DATA EXPLAINER – Explore our Data Model and Data Sources

Broadband Connectivity

As detailed in the chart below, we utilize fixed broadband data made available through the FCC's Form 477 data program and focus on two primary dimensions of connectivity: availability (access) and subscription (adoption). The fixed broadband data in the current mapping update was initially released in February 2020 and covers data submissions from the FCC Form 477 data program as of June 2019 as well as revisions through September 1, 2020. (The Commission denominates this dataset as "Form 477 Broadband Deployment Data – June 2019 (version 2)".) We note that fixed broadband providers submitted data with a time lag; the Commission then compiles, releases, and updates the data bi-annually, in June and December. The Mapping Broadband Health in America platform currently utilizes the dataset as of June 2019, as updated or corrected; we anticipate future iterations of the platform taking advantage of the more granular broadband data that the FCC is collecting pursuant to the Broadband DATA Act, once such data is more finalized. (See Data Notes below.) We sought to match the data years of the broadband connectivity, health, and demographics data as closely as possible, while addressing data gaps in the publicly available opioid mortality rates (see below).

The broadband variables displayed and visualized in the platform were chosen to provide insights into what can be enabled and delivered through the broadband health ecosystem of networks, devices, and applications and to identify exactly where gaps exist. These data points include – broadband access, rural broadband access, Internet adoption, and upload and download speed. The map also includes other geographical characteristics such as the number of providers in an area and the percentage of the population served at each provider and speed tier.

Dimensions	Measures	Data Year	Release Year
Availability	Broadband Access (Fixed Broadband)	2019	2020
	Rural Access		
	Download Speed (Fixed Download)		
	Upload Speed (Fixed Upload)		
	Number of Providers		
	Most Common Download Speed		
	Most Common Upload Speed		
	% Population with Access by Number of Broadband Providers		
	% Population with Access by Speed Tier		
Adoption	Internet Adoption	2019	2022/ 2023

AVAILABILITY

Broadband Access (Fixed Broadband)

Percentage of the population living in census blocks with access to fixed broadband service at 25/3 Mbps (megabits per second) or higher advertised speeds. 25/3 Mbps is the Commission's current benchmark for fixed broadband service. Form 477 Data is collected at the census block level. Learn more.
Data Source: Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates (data file provides population, housing units, and housing counts for each block for 2010 (US Census) and 2011-2019 (Commission staff estimate)
Data Year: 2019
Variables: pctpopwbbacc, pctpopwobbaacc

Rural Access

Percentage of the population living in rural census blocks with access to fixed broadband service at 25/3 Mbps or higher advertised speeds. 25/3 Mbps is the Commission's current benchmark for fixed broadband service. Form 477 Data is collected on the census block level. Learn more.
Data Source: Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates
Data Year: 2019
Variable: bpr_ruralpctwaccess

Download Speed (Fixed Download)

Percentage of population living in census blocks with access to fixed broadband service at 25 Mbps or higher advertised download speeds. 25 Mbps is the Commission's current benchmark for fixed broadband download speeds. Form 477 Data is collected on the census block level. Learn more.
Data Source: Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates
Data Year: 2019
Variable: dsgteq25

Upload Speed (Fixed Upload)

Percentage of population living in census blocks with access to fixed broadband service at 3 Mbps or higher advertised upload speeds. 3 Mbps is the Commission's current benchmark for fixed broadband upload speeds. Form 477 Data is collected on the census block level. Learn more.
Data Source: Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates
Data Year: 2019
Variable: usgteq3

Number of Providers (Consumers)

Number of fixed broadband providers offering service to consumers at 25/3 Mbps or higher advertised speeds. Form 477 Data is collected on the census block level. Learn more.
Data Source: Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates
Data Year: 2019
Variable: provcount_c

Most Common Download

The most common advertised download speed tier. Download speed tiers are: 0 Mbps, 0-1 Mbps, 1-3 Mbps, 3-4 Mbps, 4-6 Mbps, 6-10 Mbps, 10-15 Mbps, 15-25 Mbps, 25-50 Mbps, 50-100 Mbps, 100-1000 Mbps, and > 1000 Mbps. (Note: If multiple tiers have the same value, then the tier with the highest speed is reported.) Form 477 Data is collected on the census block level. Learn more.
Data Source Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates
Data Year: 2019
Variable: mcds_tier, dl_tiers

