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| **Domain:** | Speech and Hearing |
| **Measure:** | Personal and Family History of Hearing Loss |
| **Definition:** | This measure is a questionnaire to assess risk factors related to hearing loss. |
| **Purpose:** | This measure can be used to assess familial, environmental, and other risk factors related to hearing loss. |
| **Essential PhenX Measures:** |  |
| **Related PhenX Measures:** |  |
| **Collections:** | Work, School and Recreation ExposuresFamily Health HistoryTreatment ProceduresOther Physical Disease |
| **Keywords:** | Family history, Clinical history, Exposure history, Age-Related Hearing Impairment Questionnaire, ARHI, Hearing impairment, Hearing difficulty, Noise, Ear disease, Balance, Operation, Surgery, Exposure, Tinnitus, Risk factors, Speech and Hearing |

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| **Protocol Release Date:** | October 20, 2010 |
| **PhenX Protocol Name:** | Personal and Family History of Hearing Loss |
| **Protocol Name from Source:** | This section will be completed when reviewed by an Expert Review Panel. |
| **Description:** | The Age-Related Hearing Impairment instrument is a self-administered questionnaire which asks about an individual's hearing impairment history, history of ear diseases and operations, family history, and history of exposure to loud noises. |
| **Specific Instructions:** | None |
| **Protocol:** | **Hearing impairment**Please only give one answer to each question. When the question calls for you to enter a year field then please enter as yyyy.1. Do you have any difficulty with your hearing?[] No[] Yes*If ‘YES’,* 1.1. In which ear(s) do you have a hearing difficulty?[] Left[] Right[] Both1.2. At what age did you first notice a hearing difficulty?[] I have had a hearing difficulty since I was born[] My hearing difficulty developed during my childhood years (before the age of 15)[] My hearing difficulty developed between the ages of 15 and 40[] My hearing difficulty developed after the age of 401.3. How quickly did your hearing difficulty develop?[] Suddenly (over a few days)[] Over a few months[] Over several years1.4. Do you know the reason for your hearing difficulty? (If there is a separate cause for each of your ears, please note them accordingly).[] I have no idea about the cause of my hearing problem[] Yes\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_1.5. Does your hearing vary from day to day?[] No[] Yes, in both ears[] Yes, in my left ear[] Yes, in my right ear2. Do you find it very difficult to follow a conversation if there is background noise (e.g. TV, radio, children playing)? [] No[] Yes3. Are you particularly sensitive to loud sounds?[] No[] Yes4. Do you sometimes feel a fullness or blockage in your ears?[] No[] Yes, in my left ear[] Yes, in my right ear[] Yes, in both ears5. Nowadays, do you ever get noises in your head or ears (tinnitus) which usually last longer than five minutes?[] No[] Yes**Ear diseases and balance**6. Have you ever had an ear disease that has caused your hearing to get worse?[] No[] Yes7. Have you ever had discharge of blood or pus, or smelly discharge (not wax) from either ear?[] No [] I don't know[] From my left ear[] From my right ear[] From both ears8. Have you ever had an ear operation?[] No[] I don't know[] Yes*If ‘YES’, please also answer the following questions (a–c). Please fill in one row for each operation.*

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|  | ***a. Write down what type of operation, or why the operation was performed*** | ***b. Which ear?*** | ***c. Which year? (approximately)*** |
| 8.1. |  | [] left ear[] right ear |  |
| 8.2. |  | [] left ear[] right ear |  |
| 8.3. |  | [] left ear[] right ear |  |
| 8.4. |  | [] left ear[] right ear |  |

