

# Genetics and deafness



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# Deafness definition

- Person who has little or no functional hearing and depends upon visual rather than auditory communication

Degree of deafness	dB heard	Hearing ability
Profound	95 dB	Lip reading required for understanding speech but may benefit from hearing aids
Severe	70-94 dB	Require lip reading even with hearing aids
Moderate	40-69 dB	Difficulty following speech without a hearing aids
Mild	21-39 dB	Difficulty following speech in noisy situations

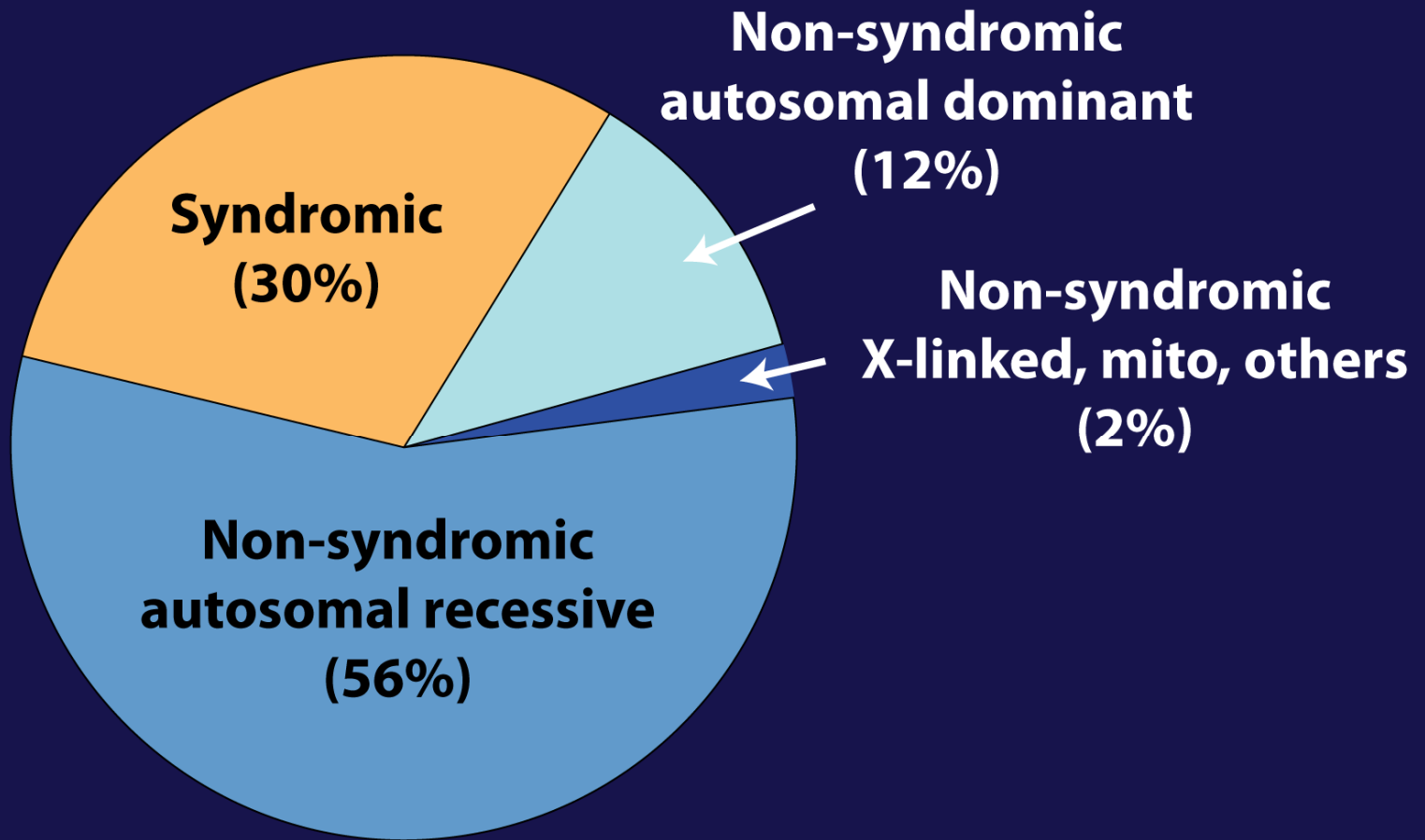
# Deafness: Quick Facts

- Deafness is most common sensory deficit in the United states
- Affects over 28 million Americans
- 1:1000 infants prelingual deafness
- 1:1000 infants prelingual hearing loss
- 1:1000 deaf before adulthood

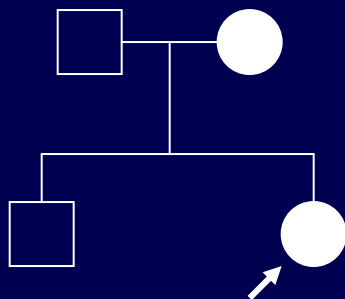
# Causes of Deafness:

- 60% of childhood hearing loss is genetic
  - Syndromic
  - Nonsyndromic
- 40% of childhood hearing loss is caused by infectious/environmental factors
  - prenatal infections (CMV, toxoplasmosis ,etc)
  - meningitis
  - low birth weight/prematurity
  - ototoxic medications
  - mechanical ventilation
  - trauma

