

# Using the Wisconsin Interactive Statistics on Health (WISH) Query System for Birth-Related Data

Link to [WISH Query System](#) Homepage

Birth-related modules include: [Birth Counts](#), [Fertility](#), [Infant Mortality](#), [Low Birthweight](#), [Prenatal Care](#), [Teen Births](#)

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## Helpful Links

[WISH Tutorial](#)—Video, 9:38

[List of Birth-Related Data and Measure Definitions](#)—Webpage

[How to Construct a Query in the WISH System](#)—Webpage

[How to Read an Output Table from WISH](#)—Webpage

When constructing a query, click on any red link to learn more about that measure.

## Basic steps to creating a query

- Select which measure you wish to see results for.
- Select the geographic scope of the results, from statewide to smaller areas.
- Select one or more years that you wish to see the results for.
- Customize the query so that results are shown among those with different maternal, infant, or health care characteristics. (View the section [Limiting analyses to specific subpopulations](#) for more information.)

- Select one or two characteristics to be the row and column variables for the results table. (View the section [Stratifying by subpopulations](#) for more information.)

## Number measures versus rate and percentage measures

**Number measures** provide the actual counts of the number of events that occurred.

Available number measures in WISH		
Measure	Definition	Module(s)
Number of births	Number of births	<a href="#">Birth Counts</a> <a href="#">Fertility</a> <a href="#">Low Birthweight</a> <a href="#">Prenatal Care</a>
Number of infant deaths	Number of infant deaths (age < 365 days)	<a href="#">Infant Mortality</a>
Number of births with low birthweight	Number of births to infants weighing less than 2,500 grams (about 5.5 pounds) at birth	<a href="#">Low Birthweight</a>
Number of births with very low birthweight	Number of births to infants weighing less than 1,500 grams (about 3.3 pounds) at birth	<a href="#">Low Birthweight</a>
Number of births with extremely low birthweight	Number of births to infants weighing less than 1,000 grams (about 2.2 pounds) at birth	<a href="#">Low Birthweight</a>
Number of premature births	Number of births to infants with gestational age < 37 weeks	<a href="#">Low Birthweight</a>
Number of premature births with low birthweight	Number of births to infants with gestational age < 37 weeks and weighing less than 2,500 grams (about 5.5 pounds) at birth	<a href="#">Low Birthweight</a>
Number of full-term births with low birthweight	Number of births to infants with gestational age $\geq$ 37 weeks and weighing less than 2,500 grams (about 5.5 pounds) at birth	<a href="#">Low Birthweight</a>
Number of births with birthweight of 2,500 grams or more	Number of births to infants weighing 2,500 grams or more at birth	<a href="#">Low Birthweight</a>

**Rate and percentage measures** provide the number of events that occurred *relative* to a population in which those events occurred.