9. Have you ever suffered from attacks of dizziness in which things seem to spin around you?[] No[] Yes, within the last year[] Yes, more than a year ago10. Do you feel unsteady when walking in the dark?[] No[] Yes**Hereditary Factors**From a genetical point of view it is important that we establish where your ancestors originated from.11. Concerning your grandparents:11.1. Where did your mother's father (your maternal grandfather) originate from?Country:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Region: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_11.2. Where did your mother's mother (your maternal grandmother) originate from?Country:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Region: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_11.3. Where did your father's father (your paternal grandfather) originate from?Country:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Region: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_11.4. Where did your father's mother (your paternal grandmother) originate from?Country:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Region: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_12. As far as you know, does/did your mother have hearing problems?[] No [] Yes*If ‘YES’,* 12.1. What was her year of birth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_12.2. What was her occupation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_12.3. At what age did her hearing problems start? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_12.4. What is/was the cause of her hearing problem (if known)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_13. If she is dead, how old was she when she died? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_14. As far as you know does/did your father have hearing problems?[] No [] Yes*If ‘YES’,* 14.1. What was his year of birth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_14.2. What was his occupation? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_14.3. At what age did his hearing problems start? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_14.4. What is/was the cause of his hearing problems (if known)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_15. If he is dead, how old was he when he died? \_\_\_\_\_\_\_\_\_\_\_\_\_\_16. Do you have any brothers or sisters with normal hearing?[] No[] Yes: *(how many of your brothers/sisters have normal hearing?)* \_\_\_\_\_\_\_\_\_17. Do you have any brothers or sisters with hearing difficulties?[] No[] Yes: *(how many of your brothers/sisters have hearing difficulties?)* \_\_\_\_\_\_\_\_\_*If ‘YES’, please answer the following questions (a–d). Please fill in one row for each brother/sister with hearing difficulties.\*\**

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|  | **a. Sex** | **b. Year of birth** | **c. Age at onset of hearing difficulties** | **d. Cause of hearing difficulties (if known)** |
| 17.1. | [] M[] F  |  |  |  |
| 17.2. | [] M[] F  |  |  |  |
| 17.3. | [] M[] F  |  |  |  |
| 17.4. | [] M[] F  |  |  |  |

*\*\* If needed, you can add extra copies of this page.*18. Do you have any children with normal hearing?[] No[] Yes: *(how many of your children have normal hearing?)* \_\_\_\_\_\_\_\_\_\_\_\_19. Do you have any children with hearing difficulties?[] No[] Yes: *(how many of your children have hearing difficulties?)* \_\_\_\_\_\_\_\_\_*If ‘YES’, please also answer the following questions (a–d). Please fill in one row for each child with hearing difficulties.\*\**

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| --- | --- | --- | --- | --- |
|  | **a. Sex** | **b. Year of birth** | **c. Age at onset of hearing difficulties** | **d. Cause of hearing difficulties (if known)** |
| 19.1. | [] M[] F  |  |  |  |
| 19.2. | [] M[] F  |  |  |  |
| 19.3. | [] M[] F  |  |  |  |
| 19.4. | [] M[] F  |  |  |  |

