DEPARTMENT OF HEALTH

Vital Statistics Interactive Query: User Guide

This guide provides detailed instructions on how to effectively use the vital statistics interactive tool built with Tableau to analyze mortality and natality trends. By leveraging the full capabilities of these dashboards, users can perform comprehensive analyses, gaining insights into crude birth rates, fertility rates, age-adjusted death rates, crude death rates, premature death rates, and age-adjusted premature death rates. Interactive maps enable users to click on any county to find specific rates, with the bar charts, tables, and maps dynamically updating based on the selected filters. By analyzing birth and death data, researchers and analysts can identify seasonal variations, trends, and potential factors contributing to fluctuations in mortality and live birth rates throughout the year.

You can find these dashboards online: MDH: Vital Statistics (https://www.health.state.mn.us/data/mchs/vitalstats)

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Overview: Vital statistics dashboards

The Minnesota Center for Health Statistics maintains 1980-present birth and 1944-present death statistical files that are used to monitor trends in vital statistics (e.g., pregnancy risk factors, birth outcomes, and causes of death), for the state overall and for specific subgroups (e.g., race, age, or county of residence).

The Minnesota Center for Health Statistics will continue to incorporate additional years of data in the future. The Minnesota Center for Health Statistics implemented single-race categorization starting with the 2021 data, and phased out bridged-race categorization following the 2020 data. Users should not compare bridged-race statistics with single-race statistics, due to this change in categorization.

Included dashboards

MDH has developed a suite of interactive Tableau dashboards below to help you explore and analyze vital statistics data.

- Mortality data
- Mortality data table
- Crude death rates
- Age-adjusted death rates
- Premature deaths (< 75 yrs) and age-adjusted rates

- Natality data
- Natality data table
- Crude birth rates
- Crude fertility rates

How to navigate dashboards

Explore and analyze vital statistics data using the following instructions applicable to all dashboards:

1. **Select dashboard**: Choose the desired dashboard from the menu to begin exploring vital statistics data.

2. **Categories**: Use dropdown menus or filters to select specific categories such as age at death, cause of death, maternal age, birth month, etc. Refer to Table 1 and Table 2 for a complete list of variables.

3. **Filters**: After selecting categories, apply filters to display data for a single county, multiple counties, or statewide. Click the 'Apply' button to update the dashboard with selected filters. When selecting counties from the dropdown filters, include or exclude 'State of Minnesota' and/or 'Missing Counties' to meet your project needs.

4. **Visual elements**: Navigate through interactive elements including maps, bar charts, and data tables. Hover over map regions, bars in charts, or rows in tables to view detailed information such as county names, specific rates (e.g., crude death rate, crude birth rate), and counts (e.g., number of deaths, number of births).

5. **Sorting**: All bar charts and tables have sort controls enabled. Selecting respective headers sorts the data alphabetically or numerically, facilitating easier data analysis.

6. **Tables and customized reports**: For dashboards featuring tables, use row and column variable filters to generate customized reports. Avoid selecting the same elements in both row and column filters to ensure data visibility.

7. **Download**: CSV and/or ZIP files, including birth, death, and data tables, are available for download.

8. **Trends**: Analyze trends by toggling between different years or comparing data across various demographic groups such as age, race/ethnicity, and geographic locations (e.g., counties).

9. **Legend and annotations**: Refer to legends on maps or annotations provided to understand color-coding or specific data definitions (e.g., age-adjusted rates, premature deaths).

Birth statistics query system

Select one of the categories listed below from the **row variable** and **column variable** dropdown filters.

Sort **county** filters to navigate the natality (birth) data and data table dashboards.

Natality data dashboards: Key variables

Includes categories, rows, columns, and filters.

Key variable: Natality dashboards	Description
Attendant Type	Attendant at Birth: - CNM/CM - MD/DO - Other Midwife - Other/Unknown
Birth Month	Month infant was born
Delivery Method	- Caesarean - Vaginal - VBAC - Unknown
Facility Type	(Free Standing) Birth Center - Home - Hospital - Other/Unknown
Infant Sex	- Female - Male
Last Live Birth	- Less than 1 year ago - More than 1 year ago - None - Unknown
Low Birth Weight	- No - Yes - Unknown

Key variable: Natality dashboards	Description
Maternal Age	Age broken down by individual years 12-53 years
Maternal Age Group	Age of mother at time of birth grouped as follows: 10-14 years 15-19 years 20-24 years 25-29 years 30-34 years 35-39 years 40-44 years 45+ years
Maternal Country of Origin	- Outside of U.S. - United States - Unknown
Maternal Eclampsia	- No - Yes - Unknown
Maternal Education Status	Mothers' level of education at the time of birth grouped as follows: 4-year High School - College; College+ - Less than 4-year High School - Unknown

Key variable: Natality dashboards	Description
Maternal Gestational Diabetes	- No - Yes - Unknown
Maternal Gestational Hypertension	- No - Yes - Unknown
Maternal Marital Status	Marital Status of mother at time of birth: - Married - Not Married - Unknown
Maternal Pre-Existing Diabetes	- No - Yes - Unknown
Maternal Pre-Existing Hypertension	- No - Yes - Unknown
Maternal Pre-Pregnancy BMI	Pre-pregnancy Body Mass Index (BMI) of mother: - Average Weight 19 to <25 - Morbid Obese 41+ - Obese 30 to <41 - Overweight 25 to <30 - Underweight <19 - Unknown
Maternal Race/Ethnicity	"Bridged Race" 4 categories: American Indian or Alaska Native; Asian or Pacific Islander; Black; White - Hispanic - Unknown

Key variable: Natality dashboards	Description
Maternal Smoking Status	Mother smoked during pregnancy: - No - Yes
Maternal Weight Gain During Pregnancy	- Less than 0 lbs 0-9 lbs 10-19 lbs 20-29 lbs 30-39 lbs 40-49 lbs 50-59 lbs 60-69 lbs 70+ lbs - Unknown
Multiple Births	- No - Yes
NICU Admission	- No - Yes - Unknown
Paternal Age	Age broken down by individual years: 14-79 years - Unknown
Paternal Age Group	Age of father at time of birth grouped as follows: 10-14 years 15-19 years 20-24 years 25-29 years 30-34 years 35-39 years 40-44 years 45+ years - Unknown

Key variable: Natality dashboards	Description
Paternal Education Status	Father's level of education at the time of birth grouped as follows: • 4-year High School • College • College+ • Less than 4-year High School • Unknown
Paternal Race/Ethnicity	• "Bridged Race" 4 categories: American Indian or Alaska Native; Asian or Pacific Islander; Black; White • Hispanic • Unknown
Premature Births	• No • Yes • Unknown

| Key variable: Natality dashboards	Description
Previous Births	• Less than 4 • More than 4 • Unknown
Residence County	Minnesota County of Residence: Lists 87 counties • County where decedent lived
Source of Payment	• Private/Tricare • Public (Medicaid, HIS, Other Govt) • Self-Pay • Other • Unknown
Trimester Prenatal Care Began	• 1st Trimester • 2nd Trimester • 3rd Trimester • None • Unknown
Year	• Year of Birth

Natality data dashboards: Screenshots

Refer to the screenshots below for guidance on navigating through the dashboards more efficiently.