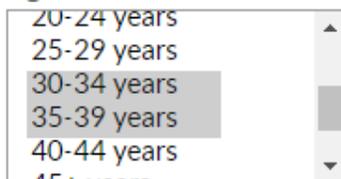
<b>Available rate and percentage measures in WISH</b>		
<b>Measure</b>	<b>Definition</b>	<b>Module(s)</b>
Birth rate	Number of live births per 1,000 total population	<a href="#">Fertility</a>
General fertility rate	Number of live births per 1,000 females ages 15–44	<a href="#">Fertility</a>
Age-specific fertility rate	Number of live births per 1,000 females in a specific age group	<a href="#">Fertility</a>
Infant mortality rate	Number of infant deaths (age < 365 days) per 1,000 live births	<a href="#">Infant Mortality</a>
Neonatal mortality rate	Number of neonatal deaths (age < 28 days) per 1,000 live births	<a href="#">Infant Mortality</a>
Postneonatal mortality rate	Number of postneonatal deaths (age 28–364 days) per 1,000 live births	<a href="#">Infant Mortality</a>
Percent of births to mothers who received first-trimester prenatal care	Number of births to mothers who received first-trimester prenatal care per 100 live births	<a href="#">Prenatal Care</a>
Percent of births to mothers who began prenatal care in the third trimester, or received no prenatal care	Number of births to mothers who began prenatal care in the third trimester, or received no prenatal care, per 100 live births	<a href="#">Prenatal Care</a>
Teen birth rate	Number of births to mothers less than 20 years of age per 1,000 females ages 15–19 years	<a href="#">Teen Births</a>
Percent of births to teens (age less than 20)	Number of births to mothers less than 20 years of age per 100 live births	<a href="#">Teen Births</a>
Teen birth rate among younger teens	Number of births to mothers less than 18 years of age per 1,000 females ages 15–17 years	<a href="#">Teen Births</a>
Percent of births to younger teens (age less than 18)	Number of births to mothers less than 18 years of age per 100 live births	<a href="#">Teen Births</a>
Teen birth rate among older teens	Number of births to mothers ages 18–19 years per 1,000 females ages 18–19 years	<a href="#">Teen Births</a>
Percent of births to older teens (ages 18-19)	Number of births to mothers ages 18–19 years per 100 live births	<a href="#">Teen Births</a>

## Limiting analyses to specific subpopulations versus stratifying by subpopulations

- **Limiting analyses to specific subpopulations** means to select the characteristics (e.g. geography of residence; years during which events occurred; maternal, infant, and health care characteristics) that will serve as the inclusion criteria for the analyses. Only events falling within selected criteria, or subpopulations with selected characteristics, will be included in the analyses and results.
  - In WISH, you may select inclusion criteria, or the subpopulation characteristics that the results will be limited to, during the step titled *Choose Specific Characteristics (Optional)*.
  - You can select more than one inclusion criterion, both within the same characteristic and between different characteristics.
  - If you are selecting more than one category within a characteristic and the categories are not listed next to each other, hold down the “Ctrl” key while clicking on them.
  - In the below example, the analyses and results would only include a subpopulation of mothers who are 30–39 years of age and whose education level is High School Graduate/GED.

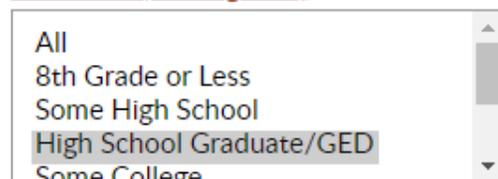
### Maternal Characteristics:

Age



A dropdown menu for the 'Age' characteristic. The options are: 20-24 years, 25-29 years, 30-34 years (highlighted), 35-39 years, 40-44 years, and 45+ years.

Education (7 categories)



A dropdown menu for the 'Education (7 categories)' characteristic. The options are: All, 8th Grade or Less, Some High School, High School Graduate/GED (highlighted), and Some College.

- **Stratifying by subpopulations** produces a data table that has separate results for groups of people, or subpopulations, with different characteristics. This can be accomplished by selecting characteristic variables to serve as row or column variables in the resulting data table. Labels for the row variable will appear on the left side of the data table and each row in the table will have a separate, or stratified, result for each of the categories within that variable. Labels for the column variable will appear on the top of the data table and each column in the table will have a separate, or stratified, result for each of the categories within that variable.
  - In WISH, you select row and column variables as the last steps of creating the query.

- You may select both a row *and* column variable to create a crosstabs table, meaning that results will be stratified by two different characteristics. Each cell, or box, in the table would have a result unique to its corresponding row category and column category.
- In the below example, the results table would have Mother's Birthplace as the row variable, meaning each table row would have a separate result for each of the categories within the Mother's Birthplace variable (result for U.S. Born mothers, result for Foreign Born mothers, etc.).

