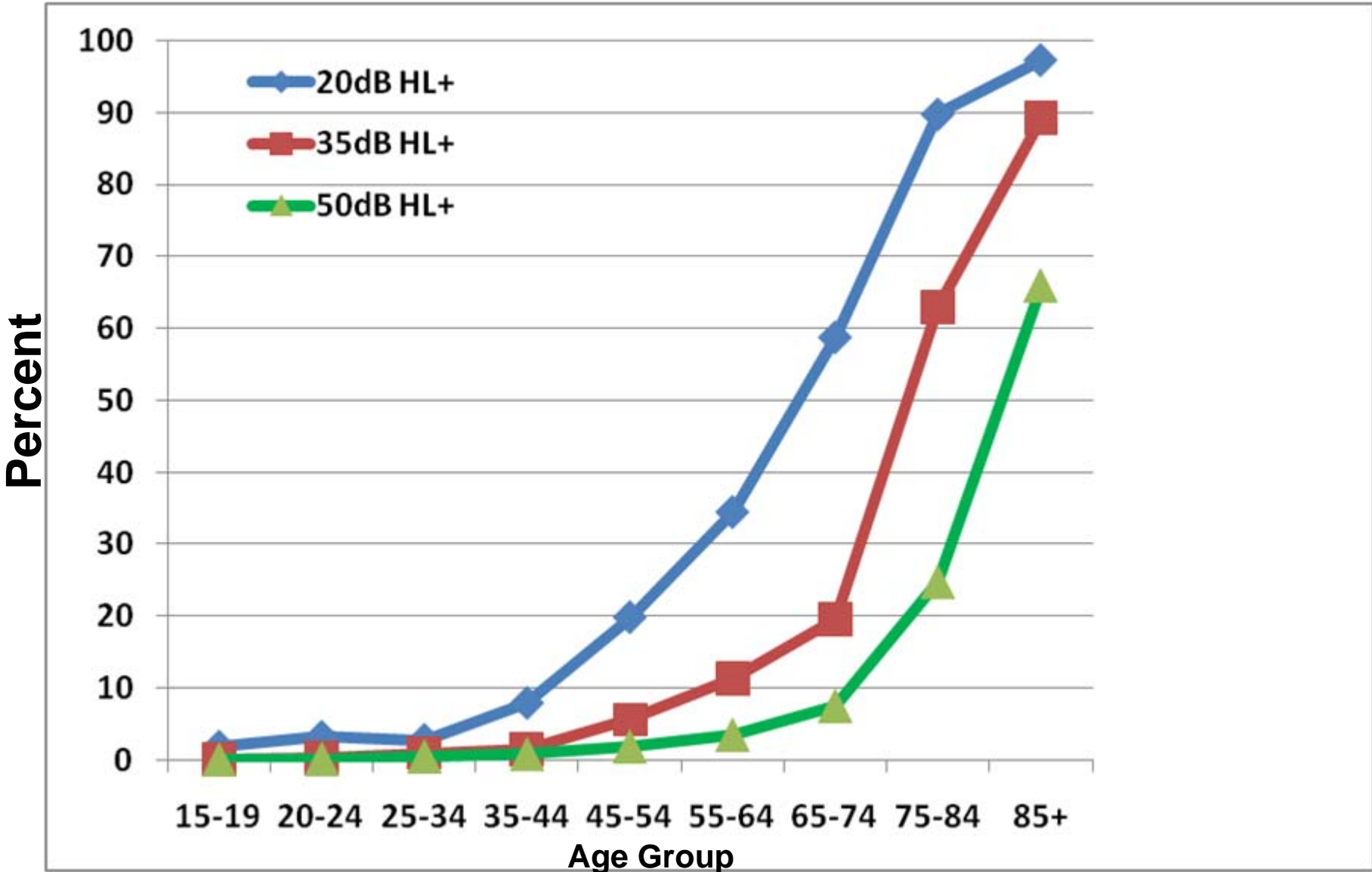
Overall prevalence of hearing impairment (better ear 0.5, 1, 2&4kHz) and reported limitations for age 18years+



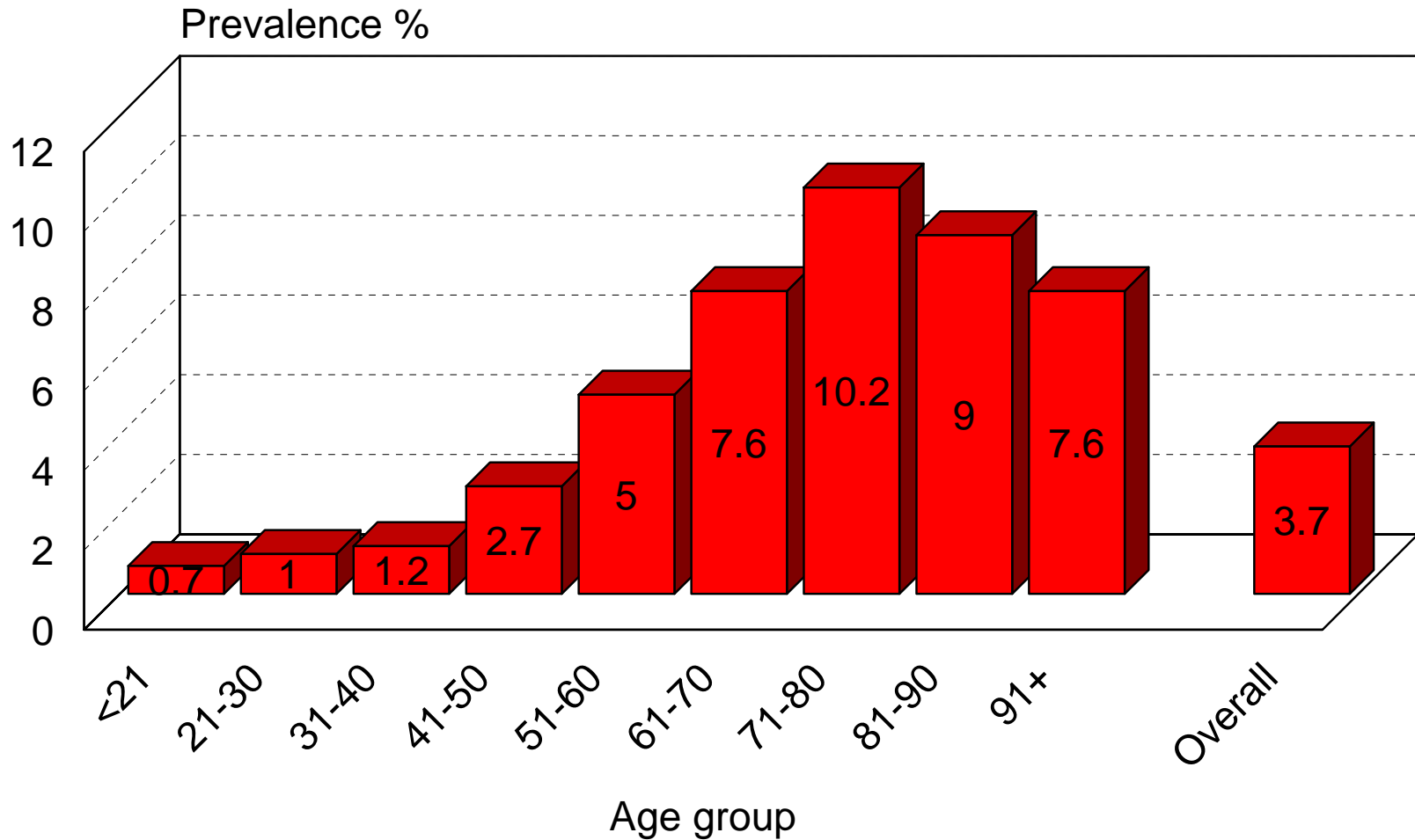
Implications of demographics over next 25 years

- Whole population growth only 5%
- BUT growth of hearing impairment 42%
- Presently only about 1/3 use hearing aids
 - Half of them maybe get little benefit
- To stand still need 42% more service
- BUT if increase target to meet 2/3 needs an increase of 300%

Prevalence of hearing impairment in the better ear (averaged over 0.5, 1, 2 and 4kHz) as a function of age group and severity (Davis, 1995)



Tinnitus that is present most or all of the time (1998;n~32863)