Screenshot: Natality data dashboard

This dashboard displays birth statistics for Minnesota residents. The bar chart illustrates the total number of births by selected category and county.

Counts fewer than 10 are represented by an asterisk (*) symbol.
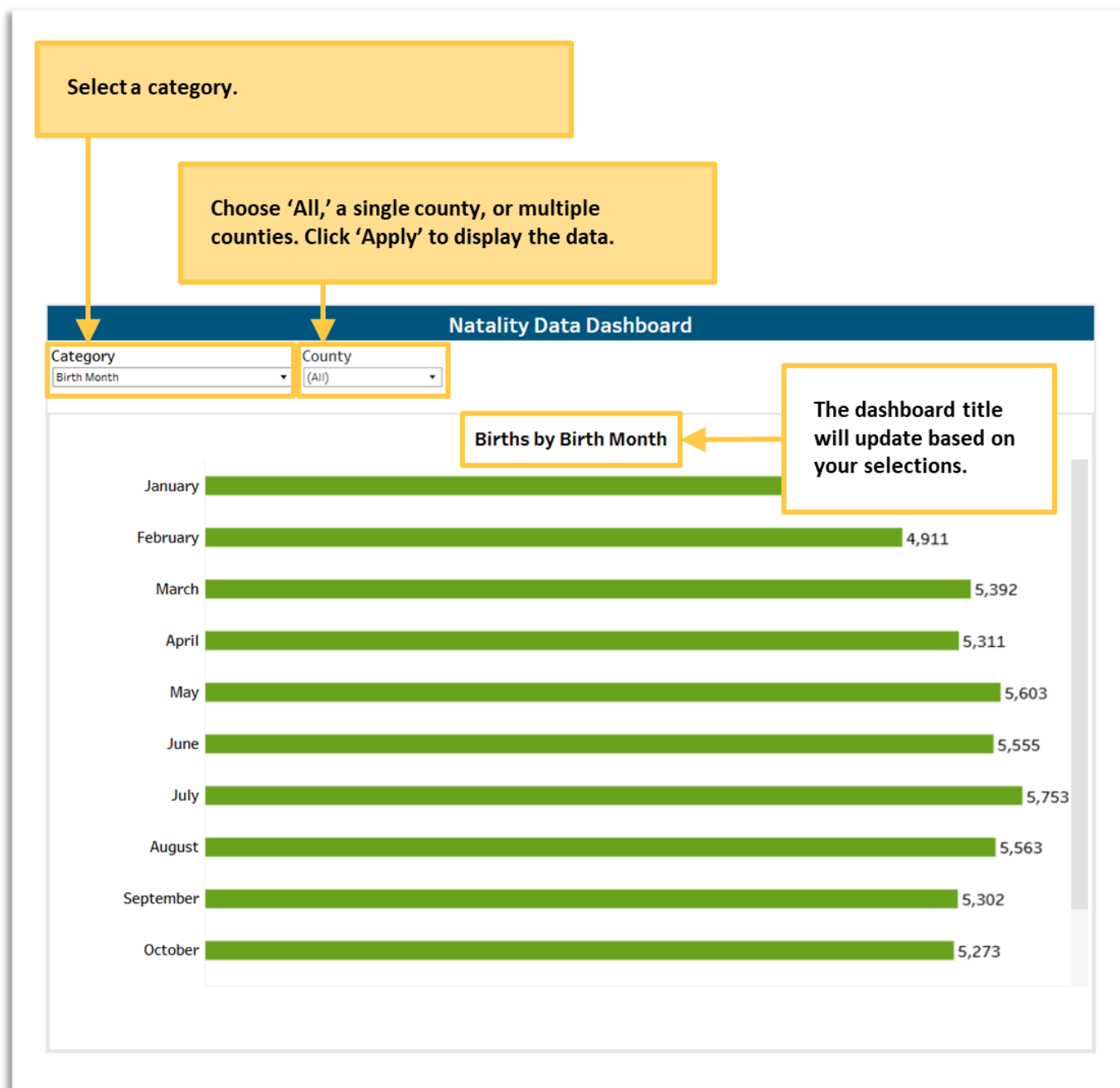
Screenshot: Natality data table dashboard

This table displays birth statistics for Minnesota residents in a tabular format. Users can filter the data by selecting a row and column variable and specific counties.

Counts fewer than 10 are represented by an asterisk (*) symbol.

Select a row variable, column variable, and county filter to view counts. Click 'Apply' to display the data.

Natality Data Table Dashboard

Row variable	Column variable	County
Birth Month ▾	Paternal Age ▾	(All) ▾

Births by Birth Month by Paternal Age

The dashboard title will update based on your selections.

	18 years	19 years	20 years	21 years	22	
January	14	18	44	41		
February	11	16	33	46	71	79
March	13	35	27	40	64	79
April	11	32	31	62	49	82
May	*	18	30	37	65	84
June	15	14	34	54	65	76
July	*	19	34	42	62	89
August	*	17	33	56	65	85
September	10	21	34	51	64	65
October	10	22	30	42	62	91

Screenshot: Crude birth rates dashboard

This dashboard displays crude birth rates for Minnesota residents. The bar chart illustrates crude birth rate by county, while the map and table display the total number of births and crude birth rate for each county.

