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| **Domain:** | Alcohol, Tobacco and Other Substances |
| **Measure:** | Tobacco - Nicotine Dependence |
| **Definition:** | Questions query respondent on whether s/he has symptoms of nicotine dependence. |
| **Purpose:** | This measure can be used to assess the participant's dependence on nicotine. |
| **Essential PhenX Measures:** | Current AgeTobacco - Smoking Status |
| **Related PhenX Measures:** | Tobacco - Age of Initiation of UseTobacco - Age of Offset of UseSubstance Abuse and Dependence - Past Year |
| **Collections:** | Tobacco UseAddiction |
| **Keywords:** | tobacco, smoking, cigarette, nicotine dependence, nicotine, pack years, Fagerstrom Test for Nicotine Dependence, Fagerstrom Tolerance Questionnaire, Fagerstrom |

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| **Protocol Release Date:** | February 6, 2009 |
| **PhenX Protocol Name:** | Tobacco - Nicotine Dependence |
| **Protocol Name from Source:** | The Expert Review Panel has not reviewed this measure yet. |
| **Description:** | Measurement of respondent's symptoms of cigarette dependence. |
| **Specific Instructions:** | Respondents are asked the nicotine dependence questions only if they have been classified as a Current Every-Day Smoker, Current Some-Day Smoker, or Former Smoker based on responses to the adolescent and adult Tobacco - Smoking Status protocols. Respondents are asked six categorical questions to assess nicotine dependence. The six questions in this protocol may be asked twice for Current Every-Day and Current Some-Day Smokers: the first time using the current time frame and then a second time if there was a time period when the respondent smoked more than the current amount. During the second round of questions, the time frame is the 6-month period when the respondent was smoking the most. Former Smokers are asked the six questions once; the period of reference is the 6-month period when the respondent was smoking the most. |
| **Protocol:** | *The Working Group acknowledges that the following questions may gather sensitive information relating to the use of substances and/or illegal conduct. If the information is released it might be damaging to an individual's employability, lead to social stigmatization, or other consequences. For information on obtaining a Certificate of Confidentiality, which helps researchers protect the privacy of human research participants, please go to the National Human Genome Research Institute's Institutional Review Board website. The Working Group modified the questions to ask about current and past behaviors. The interviewer should change the introductory statement, depending on whether they are asking about current or past behaviors and choose the appropriate verb tense.* **Current Every-Day or Current Some-Day Smokers:** *Instructions to interviewer: The following six questions are asked twice: once with the lead-in statement about current usage and, if appropriate, a second time with the lead-in statement about the period of maximum usage.* a. Currently,... (*ask 6 questions*) b. Was there a 6-month period when you smoked more than you do now? (*If "Yes," then continue to ask 6 questions again. If "No," stop.*) 1. How soon after you wake up do/did you smoke your first cigarette? [] 1 Within 5 minutes [3 points] [] 2 6-30 minutes [2 points] [] 3 31-60 minutes [1 point] [] 4 After 60 minutes [0 points] 2. Do/Did you find it difficult to refrain from smoking in places where it is forbidden, e.g., in church, at the library, in a cinema, etc.? [] 1 Yes [1 point] [] 2 No [0 points] 3. Which cigarette would you hate most to give up? [] 1 The first one in the morning [1 point] [] 2 All others [0 points] 4. How many cigarettes per day do/did you smoke? [] 1 10 or less [0 points] [] 2 11-20 [1 point] [] 3 21-30 [2 points] [] 4 31 or more [3 points] 5. Do/did you smoke more frequently during the first hours after waking than during the rest of the day? [] 1 Yes [1 point] [] 2 No [0 points] 6. Do/did you smoke if you are so ill that you are in bed most of the day? [] 1 Yes [1 point] [] 2 No [0 points] **Former Smokers:** *Instructions to interviewer: The following 6 questions are asked about the period of maximum usage. Read the lead-in statement before asking the questions.* Think about the six-month period when you were smoking the most... (*ask 6 questions*) 1. How soon after you wake up did you smoke your first cigarette? [] 1 Within 5 minutes [3 points] [] 2 6-30 minutes [2 points] [] 3 31-60 minutes [1 point] [] 4 after 60 minutes [0 points] 2. Did you find it difficult to refrain from smoking in places where it is forbidden, e.g., in church, at the library, in a cinema, etc.? [] 1 Yes [1 point] [] 2 No [0 points] 3. Which cigarette would you have hated most to give up? [] 1 The first one in the morning [1 point] [] 2 All others [0 points] 4. How many cigarettes per day did you smoke? [] 1 10 or less [0 points] [] 2 11-20 [1 point] [] 3 21-30 [2 points] [] 4 31 or more [3 points] 5. Did you smoke more frequently during the first hours after waking than during the rest of the day? [] 1 Yes [1 point] [] 2 No [0 points] 6. Did you smoke when you are so ill that you are in bed most of the day? [] 1 Yes [1 point] [] 2 No [0 points] *Note on how to score the results:* * Sum the points for each round of 6 questions asked.
* The highest score determines lifetime dependence. If the highest score is greater than 4, then the subject meets criteria for lifetime nicotine dependence.
* If the score is 4 or more for current smokers who answered the first round of questions ("Currently..."), then the respondent also meets criteria for current dependence.
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| **Selection Rationale:** | The Fagerstrom Test for Nicotine Dependence has been validated and psychometrically tested and has been widely used in the nicotine research field. |
| **Source:** | Permission to use this scale was obtained from K. O. Fagerstrom (personal communication, January 2009). Heatherton, T. F., Kozlowski, L. T., Frecker, R. C., & Fagerstrom, K. O. (1991). The Fagerstrom Test for Nicotine Dependence: A revision of the Fagerstrom Tolerance Questionnaire. *British Journal of Addiction,* *86,* 1119-1127. Fagerstrom Test for Nicotine Dependence (questions 1-6). |
| **Life Stage:** | Adult |
| **Language of source:** | English, Available in other languages |
| **Participant:** | ≥17 years old |
| **Personnel and Training Required:** | Interviewer must be trained and found competent to conduct personal interviews with individuals from the general population. The interviewer should be trained to prompt respondents further if a "don't know" response is provided. |
| **Equipment Needs:** | None |
| **Standards:** |