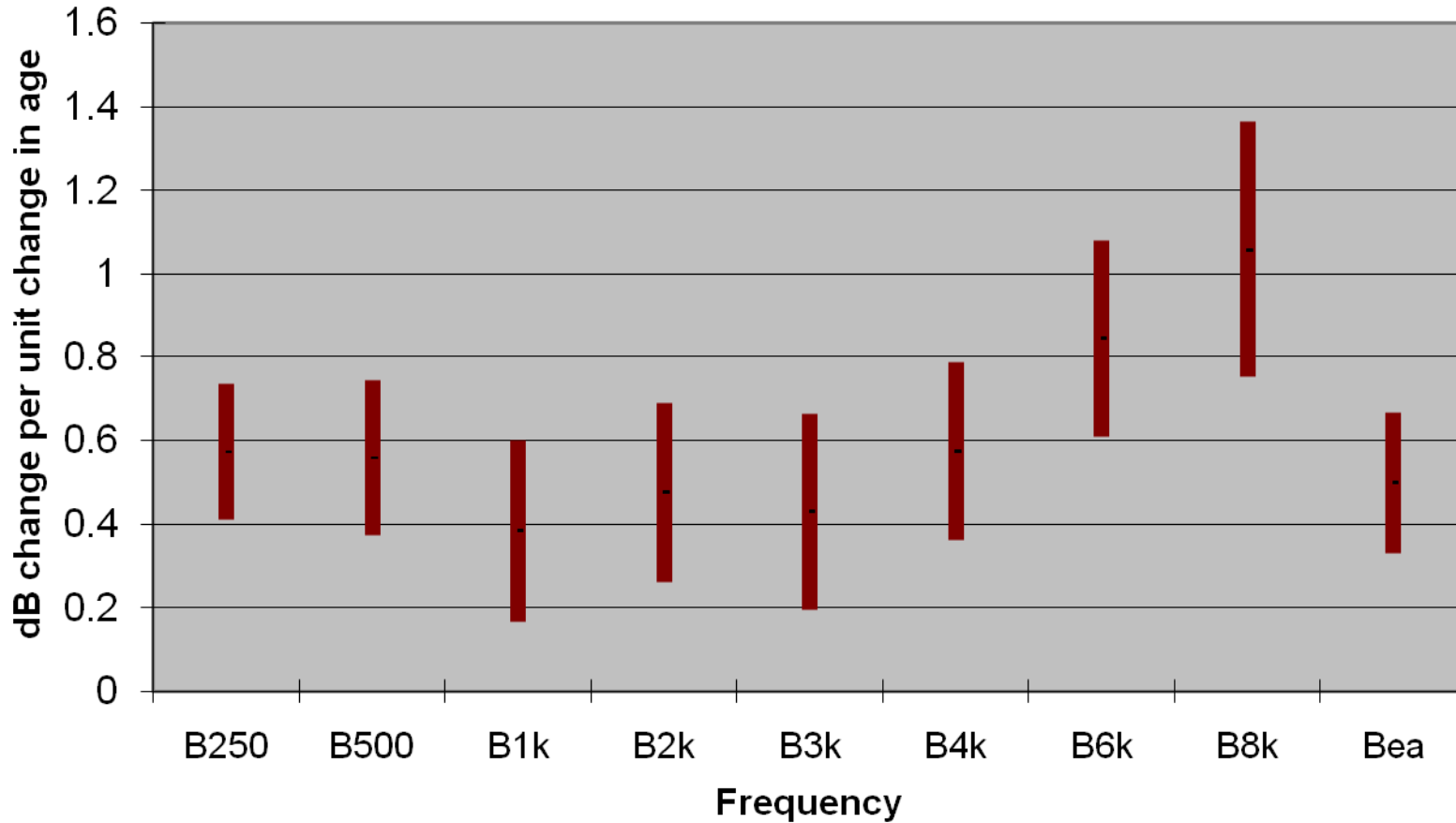


How does hearing change over time?

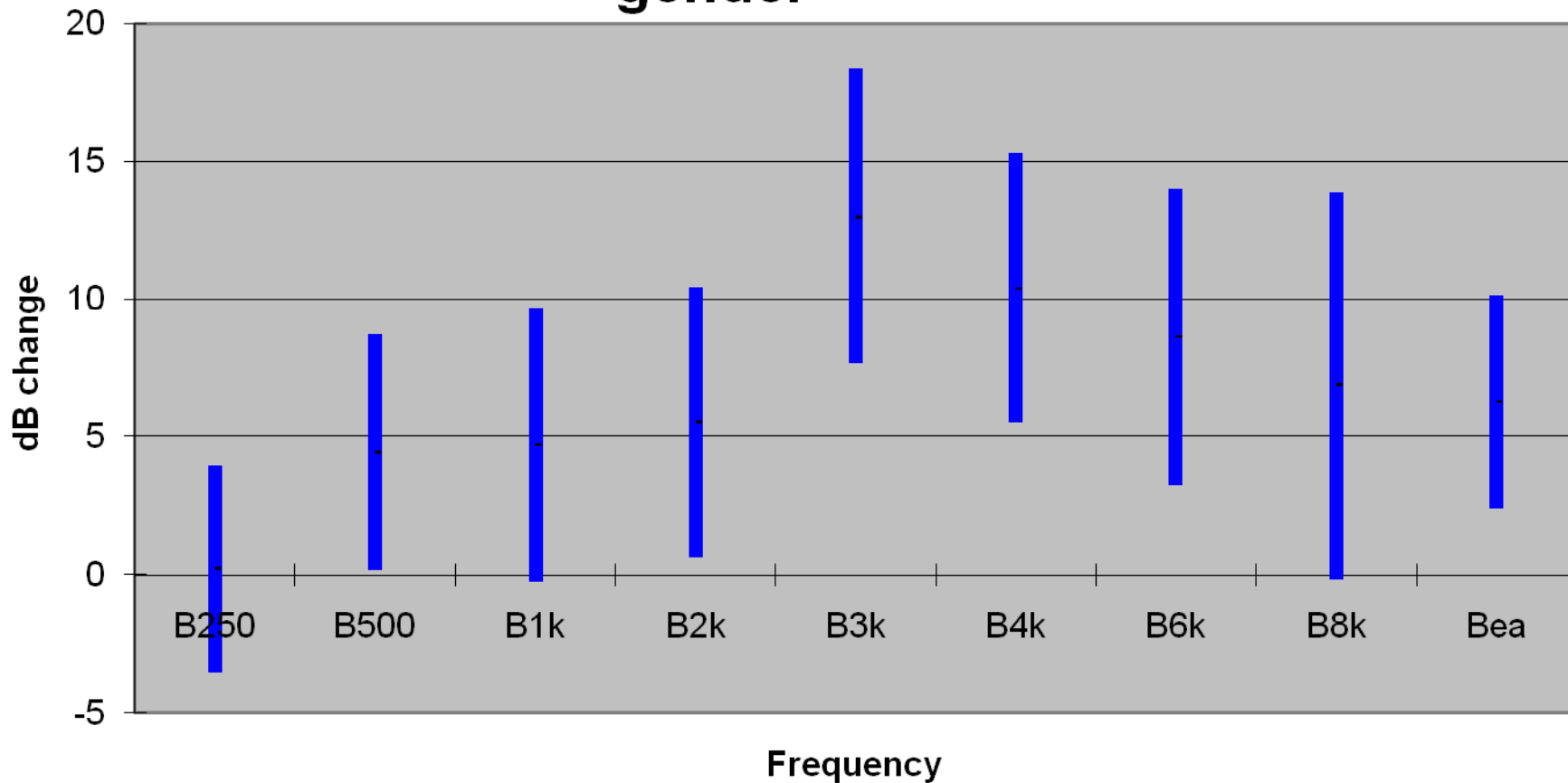
- Large changes in this sample
 - 7% / 9% have changes > 20 dB per decade at 4kHz
 - 1% / 6% have changes > 20 dB per decade at 0.5,1,2,4 kHz average in better / worse ear
- Mean change
 - 6 dB / decade (.5, 1,2, 4kHz) and
 - 9 dB / decade at 4kHz
 - Effects of age, gender and change in body mass index for change in hearing on better ear
- Small changes
 - 20-25% actually show no change or improve

These next two slides were hidden in presentation – just as well i guess, hence my surprise a the next slide in blue that popped up

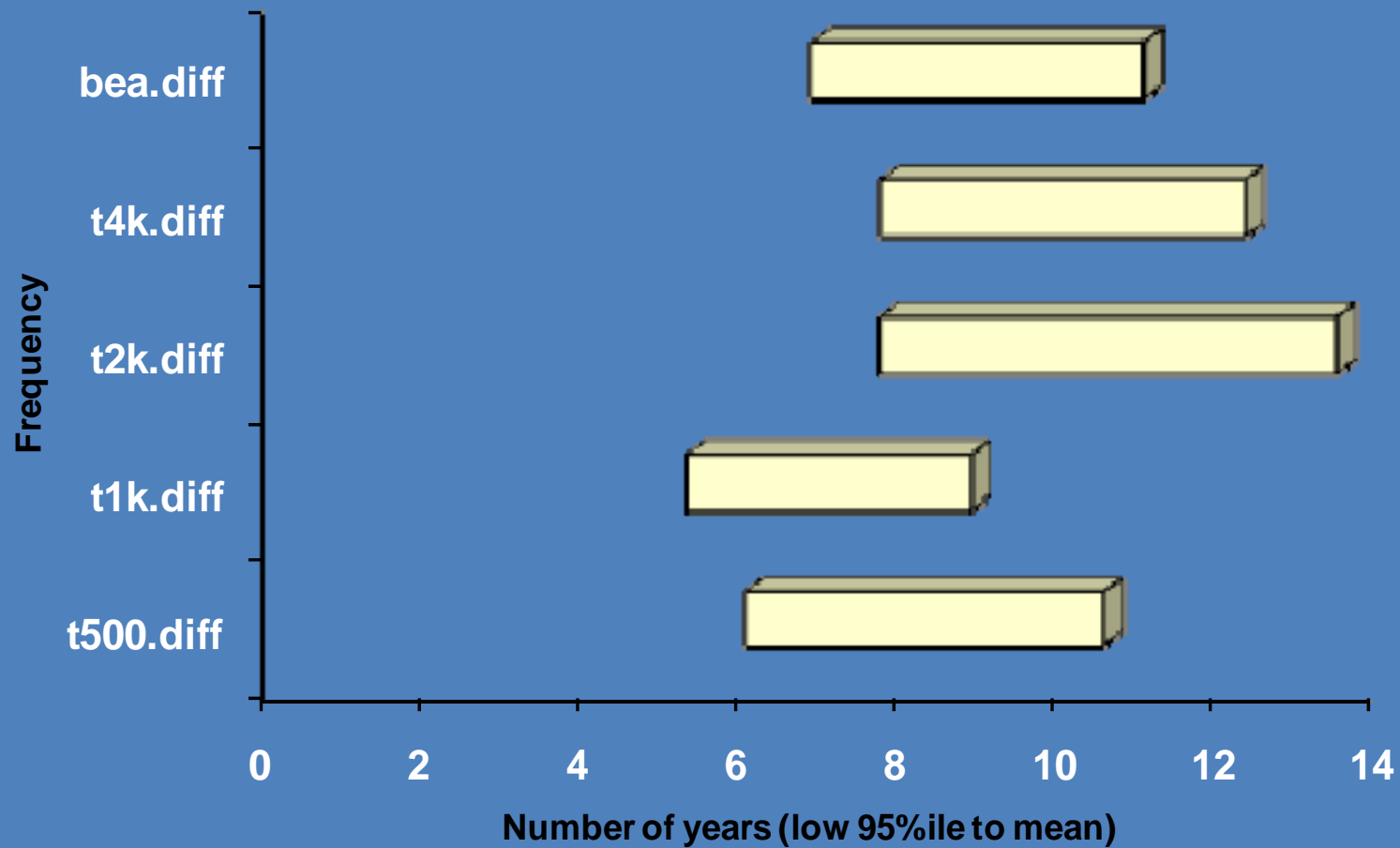
Change in hearing threshold, by frequency, over 20 years as function of age at start