Screenshot: Crude fertility rates dashboard

The dashboard displays crude fertility rates for Minnesota residents. The bar chart illustrates crude fertility rate by county, while the map and table display the total number of births and crude fertility rate for each county.
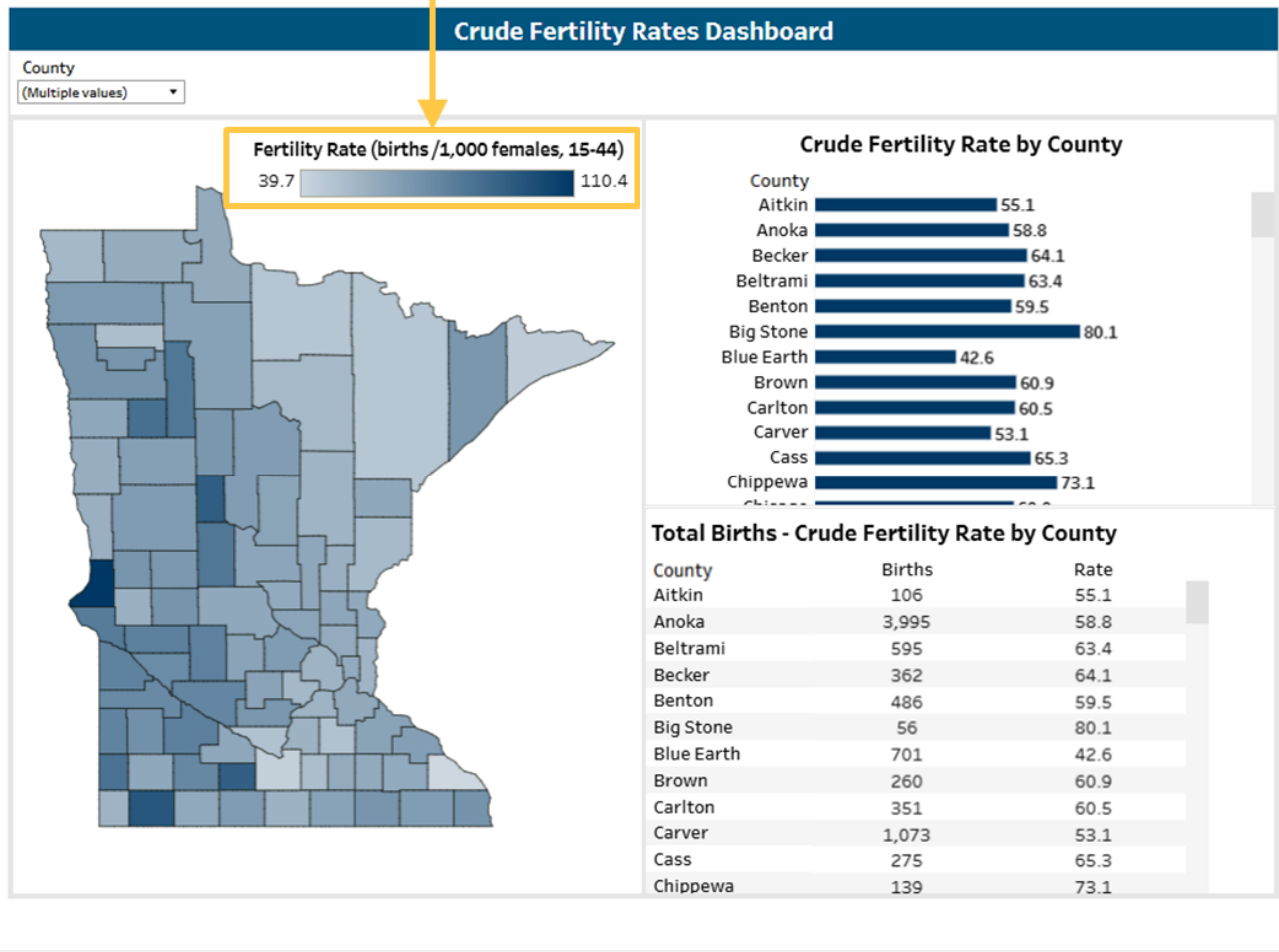
Death statistics query system

Select one of the categories listed below from the **row variable** and **column variable** dropdown filters.

Sort **county** filters to navigate the mortality (death) data and data table dashboards.

Mortality data dashboards: Key variables

Includes categories, rows, columns, and filters.

Key variable: Mortality dashboards	Description
Age at Death	Age (broken down by individual years) of decedent at time of death: • 0 to 85+ years
Age Groups	Age of decedent at time of birth grouped as follows: • 0-4 years • 5-14 years • 15-24 years • 25-34 years • 35-44 years • 45-54 years • 55-64 years • 65-74 years • 75-84 years • 85+ years

Key variable: Mortality dashboards	Description
Cause of Death *NCHS compiled a list of 113 Selected Causes of Death to establish a consistent grouping and ranking standard. Among these, 52 rankable causes of death are marked with a pound symbol '#.' The mortality dashboards feature 21 of these causes of death at right, including a category for Residual (Other/Unknown).* *For details, including ICD-10 codes, see: [National Vital Statistics Reports, volume 73, number 4: Deaths: Leading Causes for 2021 (PDF)](#).* *The MDH Center for Health Statistics uses a modified version of the NCHS 52 Rankable Causes of Death for its reporting.*	NCHS Selected Causes of Death: • AIDS/HIV • Alzheimer's • Atherosclerosis • Cancer • COPD • Chronic Liver Disease (includes Cirrhosis) • Congenital Anomalies • COVID • Diabetes • Essential Hypertension (includes Hypertensive Renal) • Heart Disease • Homicide • Nephritis • Parkinson's • Perinatal Conditions • Pneumonia/ Influenza • Septicemia • SIDS • Stroke • Suicide • Unintentional Injury • Residual (Other/Unknown)

Key variable: Mortality dashboards	Description
Marital Status	• Divorced/Separated • Married • Missing/Unknown • Never Married • Widowed
Month of Death	• Month decedent passed away
Place of Death	Type of Place where death occurred: • Hospital In-Patient • ER/Outpatient • Hospital – DOA • Decedent's Home • Hospice Facility • Nursing Home/LTC • Other • Unknown

Key variable: Mortality dashboards	Description
Race/Ethnicity	• "Bridged Race" 4 categories: American Indian or Alaska Native; Asian or Pacific Islander; Black; White • Hispanic • Unknown
Residence County	Minnesota County of Residence – Lists 87 counties: • County where decedent lived
Sex	• Male • Female
Veteran Status	The veteran deaths include those who served in the Armed Forces, Minnesota National Guard and the US Reserve Forces: • Non-Veteran • Veteran • Unknown
Year	• Year of Death

List of 113 selected causes of death and Enterocolitis due to Clostridium difficile

The MDH Center for Health Statistics uses a modified version of the NCHS 52 Rankable Causes of Death for its reporting.