## Step 4. Choose a Row Variable

Geographic Area

Year of Birth

### Maternal Characteristics

Age

Education (7 categories)

Education (9 categories)\*

Marital Status

Race/Ethnicity

Weight Gain/Loss During Pregnancy

Number of Previous Pregnancies

Interval Since Last Delivery

Inter-Pregnancy Birth Interval

Body Mass Index (BMI)\*

Mother's Birthplace\*

Tobacco Use During Pregnancy

Maternal Smoking\*

Mother Lives with Smoker\*

### Infant Characteristics

Gestational Age Based on Obstetric Estimate

Birthweight

Sex

Single or Multiple Birth

Birth Order

Infant Breastfed\*

### Health Care Characteristics

#### Adequacy of Prenatal Care

Trimester Prenatal Care Began

Kessner Index

Kotelchuck Index

Delivery Method

Birth Attendant

Birth Facility

NICU Utilization

Newborn Transferred To Another Hospital

Mother Received WIC Food During Pregnancy\*

Principal Source of Payment for this Delivery\*

Hepatitis B Vaccine Administered to Infant\*

- Limiting analyses *and* stratifying by the same characteristic should only be done when you are limiting to multiple categories within that characteristic. (For example, if analyses were limited to mothers in the age groups 30–34 years and 35–39 years and Age was also selected as a row or column variable, then the resulting data table would have a separate row or column for the two age categories and no others.)

## Options not available for birth-related modules

- Birth modules do not provide data at the ZIP code level outside of City of Milwaukee.
- Data cannot be stratified, or produce separate results, by more than two characteristics at a time. However, users are able to limit results to only include a smaller subpopulation and then stratify by two characteristics.
- Users cannot change categories for maternal, infant, or health care characteristics beyond what is available. For example, maternal age categories cannot be further merged or separated.
- Age-adjusted rates, or rates that account for differences in age distribution between groups, are not available for birth modules. However, age-adjustment is not conventionally used when reporting birth data.

## Troubleshooting output

- A table cell, or box, with "X" indicates that a value is less than five (but more than zero) and has been suppressed to protect confidentiality.
- A table cell, or box, with "." indicates that there is a value of zero.
- If you are viewing the results table and want to revise your query, pressing back on your web browser will bring you back to the query page with all of your selections the same.

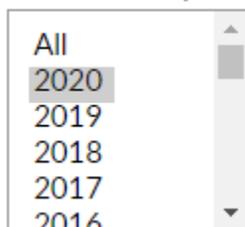
## Step-by-step common example: Total number of births in Wisconsin in the most current data year

1. Go to the [Birth Counts](#) module in WISH.
  - a. Click *BEGIN QUERY*.
  - b. Under *Step 1. Choose One or More Geographic Areas*, select *Wisconsin statewide*. (This option should be already selected by default.) This step ensures the results will include events from the entirety of Wisconsin.

*Wisconsin statewide*

2. Under *Step 2. Choose One or More Years*, select the most current data year. (This option should be already selected by default.) This step ensures the data include only events from the most current data year.

One or more years:



3. Under *Step 3. Choose Specific Characteristics (Optional)*, make sure *All* is selected for each variable. (These options should be already selected by default.) This step ensures the data analyses will not be limited to any subpopulations.
4. Under *Step 4. Choose a Row Variable*, select *Geographic Area*. (This option should already be selected by default.) This step ensures the data will be stratified by, or include separate results by, the selected *Geographic Area* of *Wisconsin statewide*.

- Geographic Area  
 Year of Birth

Infant Characteristics

- [Gestational Age Based on Obstetric Estimate](#)  
 [Birthweight](#)

5. Under *Step 5. Choose a Column Variable (optional)*, select *None*. (This option should already be selected by default.) This step ensures the data will not be stratified by, or include separate results by, a column variable.