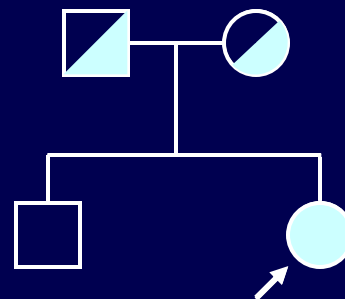
# Types of genetic hearing loss



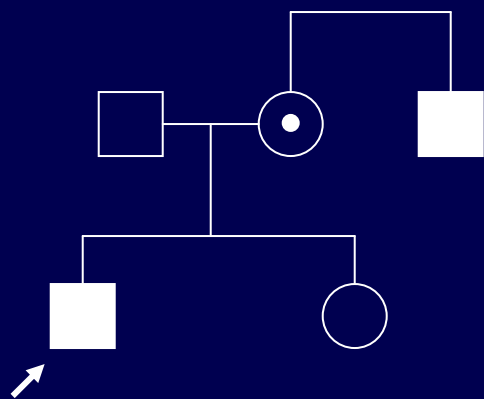
# Modes of inheritance for non-syndromic hearing loss



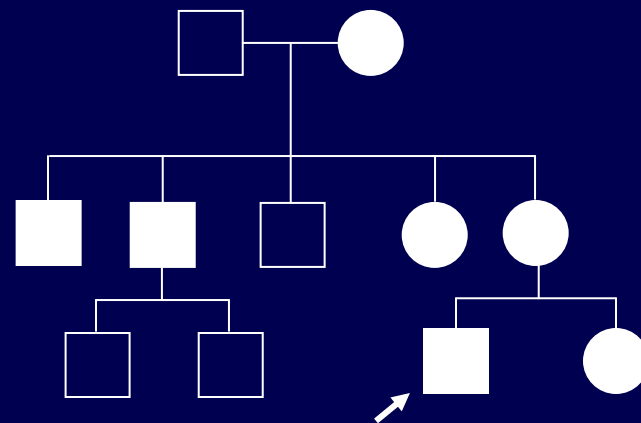
**Autosomal Dominant**  
**DFNA – 12%**



**Autosomal Recessive**  
**DFNB – 56%**

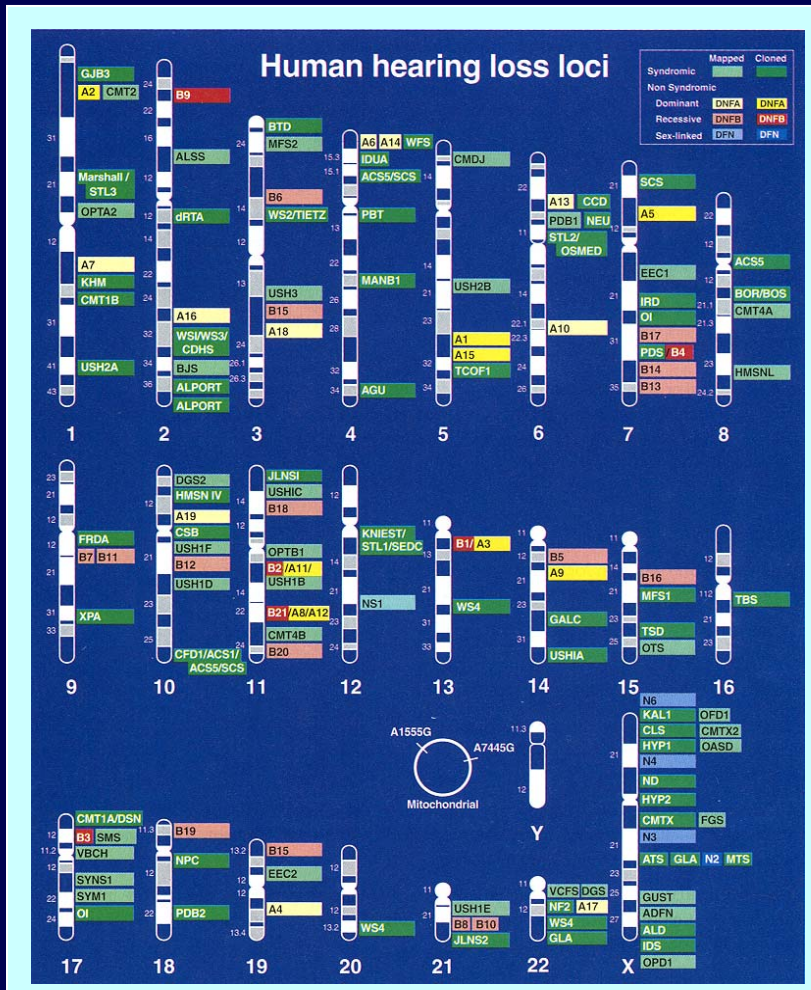


**X-linked**  
**DFN – 1%**



**Mitochondrial**  
**1%**

# Why is deafness so common?



There are so many genes involved in hearing