To see the full list, visit: National Vital Statistics Reports, volume 73, number 4: Deaths: Leading Causes for 2021 (https://www.cdc.gov/nchs/data/nvsr/nvsr73/nvsr73-04.pdf).

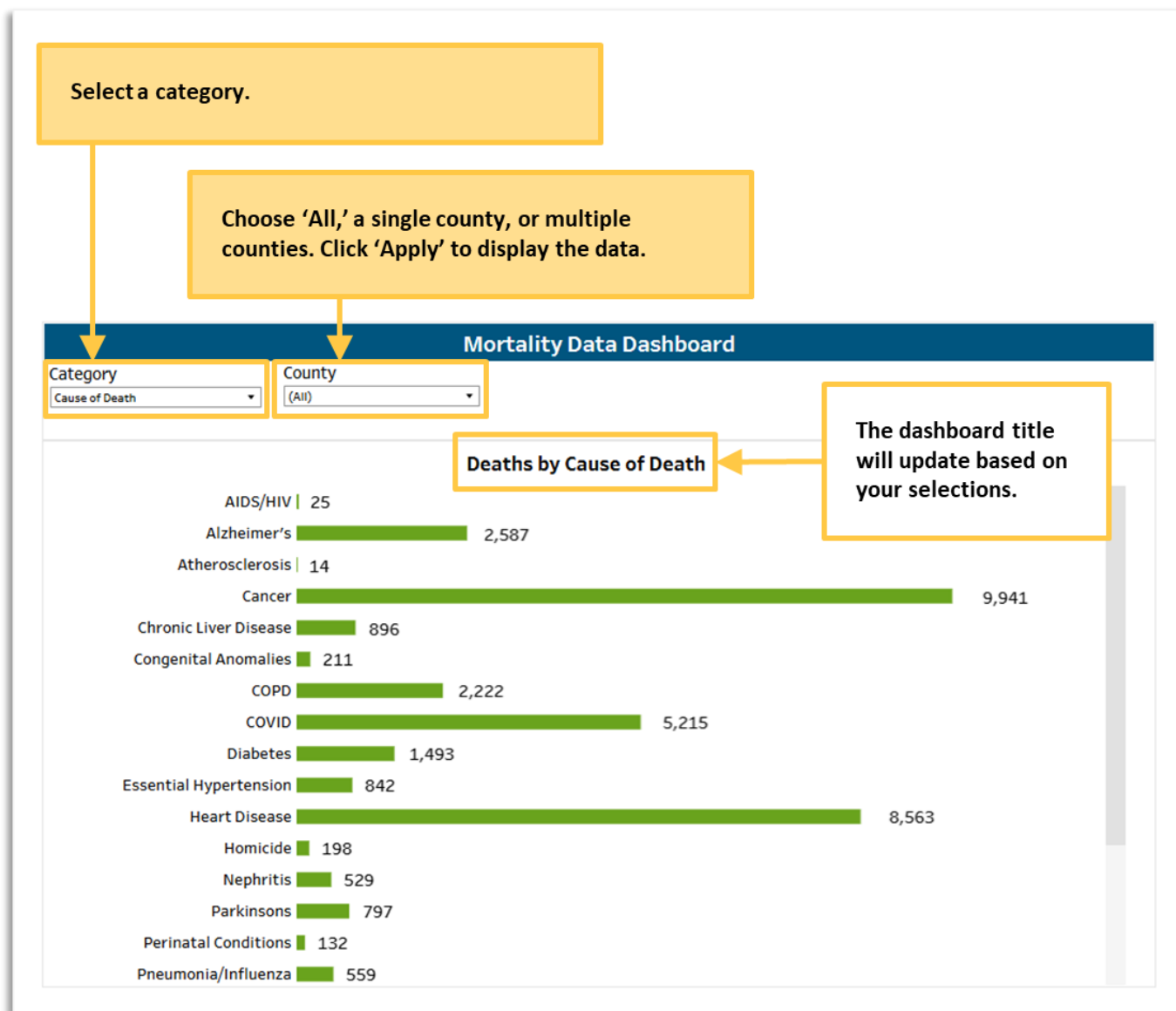# Mortality data dashboards: Screenshots

Refer to the screenshots below for guidance on navigating through the dashboards more efficiently.

Screenshot: Mortality data dashboard

This dashboard displays death statistics for Minnesota residents. The bar chart illustrates the total number of deaths by selected category and county.

Counts fewer than 10 are represented by an asterisk (*) symbol.

Screenshot: Mortality data table dashboard

This table displays death statistics for Minnesota residents in a tabular format. Users can filter the data by selecting a row and column variable and specific counties.

Counts fewer than 10 are represented by an asterisk (*) symbol.

> Select a row variable, column variable, and county filter to view counts. Click 'Apply' to display the data.

Mortality Data Table Dashboard

Row variable	Column variable	County
Cause of Death ▼	Race/Ethnicity ▼	(Multiple values) ▼

Deaths by Cause of Death by Race/Ethnicity

> The dashboard title will update based on your selections.

	American Indian/Alaska Native	Asian/Pacific Islander	Black	
AIDS/HIV	*	*	*	
Alzheimer's	*	14	30	14
Atherosclerosis	*	*	*	*
Cancer	105	204	359	137
Chronic Liver Disease	55	15	36	25
Congenital Anomalies	*	*	18	11
COPD	27	26	61	*
COVID	72	216	263	146
Diabetes	54	64	101	36
Essential Hypertension	*	25	50	*
Heart Disease	82	115	271	65
Homicide	18	*	97	14
Nephritis	*	20	24	*
Parkinsons	*	*	*	*
Perinatal Conditions	*	*	31	*
Pneumonia/Influenza	16	11	13	*
Residual (Other/Unknown)	148	199	379	114
Septicemia	11	19	18	*
Stroke	27	74	99	14