- None  
 Geographic Area  
 Year of Birth

Infant Characteristics

- [Gestational Age Based on Obstetric Estimate](#)  
 [Birthweight](#)

6. Click *Submit*.

7. View output and interpret results: There were 60,615 births in Wisconsin in 2020.

## Query: WISH, Birth Counts Module (Wisconsin 1990 - 2020)

- ( (Year of Birth=2020) )

Use the [drill-down](#) variable tool to amend the current query Region of Residence 

### Total Number of Births

State of Residence	
All Selected	60,615
Wisconsin	60,615

## Step-by-step common example: Infant mortality rate in Wisconsin in the most current data year

1. Go to the [Infant Mortality](#) module in WISH.
  - a. Click *BEGIN QUERY*.
  - b. Under *Step 1. Which measure do you wish to focus on?*, select *Infant Mortality Rate (<365 days)*. (This option should already be selected by default.) This step ensures the results will provide an infant mortality rate measure.
    - Infant Mortality Rate (<365 days)
    - Neonatal Mortality Rate (<28 days)
    - Postneonatal Mortality Rate (28-364 days)
    - Number of Infant Deaths
2. Under *Step 2. Choose One or More Geographic Areas*, select *Wisconsin statewide*. (This option should already be selected by default.) This step ensures the results will include events from the entirety of Wisconsin.
  - Wisconsin statewide*

- Under *Step 3. Choose One or More Years*, select the most current data year. (This option should be already selected by default.) This step ensures the data include only events from the most current data year.

One or more years:

A dropdown menu with a scroll bar. The options are: All, 2020 (highlighted), 2019, 2018, 2017, and 2016.

- Under *Step 4. Choose Cause of Death (Optional)*, select *ALL*. (This option should be already selected by default.) This step ensures the data include all events of infant death, regardless of the cause.

A dropdown menu with a scroll bar. The options are: ALL (highlighted), Perinatal: Newborn affected by maternal complications of pregnancy, Perinatal: Newborn affected by complications of placenta, cord, membranes, Perinatal: Disorders related to short gestation and low birthweight, NEC, Perinatal: Respiratory distress of newborn, Perinatal: Bacterial sepsis of newborn, and Perinatal: Other conditions originating in the perinatal period.

- Under *Step 5. Choose Specific Characteristics (Optional)*, make sure *All* is selected for each variable. (These options should be already selected by default.) This step ensures the data analyses will not be limited to any subpopulations.
- Under *Step 6. Choose a Row Variable*, select *Geographic Area*. (This option should be already selected by default.) This step ensures the data will be stratified by, or include separate results by, the selected *Geographic Area* of *Wisconsin statewide*.

- Geographic Area
- Year of Death
- Cause of Death

Infant Characteristics

- Gestational Age Based on Obstetric Estimate
- Birthweight

- Under *Step 7. Choose a Column Variable (optional)*, select *None*. (This option should be already selected by default.) This step ensures the data will not be stratified by, or include separate results by, a column variable.

- None
- Geographic Area
- Year of Death
- Cause of Death

Infant Characteristics

- Gestational Age Based on Obstetric Estimate
- Birthweight
- Sex

8. Click *Submit*.

9. View output and interpret results: In 2020, the infant mortality rate in Wisconsin was 6.0 infant deaths per 1,000 live births (95% confidence interval = 5.3-6.6).

## Query: WISH, Infant Mortality Module (Wisconsin, 1990 - 2020)

- ( *(Year of Death=2020)* )

Use the drill-down variable tool to amend the current query

### Infant Mortality Rate (<365 days) per 1,000 Live Births

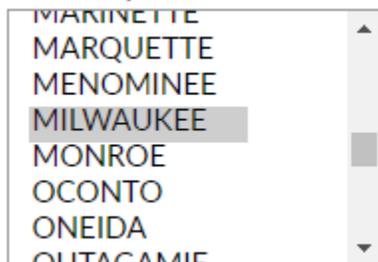
State of Residence	Detail Information			
	Number of Infant Deaths (less than 365 days)	Total Number of Live Births	Infant Mortality Rate per 1,000 Live Births	95% Confidence Interval
All Selected	361	60615	6.0	5.3 - 6.6
Wisconsin	361	60615	6.0	5.3 - 6.6