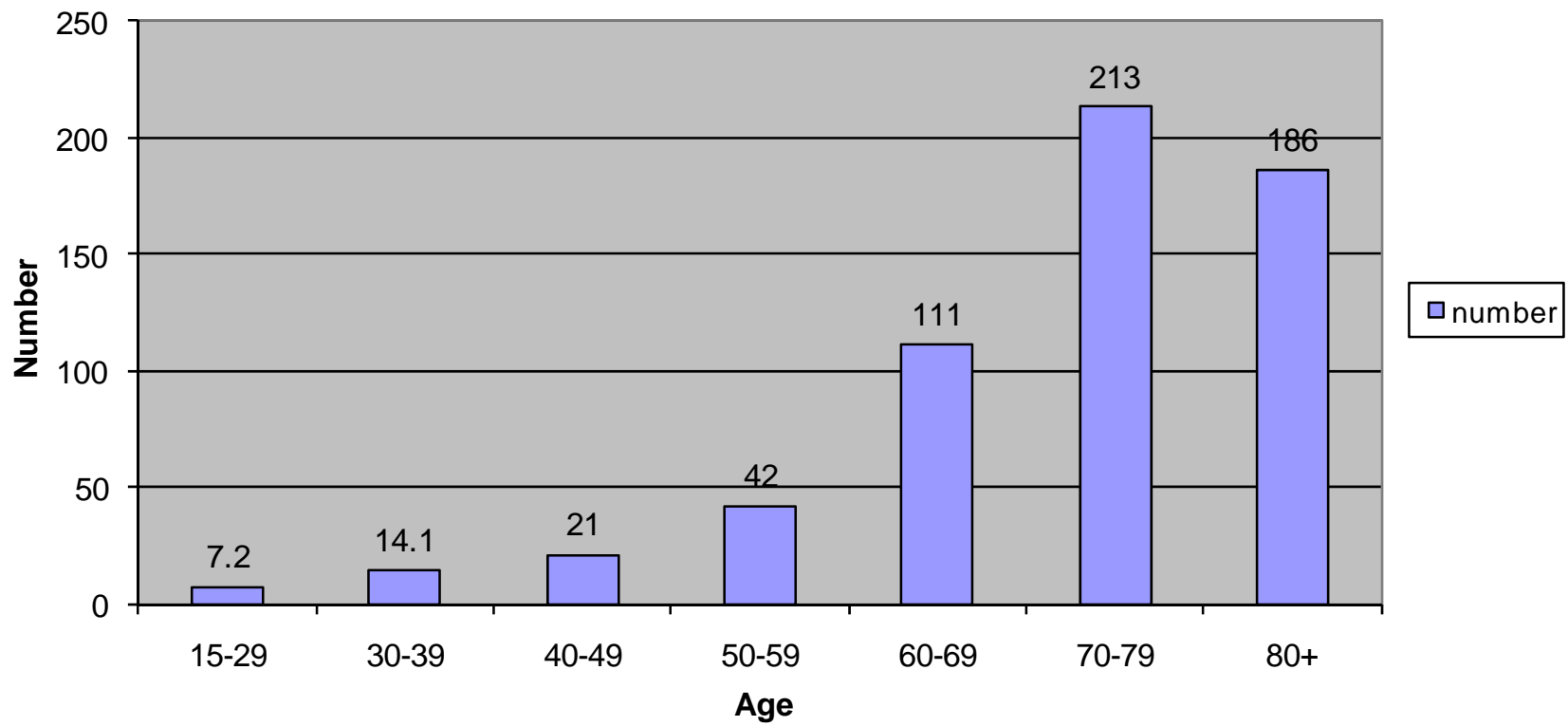
Change in hearing threshold, by frequency, over 20 years as function of gender



Years for hearing to change 10dB on average in existing hearing aid patients

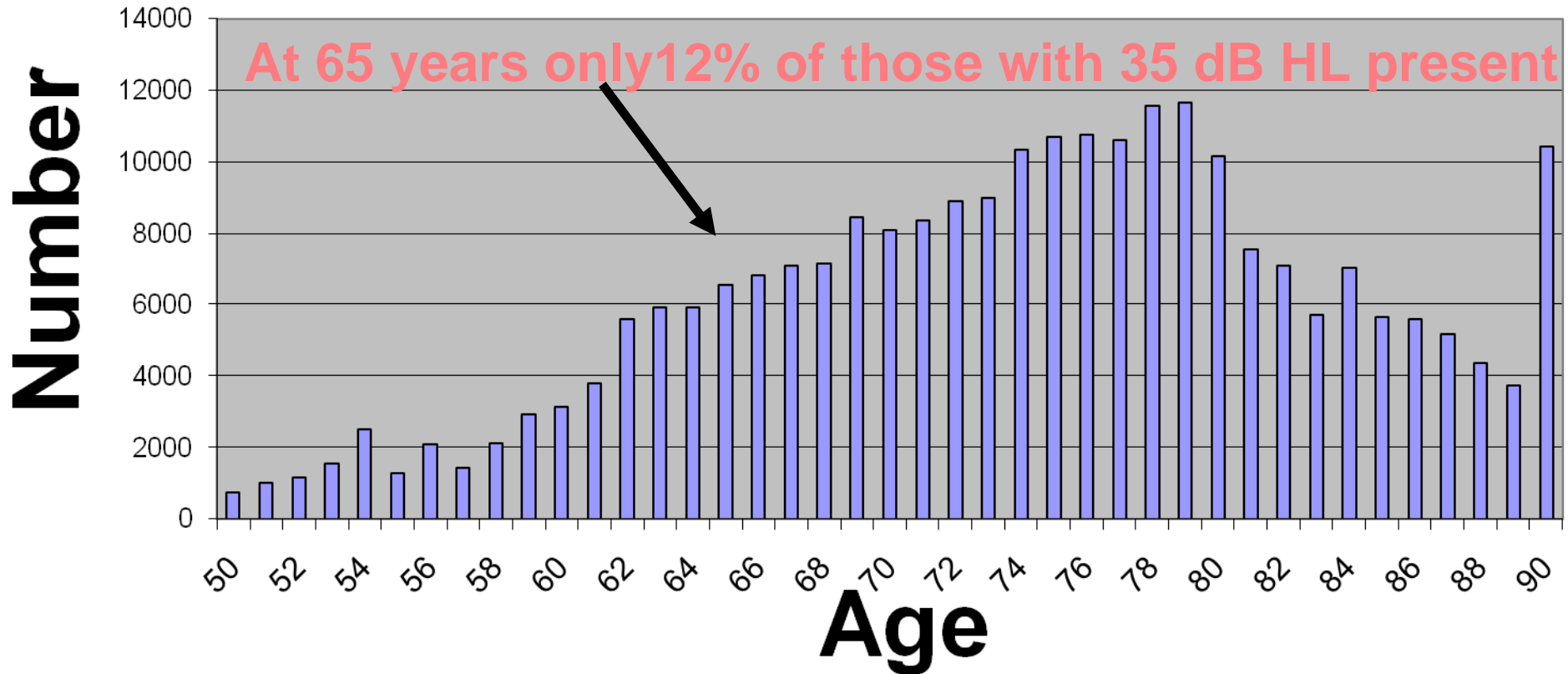


Estimated number (k) of people provided with hearing aid services as a function of age group per year (Davis, 2009)



