**Hearing Loss – Phenotype Definition V1.0**

**Phenotype Description**: individuals with sensorineural hearing loss (SNHL)

Below are algorithms used to identify individuals with SNHL at BioVU. If you have questions regarding any of the information presented on this page, you may contact either:

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**Algorithms for the Hearing Loss Phenotype**

Case definition

Case inclusion criteria:

* Two or more ICD9 code for Sensorineural hearing loss or Mixed conductive and sensorineural hearing loss (ICD9: 389.1\*, 389.2\*, or 389.9\*; ICD10: H90.3\*, H90.4\*, H90.5\*, H90.6\*, H90.7\*, or H90.8\*) on two or more different dates
* OR

one or more ICD9 code for Sensorineural hearing loss or Mixed conductive and sensorineural hearing loss (ICD9: 389.1\*, 389.2\*, 389.9\*; ICD10: H90.3\*, H90.4\*, H90.5\*, H90.6\*, H90.7\*, or H90.8\*) and one or more procedure code (ICD9: V53.2; ICD10: Z46.1, Z97.4)

* OR

any CPT code 69930

Covariates:

* Race
* Gender
* Onset Age: The age at the first date that meets the inclusion criteria (Onset Date)
* Other relevant diagnosis codes (Binary, Yes/No)
	+ Meniere’s disease diagnosed prior to the Onset Date (ICD9: 386.0\*; ICD10: H81.0\*)
	+ Acoustic neuroma diagnosed prior to the Onset Date (ICD9: 225.1\*; ICD10: D33.3\*)
	+ Otosclerosis diagnosed prior to the Onset Date (ICD9: 387\*; ICD10: H80\*)
	+ Other hearing diagnosed prior to the Onset Date (ICD9: 389.0\*, 389.7\*, 389.8\*; ICD10: H90.0\*, H90.1\*, H90.2\*)

Control definition

Control inclusion criteria: (all three conditions required):

* No HL relevant disease codes (exclude individuals with any one of the following code)
	+ ICD9: 380-389 or V53.2
	+ ICD10: H60-H95, Z46.1 or Z97.4
	+ CPT: 69930
* No “hearing loss”, “hearing aid” , “decreased hearing” , “difficulty hearing” , “cochlear implant”, “diminished hearing”, “ hard of hearing”,  “loss of hearing”, “deaf”,  “deafness”, or “difficulty with hearing” mentioned in the notes

Covariates:

* Race
* Gender
* Age based on the last visit