Most Common Upload

The most common advertised upload speed tier. Upload speed tiers are: 0 Mbps, 0-1 Mbps, 1-3 Mbps, 3-4 Mbps, 4-6 Mbps, 6-10 Mbps, 10-15 Mbps, 15-25 Mbps, 25-50 Mbps, 50-100 Mbps, 100-1000 Mbps, and > 1000 Mbps. (Note: If multiple tiers have the same value, then the tier with the highest speed is reported). Form 477 Data is collected on the census block level. Learn more.
Data Source: Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates
Data Year: 2019
Variable: mcus_tier, ul_tiers

% Population with Access by Provider Tier

The percentage of the population living in census blocks with access to a certain number of broadband providers offering services to consumers at 25/3 Mbps or higher advertised speeds. 25/3 Mbps is the Commission's current benchmark for fixed broadband service. The tiers of providers are: 0 providers, 1 provider, 2 providers, 3 providers, 4 providers, 5 providers, 6 providers, 7 providers, or 8+ providers. Form 477 Data is collected on the census block level. Learn more.
Data Source: Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates
Data Year: 2019
Variables: cumm_prov_c_0, cumm_prov_c_1, cumm_prov_c_2, cumm_prov_c_3, cumm_prov_c_4, cumm_prov_c_5, cumm_prov_c_6, cumm_prov_c_7, cumm_prov_c_8

% Population with Access by Speed Tier

The percentage of the population living in census blocks with access to a certain highest download or upload speed tier. Download and upload speed tiers are: 0 Mbps, 0-1 Mbps, 1-3 Mbps, 4-6 Mbps, 6-10 Mbps, 10-15 Mbps, 25-50 Mbps, 50-100 Mbps, 100-1000 Mbps, and > 1000 Mbps. (Note: If multiple tiers have the same value, then the tier with the highest speed is reported). Form 477 Data is collected on the census block level. Learn more.
Data Source: Fixed Broadband Deployment Data from FCC Form 477 and FCC Staff Block Estimates
Data Year: 2019
Variables: pctds0_hi, pctdsgt0kandlt1000k_hi, pctdsgt1000kandlt3000k_hi, pctdsgt3000kandlt4000k_hi, pctdsgt4000kandlt6000k_hi, pctdsgt6000kandlt10000k_hi, pctdsgt10000kandlt15000k_hi, pctdsgt15000kandlt25000k_hi, pctdsgt25000kandlt50000k_hi, pctdsgt50000kandlt100000k_hi, pctdsgt100000kandlt1gig_hi, pctdsgt1gig_hi, pctus0_hi, pctusgt0kandlt1000k_hi, pctusgt1000kandlt3000k_hi, pctusgt3000kandlt4000k_hi, pctusgt4000kandlt6000k_hi, pctusgt6000kandlt10000k_hi, pctusgt10000kandlt15000k_hi, pctusgt15000kandlt25000k_hi, pctusgt25000kandlt50000k_hi, pctusgt50000kandlt100000k_hi, pctusgt100000kandlt1gig_hi, pctusgt1gig_hi

Internet Adoption

The number of residential (consumer) connections per 100 households. This ratio reflects the number of fixed connections over 200 Kbps on one direction. Connections over 200 Kbps is the equivalent of 0.2 Mbps. Therefore, Internet adoption captures all residential locations with a fixed broadband connection. Data is also presented in categories from 0-20 connections, 20-40 connections, 40-60 connections, 60-80 connections, 80-100 connections. Learn more.

Data Source: Internet Access Services Report as of 6/30/19 (released 3/9/22), Form 477 County-Level Connection Data (posted February 2, 2023), Form 477 County-Level Tier Data (posted June 21, 2022)

Data Year: 2019

Variable: subscription_ratio, rex_concxns_choro

FORM 477 DATA NOTES:

- As explained on the FCC Form 477 data webpage, a provider that reports deployment of a particular technology and bandwidth in a census block may not necessarily offer that service everywhere in the block. Accordingly, a list of providers deployed in a census block does not necessarily reflect the number of choices available to any particular household, and the number of such providers in the census block does not purport to measure competition.
- Similarly, under the FCC Form 477 data program , if a provider reports broadband deployment of 25/3 Mbps or higher for at least one location in the census block, then the entire census block is considered to receive fixed broadband service at 25/3 Mbps or higher. Following, the entire population of the census block is considered to have access to fixed broadband service at 25/3 Mbps or higher.
- More information about the FCC Form 477 data program is available on the FCC's website: https://www.fcc.gov/general/broadband-deployment-data-fcc-form-477 .
- As directed by the Broadband DATA Act, the FCC is currently implementing improvements to the agency's broadband data and mapping tools. Using the Broadband Data Collection, providers submit location level information about mass-market Internet services available across the United States. Pre-production drafts of the National Broadband Map based on data as of June 30, 2022, were released on November 18, 2022, and the FCC is currently accepting challenges to the data on a rolling, on-going basis. For more information on the Broadband Data Collection, visit: https://www.fcc.gov/BroadbandData.