Screenshot: Crude death rates dashboard

The dashboard displays crude death rates for Minnesota residents. The bar chart illustrates crude death rate by county, while the map and table display the total number of deaths and crude death rates for each county.
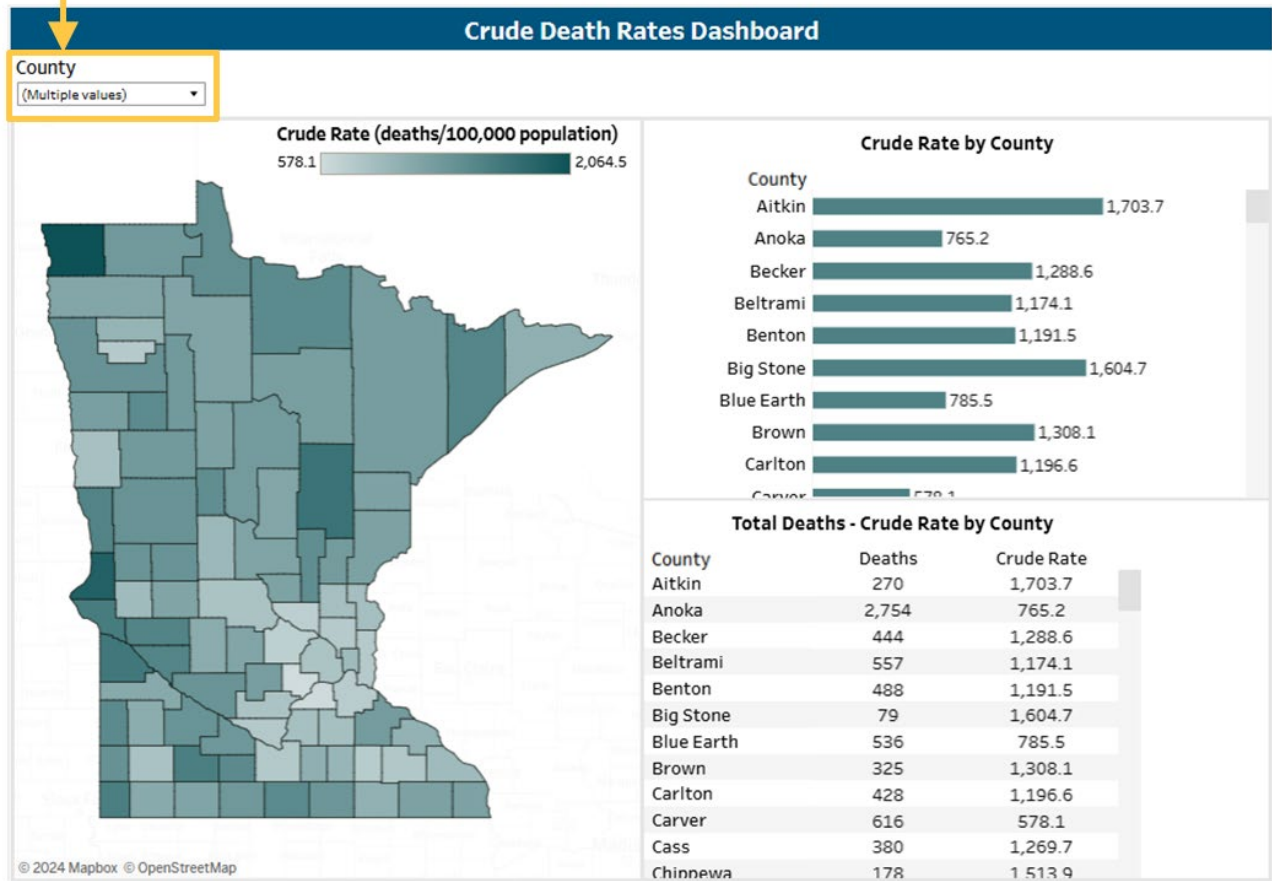
Screenshot: Age-adjusted death rates dashboard