*\*\* If needed, you can add extra copies of this page.*20. Do you have uncles, aunts, cousins, nephews, or nieces with hearing difficulties?[] No[] Yes21. Do you know if any of your relatives have already participated in this investigation?[] As far as I know, none of my relatives has already participated in this investigation[] One of my relatives has already participated in this investigation *(please write down the name of your relative and the relation between you)* \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**General Health**22. Do you suffer from migraine?[] No[] Yes*If ‘YES’,* 22.1. How often do you generally have attacks?[] Often (more than one attack a month)[] Regularly (an attack once a month on average)[] Sporadically (between 4 and 10 times a year)[] Rarely (less than one attack every 3 months)23. Have you ever suffered a hearing loss from meningitis or encephalitis?[] No[] I don't know[] Yes: in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *(write down in which year(s) approximately)*24. Have you ever had a whiplash injury?[] No[] I don't know[] Yes: in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *(write down in which year(s) approximately)*25. Have you ever been knocked unconscious (e.g., in a traffic accident, contact sport, a fight or after a fall)?[] No[] I don't know[] Yes: in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ *(write down in which year(s) approximately)*26. Have you ever had a heart attack?[ ] No[ ] Yes: in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*write down in which year(s) approximately*)27. Have you ever had heart surgery?[ ] No[ ] Yes*If ‘YES’,* 27.1. What operation(s)? (Please describe) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_27.2. In which year(s) approximately? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_28. Have you ever had coronary artery catheterization?[ ] No[ ] Yes*If ‘YES’,* 28.1. What type of intervention(s) (e.g., stent, balloon dilatation)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_28.2. In which year(s) approximately? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_29. Have you ever had a stroke?[ ] No[ ] I don't know[ ] Yes: in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*write down in which year(s) approximately*)30. Have you ever had an operation on your carotid artery?[ ] No[ ] I don't know[ ] Yes: in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*write down in which year(s) approximately*)31. Do you suffer from intermittent claudication? (*This is if you can't walk more than 200 metres, because you get cramps in your legs, and when you stand still for a moment the pain gets better*).[ ] No[ ] I don't know[ ] Yes32. Do you have other problems with your heart or circulation?[ ] No[ ] Yes: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*please write down which problems*)33. Do you suffer from diabetes?[] No[] I don't know[] Yes*If ‘YES’,* 33.1. Do you need insulin?[] No[] Yes34. Please indicate if you suffer from one or more of the following diseases:*If you suffer from one or more of these diseases, please describe your disease on the last row (34.14).*34.1. Osteoporosis[] No[] Yes34.2. Osteoarthritis[] No[] Yes34.3. Multiple sclerosis (MS)[] No[] Yes34.4. Epilepsy[] No[] Yes34.5. Lung problems[] No[] Yes34.6. Allergy[] No[] Yes34.7. Diseases of the stomach or intestines[] No[] Yes34.8. Kidney diseases[] No[] Yes34.9. Liver diseases[] No[] Yes34.10. Skin diseases[] No[] Yes34.11. Psychiatric problems[] No[] Yes34.12. Blood diseases[] No[] Yes34.13. Diseases of the thyroid gland [] No[] Yes34.14. Please describe your disease(s):\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_35. Please indicate if you suffer from one or more of the following autoimmune diseases:35.1. Rheumatoid arthritis (rheumatism)[] No[] Yes35.2. Inflammatory bowel disease (Crohn's disease / colitis ulcerosa)[] No[] Yes35.3. Lupus erythematosus[] No[] Yes35.4. Psoriasis[] No[] Yes35.5. Wegener's granulomatosis[] No[] Yes35.6. Vasculitis[] No[] Yes35.7. Nephritis[] No[] Yes35.8. Hashimoto thyroiditis[] No[] Yes35.9. Cogan's syndrome[] No[] Yes35.10. Behcet's syndrome[] No[] Yes35.11. Other autoimmune diseases:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_36. Have you ever had other operations (not covered by the previous questions)?[] No[] Yes: (*Please list any operations you have had and the year they were performed*)36.1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in:\_\_\_\_\_\_\_\_\_\_\_36.2.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in:\_\_\_\_\_\_\_\_\_\_\_36.3.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in:\_\_\_\_\_\_\_\_\_\_\_36.4.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in:\_\_\_\_\_\_\_\_\_\_\_36.1.\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in:\_\_\_\_\_\_\_\_\_\_\_37. Do you have other serious health problems that are not covered by the previous questions?[] No[] Yes*If ‘YES’,* 37.1. Please describe these problems:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**Medication**38. Have you ever been treated for a serious infection with an antibiotic (other than penicillin) which was administered by injection/drip for a week or more?[] No[] Yes38.1. *If ‘YES’*, for what sort of infections did you receive these antibiotics?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_38.2. In which year(s) approximately?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_39. Have you had cancer or leukemia?[] No[] YesIf 'YES,39.1. Which kind of cancer or leukemia?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_39.2. Have you been treated with chemotherapy or other medication for this condition?[] No[] Yes39.3 *If ‘YES’*, with\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*please fill in which medication if you know it*)39.3 in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (*in which year(s) approximately*)40. Have you ever received radiotherapy to your head or neck for a tumour?[] No[] Yes*If ‘YES’*40.1. What kind of tumour(s)? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_40.2. In which year(s) approximately? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_41. On average how often do you take painkillers?[ ] never[ ] less than 1 tablet a month[ ] less than 1 tablet a week (but more than one each month)[ ] 2-5 tablets a week[ ] 2-5 tablets a day[ ] more than 5 tablets a day42. Do you take aspirin on a daily basis for your heart or to dilute your blood?[] No[] Yes42.1. *If ‘YES’*, how long have you been taking aspirin so far?[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43. Please list all of the medication you have taken on a regular basis (for more than 3 months) in the last year or that you are taking now on a regular basis.*Please write down the medical reason why you had or have to take this medication. If necessary you can add an additional copy of this page.*43.1. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.2. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.3. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.4. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.5. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.6. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.7. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.8. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.9. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.10. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.11. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.12. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.13. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.14. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.15. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.16. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.17. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.18. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.19. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.20. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.21. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.22. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.23. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.24. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.25. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.26. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.27. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years43.28. Name drug: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.29. Medical reason: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_43.30. Duration of treatment[ ]  3 months – 1 year[ ]  1 – 5 years[ ]  more than 5 years**Noise Exposure**44. Have you ever fired a gun?[] No [] Yes*If ‘YES’*, *please answer the following questions.*

