



Inter Tribal Council of Arizona, Inc.

# Maternal and Child Health Assessment for American Indians and Alaska Natives in Arizona, Nevada, and Utah

September 2018

Tribal Epidemiology Center

# Maternal and Child Health Assessment for American Indians and Alaska Natives in Arizona, Nevada, and Utah

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October 1, 2018

TO: Tribal Leader and Tribal Health Directors

FROM: Inter Tribal Council of Arizona, Inc.  
Maria Dadgar, MBA, Executive Director

RE: *Maternal and Child Health Assessment for American Indians and Alaska Natives in Arizona, Nevada, and Utah*

On behalf of the Inter Tribal Council of Arizona, Inc. (ITCA) Tribal Epidemiology Center (TEC), ITCA TEC is pleased to present the *Maternal and Child Health Assessment for American Indians and Alaska Natives in Arizona, Nevada, and Utah* Report.

The Maternal and Child Health surveillance report was prepared in response to the high prevalence of pre-term births for American Indians. The TEC utilized data from the ITCA Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) as well as hospital discharge data provided by the Arizona Department of Health Services (ADHS), Center for Health Information Analysis for Nevada (CHIA), and Utah Department of Health. Supplemental data from Indian Health Services (IHS) was also provided.

This surveillance report highlights maternal, infant, child health indicators among the American Indian and Alaska Native population within Arizona, Nevada, and Utah.

# Table of Contents

Executive Summary.....	1
Purpose .....	2
Introduction .....	3
Maternal Indicators .....	4
Maternal Age of Participants .....	5
Maternal Body Mass Index (BMI) .....	6
Maternal Low Hemoglobin/Hematocrit (Hgb/Hct) .....	8
Inter-Pregnancy Interval .....	10
Maternal Weight Gain .....	12
Gestational Diabetes.....	14
Hypertension During Pregnancy .....	15
Prenatal Care.....	16
WIC Enrollment.....	18
Smoking in Household .....	19
Alcohol Consumption Before Pregnancy .....	21
Alcohol Consumption During Pregnancy .....	22
Infant & Children Indicators.....	24
Number of Births by Year at IHS Facilities .....	25
Infant Mortality Rate .....	26
Infant and Child Age Distribution .....	28
Birth Weight.....	29
Low Birth Weight by Year .....	30
Preterm Births.....	31
Full Term Low Birth Weight by Year .....	32
Breastfeeding.....	33
Breastfeeding Exclusively for 6 months.....	34
Low Hemoglobin (Hgb) in Children.....	35
Short Stature in Children, Under 2 .....	36
Short Stature in Children, Over 2.....	37
BMI in Children, Under 2 .....	38
BMI in Children, Over 2.....	40
Arizona Hospital Discharge Data.....	41
Infants Injury Type .....	41
Infants Injury Cause .....	43
Infants Injury Cause Continued.....	44
Children Injury Type.....	45
Children Injury Cause .....	47
Children Injury Cause Continued .....	48
Nevada Hospital Discharge Data.....	49
Infants Injury Type .....	49
Infants Injury Cause .....	50
Children Injury Type.....	51
Children Injury Cause .....	52

Utah Hospital Discharge Data .....	53
Infants and Children Injury Type.....	53
Infants and Children Injury Cause.....	54
Action Items .....	55
Technical Notes.....	56
Definitions of Variables.....	57
Statistical Notes Table.....	58
Data Barriers .....	58
References .....	59

## Executive Summary

The purpose of the *Maternal and Child Health Assessment for American Indians and Alaska Natives in Arizona, Nevada, and Utah* report is to provide maternal and child health information for the Phoenix and Tucson Indian Health Service (IHS) Areas from 2013-2017. This report focuses on the health indicators of pregnant and postpartum mothers, infants, and children.

Pre-pregnancy and pregnancy indicators included body mass index (BMI), initiation of prenatal care visits, gestational diabetes, and anemic risks. It was common for mothers to have a pre-pregnancy BMI classification of overweight or obese, and gain more than the recommended amount of weight during pregnancy. Majority of mothers initiated prenatal care visits during their first trimester. The earlier that participants sought health services, the more time that participants have access to education and support during their pregnancy. We found a low prevalence of gestational diabetes and adequate levels of hemoglobin and hematocrit in mothers. It is unclear if the women were diagnosed with diabetes before their pregnancy. Low hemoglobin and hematocrit levels are representative of low levels of iron in the body, possibly indicating anemia. During pregnancy, a higher level of iron is required to support a healthy pregnancy.

The nutritional needs of infants and children are not representative in breastfeeding recommendations and healthy BMIs. Breastfeeding less than 6 months was a common theme. Few mothers chose to continue to breastfeed exclusively during the first six months of life. The reasons the women chose to discontinue breastfeeding is unclear. Potential solutions to support breastfeeding by tribal healthcare providers, tribal community programming, and tribal employers can be further implemented. Majority of the children under the age of 2 were in the normal weight category. However, only half of children between the ages of 2 and 5 were classified in the normal weight category, the other half were overweight or obese.

Tribal healthcare providers can provide education on eating healthy, exercising regularly, and refer expecting mothers to resources to support their pregnancy. Tribal community programming can support mothers by providing resources that support breastfeeding education. Tribal healthcare providers can further educate mothers of the importance of breastfeeding and refer mothers who are having difficulty breastfeeding to breastfeeding counselors to support longer durations of breastfeeding. Tribal healthcare providers can provide support and education of the importance of eating nutritiously for families with young children. Weight management support can be aided by tribal community programming for physical activities, healthy cooking classes, and traditional foods.

