Cardiovascular Measures for PhenX Toolkit

Chair of this Working Group was Dr. Tom Pearson of University of Rochester Medical Center.

<table>
<thead>
<tr>
<th>Measure</th>
<th>Description of Measurement Protocol</th>
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<tr>
<td>1</td>
<td><strong>Abdominal Aortic Aneurysm</strong> &lt;br&gt;Questions asking about his or her personal history of abdominal aortic aneurysm and an assessment of the presence of an abdominal aortic aneurysm through the use of an ultrasound.</td>
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<td>2</td>
<td><strong>Angina</strong> &lt;br&gt;Interviewer-administered questions asking the respondent about his or her personal history of angina and chest discomfort characteristics to determine presence of angina.</td>
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<td>3</td>
<td><strong>Arrhythmia (Atrial and Ventricular)</strong> &lt;br&gt;Measure to assess presence of arrhythmias through collection of personal history, treatments and procedures, medication usage, and administration of an electrocardiograph (ECG).</td>
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<td>4</td>
<td><strong>Blood Pressure (Adult/Primary)</strong> &lt;br&gt;Assesses a respondent's systolic and diastolic blood pressure, which is used to determine high blood pressure. Assessment must also include measures for personal history of high blood pressure (hypertension) and a history of medication usage.</td>
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<td>5</td>
<td><strong>Deep Venous Thrombosis</strong> &lt;br&gt;Questions asked of those diagnosed with deep venous thrombosis about treatment for the condition and methods for abstracting additional information from the person's medical record about the history and laboratory findings of deep venous thrombosis.</td>
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<td>6</td>
<td><strong>Family History of Heart Attack</strong> &lt;br&gt;Assesses if respondent's biological parents, siblings, and children have had a heart attack.</td>
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<td>7</td>
<td><strong>Heart Valve Function</strong> &lt;br&gt;Combination of 2D and Doppler echocardiographic examinations to assess the structure and function of the valves within the heart to determine the presence of dysfunction. Assessment also includes measures for personal history of heart valve problems.</td>
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<td>8</td>
<td><strong>High Blood Pressure During Pregnancy</strong> &lt;br&gt;A measure to assess high blood pressure during a current pregnancy.</td>
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<td>9</td>
<td><strong>Lipid Profile</strong> &lt;br&gt;Measure of plasma lipid levels in blood samples to predict risk for the development of heart attack or to define metabolic syndrome.</td>
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<td>10</td>
<td><strong>Myocardial Infarction</strong> &lt;br&gt;Measure to assess if an individual has had a myocardial infarction through collection of personal history of disease, treatment and procedure history, and medical record abstraction.</td>
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<td>11</td>
<td><strong>Peripheral Arterial Disease</strong> &lt;br&gt;A set of interviewer-administered questions about whether the person has been told by a physician that he or she has poor blood flow to the legs or blocked or narrowed arteries to the legs and whether they have had any procedures—such as angiography, angioplasty, or surgery—for the condition. A protocol is provided to assess the presence of peripheral arterial disease (PAD) using the ankle brachial index (ABI). The ABI involves the use of ultrasound to measure blood pressure.</td>
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<td>12</td>
<td><strong>Pulmonary Embolism</strong> &lt;br&gt;Provides a method for abstracting additional information from respondents diagnosed with pulmonary embolus or blood clots using their medical records about the history of pulmonary embolism.</td>
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<td>13</td>
<td><strong>Rheumatic Fever/Rheumatic Heart Disease</strong> &lt;br&gt;Questions to assess history of rheumatic fever or rheumatic heart disease.</td>
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<td>14</td>
<td><strong>Sudden Cardiac Arrest</strong> &lt;br&gt;Measure to assess if patient died of sudden cardiac arrest by reviewing symptoms prior to death, timing of death, possible cardiac origin via autopsy evidence, and/or demonstration of a history of cardiac disease via physician questionnaire and medical records review.</td>
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Complete measurement protocols are available at https://www.phenxtoolkit.org.
What is the PhenX Toolkit?
The PhenX Toolkit is an online catalog of recommended, standard measures and is available for use at no cost at https://www.phenxtoolkit.org.

The purpose of the PhenX Toolkit is to:
• Provide recommended, standard measures of phenotypes and exposures for use in biomedical research
• Facilitate acceptance and use of standard PhenX measures
• Promote collaboration and facilitate cross-study analyses

Researchers visit the Toolkit to:
• Select and incorporate standard measures into ongoing studies
• Consider PhenX measures when planning new studies
• Review and select high-quality, recommended, standard measures in order to expand a study beyond the primary research focus
• Review and select PhenX measures that relate to researchers’ primary research focus

PhenX Toolkit features:
• The Smart Query Tool provides two search options: a Smart Search based on keywords (and synonyms) and a Text Search that searches all text
• Browse options: Domains, Measures, Collections, Supplemental Information, and hierarchical tree view
• Link your study to find other researchers using the same measures and to explore opportunities for cross-study analysis
• Standards included: cancer Data Standards Registry and Repository (caDSR) Common Data Elements (CDEs); Logical Observation Identifiers Names and Codes (LOINC)
• Registered Users have access to additional features and functionality (e.g., saving more than one “My Toolkit”)
• Quick Start and Tutorial resources help new users become familiar with the Toolkit
• Data Dictionaries compatible with submission to the database of Genotypes and Phenotypes (dbGaP) and Custom Data Collection Worksheets can be downloaded
• REDCap Instrument Zip files for PhenX protocols can be uploaded directly to REDCap

For each PhenX measure, the following information is provided:
• Brief description of the measure
• Rationale for selecting the measure for inclusion in the Toolkit
• Detailed protocol(s) for collecting the measure
• Information about the personnel, training, and equipment needed to collect the measure
• Any special requirements
• Related measures
• References

PhenX Research Domains

• Alcohol, Tobacco and Other Substances
• Anthropometrics
• Cancer
• Cardiovascular
• Demographics
• Diabetes
• Environmental Exposures
• Gastrointestinal
• Infectious Diseases and Immunity
• Neurology
• Nutrition and Dietary Supplements
• Obesity
• Ocular
• Oral Health
• Physical Activity and Physical Fitness
• Pregnancy
• Psychiatric
• Psychosocial
• Rare Genetic Conditions
• Reproductive Health
• Respiratory
• Skin, Bone, Muscle and Joint
• Social Environments
• Speech and Hearing

1 Funding for the Social Environments domain provided by the Office of Behavioral and Social Sciences Research (OBSSR).

PhenX supplements:
Several National Institutes of Health (NIH) institutes and programs have contributed supplemental funding to add depth to the Toolkit in specific areas of research.

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PhenX Measures for Mental Health Research funded by the National Institute of Mental Health (NIMH).
PhenX Measures for Substance Abuse and Addiction Research funded by the National Institute on Drug Abuse (NIDA).

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Dr. Carol M. Hamilton is the RTI International Principal Investigator, and Dr. Erin M. Ramos is the NHGRI Project Scientist.

More information is available at the project web portal: https://www.phenx.org