**Step-by-step complex example:** Percentage of premature births (< 37 weeks gestation) from 2018-2020 to mothers residing in Dane County and Milwaukee County who smoked during pregnancy, by mother's marital status and county of residence

1. Go to the [Low Birthweight](#) module in WISH.
  - a. Click *BEGIN QUERY*.
  - b. Under *Step 1. Which births do you wish to focus on?*, select *Premature (<37 weeks of gestation)*. This step ensures the results will provide a measure of premature births.
    - Low birthweight (<2,500 grams)
    - Very low birthweight (<1,500 grams)
    - Extremely low birthweight (<1,000 grams)
    - Premature (<37 weeks of gestation)
    - Premature with low birthweight
    - Full-term with low birthweight
    - Birthweight of 2,500 grams or more
    - All births

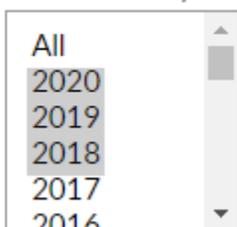
2. Under *Step 2. Choose One or More Geographic Areas*, select *County*. Then scroll to click on *DANE*, hold down the "Ctrl" key, and scroll to click on *MILWAUKEE*. This step ensures the data will be limited to mothers residing in Dane County or Milwaukee County.

County:



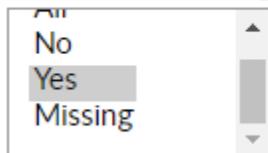
3. Under *Step 3. Choose One or More Years*, click and drag to select *2020*, *2019*, and *2018*. This step ensures the data will be limited to events occurring during 2018, 2019, or 2020.

One or more years:



4. Under *Step 4. Choose Specific Characteristics (Optional)*, go to *Tobacco Use During Pregnancy* and select *Yes*. This step ensures the data will be limited to mothers who smoked during pregnancy.

Tobacco Use During Pregnancy



5. Under *Step 5. Choose a Row Variable*, select *Marital Status*. This step ensures the data will be stratified by, or include separate results by, maternal marital status.

- Geographic Area
- Year of Birth

Maternal Characteristics

- Age
- [Education \(7 categories\)](#)
- [Education \(9 categories\)\\*](#)
- Marital Status

Infant Characteristics

- [Gestational Age Based on Obstetric Estimate](#)
- [Birthweight](#)
- Sex
- [Single or Multiple Birth](#)
- [Birth Order](#)
- [Infant Breastfed\\*](#)

6. Under *Step 6. Choose a Column Variable (optional)*, select *Geographic Area*. This step ensures the data will be stratified by, or include separate results by, maternal county of residence (limited to Dane County and Milwaukee County).

- None
- Geographic Area
- Year of Birth

Infant Characteristics

- [Gestational Age Based on Obstetric Estimate](#)
- [Birthweight](#)

7. Click *Submit*.

8. View output and interpret results: From 2018-2020, 16.1% of births to mothers residing in Dane County who smoked during pregnancy and were not married were premature (< 37 weeks gestational age).

### Query: WISH, Low Birthweight Module (Wisconsin 1990 - 2020)

- ( [\(Smoked During Pregnancy = Yes\)](#) )
- and ( [\(County of Residence = DANE\)](#) or [\(County of Residence = MILWAUKEE\)](#) )
- and ( [\(Year of Birth=2020\)](#) or [\(Year of Birth=2019\)](#) or [\(Year of Birth=2018\)](#) )

Use the [drill-down](#) variable tool to amend the current query  ▼

### Percent Premature Births (less than 37 weeks gestation) for County of Residence=All Selected

Mother's Marital Status	County of Residence		
	All Selected	DANE	MILWAUKEE
All Selected	20.2	15.8	21.4
<a href="#">Married</a>	18.4	14.5	19.9
<a href="#">Not Married</a>	20.5	16.1	21.6
<a href="#">Missing</a>	0.0	0.0	.



WISCONSIN DEPARTMENT  
of HEALTH SERVICES

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