About the Measure	
Domain:	Social Determinants of Health
Measure:	Educational Attainment-Community
Definition:	Educational attainment-Community is a complement for individual educational attainment, measuring the percentage of people with a college degree living in a person's census unit, based on data from the U.S. Census Bureau.
Purpose:	Educational attainment refers to the highest degree of education an individual has completed as defined by the U.S. Census Bureau Glossary (e.g., high school graduate). Education is an individual social determinant that affects health in many ways; indirectly, through relationships with health behaviors, health care access, unhealthy environments, employment opportunities, and directly, through social status and stress-related factors. Education is correlated to occupation and income and is one of the key components of combined measures of "socioeconomic status" of a community.
Essential PhenX Measures:	Current Address Residential History
Related PhenX Measures:	Current Educational Attainment-Individual Child-Reported Parental Education Attainment Annual Family Income Current Age
Measure Release Date:	

About the Protocol	
Protocol Release Date:	
PhenX Protocol Name:	Educational Attainment-Community
Keywords:	ACS, American Community Survey, College, Education, Graduate, School, Social Determinants of Health, Student, University, U.S. Census
Protocol Name from Source:	Educational Attainment from American Community Survey (ACS), 5-year estimates, 2013-2017

Description:	The American Community Survey (ACS) protocol is based on extracting data from the U.S. Census Bureau related to educational attainment for a community. This protocol assesses the educational environment in which a person lives, which is a different concept than individual-level educational attainment. The protocol identifies the percentage of people with a college degree living in a geographic (census) area. All the relevant variables (e.g., degree obtained) are available from the ACS 5-year estimates. ACS estimates are annually updated; current 5-year data sets range from 2009–2013 to 2013–2017. The ACS Educational Attainment table may be searched by Zone Improvement Plan (ZIP) Code area (captured by the U.S. Census Bureau as a ZIP Code Tabulation Area) or other geographic information and educational information for that census tract located.
Specific Instructions:	If current address (see PhenX Demographics domain, Current Address measure) has been collected for a study respondent, then it is possible to use geocoding to link the address of a study participant to his or her local neighborhood (a geographic area), typically by a census-defined unit, such as a census block group or a census tract or by ZIP Code.
Protocol:	The ACS data used in this protocol can be accessed by using Excel to read the ACS Summary Files or by downloading the data using the "View Tables" display at the U.S. Census Bureau's Data.census.gov platform at http://data.census.gov. **Using Excel to Access Summary Files:** https://www2.census.gov/programs-surveys/acs/summary_file/2017/documentation/tech_docs/ACS_SF_Excel_Import_Tool.pdf?# **Using the Download Center:** https://www2.census.gov/programs-surveys/acs/summary_file/2017/documentation/tech_docs/How_to_Access_ACS_Estimates_AFF.pdf?# The technical documentation for the American Community Survey (ACS) summary files is available online at https://www.census.gov/programs-surveys/acs/technical-documentation/summary-file-documentation.html. Select the "Summary File Documentation" link, and then select the data set of interest. Users not familiar with U.S. Census data should consult the technical materials. If the user is interested in additional variables beyond those included in the academic attainment/achievement protocol, they should be aware that not all ACS estimates are available for all geographies. These missing estimates are due to data suppression techniques by which the U.S. Census Bureau limits disclosure of individual data and does not release estimates with poor statistical reliability. Additional information about data suppression and the specific estimates it impacts can be found at http://www.census.gov/programs-surveys/acs/technical-documentation/data-suppression.html. The race/ethnic data are available for all small census geographies—including census block, census block group, and census tract—and can be easily extracted for almost

any geographic level.

"*Academic Attainment/Achievement* " is derived from data in ACS 5-Year “Table S1501: Educational Attainment.”

Table S1501: EDUCATIONAL ATTAINMENT

Universe: Total population
For the individual table shell for Table S1501 (see the S1501.xlsx individual table shell file available in the Technical Documentation).