Average age of first presentation at audiology department is 74 years

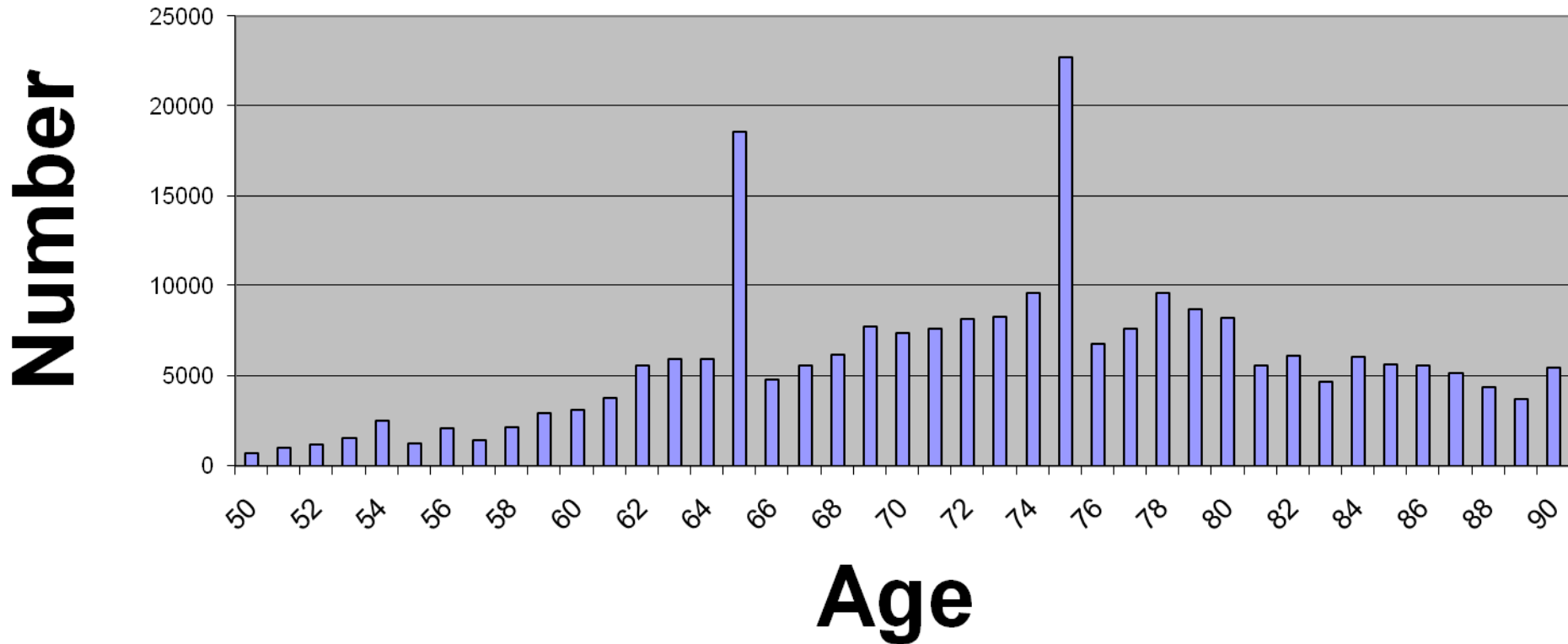
Estimated number of people who attend audiology departments as direct referral patients as a function of age. At age 65 years 35 dB HL person had problem for 10 years, at age 75 years this is 13 years



Should we screen adults for hearing impairment

- If hearing impaired people seek advice earlier, this should lead to
 - better quality of life
 - less disability later
 - greater independence
 - better value for money

Estimated number of people who attend audiology departments as direct referral patients as a function of age if two screen ages in place



Prevalence of visual impairment

- 13-17% of 65+ yrs report a visual disability (Harries et al)
- 4-6% of 49+yrs better eye visual impairment <20/40 (BMES)
- 6-15% of 65+ yrs better eye visual impairment <6/12 to >6/60 (Wormald et al)
- 25-35% of 65+ yrs better eye visual impairment <6/12 (Reidy et al)
- *Problems with definitions (as always)*
- *Unaided, aided as arrived, best aided*

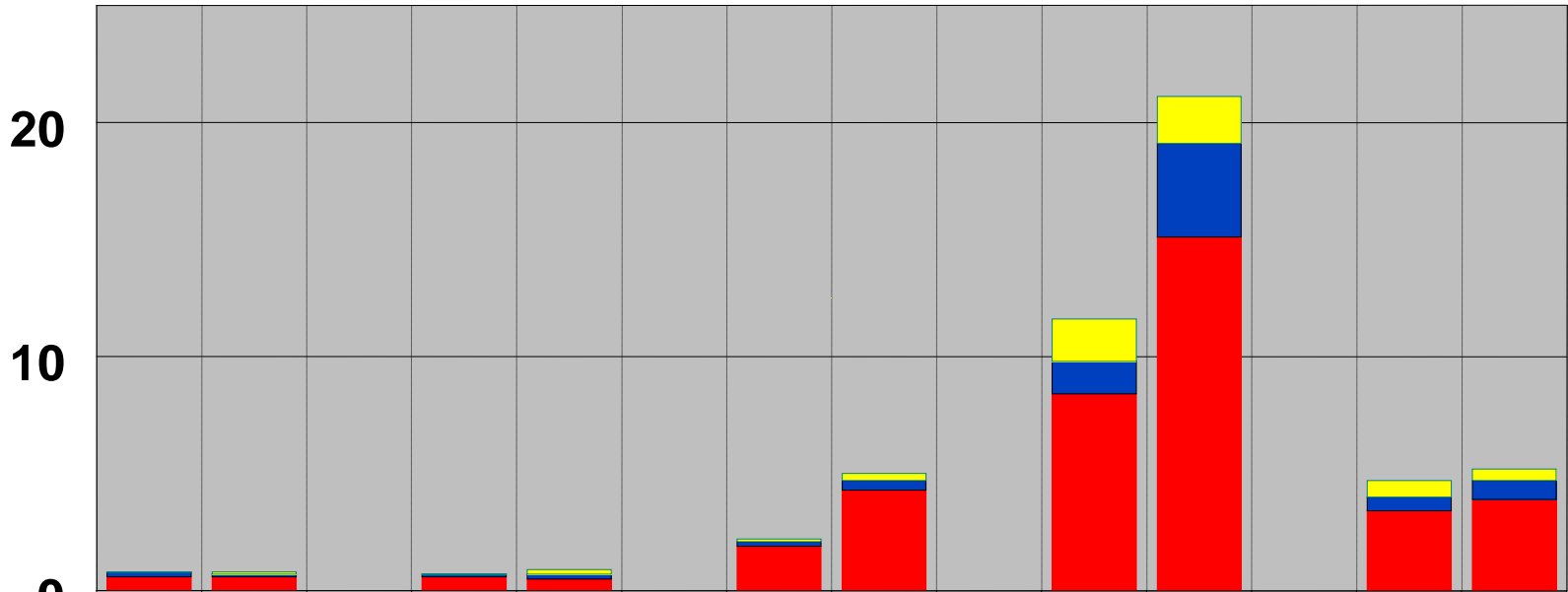
Causes and prevalence of visual impairment among adults in the United States.

Arch Ophthalmol. 2004 Apr;122(4):477-85.

- Based on demographics from the 2000 US Census, an estimated 937 000 (0.78%) Americans older than 40 years were blind (US definition).
- An additional 2.4 million Americans (1.98%) had low vision.
- The leading cause of blindness among white persons was age-related macular degeneration (54.4% of the cases), while among black persons, cataract and glaucoma accounted for more than 60% of blindness.
- Cataract was the leading cause of low vision, responsible for approximately 50% of bilateral vision worse than 6/12 (20/40) among white, black, and Hispanic persons.

The increase in prevalence of visual impairment of at least 20/40 in the better eye as a function of age and study(BM=Blue Mountains;BD=Beaver Dam), Attebo, Mitchell and Smith, 1996

Prevalence %



Age group

	49-54 BM	BD	55-64 BM	BD	65-74 BM	BD	75-84 BM	BD	49+ BM	BD
Severe	0	0.1	0	0.2	0.1	0.3	1.8	2	0.7	0.5
Moderate	0.2	0.1	0.1	0.2	0.2	0.4	1.4	4	0.6	0.8
Mild	0.6	0.6	0.6	0.5	1.9	4.3	8.4	15.1	3.4	3.9

Major pathologies in visual impairment and blindness

- Reidy et al 1998 (BMJ:316;1643-1646)
- Cataract - 30%
- Macular degeneration - 8%
- Glaucoma - 3%
- Optic atrophy
- Myopic degeneration

Major risk factors for visual impairment and blindness (Vingerling et al 1995)

- Apart from Age and Sex
 - Not much isolated
 - Weight at 1yr(Aihie Sayers, 1999)
- Diabetes / Hperglycaemia
- Smoking
- Hypertension
- Eye colour
- Familial
- Sunlight

Relationship between age-related maculopathy and hearing impairment (Klein et al 1998; BD)

- Late ARM (n=63/3268) increases odds of hearing impairment (25 dB HL at 0.5,1,2&4kHz) by **3.15** (1.34-7.42)
- ALSO
- Early ARM (n=779/3268) increases odds of high frequency hearing impairment by **1.30** (1.04-1.62)

Vision and hearing impairment in aged care clients.
Ophthalmic Epidemiol. 2005 Jun;12(3):199-205

- Examined 188 persons aged 65-99 years in Australia
- Visual impairment was defined in the better eye:
 - mild $< 20/40$ to $> \text{ or } = 20/80$,
 - moderate $< 20/80$ to $> \text{ or } = 20/200$,
 - severe $< 20/200$.
- Hearing loss was defined using average hearing thresholds in the better ear:
 - mild > 25 to $< \text{ or } = 40$ decibels (dB),
 - moderate > 40 to $< \text{ or } = 60$ dB,
 - severe > 60 dB.

Care home vision and hearing

- Vision impairment was found in 30.2% of clients.
- Moderate to severe hearing loss was present in 50.5%.
- **Combined sensory impairment was detected in 22.5%**
- **This co-occurrence is 47% higher than if both were independent (which would have produced 15%)**
- The age-standardized proportions with vision impairment was 25.6%, higher than the rate (17.4%) found in the Blue Mountains Eye Study (BME²) community population,
- Hearing impairment was also more common in aged care clients (28.1% vs 17.5%).