Chronic Disease and Health Behaviors

Health data is drawn from the 2021 release of the County Health Rankings & Roadmaps program, a collaboration between the Robert Wood Johnson Foundation and University of Wisconsin Population Health Initiative. This dataset reflects the most recent data on the metrics of interest from the Centers for Disease Control and Prevention, Health Resources and Services Administration, and Centers for Medicare and Medicaid Services, among others. As detailed in the chart below, the metrics reflect four dimensions of health – health outcomes, access to care, quality of care, and health behaviors – where broadband connectivity may be used to enable effective and cost-saving interventions. We also include statistics on selected community factors of interest. We sought to match the data years of broadband connectivity and health data as closely as possible (see above).

Health Dimensions and Factors	Health Measures	Data Year	Release Year
Health Outcomes	Diabetes	2017	2021
	Obesity	2017	
	Poor/Fair Health	2018	
	Sick Days	2018	
	Premature Death	2017-2019	
Access to Care	Physician Access	2018	2021
	Primary Care Physicians	2018	
	Dental Providers	2019	
	Mental Health Providers	2020	
Quality of Care	Preventable Hospitalization	2018	2021
Health Behaviors	Smoking	2018	2021
	Excessive Drinking	2018	
	Physical Inactivity	2017	
Selected Community Factors	Injury Deaths	2015-2019	2021
	Severe Housing	2013-2017	
Data Source: County Health Rankings & Roadmaps, 2021			

HEALTH OUTCOMES

Diabetes

Percentage of adults (aged 20 and above) with diagnosed diabetes. Includes Type 1 & Type 2 diabetes (and excludes gestational diabetes). Data collected via landline and cellphone survey. Learn more.
Primary Data: United States Diabetes Surveillance System
Data Year: 2017
Variable: diabetes_pct

Obesity

Percentage of adults (aged 20 and above) that report a body mass index (BMI) greater than or equal to 30 kg/m^2. Participants self-report height and weight, and BMI is calculated for reported values. Data collected via landline and cellphone survey. Learn more.
Primary Data: United States Diabetes Surveillance System
Data Year: 2017
Variable: adult_obesity_pct

Poor/Fair Health

Percentage of adults who consider themselves to be in poor or fair health (age-adjusted). Data collected via landline and cellphone survey asking respondents to self-report health as "excellent," "very good," "good," "fair," or "poor." Learn more.
Primary Data: Behavioral Risk Factor Surveillance System
Data Year: 2018
Variable: poor_fair_health_pct

Sick Days

Average number of physically unhealthy days reported in the past 30 days (age-adjusted). Data collected via telephone survey asking respondents to self-report the number of days that their "physical health" was "not good." Learn more.
Primary Data: Behavioral Risk Factor Surveillance System
Data Year: 2018
Variable: poor_physical_health_days_within_last_30_days

Premature Death

Years of potential life lost before age 75 per 100,000 population (age-adjusted). Calculated by adding all the years of potential life lost during a three-year period and dividing by total population during that same period. Years of potential life lost is the age of the individual at the time of death subtracted from 75. Learn more.
Primary Data: National Center for Health Statistics – Mortality Files
Data Year: 2017-2019
Variable: years_lost_per_100000

ACCESS TO CARE

Physician Access

The number of primary physicians per 100,000 population. Primary care physicians include practicing non-federal physicians (M.D.s and D.O.s) under age 75 specializing in general practice medicine, family medicine, internal medicine, and pediatrics. Learn more.
Primary Data: Area Health Resource File/American Medical Association & United States Census Bureau, County Population Totals: 2010-2019
Data Year: 2018
Variable: pcp_rate_per_100000

