Nutrition and Dietary Supplements Measures for PhenX Toolkit

	Measure	Description of Measurement Protocol
1	Breastfeeding	Questions to ascertain whether an infant was breastfed, duration of breastfeeding, and introduction of solid foods.
2	Caffeine Intake	Questions used to assess an individual's consumption of beverages containing caffeine.
3	Calcium Intake (Daily)	
	a. Calcium Intake by Children (Daily)	Questions for children aged 11 to 14 years to assess a child's intake of calcium.
	b. Calcium Intake by Adults (Daily)	Questions to assess daily average intake of calcium over the past 30 days, as measured in milligrams.
4	Dairy Food Intake (Daily Servings)	Questions to address dairy food intake over the past 30 days.
5	Dietary Supplements Use	Questions to quantify intake from commonly consumed dietary supplements.
6	Fiber Intake	Questions to assess fiber intake over the past 30 days, as measured in grams.
7	Fruits and Vegetables Intake	Questions to assess fruit and vegetable intake over the past 30 days, as measured in cup equivalents.
8	Percentage Energy from Fat	Questions used to inquire about the frequency of an individual's consumption of foods predictive of percentage energy from fat.
9	Selenium	A bioassay to measure serum selenium.
10	Sugar Intake (Added)	Questions to assess added sugar intake, quantified as teaspoon equivalents.
11	Total Dietary Intake	Interviewer-administered, 24-hour recall of foods and beverages to determine total dietary intake.
12	Vitamin D	A bioassay to assess serum vitamin D.

NOTE: Complete protocols and links to common data elements are available through the PhenX Survey at https://www.phenxtoolkit.org.

PhenX
consensus measures for **Phen**otypes and e**X**posures

What Is PhenX?

PhenX is a collaborative, consensus project between RTI International, the National Human Genome Research Institute (NHGRI) of the National Institutes of Health, and the larger research community. The objective of PhenX is to recommend measures with specified measurement protocols that have a high priority for inclusion in genome-wide association studies (GWAS). The consistent use of some measurement protocols across studies will facilitate cross-study comparisons. High-priority measures are, therefore, those measures that are broadly relevant to multiple health outcomes or assessments of health outcomes, although the measures are not focused on differential diagnosis.

Research Domains

The PhenX Steering Committee (SC) chose 21 research domains. A research domain is a field of research with a unifying theme and easily enumerated quantitative and qualitative measures. Working Groups (WGs) of experts in a specific domain were constituted, and they:

- Evaluated the scope of the domain and the broad elements of that scope, and then
- Recommended potential high-priority measures with specific measurement protocols.

These measures were vetted with the larger research community, and final recommendations from the WGs were reviewed by the SC. The primary goal of the project is to collect these recommendations in a Toolkit that will enable scientists to select measures and implement those measures in studies.

For more information on the PhenX project, please visit the project's website at https://www.phenx.org/.

Research Area (Domain)	Status	WG Chair(s)	SC Liaison
Alcohol, Tobacco and Other Substances	In Toolkit	Deborah S Hasin	Erin M Ramos
Anthropometrics	In Toolkit	Michele Forman	Michelle Williams
Cancer	In Toolkit	Neil Caporaso and Christine B Ambrosone	Margaret R Spitz
Cardiovascular	In Toolkit	Thomas A Pearson	William R Harlan
Demographics	In Toolkit	Myles Cockburn	Peter Kraft
Diabetes	In Toolkit	Craig L Hanis	William R Harlan
Environmental Exposures	In Toolkit	Lynn R Goldman	Diane Wagener
Gastrointestinal	In Toolkit	David Whitcomb	William R Harlan
Infectious Diseases and Immunity	In Toolkit	Richard Kaslow	Jonathan Haines
Neurology	In Toolkit	Jeffery M Vance	Lindsay A Farrer
Nutrition and Dietary Supplements	In Toolkit	Patrick J Stover	Jose M Ordovas
Ocular	In Toolkit	Janey L Wiggs	Jonathan Haines
Oral Health	In Toolkit	James Beck and Bryan Michalowicz	Mary L Marazita
Physical Activity and Physical Fitness	In Toolkit	Bill Haskell and Rick Troiano	Jose M Ordovas
Psychiatric	In Toolkit	Jordan Smoller and Kenneth Kendler	Carlos N Pato
Psychosocial	In Toolkit	Bernice Pescosolido	Carlos N Pato
Reproductive Health	In Toolkit	Carol Hogue	Michelle Williams
Respiratory	In Toolkit	Edwin K Silverman	Terri H Beaty
Skin, Bone, Muscle and Joint	In Toolkit	Douglas P Kiel	Lindsay A Farrer
Social Environments	In Toolkit	Barbara Entwisle	Peter Kraft
Speech and Hearing	In Toolkit	Cynthia Morton and Mabel Rice	Mary L Marazita