Beyond sensory impairment and functional limitations

- What are the other major impairments or functional limitations that older people acquire?

Health Survey for England 2005:

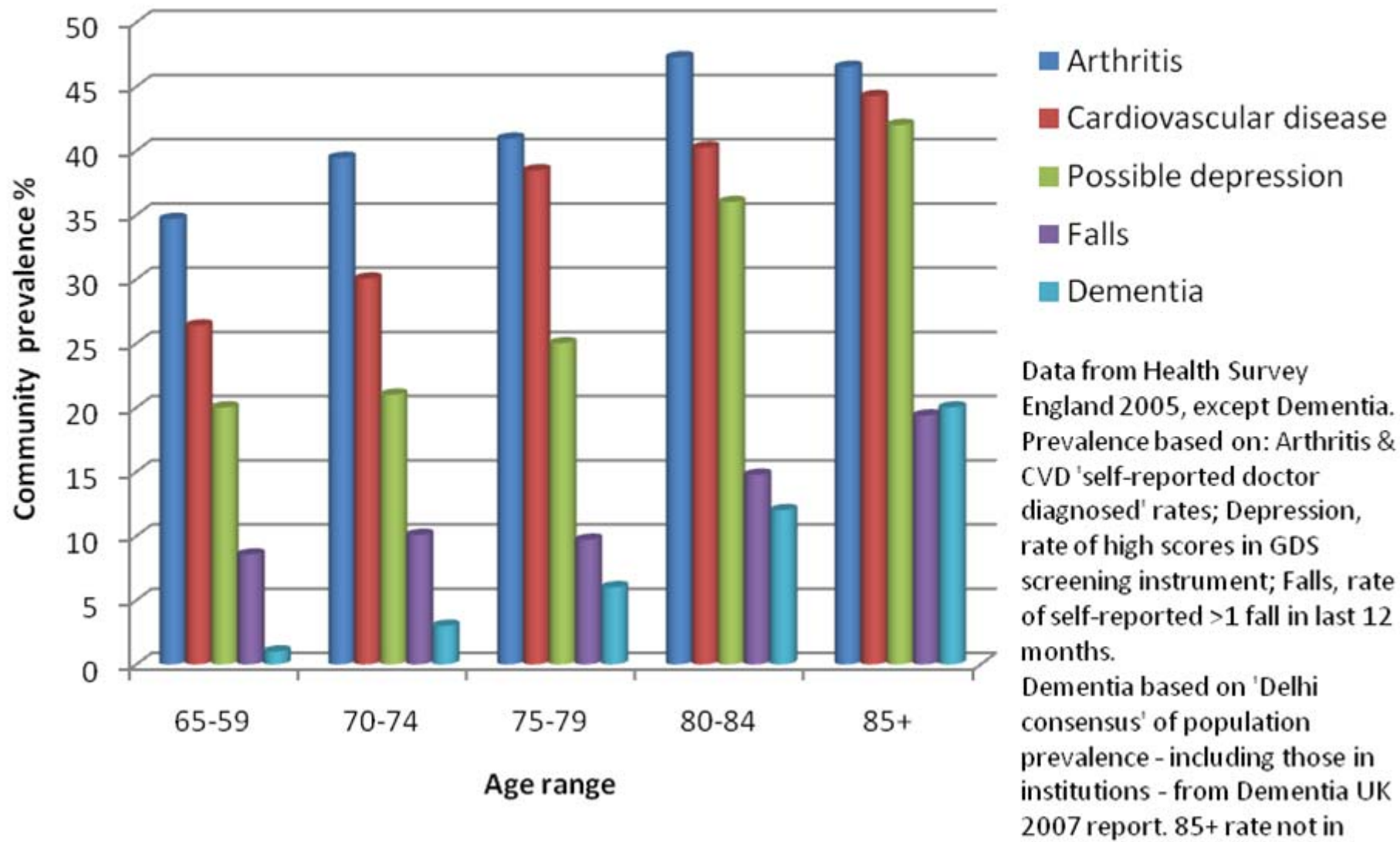
General health and function: The health of older people
Copyright © 2007, The Information Centre.

- 'In the oldest age groups, in which ageing processes contribute to decline in sensory and motor performance and in the cardio-respiratory, musculoskeletal and nervous systems, for example.
- 80% of people over 60 have a visual impairment,
- 75% of people over 60 have a hearing impairment, and
- 22% have both a visual and hearing impairment.
- These disabilities can reduce the ability of older people to look after themselves, resulting in a need for personal care.'

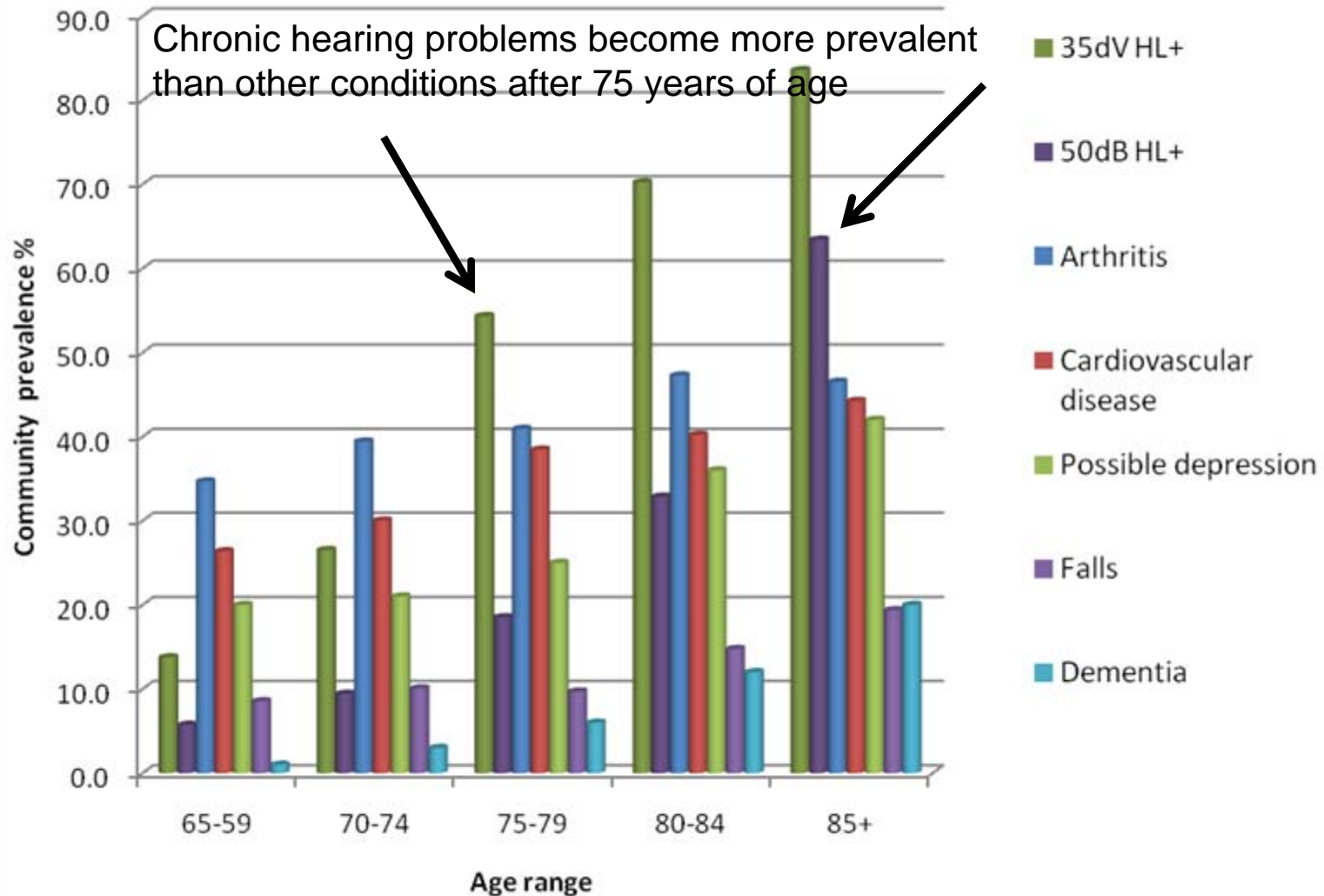
Functional limitations with age

- Among people aged 65 and over, about 40% reported having at least one functional limitation
 - seeing,
 - **hearing,**
 - communication,
 - walking,
 - or using stairs.
- Prevalence of functional limitation increased with age,
 - **from 25% for those aged 65-69 to 60 % aged 85 and over**
- The number of functional limitations increased with age:
 - prevalence of reporting three or more limitations increased from **3% aged 65-69 to 18% aged 85 and over.**

Estimated prevalence of common chronic health problems in older people in England