Primary Care Physicians

Number of primary care physicians. Primary care physicians include practicing non-federal physicians (M.D.s and D.O.s) under age 75 specializing in general practice medicine, family medicine, internal medicine, and pediatrics. Learn more.
Primary Data: Area Health Resource File/American Medical Association
Data Year: 2018
Variable: pcp_total

Dental Providers

Number of dentists. This includes all registered dentists with a National Provider Identification. Learn more.
Primary Data: Area Health Resource File/National Provider Identification File
Data Year: 2019
Variable: dentist_total

Mental Health Providers

Number of mental healthcare providers. Mental healthcare providers include psychiatrists, psychologists, licensed clinical social workers, counselors, marriage/family therapists, and mental health providers that treat alcohol and drug abuse, as well as advanced practice nurses specializing in mental health care. Learn more.
Primary Data: CMS, National Provider Identification
Data Year: 2020
Variable: mhp_total

QUALITY OF CARE

Preventable Hospitalization

Rate of hospital stays for ambulatory-care sensitive conditions per 100,000 Medicare enrollees (age-adjusted). The rate is calculated by taking the number of discharges for Medicare beneficiaries aged 18 years or older continuously enrolled in Medicare fee-for-service Part A and hospitalized for ambulatory-care reasons, divided by the number of Medicare beneficiaries. Ambulatory-care sensitive conditions are diagnoses that are usually treatable in an outpatient setting, but hospitalization for these conditions suggests that quality of care in the outpatient setting was less than ideal. Learn more.
Primary Data: Mapping Medicare Disparities Tool
Data Year: 2018
Variable: preventable_hospital_stays_per_100000

HEALTH BEHAVIORS

Smoking

Percentage of adults who are current smokers. Current smokers are those who self-report smoking every day or most days and have smoked at least 100 cigarettes in their lifetime. Data collected via landline and cellphone survey. Learn more.
Primary Data: Behavioral Risk Factor Surveillance System
Data Year: 2018
Variable: smoking_pct

Excessive Drinking

Percentage of adults reporting binge or heavy drinking during the last 30 days. Binge drinking is defined as a woman consuming more than four alcoholic drinks during a single occasion, or a man consuming more than five. Heavy drinking is defined as a woman drinking more than one drink on average per day, or a man drinking more than two. Data collected via landline and cellphone survey. Learn more.
Primary Data: Behavioral Risk Factor Surveillance System
Data Year: 2018
Variable: drinking_pct

Physical Inactivity

Percentage of adults (age 20 and over) reporting no leisure-time physical activity. Data collected via landline and cellphone survey wherein respondents were asked if during the past month they had participated "in any physical activities or exercises such as running, calisthenics, golf, gardening, or walking for exercise." Learn more.
Primary Data: United States Diabetes Surveillance System
Data Year: 2017
Variable: physical_inactivity

SELECTED COMMUNITY FACTORS

Injury Deaths

Number of deaths due to injury per 100,000 population. Injuries include both planned and unplanned incidents regardless of cause and intent. Calculated by taking number of injury deaths during a five-year period divided by the aggregate annual population during the same period. Learn more.
Primary Data: National Center for Health Statistics – Mortality Files
Data Year: 2015-2019
Variable: injury_deaths_per_100000

Severe Housing

Percentage of households with at least 1 of 4 housing problems: overcrowding, high housing costs, lack of kitchen facilities, or lack of plumbing facilities. Overcrowding is measured as more than one person per room; high housing cost is measured as monthly housing costs that exceed 50% of monthly income; lack of kitchen facilities includes lack of a sink with running water, stove/range, or refrigerator; lack of plumbing facilities includes lack of hot/cold piped water, flush toilet, or bathtub/shower. Learn more.
Primary Data: Comprehensive Housing Affordability Strategy (CHAS) data
Data Year: 2013-2017
Variable: severe_housing_problems

Opioid Mortality and Prescription Rates

Pursuant to a congressional request that the Commission measure the potential impact of broadband access on the opioid crisis and that we utilize the Mapping Broadband Health in America platform to "overlay drug abuse statistics with the level of Internet access to help address challenges in rural areas," the current update significantly extends the platform to include opioid mortality metrics as well as statistics on opioid prescribing rates. This initial phase of adding opioid data to the platform focused on a subset of metrics that will provide some baseline information for policymakers: all-drug and opioid-related death rates, opioid prescriptions rates, and trends in death and prescription rates. These data come from the Centers for Disease Control and Prevention. The all-drug and opioid-related mortality data are based on death certificates for U.S. residents and reflects average mortality and population data over a five-year period (2015-2019). To help assess trends over time, we also calculate a percent change in mortality rate by comparing two consecutive five-year periods (2015-2019 and 2010-2014). Data on opioid prescriptions reflects estimates of the total number of opioid prescriptions filled in the United States from retail pharmacies. Percent change in prescription rate reflects the most current data (2020) compared to the previous year (2019). Additional details are provided in the chart and descriptions below. We sought to match the data years of broadband connectivity and opioid-related health data as closely as possible, while addressing data gaps in the publicly available opioid mortality rates (see above).

