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| **Executive Function** |
| **Protocol Id:** | 131101 |
| **Description of Protocol** | The Trail Making Test is an interviewer-administered, two-part test that requires the respondent to organize numerical and alphabetical sequences that are randomly distributed on a piece of paper. The protocol includes instructions for correcting mistakes and instructions for scoring based on speed and accuracy. |
| **Specific Instructions** | Whereas the Trail Making Test has two parts (Parts A and B), the PhenX Neurology Working Group recommends that part B be used to measure executive function in adults.The Trail Making Test is a proprietary, fee-based instrument that is available from Reitan Neuropsychology Lab, Inc. |
| **Protocol:** | **Trail Making Test, Part A**The examiner first shows the respondent a sample test that has numbers 1-8 distributed in random order. The examiner demonstrates the task and lets the respondent practice connecting the numbers in increasing order. The examiner then hands the respondent the actual test which has the numbers 1-25 distributed in random order and asks the respondent to connect them in increasing order as fast as possible without raising the pen from the paper. Respondents are scored based on speed and accuracy.**Trail Making Test, Part B**The examiner first shows the respondent a sample test that has numbers 1-4 and letters A-D distributed in random order. The examiner demonstrates the task and lets the respondent practice connecting the numbers to letters (one to A, A to two, etc.) in increasing order. The examiner then hands the respondent the actual test which has the numbers 1-13 and letters A-L distributed in random order and asks the respondent to connect them in increasing order as fast as possible without raising the pen from the paper. Respondents are scored based on speed and accuracy.The Trail Making Test is a proprietary instrument and can be obtained through:Reitan Neuropsychology LabPOB 66080Tucson, AZ 85728-6080USATelephone: (520) 577-2970Fax: (520) 577-2940 |
| **Selection Rationale** | The Trail Making Test was selected because it is a standard, widely-used, validated protocol. |
| **Source** | Reitan Neuropsychology Lab. The Adult Trail Making Test.The Trail Making Test is a proprietary instrument and can be obtained through:Reitan Neuropsychology LabPOB 66080Tucson, AZ 85728-6080USATelephone: (520) 577-2970Fax: (520) 577-2940 |
| **Language** | English |
| **Participant** | Participant ages 15 years and older. |
| **Personnel and Training Required** | Personnel should be trained by a licensed neuropsychologist or other trained medical professional experienced with the Trail Making test. Additionally, investigators are encouraged to have quality control procedures (such as videotaping sessions, etc.) in place to maintain consistency across examiners. |
| **Equipment Needs** | The interviewer will need a copy of the test that includes the cue cards with the sequence of numbers and letters and the scoring instructions. |
| **Standards:** |

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| **Standard** | **Name** | **ID** | **Source** |
| Common Data Element (CDE) | Neurology Executive Function Assessment Score | 3076197 | [CDE Browser](https://cdebrowser.nci.nih.gov/CDEBrowser/search?elementDetails=9&FirstTimer=0&PageId=ElementDetailsGroup&publicId=3076197&version=1.0) |
| Logical Observation Identifiers Names and Codes (LOINC) | Executive function proto | 62778-6 | [LOINC](http://s.details.loinc.org/LOINC/62778-6.html?sections=Web) |

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| **General references** | None |
| **Protocol Type** | Interviewer-administered evaluation |
| **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:** | The Expert Review Panel has not reviewed this measure yet. |