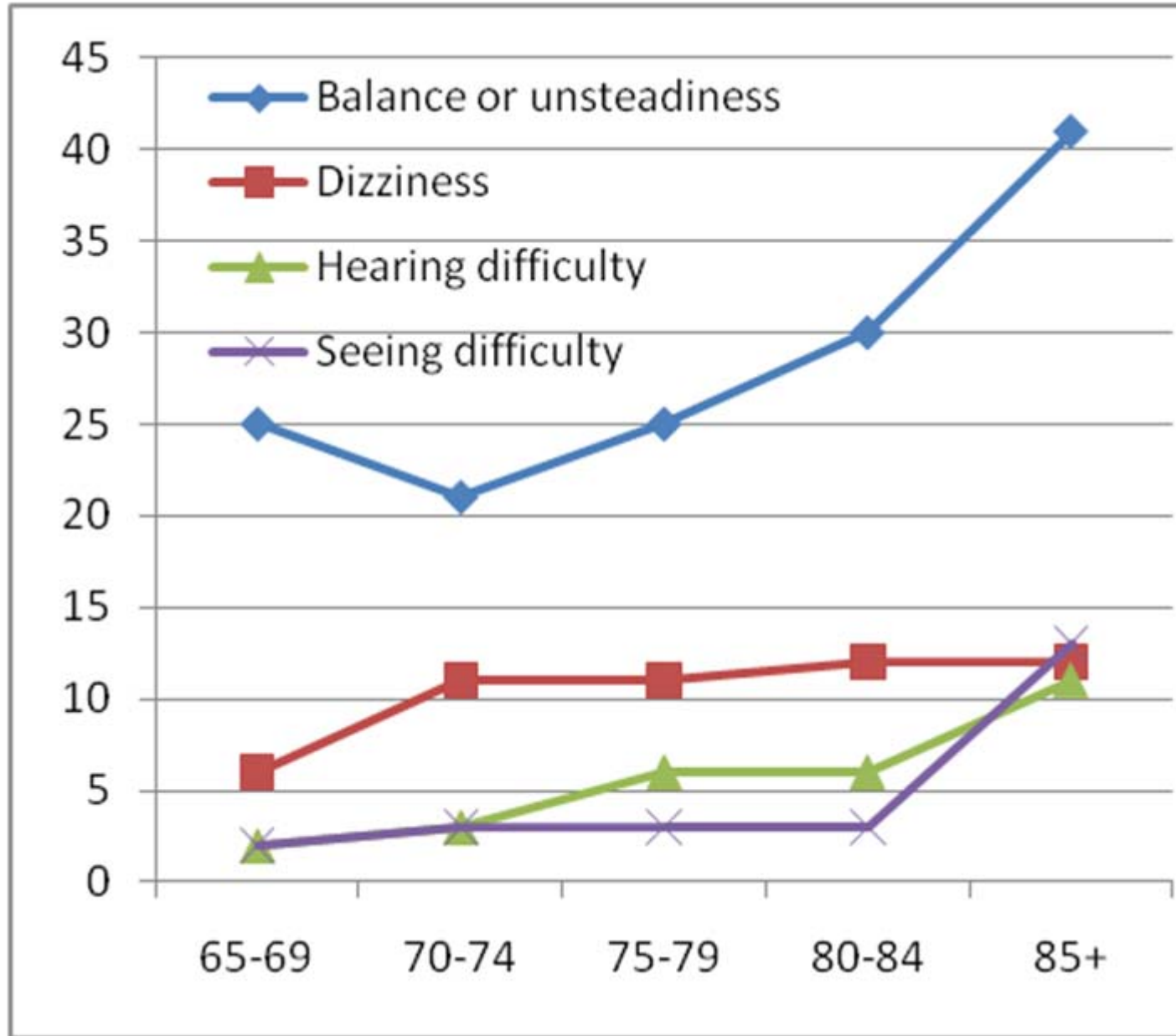


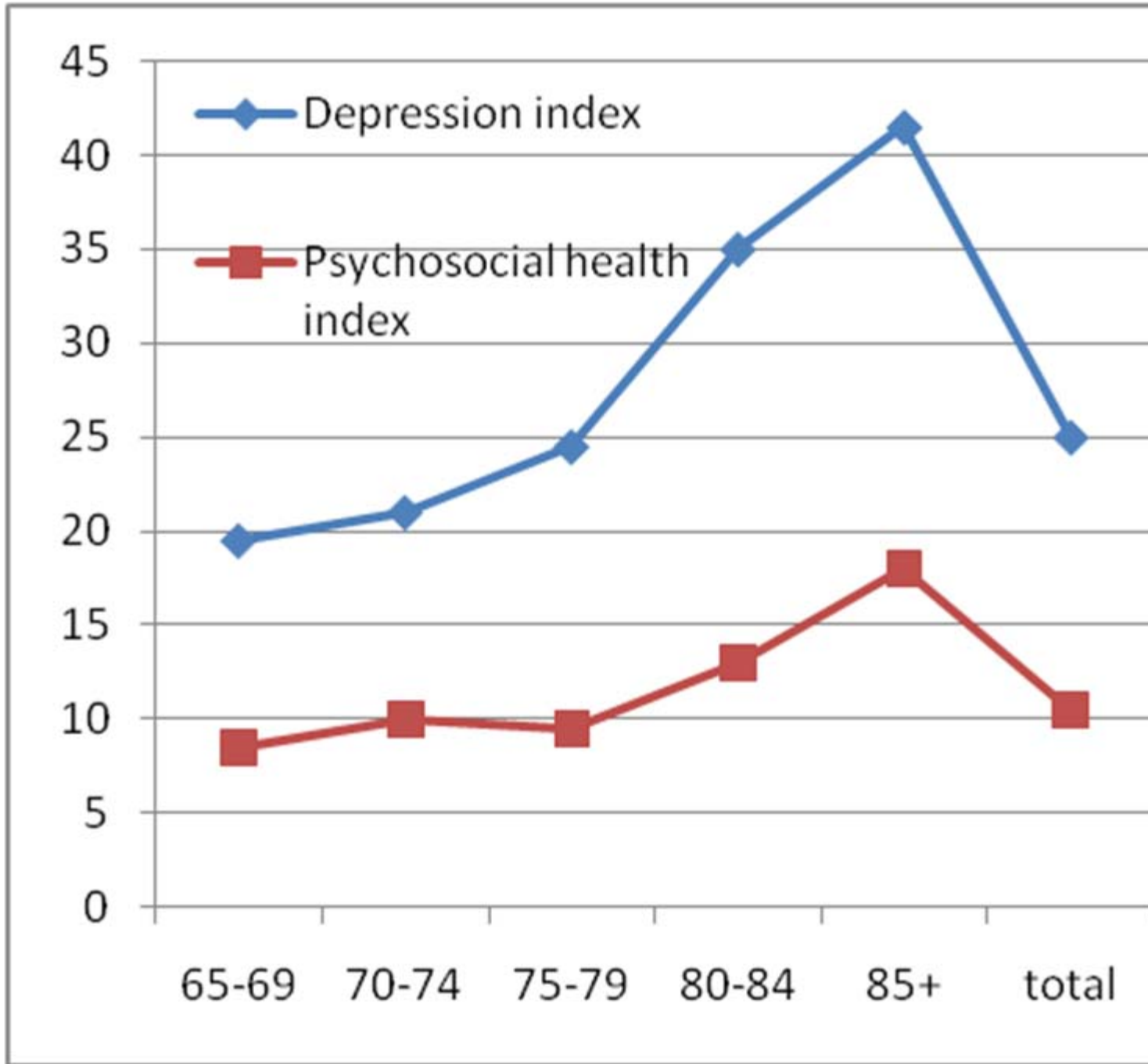
Estimated prevalence of common chronic health problems in older people in England