Dimensions	Measures	Data Year(s)	Release Year
Health Outcomes	All Drugs – Death Rate	2015-2019	2023
	All Drugs – Death Rate Trends	2010-2019	
	All Opioids – Death Rate	2015-2019	
	All Opioids – Death Rate Trends	2010-2019	
	Prescription Opioids – Death Rate	2015-2019	
	Prescription Opioids – Death Rate Trends	2010-2019	
	Synthetic Opioids – Death Rate	2015-2019	
	Synthetic Opioids – Death Rate Trends	2010-2019	
	Heroin – Death Rate	2015-2019	
	Heroin – Death Rate Trends	2010-2019	
Risk Factors	Opioids Prescription Rate	2019	2023
	Opioids Prescription Trends	2019-2020	

All Drugs – Death Rate

Mortality rate for all drug-related overdose, represented as deaths per 100,000 population. The rates are five-year, aged-adjusted averages (2015-2019). "All drug-related overdose" mortality is classified using the International Classification of Diseases, Tenth Revision (ICD-10) and identified using the underlying cause of death codes for Drug poisonings (overdose) that are Unintentional (X40-X44), Suicide (X60-X64), Homicide (X85), and Undetermined (Y10-Y14). Learn more.
Data Source: Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics.
Data Year: 2015-2019
Variable: alldrugs_age_adj_mortality_rate, alldrugs_age_adj_mortality_rate_norm

All Drugs – Death Rate Trends
Percent change in mortality rate (deaths per 100,000 population) for all drug-related overdose. Percent change is average mortality rate over the current five-year period (2015-2019) compared to average mortality rate over the previous five-year period (2010-2014).
Data Source: [Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics](#).
Data Year: 2010-2019
Variable: alldrugs_age_adj_mortality_rate_pct_change, alldrugs_age_adj_mortality_rate_pct_change_norm

All Opioids – Death Rate
Mortality rate for all opioid-related overdose, represented as deaths per 100,000 population. The rates are five-year, aged-adjusted averages (2015-2019). "All opioids" mortality is classified using the International Classification of Diseases, Tenth Revision (ICD-10) and identified using the underlying cause of death codes for Drug poisonings (overdose) that are Unintentional (X40-X44), Suicide (X60-X64), Homicide (X85), and Undetermined (Y10-Y14) and involve opium (T40.0) heroin (T40.1), natural and semi-synthetic opioids (T40.2), methadone (T40.3), synthetic opioids other than methadone (T40.4), and other and unspecified narcotics (T40.6). [Learn more.](#)
Data Source: [Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics](#).
Data Year: 2015-2019
Variable: anyopioids_age_adj_mortality_rate, anyopioids_age_adj_mortality_rate_norm

All Opioids – Death Rate Trends
Percent change in mortality rate (deaths per 100,000 population) for all opioid-related overdose. Percent change is average mortality rate over the current five-year period (2015-2019) compared to average mortality rate over the previous five-year period (2010-2014).
Data Source: [Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics](#).
Data Year: 2010-2019
Variable: anyopioids_age_adj_mortality_rate_pct_change, anyopioids_age_adj_mortality_rate_pct_change_norm

Prescription Opioids – Death Rate
Mortality rate for all prescription opioid overdose, represented as deaths per 100,000 population. The rates are five-year, aged-adjusted averages (2015-2019). "Prescription opioids" is classified using the International Classification of Diseases, Tenth Revision (ICD-10) and identified using the underlying cause of death codes for Drug poisonings (overdose) that are Unintentional (X40-X44), Suicide (X60-X64), Homicide (X85), and Undetermined (Y10-Y14) and involve natural and semi-synthetic opioids (T40.2) and methadone (T40.3). [Learn more.](#)
Data Source: [Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics](#).
Data Year: 2015-2019
Variable: prescriptionopioids_age_adj_mortality_rate, prescriptionopioids_age_adj_mortality_rate_norm

