

# Association of interpregnancy interval with poor birth outcomes and infant mortality in Ohio

## Key findings

- Birth spacing or interpregnancy interval (IPI), is the period of time between a live birth and conception of the next pregnancy.
- Low birthweight, very low birthweight, preterm birth, very preterm birth, and infant mortality were more common among infants born following an interpregnancy interval less than six months or 60 months (5 years) or more.
- Almost one-quarter of births (23%) followed interpregnancy intervals of less than six months or 60 or more months. These IPIs are associated with higher risks of poor birth outcomes.
- Interpregnancy intervals 60 months or longer were associated with increased risk of infants born small for gestational age.
- Women should talk with their healthcare providers about their reproductive health goals and the potential risks of very short or long interpregnancy intervals.

In Ohio, 7% of 2017-2018 births<sup>1</sup> among women who have given birth more than once and for whom an IPI could be calculated occurred following an IPI less than six months. Sixteen percent occurred following an IPI of 60 months (five years) or more (Figure 1). Maternal characteristics varied by IPI (Table 1, see page 2).

## Ohio ranks in the bottom of half of states for its rates of preterm birth, low birthweight infants, and infant mortality.

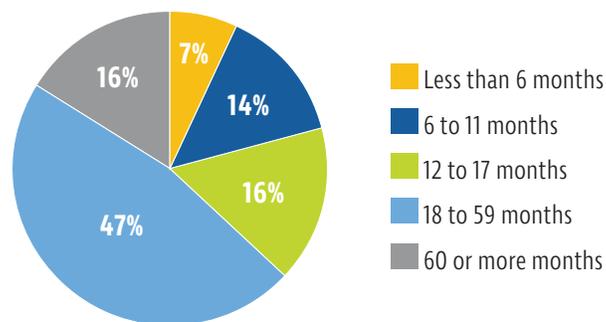
Poor birth outcomes, such as preterm birth, low birthweight, and small for gestational age, can increase the chance that an infant dies before his or her first birthday, also known as infant mortality. Poor birth outcomes can also result in developmental, vision, and hearing problems and certain health conditions later in life.

In 2019, Ohio's infant mortality rate was 6.9 deaths per 1,000 live births. About 11% of Ohio births were preterm (before 37 weeks gestation), and 1.8% were very preterm (before 32 weeks gestation). Babies born with low birthweight (less than 2,500 grams, about 5.5 pounds) made up almost 9% of all births, and 1.5% were born with very low birthweight (less than 1,500 grams, about 3.3 pounds). Almost 10% of babies were born small for gestational age (birthweight that is at or below the 10<sup>th</sup> percentile, given the baby's gestational age and sex).

## Previous studies have found increased risk of poor birth outcomes following interpregnancy intervals less than six months, 12 months, and 18 months, and more than 60 months.

Interpregnancy interval (IPI) is the period of time between a live birth and conception of the next pregnancy. The American College of Obstetricians and Gynecologists (ACOG) recommends that women be advised to avoid interpregnancy intervals shorter than six months and counseled about the risks and benefits of repeat pregnancy sooner than 18 months. Very short or very long IPIs may contribute to higher risks of poor birth outcomes, such as those described above.

Figure 1. Live births by interpregnancy interval Ohio (2017-2018)



Data Source: Ohio Department of Health Bureau of Vital Statistics' cohort linked birth/infant death files.

<sup>1</sup> Analysis was conducted using the 2017 and 2018 cohort linked birth and infant death dataset, which consists of all births occurring in the year as well as deaths to infants born in that year.

## Interpregnancy intervals less than 6 months and 60 months or more were most commonly associated with poor birth outcomes.

Figure 2 shows the frequencies of IPIs by adverse birth outcomes. After adjusting for maternal risk factors, such as mother's race/ethnicity, age, education level, and smoking during pregnancy, IPIs less than six months were associated with higher risks of low birthweight, very low birthweight, preterm birth, very preterm birth, and infant mortality. IPIs of 60 months or more were associated with higher risks of low birthweight, very low birthweight, preterm birth, very preterm birth, and small for gestational age (Table 2).