The dashboard displays age-adjusted death rates for Minnesota residents. The bar chart illustrates age-adjusted death rates by county, while the map and table display the total number of deaths and age-adjusted death rates for each county.
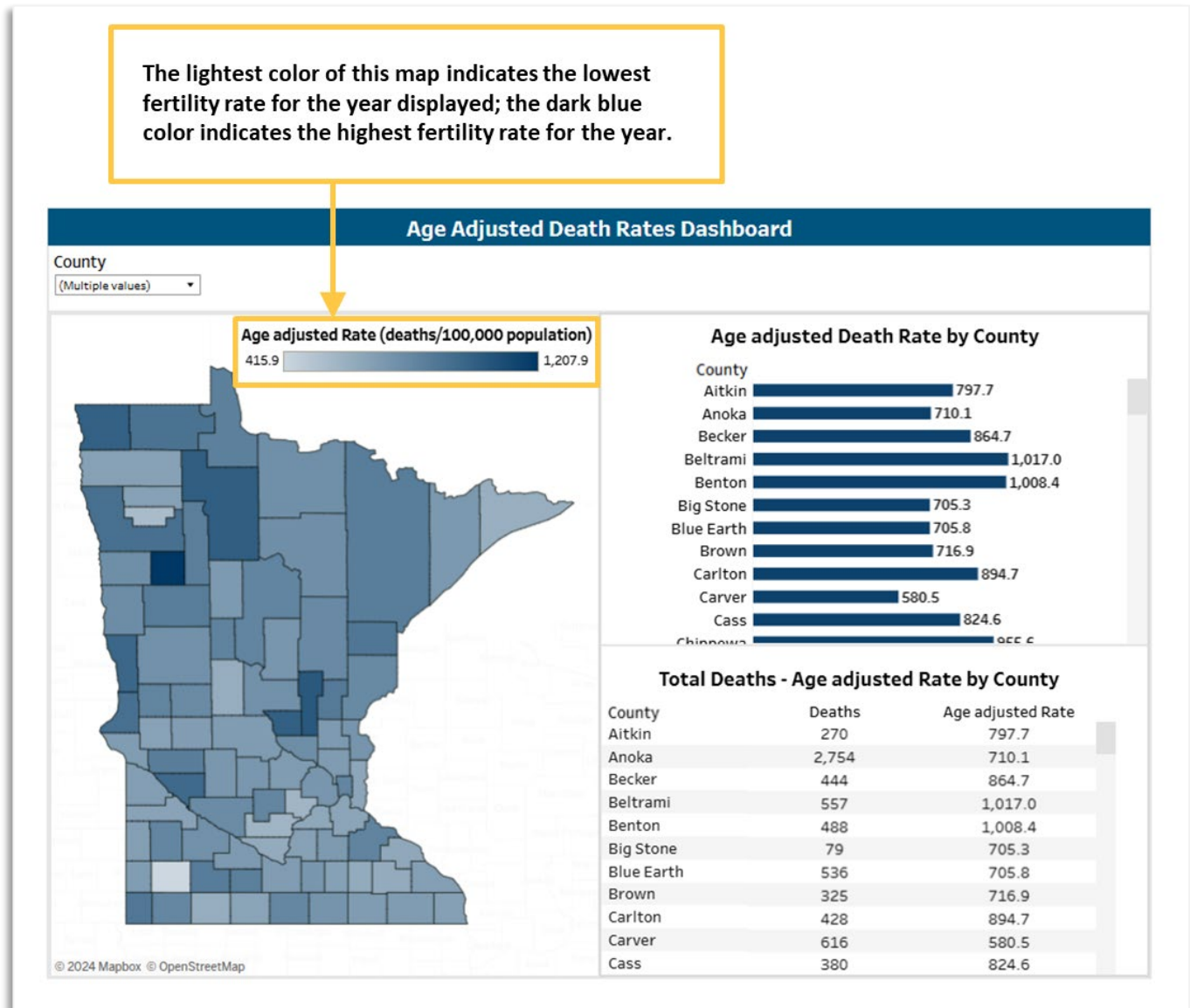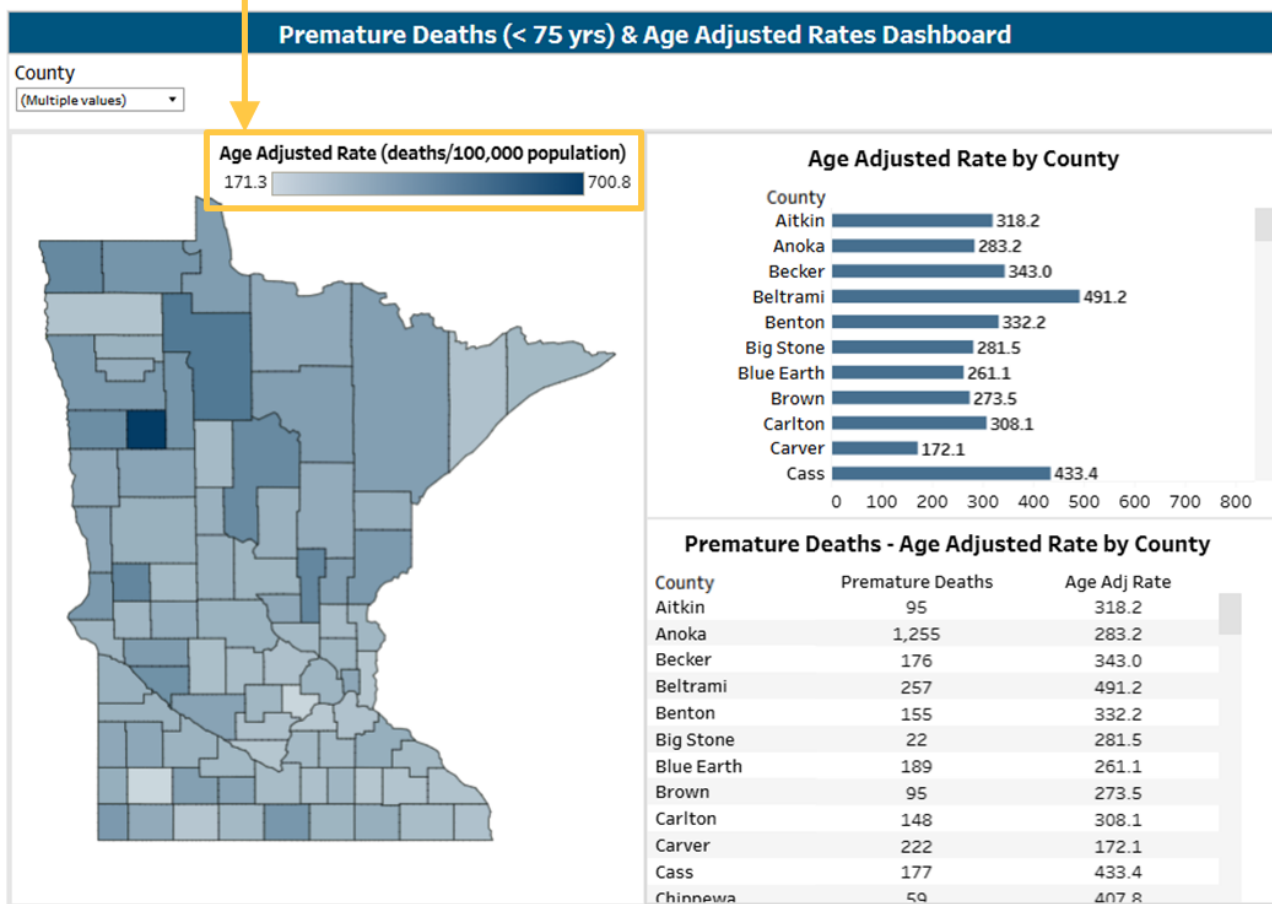
Screenshot: Premature deaths (<75 yrs) and age-adjusted rates dashboard

The dashboard displays premature deaths and age-adjusted rates of premature death for Minnesota residents. Premature deaths refer to fatalities occurring among residents under the age of 75.

The bar chart illustrates age-adjusted rate of premature death by county, while the map and table display the total number of premature deaths and related age-adjusted rate for each county.

The lightest color of this map indicates the lowest rate of age-adjusted premature death for individuals under 75 years old for the year displayed; the dark blue color indicates the highest rate for the year.

Premature Deaths (< 75 yrs) & Age Adjusted Rates Dashboard

County
(Multiple values)

Age Adjusted Rate (deaths/100,000 population)
171.3 — 700.8

Age Adjusted Rate by County

County	Rate
Aitkin	318.2
Anoka	283.2
Becker	343.0
Beltrami	491.2
Benton	332.2
Big Stone	281.5
Blue Earth	261.1
Brown	273.5
Carlton	308.1
Carver	172.1
Cass	433.4

Premature Deaths - Age Adjusted Rate by County

County	Premature Deaths	Age Adj Rate
Aitkin	95	318.2
Anoka	1,255	283.2
Becker	176	343.0
Beltrami	257	491.2
Benton	155	332.2
Big Stone	22	281.5
Blue Earth	189	261.1
Brown	95	273.5
Carlton	148	308.1
Carver	222	172.1
Cass	177	433.4
Chippewa	59	407.8

Appendix A. Technical notes

Sources of data

Vital events

Birth and death registration and fetal death reports filed with the Office of the Vital Records, Minnesota Department of Health for respective calendar years are the source documents for data on vital statistics of Minnesota residents. Late vital event certificates may have been filed after preparation of the annual report data. Future data obtained from MDH may differ from that which appears in this report due to updates to the data year made after the cutoff date. Live births and deaths to Minnesota residents that occurred in another state are included in this report insofar as they are reported to the Office of Vital Records. The inclusion of these data is made possible by an agreement for exchange of copies of resident certificates among all registration areas in the United States. Not all states participate in the exchange of fetal death reports; thus, this report includes only fetal deaths that occurred to Minnesota residents.