Prescription Opioids – Death Rate Trends
Percent change in mortality rate (deaths per 100,000 population) for all prescription opioid overdose. Percent change is average mortality rate over the current five-year period (2015-2019) compared to average mortality rate over the previous five-year period (2010-2014).
Data Source: [Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics](#).
Data Year: 2010-2019
Variable: prescriptionopioids_age_adj_mortality_rate_pct_change, prescriptionopioids_age_adj_mortality_rate_pct_change_norm

Synthetic Opioids – Death Rate
Mortality rate for all synthetic opioid overdose, represented as deaths per 100,000 population. The rates are five-year, aged-adjusted averages (2015-2019). "Synthetic opioids" mortality is classified using the International Classification of Diseases, Tenth Revision (ICD-10) and identified using the underlying cause of death codes for Drug poisonings (overdose) that are Unintentional (X40-X44), Suicide (X60-X64), Homicide (X85), and Undetermined (Y10-Y14) and involve synthetic opioids other than methadone (T40.4). [Learn more.](#)
Data Source: [Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics](#).
Data Year: 2015-2019
Variable: syntheticopioids_age_adj_mortality_rate, syntheticopioids_age_adj_mortality_rate_norm

Synthetic Opioids – Death Rate Trends

Percent change in mortality rate (deaths per 100,000 population) for all synthetic opioid-related overdose. Percent change is average mortality rate over the current five-year period (2015-2019) compared to average mortality rate over the previous five-year period (2010-2014).

Data Source: Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics.

Data Year: 2010-2019

Variable: syntheticopioids_age_adj_mortality_rate_pct_change, syntheticopioids_age_adj_mortality_rate_pct_change_norm

Heroin – Death Rate

Mortality rate for all heroin overdose represented as deaths per 100,000 population. The rates are five-year, aged-adjusted averages (2015-2019). "Heroin" mortality is classified using the International Classification of Diseases, Tenth Revision (ICD-10) and identified using the underlying cause of death codes for Drug poisonings (overdose) that are Unintentional (X40-X44), Suicide (X60-X64), Homicide (X85), and Undetermined (Y10-Y14) and involve heroin (T40.1). Learn more.

Data Source: Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics.

Data Year: 2015-2019

Variable: heroin_age_adj_mortality_rate, heroin_age_adj_mortality_rate_norm

Heroin – Death Rate Trends

Percent change in mortality rate (deaths per 100,000 population) for all heroin overdose. Percent change is average mortality rate over the current five-year period (2015-2019) compared to average mortality rate over the previous five-year period (2010-2014).

Data Source: Multiple Cause of Death 1999-2019 on CDC WONDER Online Database - United States Department of Health and Human Services, Center for Disease Control and Prevention, National Center for Health Statistics.

Data Year: 2010-2019

Variable: heroin_age_adj_mortality_rate_pct_change, heroin_age_adj_mortality_rate_pct_change_norm

Opioid Prescription Rate

Rate of retail opioid prescriptions dispensed per 100 persons. Prescriptions include any initial or refill prescription dispensed at a retail pharmacy in the sample and paid for by commercial insurance, Medicare, Medicaid, cash or its equivalent. Opioids include, but are not limited to, buprenorphine, codeine, fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, oxymorphone, propoxyphene, tapentadol, and tramadol. Learn more.

Data Source: U.S. Opioid Dispensing Rate Maps, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control (IQVIA Xponent 2006-2020)

Data Year: 2019

Variable: opioid_prescribing_rate, opioid_prescribing_rate_norm

Opioids Prescription Trends

Percent change in opioid prescription rate (retail opioid prescriptions dispensed per 100 persons) in the current year (2020) compared to the previous year (2019). Prescriptions include any initial or refill prescription dispensed at a retail pharmacy in the sample and paid for by commercial insurance, Medicare, Medicaid, cash or its equivalent. Opioids include, but are not limited to, buprenorphine, codeine, fentanyl, hydrocodone, hydromorphone, methadone, morphine, oxycodone, oxymorphone, propoxyphene, tapentadol, and tramadol. Learn more.

