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| **Sleep Apnea - Adult** |
| **Protocol Id:** | 91501 |
| **Description of Protocol** | The questionnaire asks about risk factors for sleep apnea, namely snoring behavior, wake time, sleepiness or fatigue, and the presence of high blood pressure. The protocol begins with information that an individual self-reports on height, weight, age, and sex. The 10 questions address snoring, fatigue, and high blood pressure. An algorithm is provided to classify study participants into high or low risk on the basis of their response. |
| **Specific Instructions** | None |
| **Protocol:** | Height (m) \_\_\_\_\_\_\_\_ Weight (kg)\_\_\_\_\_\_\_\_ Age\_\_\_\_\_\_ Male / FemalePlease choose the correct response to each question.CATEGORY 11. Do you snore?

[ ] a. Yes[ ] b. No[ ] c. Don’t know*If you snore:*1. Your snoring is:

[ ] a. Slightly louder than breathing[ ] b. As loud as talking[ ] c. Louder than talking[ ] d. Very loud can be heard in adjacent rooms1. How often do you snore

[ ] a. Nearly every day[ ] b. 3-4 times a week[ ] c. 1-2 times a week[ ] d. 1-2 times a month[ ] e. Never or nearly never1. Has your snoring ever bothered other people?

[ ] a. Yes[ ] b. No[ ] c. Don’t know1. Has anyone noticed that you quit breathing during your sleep?

[ ] a. Nearly every day[ ] b. 3-4 times a week[ ] c. 1-2 times a week[ ] d. 1-2 times a month[ ] e. Never or nearly neverCATEGORY 21. How often do you feel tired or fatigued after your sleep?

[ ] a. Nearly every day[ ] b. 3-4 times a week[ ] c. 1-2 times a week[ ] d. 1-2 times a month[ ] e. Never or nearly never1. During your waking time, do you feel tired, fatigued, or not up to par?

[ ] a. Nearly every day[ ] b. 3-4 times a week[ ] c. 1-2 times a week[ ] d. 1-2 times a month[ ] e. Never or nearly never1. Have you ever nodded off or fallen asleep while driving a vehicle?

[ ] a. Yes[ ] b. No*If yes:*1. How often does this occur?

[ ] a. Nearly every day[ ] b. 3-4 times a week[ ] c. 1-2 times a week[ ] d. 1-2 times a month[ ] e. Never or nearly neverCATEGORY 31. Do you have high blood pressure?

[ ] Yes[ ] No[ ] Don’t know |
| **Selection Rationale** | This protocol is a widely used short set of questions with an algorithm that uses a scoring mechanism to determine risk for sleep apnea. |
| **Source** | Netzer, N. C., Stoohs, R. A., Netzer, C. M., Clark, K., & Strohl, K. P. (1999). Using the Berlin Questionnaire to identify patients at risk for the sleep apnea syndrome. Annals of Internal Medicine, 131, 485-491. |
| **Language** | English |
| **Participant** | The original psychometrics of the Berlin Questionnaire were based on middle-aged adults (age 49 +/- 17 years). |
| **Personnel and Training Required** | None |
| **Equipment Needs** | None |
| **Standards:** |

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| **Standard** | **Name** | **ID** | **Source** |
| Common Data Element (CDE) | Person Sleep Apnea Text | 2970224 | [CDE Browser](https://cdebrowser.nci.nih.gov/CDEBrowser/search?elementDetails=9&FirstTimer=0&PageId=ElementDetailsGroup&publicId=2970224&version=1.0) |
| Logical Observation Identifiers Names and Codes (LOINC) | Resp sleep apnea adult proto | 62636-6 | [LOINC](http://s.details.loinc.org/LOINC/62636-6.html?sections=Web) |

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| **General references** | Chiu, H.-Y., Chen, P. Y., Chuang, L. P., Chen, N. H., Tu, Y. K., Hsieh, Y. J., Wang, Y. C., & Guilleminault, C. (2016). Diagnostic accuracy of the Berlin questionnaire, STOP-BANG, STOP, and Epworth sleepiness scale in detecting obstructive sleep apnea: A bivariate meta-analysis. *Sleep Medicine Reviews.* doi: 10.1016/j.smrv.2016.10.004 |
| **Protocol Type** | Self-administered questionnaire |
| **Derived Variables** | None |
| **Requirements** |

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| **Requirement Category** | **Required** |
| Major equipmentThis measure requires a specialized measurement device that may not be readily available in every setting where genome wide association studies are being conducted. Examples of specialized equipment are DEXA, Echocardiography, and Spirometry | No |
| Specialized trainingThis measure requires staff training in the protocol methodology and/or in the conduct of the data analysis. | No |
| Specialized requirements for biospecimen collectionThis protocol requires that blood, urine, etc. be collected from the study participants. | No |
| Average time of greater than 15 minutes in an unaffected individualAverage time of greater than 15 minutes in an unaffected individual | No |

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| **Process and Review:** | [Expert Review Panel #6](http://phenx.org/node/118) (ERP 6) reviewed the measures in the Respiratory domain. Guidance from the ERP 6 includes the following:• Revised descriptions of the measureBack-compatible: no changes to Data Dictionary Previous version in Toolkit archive ([link](https://www.phenxtoolkit.org/index.php?pageLink=browse.archive.protocols&id=90000)) |