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| **Type of Weapon** | **44.1. Estimate the total number of shots fired** | **44.2. Did you use ear protection?** | **44.3. If any, which type of ear protection did you use?** |
| ***Light weapons******(rifles/shotguns)*** | [ ] less than 10 shots[ ] 10–100 shots[ ] 101–1,000 shots[ ] 1,001–10,000 shots[ ] more than 10,000 shots  | [ ] always[ ] most of the time[ ] more than 50% of the time[ ] less than 50% of the time[ ] never  | [ ] plugs[ ] earmuff[ ] 'active' protection[ ] several  |
| ***Heavy weapons******(artillery/bazookas*)** | [ ] less than 10 shots[ ] 10–100 shots[ ] 101–1,000 shots[ ] 1,001–10,000 shots[ ] more than 10,000 shots  | [ ] always[ ] most of the time[ ] more than 50% of the time[ ] less than 50% of the time[ ] never  | [ ] plugs[ ] earmuff[ ] 'active' protection[ ] several  |

45. During your leisure time, are you/have you been regularly (more than once a week) exposed to loud sound or noise (so that you have to shout to make yourself heard by someone who was more than 1 m away from you)?[] No [] Yes*If you answered ‘YES’, please also answer the following questions (44.1—44.5).*45.1. What kind of loud sound? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_45.2. For how many years have you been exposed to this loud sound? \_\_\_\_\_\_\_\_\_\_\_\_\_\_45.3. How many hours per week have you been exposed to this loud sound?[] 1–3 hours each week[] 3–10 hours each week[] 1–3 hours each day[] More than 3 hours each day45.4. Did you use ear protection?[] Always[] Most of the time[] More than 50% of the time[] Less than 50% of the time[] Never45.5. If any, which type of ear protection did you use?[] Plugs[] Earmuff[] 'Active' protection[] Several**Occupational Information**46. What is/was your job?\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_47. Have you been exposed to solvents (e.g., thrichloroethylene, toluene, evaporations from paints or lacquers) for more than one year in one of your jobs?[ ] No[ ] Yes*If ‘YES’*, 47.1. Which solvents? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_47.2. In which year did the solvent exposure start? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_47.3. For how many years were you exposed to solvents? \_\_\_\_\_\_\_\_\_\_\_\_\_\_47.4. For how many hours per day were you exposed to solvents?[ ] Less than 1 hour each day[ ] 1–5 hours each day[ ] More than 5 hours each day48. Do you suffer from white finger syndrome/Raynaud's syndrome caused by excessive vibration (e.g., pneumatic hammers or drills)?[ ] No[ ] I don't know[ ] Yes49. Have you ever worked for more than 1 year in a place where you had to raise your voice to make yourself heard by someone standing 1 m away from you?[ ] No[ ] YesIf you answered ‘YES’, please also answer the following questions (48.1–48.10). If you have worked for different companies, or for the same company but in different workplaces (with a different noise level), please fill in the following questions for each 'job'.1st job (add additional copies for other jobs if necessary)49.1. Please describe the job and give the name of the company \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_49.2. Please describe the most important noise source(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_49.3. In which year did you start to do this job? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_49.4. How many years have you been doing this job? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_49.5. What was the noise level (if you are aware of it) in dB? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_49.6. What was the noise dose (equivalent noise level if you are aware of it) in dBs? \_\_\_\_\_\_\_\_\_\_\_49.7. How many hours per day were you exposed to noise?[ ] Less than 1 hour each day[ ] 1–5 hours each day[ ] More than 5 hours each day49.8. Was this a constant loud noise or an impulse noise (i.e., noise with (ir)regular high peaks of sound, like hammering)?[ ] Constant noise[ ] Impulse noise[ ] Both49.9. Did you use noise protection?[ ] Always[ ] Most of the time[ ] More than 50% of the time[ ] Less than 50% of the time[ ] Never49.10. If any, which type of noise protection did you use?[ ] Plugs[ ] Earmuff[ ] 'Active' protection[ ] Several**Background Information**50. What is your height? \_\_\_\_\_\_\_\_\_\_\_cm (feet and inches)51. What is your weight? \_\_\_\_\_\_\_\_\_\_\_kg (stones and pounds)52. Are you left or right handed?