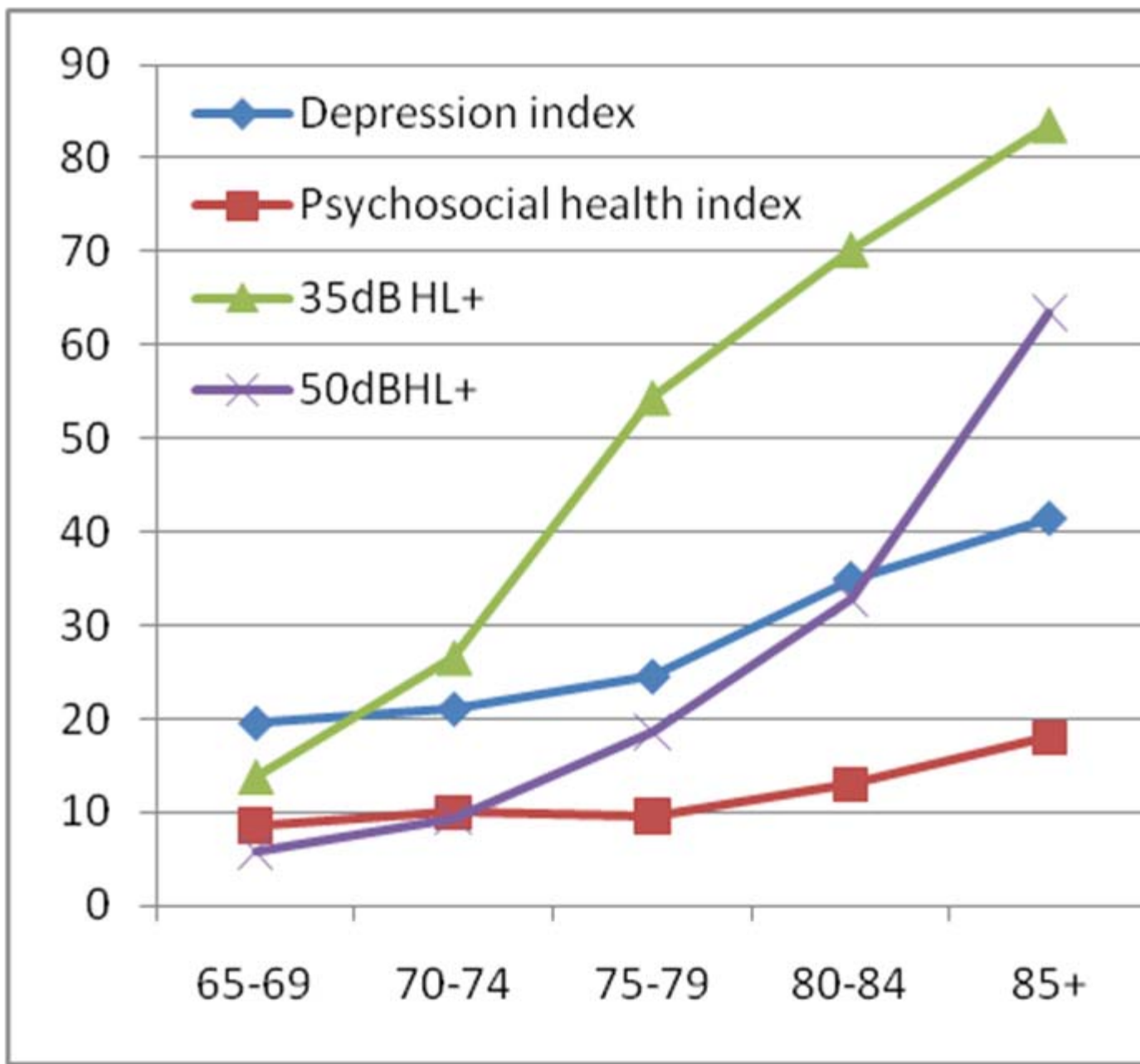


Data from Health Survey England 2005, except Dementia, and hearing loss. Prevalence based on: Arthritis & CVD 'self-reported doctor diagnosed' rates; Depression, rate of high scores in GDS screening instrument; Falls, rate of self-reported >1 fall in last 12 months. Dementia based on 'Delhi consensus' of population prevalence - including those in institutions - from Dementia UK 2007 report. 85+ rate not in original report. Reported here is rate for 85-89 age range.

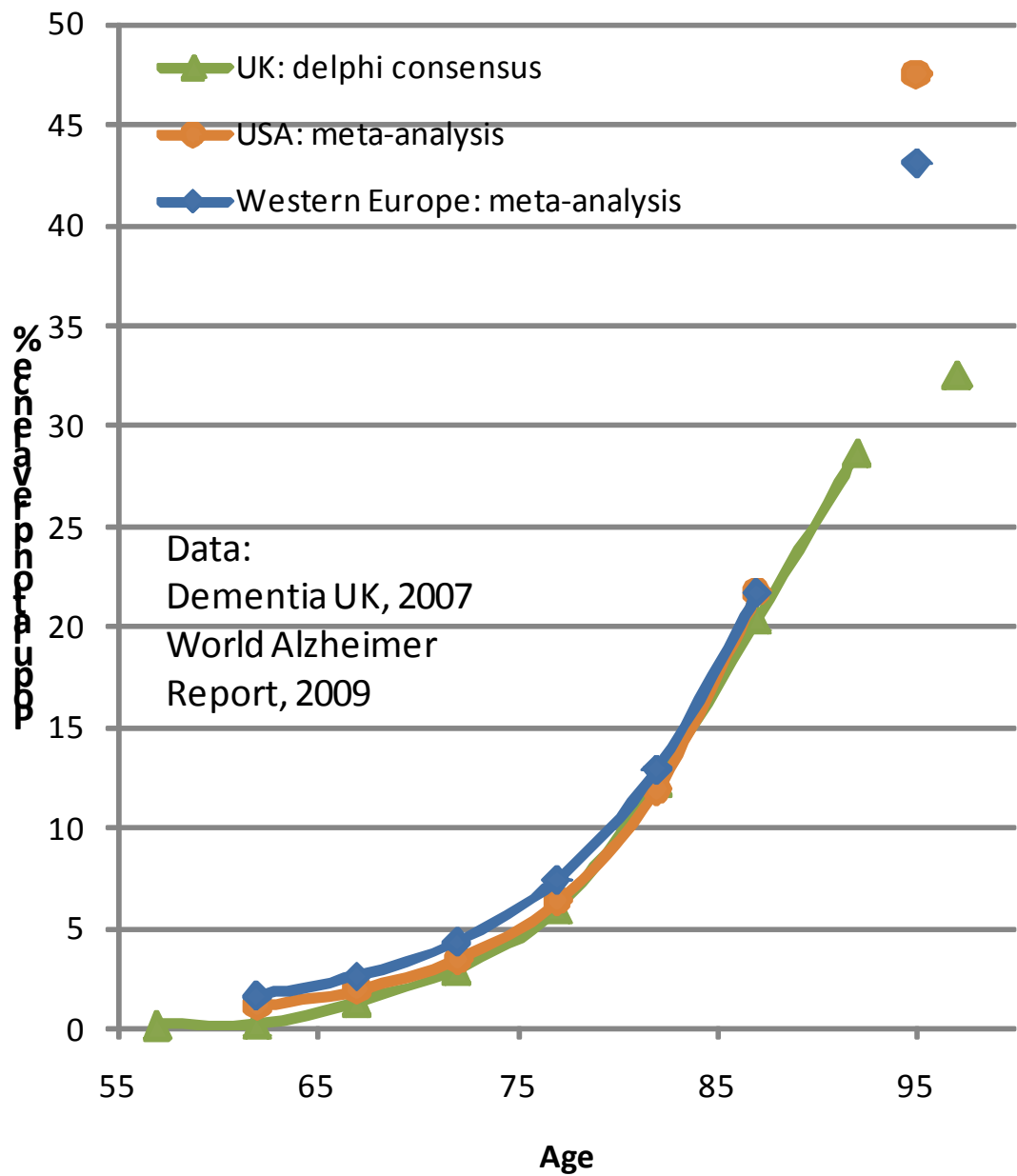
About 45% of over 65s reported mobility problems and common co-morbidity in these people is shown below