Table S1501 is reproduced below:

Line Number	Description
0	**EDUCATIONAL ATTAINMENT**
0.5	Subject
0.9	AGE BY EDUCATIONAL ATTAINMENT
1	Population 18 to 24 years
2	Less than high school graduate
3	High school graduate (includes equivalency)
4	Some college or associate's degree
5	Bachelor's degree or higher
5.3	
6	Population 25 years and over
7	Less than 9th grade
8	9th to 12th grade, no diploma
9	High school graduate (includes equivalency)
10	Some college, no degree
11	Associate's degree
12	Bachelor's degree
13	Graduate or professional degree
13.3	
14	Percent high school graduate or higher
15	Percent bachelor's degree or higher
15.3	
16	Population 25 to 34 years
17	High school graduate or higher
18	Bachelor's degree or higher
18.3	
19	Population 35 to 44 years
20	High school graduate or higher
21	Bachelor's degree or higher

	21.3	
	22	Population 45 to 64 years
	23	High school graduate or higher
	24	Bachelor's degree or higher
	24.3	
	25	Population 65 years and over
	26	High school graduate or higher
	27	Bachelor's degree or higher

Selection Rationale:	Education is correlated with occupation and income, which, taken together, are useful epidemiologic predictors of health status. The U.S. Census Bureau measure for educational attainment is the most widely used standard measure of educational attainment. Community educational attainment at the census tract level provides, and can complement, individual-level information.
Source:	U.S. Census Bureau. (n.d.). Data.census.gov. Retrieved from http://data.census.gov U.S. Census Bureau. (n.d.). American Community Survey (ACS) products (specifically, the 5-year estimates). Retrieved from http://www.census.gov/programs-surveys/acs
Availability:	Publicly available
Life Stage:	Infant, Toddler, Child, Adolescent, Adult, Senior, Pregnancy
Language:	English
Participant:	Not applicable; derived from publicly available secondary data
Personnel and Training Required:	Knowledge of U.S. Census Bureau and American Community Survey data products and websites, such as Data.census.gov and/or publicly available data portals (e.g., https://nhgis.org/) and/or commercial geospatial data products, such as those provided by vendors like GeoLytics or Social Explorer.
Equipment Needs:	Access to a desktop/laptop computer with Internet access to download raw data from the U.S. Census Bureau's Data.census.gov website (http://data.census.gov) or American Community Survey data (https://www.census.gov/programs-surveys/acs/data.html)

General References:	Agency for Healthcare Research and Quality (AHRQ). (2015). *Understanding the relationship between education and health: A review of the evidence and an examination of community perspectives*. Retrieved from http://www.ahrq.gov/professionals/education/curriculum-tools/population-health/zimmerman.html Arcaya, M., Tucker-Seeley, R., Kim, R., Schnake-Mahl, A., So, M., & Subramanian, S.V. (2016). Research on neighborhood effects on health in the United States: A systematic review of study characteristics. *Social Science & Medicine, 168*, 16–29. Cohen, S. S., Mumma, M. T., Dupree, E. E., & Boice, J. D., Jr. (2018). Validating the use of census data on education as a measure of socioeconomic status in an occupational cohort. *International Journal of Radiation Biology, 19,* 1–10. Connelly, R., Gayle, V., & Lambert, P. S. (2016). A review of educational attainment measures for social survey research. *Methodological Innovations, 9.* Friedman, J., Graetz, N., & Gakidou, E. (2018). Improving the estimation of educational attainment: New methods for assessing average years of schooling from binned data. *PLoS One*, *13*(11), e0208019. Geronimus, A. T., & Bound, J. (1998). Use of census-based aggregate variables to proxy for socioeconomic group: Evidence from national samples. *American Journal of Epidemiology, 148*(5), 475–486. Krueger, P. M., Dehry, I. A., & Chang, V. W. (2019). The economic value of education for longer lives and reduced disability. *Milbank Quarterly, 97*(1), 48–73. McElroy, J. A., Remington, P. L., Trentham-Dietz, A., Robert, S. A., & Newcomb, P. A. (2003). Geocoding addresses from a large population-based study: Lessons learned. *Epidemiology, 14,* 399–407. Pardo-Crespo, M. R., Narla, N. P., Williams, A. R., Beebe, T. J., Sloan, J., Yawn, B. P., … Juhn, Y. J. (2013). Comparison of individual-level versus area-level socioeconomic measures in assessing health outcomes of children in Olmsted County, Minnesota. *Journal of Epidemiology and Community Health, 67*(4), 305–310. PMID: 23322850 Ryan, C. L., & Bauman, K. (2016). Educational attainment in the United States: 2015. *P20-578,* 1–11. Retrieved from https://www.census.gov/library/publications.html
Mode of Administration:	Secondary data analysis
Derived Variables:	None
Requirements:	**Requirements Category** | **Required (Yes/No):**

	Major equipment	No
	Specialized training	No
	Specialized requirements for biospecimen collection	No
	Average time of greater than 15 minutes in an unaffected individual	No
Annotations for Specific Conditions:	No annotations at this time	
Process and Review:	Not applicable	