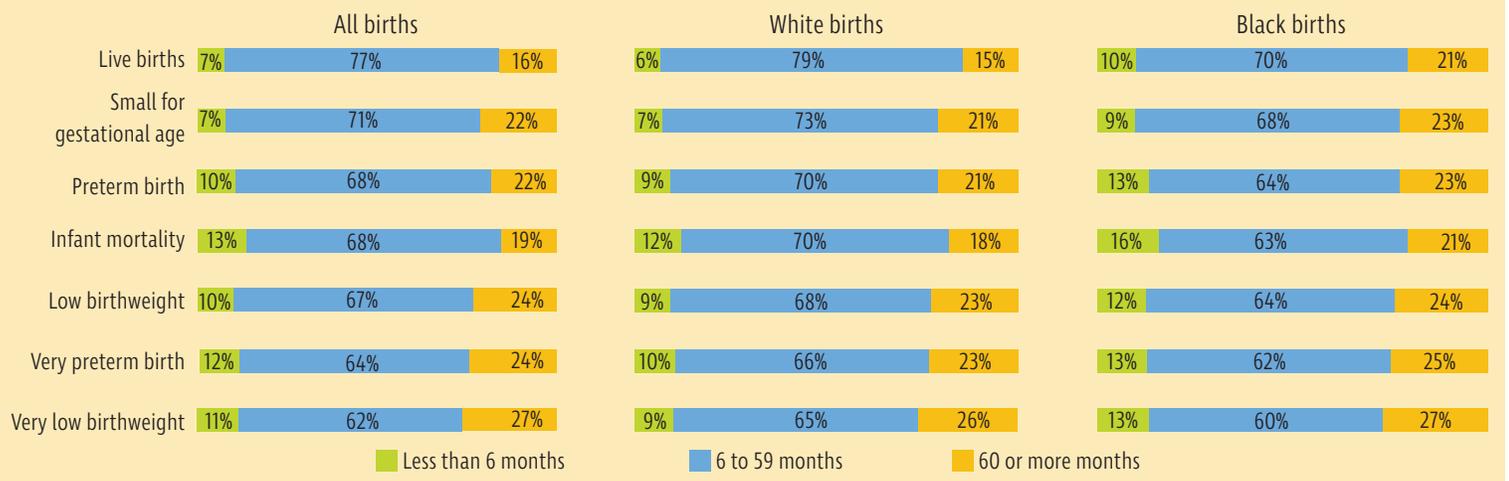
Infants born following an IPI less than six months had about 80% higher odds of dying in their first year of life, compared with infants born following an IPI between 18 and 59 months. Births following an interpregnancy interval of 60 months or longer had 25% higher odds of being born small for gestational age.

Table 1. Maternal characteristics by interpregnancy interval.

Maternal characteristic	Less than 6 mths.	6 to 59 mths.	60 or more mths.
<b>Race/ethnicity</b>			
Non-Hispanic white	65%	75%	64%
Non-Hispanic Black	27%	17%	23%
Non-Hispanic other race	2%	3%	4%
Hispanic, any race	6%	5%	9%
<b>Education</b>			
Less than high school	24%	14%	13%
High school or equivalent	39%	27%	32%
Some college	25%	27%	39%
College graduate or higher	12%	32%	17%
<b>Age</b>			
Younger than 25	43%	21%	4%
25 to 29	32%	32%	31%
30 to 34	18%	32%	36%
35 and older	7%	15%	30%
<b>Insurance at delivery</b>			
Medicaid	65%	41%	53%

Data Source: Ohio Department of Health Bureau of Vital Statistics' cohort linked birth/infant death files.

Figure 2. Birth outcomes by interpregnancy interval and race, Ohio (2017-2018)



Data Source: Ohio Department of Health Bureau of Vital Statistics' cohort linked birth/infant death files.

Table 2. Interpregnancy intervals and increased odds of infant mortality and poor birth outcomes

	Less than 6 months	60 or more months
Low birthweight	■	■
Very low birthweight	■	■
Preterm birth	■	■
Very preterm birth	■	■
Small for gestational age		■
Infant mortality	■	

■ Denotes increased odds of outcome, compared with an interpregnancy interval between 18 and 59 months.

## Recommendations

Healthcare providers and patients of reproductive age should discuss reproductive health goals and the potential risks of very short or long interpregnancy intervals. Ensuring women have access, both logistically and financially, to all forms of contraception is an important intervention for achieving optimal IPIs. Woman-centered, culturally appropriate family planning counseling should begin in the prenatal period.

It is important for public health agencies to monitor interpregnancy intervals since it is a potentially modifiable risk factor for poor pregnancy outcomes and infant mortality.