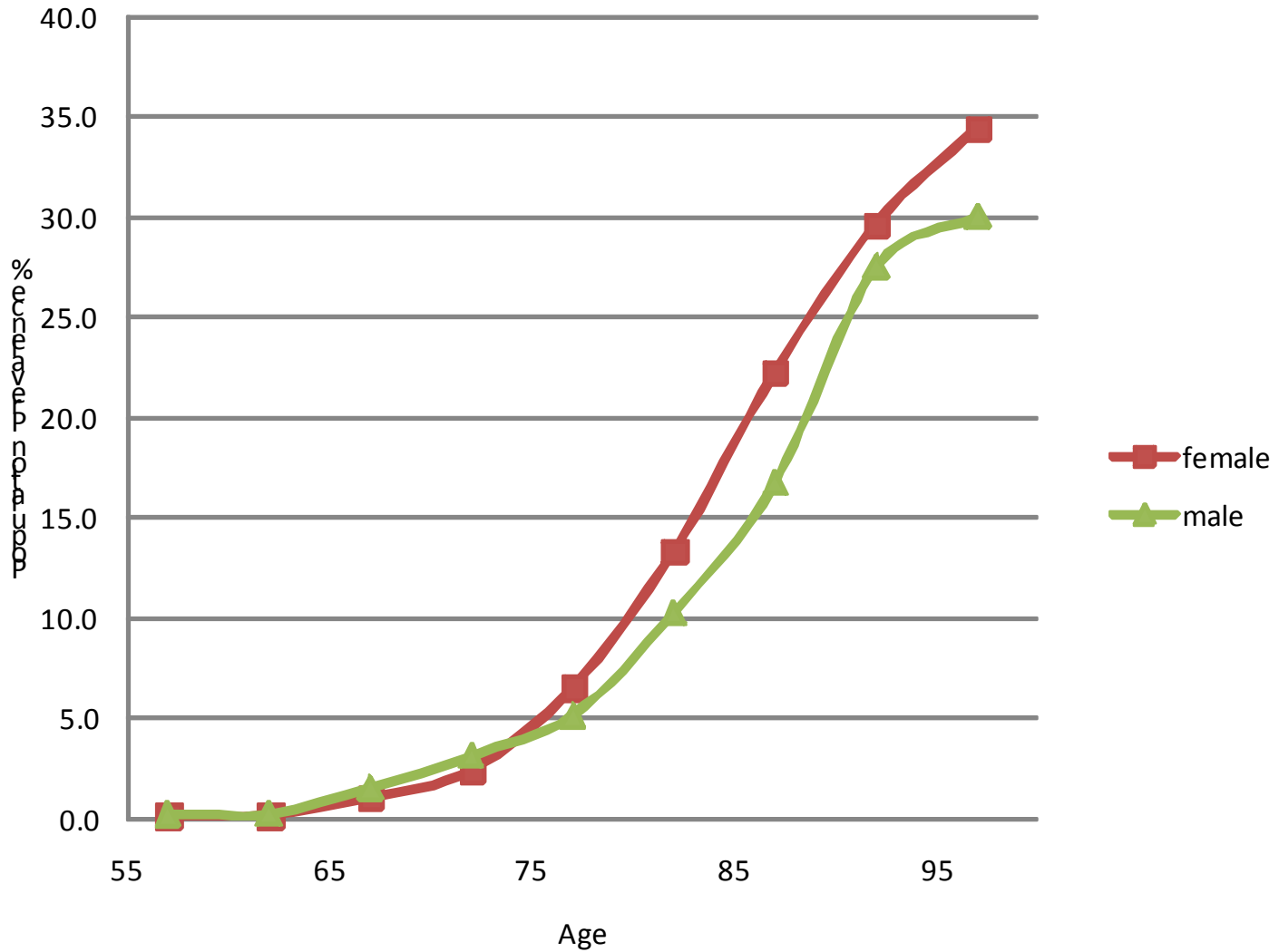


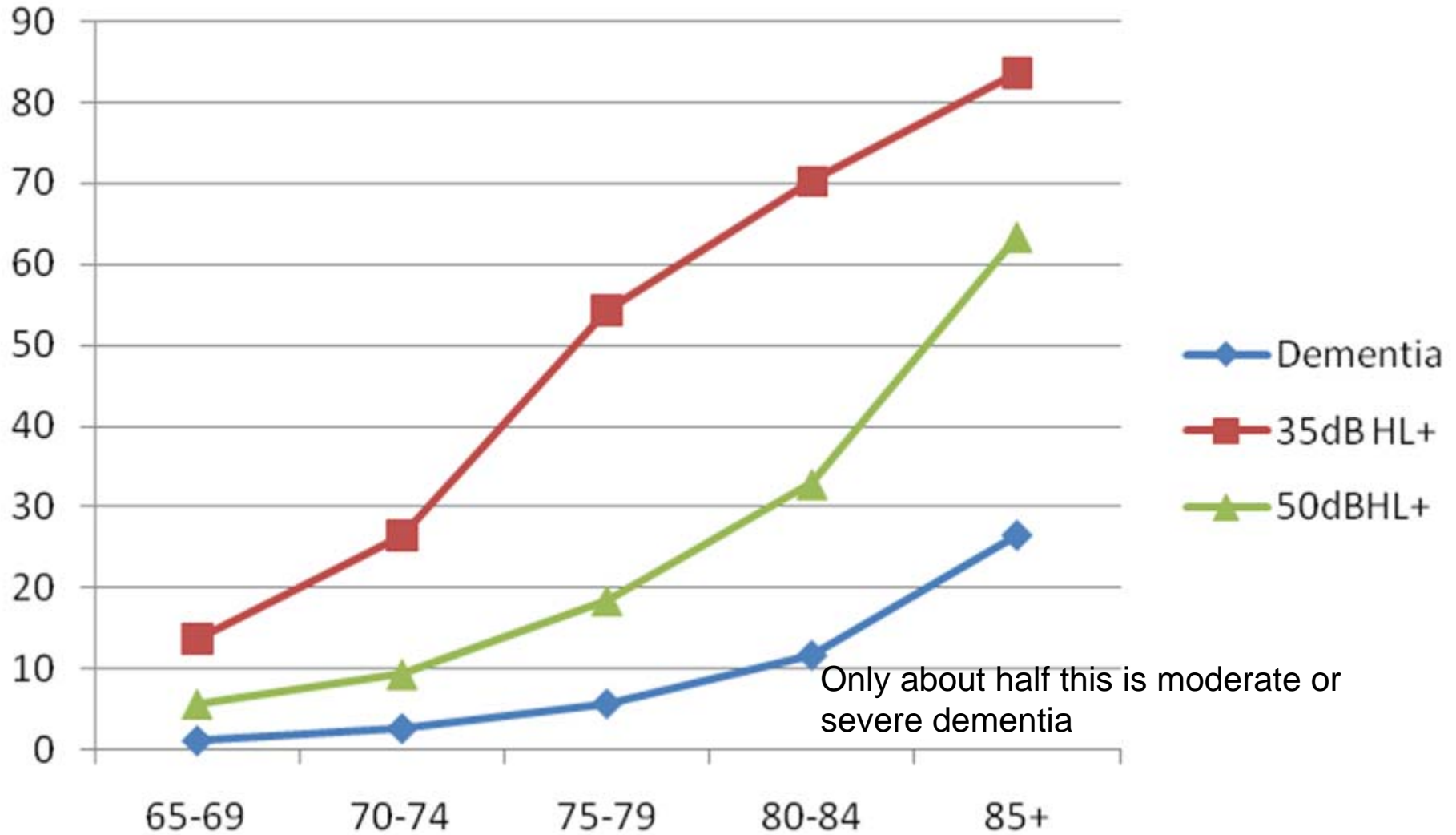


Prevalence of dementia from multiple sources



Delphi consensus on prevalence of dementia in UK (Dementia UK, 2007)





Only about half this is moderate or severe dementia

What happens – hearing and other services for chronic conditions?

- Access poor
 - 2 in 3 don't get help (hearing)
- Help sought too late
 - Typically 10-15yrs too late (hearing)
- No audit of outcomes
 - Glasses often wrong
 - Hearing aids non functional
- Poor equity
 - SEG, Ethnicity, severity, geography
- Meeting individual needs - rarely?

What new partnerships might be beneficial?

- Professional
- Commercial
 - forming alliances
 - working together
- Patients and ‘Clients’ need to have a say in what they want and their experience in getting it

New models of service

- What can we learn from analysis of other health care systems
- Affordable health care?
- Local
- Provided by ...

Multi-disciplinary teams

- Dedicated services
 - hearing, vision, balance, falls, mental health etc
- Integrated services
 - Even more fun!

Conclusion

- Unmanaged sensory impairment is a major public health problem,
- particularly with a growing elderly population.
- Particularly for those with depression and dementia??
- For those who have had some intervention, we do not know the cost effectiveness of these current interventions as there is no ongoing audit of outcomes.
- No research on joined up services of vision, hearing balance or other conditions
 - Branding of services, Value, Commercial potential?
 - Implications of really joined up services for health, social and local hearing services not explored

Better strategy for hearing health care delivery

- (i) good quality services which enable early awareness of the problems and access to appropriate pathways
- (ii) innovative pathways, which may include screening or triage, provide better strategies to deal with personal needs including co-morbidity
- (iii) promote a better image of the services that deliver (hearing) health care and which give a better experience for those with hearing and communication problems
- (iv) use multi-disciplinary strategies to be more effective and efficient in meeting personal needs?

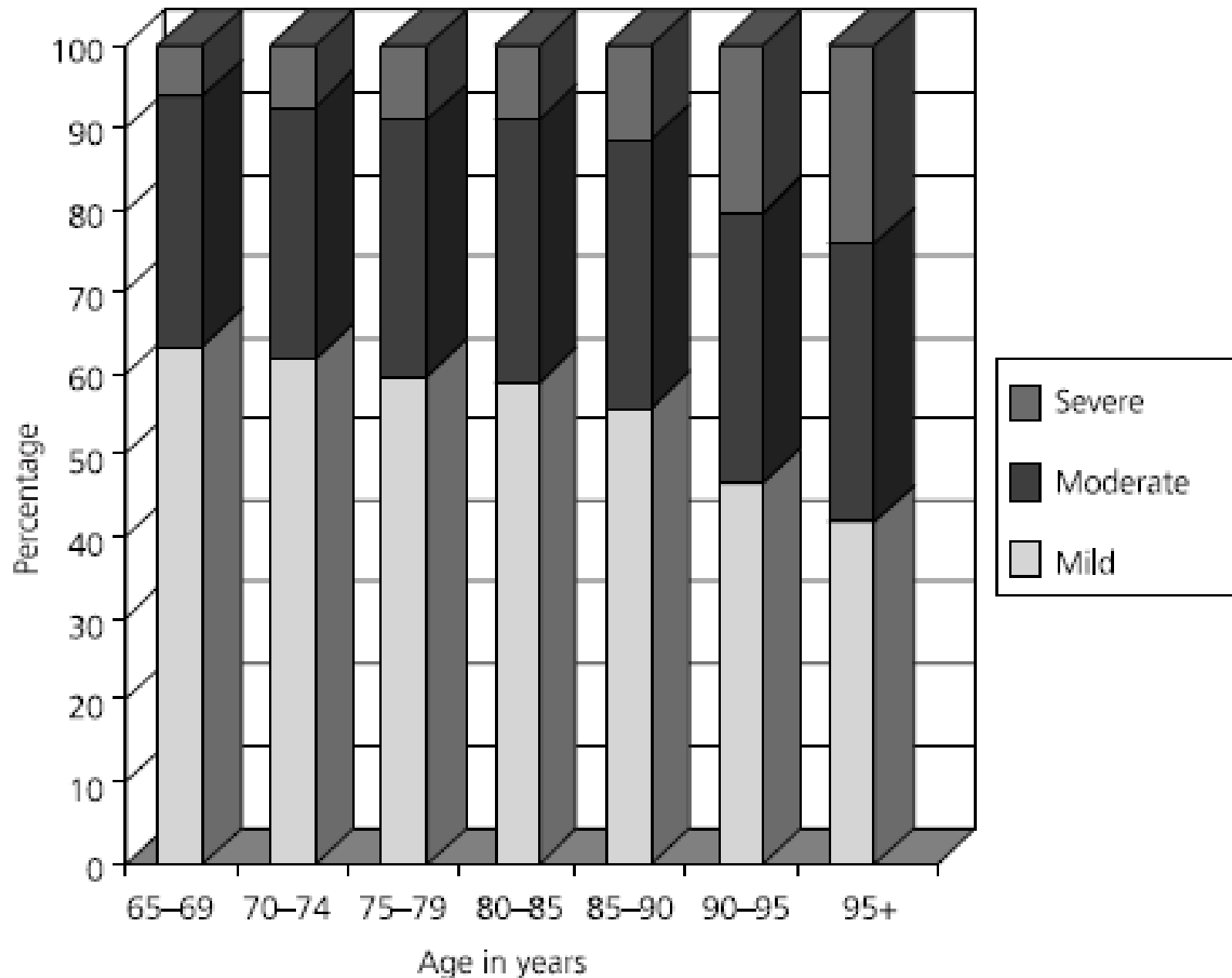


Figure 2.4 The consensus of the proportion (%) of cases of dementia in the population that are mild, moderate and severe