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| **Standard** | **Name** | **ID** | **Source** |
| Common Data Element (CDE) | Person Nicotine Dependence | 2820895 | [CDE Browser](https://cdebrowser.nci.nih.gov/CDEBrowser/search?elementDetails=9&FirstTimer=0&PageId=ElementDetailsGroup&publicId=2820895&version=1.0) |
| Logical Observation Identifiers Names and Codes (LOINC) | Tobac nicotine depend proto | 62503-8 | [LOINC](http://s.details.loinc.org/LOINC/62503-8.html?sections=Web) |

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| **General references:** | Bierut, L. J., Madden, P. A., Breslau, N., Johnson, E. O., Hatsukami, D., Pomerleau, O. F., Swan, G. E., Rutter, J., Bertelsen, S., Fox, L., Fugman, D., Goate, A. M., Hinrichs, A. L., Konvicka, K., Martin, N. G., Montgomery, G. W., Saccone, N. L., Saccone, S. F., Wang, J. C., Chase, G. A., Rice, J. P., & Ballinger, D. G. (2007). Novel genes identified in a high-density genome wide association study for nicotine dependence. *Human Molecular Genetics,* *16*(1), 24-35. |
| **Mode of Administration:** | Interviewer-administered questionnaire |
| **Derived Variables:** | **Pack-years:** (Tobacco - 30-Day Quantity and Frequency)1 X (Duration)2 The estimation of the components of this calculation can be derived from several PhenX measures. 1 Tobacco - 30-Day Quantity and Frequency: * Adolescents: Response to question "On the [number of days reported in 2a or 2b] you smoked cigarettes during the past 30 days, how many cigarettes did you smoke per day, on average?"
* Adults
	+ Every-day smokers: Response to question "On the average, about how many cigarettes do you now smoke each day?"
	+ Some-day smokers: [(Response to question "On the average, on those days, how many cigarettes did you usually smoke each day?") X (Response to "On how many of the past 30 days did you smoke cigarettes?")] / 30
	+ Former smokers:
		- Respondents who smoked every day for ≥6 months: Response to question "When you last smoked every day, on average how many cigarettes did you smoke each day?"
		- Respondents who did not smoke every day for ≥6 months: Response to question "When you last smoked fairly regularly, on average how many cigarettes did you smoke each day?"
	+ The Fagerstrom Test for Nicotine Dependence measure (4. How many cigarettes/day do you smoke?) can also be used to calculate the amount of cigarettes smoked.
		- Use the midpoint from the response category to obtain the number of cigarettes smoked per day.

2 Duration of smoking: (Tobacco - Age of Offset of Use3 OR Current age) - (Tobacco - Age of Initiation of Use)4 3 Tobacco - Age of Offset of Use: * Adolescents: (Current Age) - (length of time response to the question: "How old were you the last time you smoked part or all of a cigarette?")
* Adults: (Current Age) - (length of time response to the question: "About how long has it been since you COMPLETELY quit smoking cigarettes?")

4 Tobacco - Age of Initiation of Use: * Adolescents: Age derived from the answer to: 2. "How old were you when you first started smoking cigarettes every day?" OR - For those who never smoked every day, the answer from 1. "How old were you when you first smoked part or all of a cigarette?"
* Adults: Age derived from the answer to: 1. "How old were you when you first started smoking cigarettes every day?" OR - For those who never smoked every day, the answer from 2. "How old were you when you first started smoking cigarettes fairly regularly?"
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| **Requirements:** |

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| **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:** | The Expert Review Panel has not reviewed this measure yet. |