Population data

Annual Estimates are bridged-race Vintage postcensal estimates of the July 1 resident population. These estimates were prepared by the Census Bureau in collaboration with NCHS. Bridged race estimates are created only for the five race or Hispanic categories based on the 1997 OMB standards. There are no population estimates for other/unknown. For more information or access to the data, see: CDC Wonder: Bridged-Race Resident Population Estimates United States, State and County for the years 1990-2020 (https://wonder.cdc.gov/wonder/help/bridged-race.html).

Sociodemographic data are obtained from the American Community Survey, 1-year and 5-year estimates, which are produced by the United States Census Bureau. The 1-year estimates for the preceding year are available in late summer. The 5-year estimates are based on pooled data from the preceding five years and are typically available in December. Five-year estimates are more reliable because they are based on a larger sample size. The 1-year and 5-year estimates are not typically dramatically different from one another.

Rates

Absolute counts of health-related events do not readily lend themselves to comparison between years or across various geographic areas because of population differences and, in some cases, the small number of reported events. These demographic differences include total numbers of events and of the population, age and sex distributions, and ethnic and/or racial composition. In order to assess the health status of a particular population at a specified time, the absolute number of events is converted to a relative number such as a rate, a ratio, or an index. In cases where there are a small number of birth or death events, rate calculations and sometimes counts, are suppressed (see description at the end of the section). Some of the most common rates are described below. Additional definitions are provided in Appendix B at the end of this document.

Crude rates

A crude rate is a good measure of the overall magnitude of an event (e.g., birth or death) in a population. The crude rate is useful information for some purposes, such as planning for the delivery of health care services. One should be cautious when comparing crude rates over time or across other geographies such as a county or another state. Notably, differences in crude rates may be due to a substantially younger or older population.

A crude birth or death rate is simply the number of events divided by the total population (the denominator), multiplied by some constant so that the result is not a fraction. For birth rates and death rates, 100,000 is the most commonly used multiplier, resulting in rates per 100,000 total population.

Other frequently reported rates include crude fertility rates, pregnancy rates, and abortion rates, all of which use the population of women ages 15 to 44 years as the denominator. Fertility rates are the number of births divided by the population of women ages 15 to 44 years. Pregnancy rates are the number of pregnancies divided by the population of women ages 15 to 44 years. Abortion rates are the number of abortions divided by the population of women ages 15 to 44 years.

Age-adjusted death rates

Age adjusting rates is a way to make fairer comparisons between counties/CHBs with different age distributions. For example, a county having a higher percentage of elderly people may have a higher crude death than a county with a younger population merely because the elderly are more likely to die. Age-adjusted death rates are used to eliminate this age bias in the makeup of the populations being compared, thereby providing a much more reliable rate for comparison purposes. Age adjusted death rates are the total number of deaths per 100,000 persons, age-adjusted to the 2000 U.S standard population. For additional information about age-adjustment see: National Cancer Institute SEER Program: Standard Populations (Millions) for Age-Adjustment (https://seer.cancer.gov/stdpopulations/).

Premature death rates

Nearly four out of every 10 deaths to Minnesota residents occur to people under 75 years of age. These deaths occur prior to the average life expectancy; thus, it is important to investigate premature deaths that may be potentially preventable. The premature death rate for those under age 75 is the number of deaths to residents under age 75 per 100,000 persons age-adjusted to the 2000 U.S. standard population.

Data suppression

In cases where there are fewer than 10 birth or deaths in a specific geography or by a certain characteristic, data may be suppressed in this report. There is a range of different suppression rules used by different agencies. However, we are reporting vital statistics data, so we use the rules from the National Vital Statistics System. Suppression of data serves two purposes: 1) to protect confidentiality and 2) to ensure statistical reliability when calculating rates. Local public health agencies may request unsuppressed counts by sending a request to the MDH Center for Health Statistics: health.healthstats@state.mn.us.

Suppression rules for confidentiality are based on both the size of the geographic area and the number of events. For example, a county can be an area that is sparsely populated, or it can have a large population but small cells still occur when stratifying outcomes by other factors such as small ethnicity groups and small age groups. In these cases, there is risk of deductive disclosure. In other words, with the combination of variables, it may be possible to identify a specific person and deduce something about their private health information. In national reports, small counts are sometimes reported (but not a corresponding rate). However, these counts are for VERY large geographic areas, so there is no risk of deductive disclosure. Risk of deductive disclosure only applies to data that include protected health information, most commonly birth or fetal death data.

Suppression rules for reliability are based on the production of unstable rate estimates due to the increased amount of variability (standard deviation) around the estimate. This means that the actual rate may be much higher or much lower. Moreover, a change of one or two events more or less can change the rate dramatically, giving the impression that there is a large change when in fact it is due to random variability of the estimates. For example, in a fictitious place where there are 146 births and 2 infant deaths, the infant mortality rate appears to

be 13.7 deaths per 1,000 live births. The following year, in this same place, there are 154 births and 3 infant deaths. The infant mortality rate now appears to be 19.5 deaths per 1,000 live births. It is inappropriate to draw any conclusion from these data because the numbers are too small to produce an estimate that is not subject to random variation. More events in a given time and place will produce relatively stable estimates over time, unless there is an actual cause for a change. This situation applies to any vital event that is reported.

Geographic allocation

Vital events are classified geographically in two ways. The first is by place of occurrence, (i.e., the state, county, and city in which the birth or death took place). The second and more customary way is by place of residence, (i.e., the state, county, and city that is the usual residence of the decedent in the case of a death or of the mother in the case of a birth). While occurrence statistics are accurate and have both administrative value and some statistical importance, resident statistics are the more useful tool when constructing health indices for planning and evaluation purposes. The statistics provided here are residence data unless otherwise stated.

Race/Hispanic ethnicity data collection and reporting

More than one race may be selected when reporting race of mother and father on a birth record or when reporting the race of decedent on a death record.

For those who report more than one race, a bridged-race code is generated by the National Center for Health Statistics (NCHS), assigning that individual to one of the four race categories of White, Black, American Indian, or Asian/Pacific Islander, allowing for statistical comparisons to previous years' data. Due to the small number of multi-race persons in Minnesota, this generated code has little or no effect on the percentages and rates by race reported in this report.