Data Source: U.S. Opioid Dispensing Rate Maps, Centers for Disease Control and Prevention, National Center for Injury Prevention and Control (IQVIA Xponent 2006-2020)

Data Year: 2019-2020

Variable: opioid_prescribing_rate_pct_change, opioid_prescribing_rate_pct_change_norm

Demographics

Demographics data includes information that may help to contextualize the intersection between broadband and health data in a geographical area. This data is drawn from several sources including the United States Census Bureau, Federal Communication Commission, County Health Rankings & Roadmaps program, Small Area Income and Poverty Estimates, Bureau of Labor Statistics, and American Community Survey. As detailed in the chart below, the metrics reflect three demographic dimensions – population, social & economic factors, and education. We sought to match the data years of broadband connectivity and demographics data as closely as possible (see above).

Dimensions	Measures	Data Year	Release Year
Population	Population	2019	2020
	Rural Urban Density	2019	2020
	Age (Over 65 Years) Female Male	2019	2021
Social & Economic Factors	Median Household Income	2019	2021
	Unemployment	2019	
Education	Education (Attended Some College)	2015-2019	

Population
Estimate of the resident population including all people currently residing in the United States. The population estimate is calculated using the population base (the last decennial census or previous point in the time series), adding births, subtracting deaths, and add net migration.
Data Source: United States Census Bureau, County Population Totals: 2010-2019
Data Year: 2019
Variable: population

Rural
Population residing in a rural area. Rural areas include all census tracks and/or blocks that are designated as rural for the U.S. Census Bureau 2010 Census. Rural includes all census blocks/tracts not included within an urban area. Learn more.
Data Source: United States Census Bureau, County Population Totals: 2010-2019 and FCC Staff Block Estimates
Data Year: 2019
Variable: rural_total

Urban
Population residing in an urban area. Urban areas include all census tracks and/or blocks that are designated as urban for the U.S. Census Bureau 2010 Census. Urban includes all census blocks/tracts that meet minimum population density requirements, as well as adjacent territory containing non-residential urban land uses and with low population density included to link outlying densely settled territory with the densely settled core. Learn more.
Data Source: United States Census Bureau, County Population Totals: 2010-2019 and FCC Staff Block Estimates
Data Year: 2019
Variable: urban_total

Density
Population per square mile. Density is calculated by taking the total population residing in the census block group as of 2019 and dividing it by the square miles of land in the census block group. Learn more.
Data Source: Federal Communications Commission 2021 Broadband Deployment Report
Data Year: 2019
Variable: pop_density

Age (Over 65 Years)
Percentage of the population aged 65 and older according to the U.S. Census Population Estimates (2019).
Data Source: 2021 County Health Rankings & Roadmaps program
Data Year: 2019
Variable: age_over_65_pct

Female
Population that identifies as female according to U.S. Census Population Estimates (2019).
Data Source: 2021 County Health Rankings & Roadmaps program & United States Census Bureau, County Population Totals: 2010-2019
Data Year: 2019
Variable: female_total

Male
Population that identifies as male according to U.S. Census Population Estimates (2019).
Data Source: 2021 County Health Rankings & Roadmaps program & United States Census Bureau, County Population Totals: 2010-2019
Data Year: 2019
Variable: male_total

Median Household Income
Median household income is the income level at which half of households earn more and half of households earn less. Income includes, but is not limited to, wage or salary income; net self-employment income; interest, dividends, or net rental or royalty income or income from estates and trusts; Social Security or Railroad Retirement income; Supplemental Security Income; public assistance or welfare payments; retirement, survivor, or disability pensions; and all other income. Learn more.
Data Source: Small Area Income and Poverty Estimates
Data Year: 2019
Variable: medianhhinc

Unemployment
Percentage of the civilian labor force (aged 16 and older) who are unemployed but seeking work. Unemployed population includes individuals who had no employment during the survey week, were available for work, and had made specific efforts to find employment during the preceding four weeks. The county civilian labor force is all unemployed and employed individuals (aged 16 and older), excluding military personnel, federal government employees, retirees, handicapped workers, and agricultural workers. Learn more.
Data Source: Bureau of Labor Statistics
Data Year: 2019
Variable: unemployment

Education (Attended Some College)
Percentage of adults (aged 25-44) with some post-secondary education. Some post-secondary education includes all individuals who pursued education following high school (including vocational/technical schools, junior colleges, or four-year colleges), whether they received a degree or not. Learn more.
Primary Data: American Community Survey (ACS), 5-year Estimates
Data Year: 2015-2019
Variable: some_college