[ ] left handed[ ] right handed53. Are you susceptible to sunburn?[ ] very much[ ] much[ ] not very much[ ] not at all54. What is the color of your eyes?[] very light blue or very light grey[] blue[] grey[] green[] light brown[] dark brown55. Have you ever smoked regularly?[ ] No[ ] Yes*If you answered "yes" please also answer the following questions (54.1–54.5).*55.1. At which age did you start smoking? \_\_\_\_\_\_\_\_\_\_55.2. For how many years did you (have you) smoke(d) up to now? \_\_\_\_\_\_\_\_\_\_55.3. Approximately how many cigarettes do (did) you smoke on average?[ ] Less than 5 each day[ ] 5–10 each day[ ] 10–20 each day[ ] More than 20 each day55.4. Approximately how many cigars or cigarellos do (did) you smoke on average each day? \_\_\_\_\_\_\_\_\_\_55.5. Approximately how much pipe tobacco (grams) do (did) you smoke each day? \_\_\_\_\_\_\_\_\_\_56. Do you drink alcohol regularly (every week)?[ ] No[ ] Yes*If ‘YES’,* 57.1. How many drinks do you have on average? (A small bottle of beer – 25cl, red or white wine – 12cl, or a small glass of spirits – 4cl counts as 1 drink).[ ] Less than 1 drink each week[ ] 1–5 drinks each week[ ] 1–3 drinks each day[ ] More than 3 drinks each day**Scoring Instructions**Please see Fransen et al., 2008 for a complete description of the statistical analysis used for these questions. Also, supplementary table 4 contains information on how the different variables were coded in this statistical analysis.  |
| **Selection Rationale:** | The Age-Related Hearing Impairment (ARHI) Questionnaire was chosen because it has been used in a large-scale multicenter study and provides excellent possibilities for data comparisons. Additionally, it contains questions on multiple topics such as family history and exposures to noise and toxic substances in a single questionnaire. |
| **Source:** | Fransen, E., Topsakal, V., Hendrickx, J., Van Laer, L., Huyghe, J. R., Van Eyken, E., Lemkens, N., Hannula, S., Maki-Tokko, E., Jensen, M., Demeester, K., Tropitzch, A., Bonaconsa, A., Mazzoli, M., Espeso, A., Verbruggen, K., Huyghe, J., Huygen, P.L., Kunst, S., Manninen, M., Diaz-Lacava, A., Steffens, M., Wienker, T. F., Pyykko, I., Cremers, C. W. R. J., Kremer, H., Dhooge, I., Stephens, D., Orzan, E., Pfister, M., Bille, M., Parving, A., Sorri, M., Van De Heyining, P., & Van Camp, G. (2008). Occupational noise, smoking, and a high body mass index are risk factors for age-related hearing impairment and moderate alcohol consumption is protective: A European population-based multicenter study. *Journal of the Association for Research in Otolaryngology, 9,* 264–276. |
| **Life Stage:** | Adult |
| **Language of source:** | English, Dutch, German, Italian, Danish, Finnish |
| **Participant:** | The Age-Related Hearing Impairment (ARHI) Questionnaire has been successfully used with an age range of 55 to 65 for unrelated samples, and 55 to 75 for family samples. The Speech and Hearing Working Group recommends that it could also be used for individuals over 75 and as young as 18. |
| **Personnel and Training Required:** | None |
| **Equipment Needs:** | Respondents will need a copy of the questionnaire. |
| **Standards:** |

|  |  |  |  |
| --- | --- | --- | --- |
| **Standard** | **Name** | **ID** | **Source** |
| Common Data Element (CDE) | Family Medical History Hearing Loss Assessment Description Text | 3139286 | [CDE Browser](https://cdebrowser.nci.nih.gov/CDEBrowser/search?elementDetails=9&FirstTimer=0&PageId=ElementDetailsGroup&publicId=3139286&version=1.0) |
| Logical Observation Identifiers Names and Codes (LOINC) | Pers fam hx hearing loss proto | 63008-7 | [LOINC](http://s.details.loinc.org/LOINC/63008-7.html?sections=Web) |

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| **General references:** | None |
| **Mode of Administration:** | Self-administered questionnaire |
| **Derived Variables:** | None |
| **Requirements:** |

|  |  |
| --- | --- |
| **Requirement Category** | **Required** |
| Major equipment | No |
| Specialized training | No |
| Specialized requirements for biospecimen collection | No |
| Average time of greater than 15 minutes in an unaffected individual | No |

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| **Process and Review:** | This section will be completed when reviewed by an Expert Review Panel. |