Beginning with reporting year 2017, race/ethnicity data reporting changed from reporting race and Hispanic ethnicity separately to reporting each non-Hispanic race group individually. All birth and death events to those identified as Hispanic are included in the Hispanic group regardless of any other reported races. The final set of mutually exclusive groups for pre-2021 are non-Hispanic White, non-Hispanic Black, non-Hispanic American Indian, non-Hispanic Asian or other Pacific Islander, non-Hispanic Other or Unknown, and Hispanic. From 2021 onward, the race is categorized as: non-Hispanic White, non-Hispanic Black, non-Hispanic American Indian, non-Hispanic Asian or other Pacific Islander, non-Hispanic Multiracial, non-Hispanic Other or Unknown, and Hispanic. These changes are based on National Vital Statistics System (NVSS) and NCHS practices for reporting race and ethnicity.

Appendix B. Definitions

- **Age/cause-specific death rate**: Number of deaths due to a particular underlying cause for a specified age group per 100,000 population comprising the same specified age group.

- **Age-specific pregnancy rate**: Number of pregnancies (live births plus fetal deaths plus induced abortions) to women of a specified age group per 1,000 females in the population of the same specified age group. The overall pregnancy rate is the number of pregnancies per 1,000 females ages 15-44.

- **Birthweight**: Birthweight is documented and reported in grams. An infant is defined as low birthweight if it weighs less than 2,500 grams (5.5 pounds). Infants defined as macrosomic or high birthweight weigh equal to or more than 4,000 grams (8 pounds, 13 ounces).

- **Cause of death**: Causes of death are classified according to the International Classification of Diseases of the World Health Organization (ICD-10). In this report, the underlying cause of death is used to classify the cause of death. The underlying cause of death is either the disease or injury, which initiated the series of events leading directly to death or the accident or violence, which produced the fatal injury. Other contributing causes of death are not shown in this report.

- **Crude birth rate**: Number of live births per 1,000 total population

- **Crude death rate**: Number of deaths per 1,000 total population or per 100,000 total population.

- **Fertility rate**: Total number of live births per 1,000 females ages 15 to 44 years.

- **Gestation or gestational age**: The period of intrauterine development of the fetus, expressed in completed weeks, defined by the physician's estimate of gestation. Gestational age was previously reported based on documented last menstrual period. Beginning in 2017, gestational age is based on physician's estimate. Comparisons of the classifications are remarkably similar, except physician's estimate has fewer missing.

- **Live birth**: The complete expulsion or extraction of a product of conception from its mother irrespective of the duration of pregnancy which, after such separation, breathes or shows any other evidence of life such as beating of the heart, pulsation of the umbilical cord, or definite movement of voluntary muscles whether or not the umbilical cord has been cut or the placenta is attached. Each product of such a birth is considered a live birth and is required by state statute to be registered as a livebirth, regardless of gestation or length of time living after birth.

- **Premature birth**: Preterm birth, also known as premature birth, is the birth of a baby at fewer than 37 weeks gestational age, as opposed to full-term delivery at approximately 40 weeks. Extreme preterm is less than 28 weeks, very early preterm birth is between 28 and 32 weeks, early preterm birth occurs between 32 and 34 weeks, late preterm birth is between 34 and 36 weeks gestation.

- **Prenatal care (indices)**:

  - **Late prenatal care** is defined as a woman who entered prenatal care in the third trimester or who received no prenatal care.

  - **Adequacy of prenatal care** can be calculated using a variety of indices. For the Minnesota Annual reports, a new index is being used. In previous years, prenatal care adequacy was assessed using the graduated index (GINDEX). The GINDEX is calculated by combining measures of the month or trimester prenatal care began, the number of prenatal visits, and the gestational age of the infant/fetus at the time of birth. Starting in 2017, Kotelchuck's Adequacy of Prenatal Care Utilization (APNCU) was used, in keeping with the standards for national reporting. It should be noted that these indices do result in a different distribution of adequacy of prenatal care, thus previous years' adequacy measures are not comparable. Specifically, in national data, the APNCU identified more intensive and slightly more inadequate PNC users.

The APNCU is also calculated using the month prenatal care began, the number of prenatal visits, and the gestational age of the infant/fetus at the time of birth. However, this measure incorporates an estimate of the expected prenatal care visits compared with the actual prenatal care visits received. The month prenatal care began was used to calculate the adequacy of entry into prenatal care. The expected number of prenatal care visits given gestational age (defined by the American College of Obstetricians and Gynecologists (ACOG)) was calculated and divided by the actual number of visits to create a ratio of expected to actual visits. This ratio was then combined with the adequacy of entry into prenatal care variable to classify the adequacy of prenatal care as Adequate Plus, Adequate, Intermediate, Inadequate, or None.

Intensive use of prenatal care (adequate plus) is associated with poor birth outcomes, due in most part to more prenatal care needed for high-risk pregnancies. Thus, distinguishing those with intensive use of prenatal care from those with adequate/expected prenatal care is meaningful for understanding pregnancy risks and adverse birth outcomes.

- **Residence**: Residence is the geographic area of the usual place of residence of the mother (in the case of a live birth or fetal death) or of the deceased at the time of death. This means, in general, the place where one lives and sleeps most of the time. However, when the decedent's usual residence is in a nursing home or other institution where a patient resided for receiving care, residence is coded to the place, if known, where the patient lived prior to admission to the institution.

- **Trimester**: One third of the total gestational period necessary for a full-term pregnancy (9 months). Thirteen weeks are allotted to each trimester. The count of weeks begins with the first day of the last menstrual period.

Appendix C. Acronyms

- **AIDS**: Acquired Immunodeficiency Syndrome
- **BMI**: Body Mass Index
- **CDC**: Centers for Disease Control and Prevention
- **CNM**: Certified Nurse Midwife
- **CM**: Certified Midwife
- **COPD**: Chronic Obstructive Pulmonary Disease
- **DOA**: Dead on Arrival
- **ER**: Emergency Room
- **HIV**: Human Immunodeficiency Syndrome
- **HPR**: Hypertensive Renal Disease
- **IHS**: Indian Health Service
- **MD**: Medical Doctor
- **DO**: Doctor of Osteopathy
- **PI**: Pacific Islander
- **LTC**: Long Term Care
- **MCHS**: Minnesota Center for Health Statistics
- **NCHS**: National Center for Health Statistics
- **SIDS**: Sudden Infant Death Syndrome
- **VBAC**: Vaginal Birth after Cesarean