## Purpose

The purpose of the *Maternal and Child Health Assessment for American Indians and Alaska Natives in Arizona, Nevada, and Utah* is to identify health disparities present in the Phoenix and Tucson Indian Health Service (IHS) Areas. The target audience for this report includes: Tribal Health Directors and public health professionals, tribal leadership, and health researchers. This report focuses on the health indicators of pregnant and postpartum mothers, infants, and children among American Indian and Alaska Native (AI/AN) communities.



## Introduction

This is the first publication of the report, *Maternal and Child Health Assessment for American Indians and Alaska Natives in Arizona, Nevada, and Utah* by the Inter Tribal Council of Arizona, Inc. (ITCA) Tribal Epidemiology Center (TEC). Using data requested from state inpatient hospital discharge data and ITCA WIC, this maternal and child health surveillance report reveals current trends in maternal and child health topics among AI/AN in Arizona, Nevada, and Utah.

The inpatient hospital discharge data for Arizona, Nevada, and Utah in this report were extracted from their respective locations. Arizona Department of Health Services, the Center for Health Information Analysis for Nevada, and Utah Department of Health provided data on AI/AN within Arizona, Nevada, and Utah respectively. In addition, infant mortality rates were given by the three state health organizations. Births by IHS hospitals were provided by IHS directly.

ITCA's Women, Infants, and Children (WIC) program provided aggregate data of all 13 clinics within the Phoenix and Tucson IHS area. ITCA WIC data includes two datasets: Pregnancy Nutritional Surveillance System (PNSS) and the Pediatric Nutrition Surveillance System (PedNSS). PNSS is the public health surveillance system that monitors infant mortality and poor birth outcomes among WIC participants. PedNSS is a child-based public health surveillance system that includes data collection of nutritional indicators.

The report is organized into ten main sections:

- Executive Summary
- Purpose
- Introduction
- Maternal Indicators
- Infant & Children Indicators
- Action Items
- Technical Notes
- Definitions of Variables
- Statistical Notes Table
- Data Barriers

The Analysis highlights section includes health indicators among American Indians and Alaska Natives in Arizona, Nevada, and Utah among mothers, infants, and children. This report focuses solely on American Indians and Alaska Natives. Additional analyses may be provided to ITCA TEC Tribal partners upon request by contacting us directly at: [tecinfo@itcaonline.com](mailto:tecinfo@itcaonline.com).

# Maternal Indicators

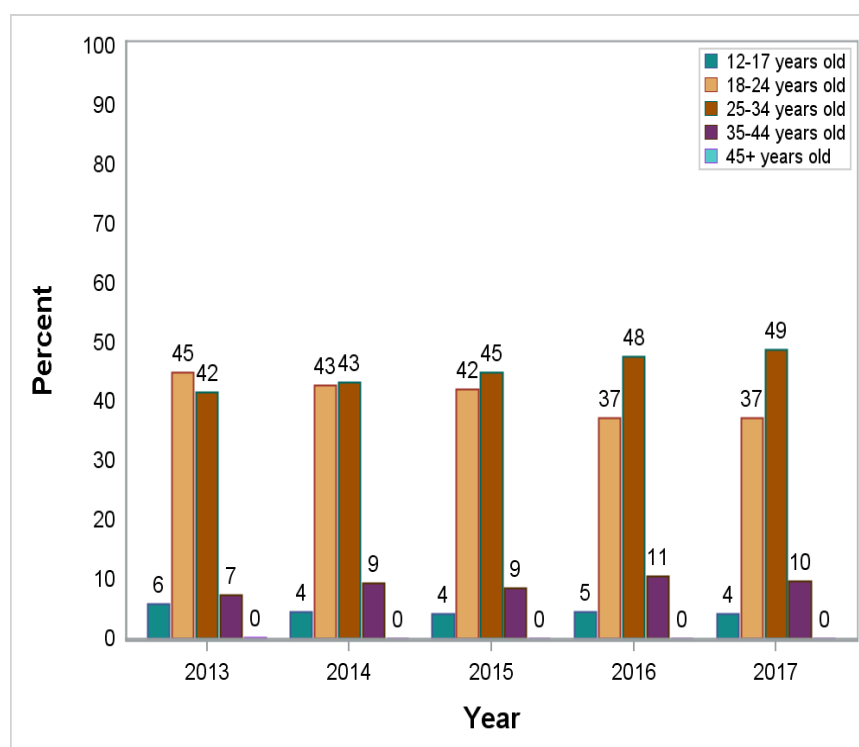
## Maternal Age of Participants

**Background Information:** Pregnancy in adolescent aged women is associated with higher risks of adverse outcomes including low birthweight and preterm delivery<sup>1</sup>. Women who become pregnant after 35 years of age are at a greater risk for gestational diabetes, pregnancy complications, low birthweight, and premature delivery<sup>2</sup>.

**How Data Were Collected:** Maternal age was calculated by using the self-reported birth dates of the child and mother. The maternal age calculated is the mother's age at the child's date of birth.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
12-17 years old	134	5.9	101	4.5	91	4.2	99	4.6	160	4.2
18-24 years old	1,020	45	967	43	912	42	804	37	1,426	37
25-34 years old	944	42	979	43	973	45	1,029	48	1,868	49
35-44 years old	168	7.4	213	9.4	185	8.6	228	11	372	9.7
45+ years old	4	0.2	1	0	2	0.1	2	0.1	4	0.1
<b>Total (n)</b>	2270		2261		2163		2162		3830	

Total number with valid maternal and infant dates of birth n= Number in each of the categories



### Key points:

- ❖ In 2017, 49% of maternal participants were between the ages of 25-34 years old.
- ❖ Maternal participation in ITCA WIC has increased from 2013 (n=2,270) to 2017 (n=3,830).
- ❖ From 2013-2017, the lowest pregnancy rates occurred in the 12-17, 35-44, and 45+ age categories.

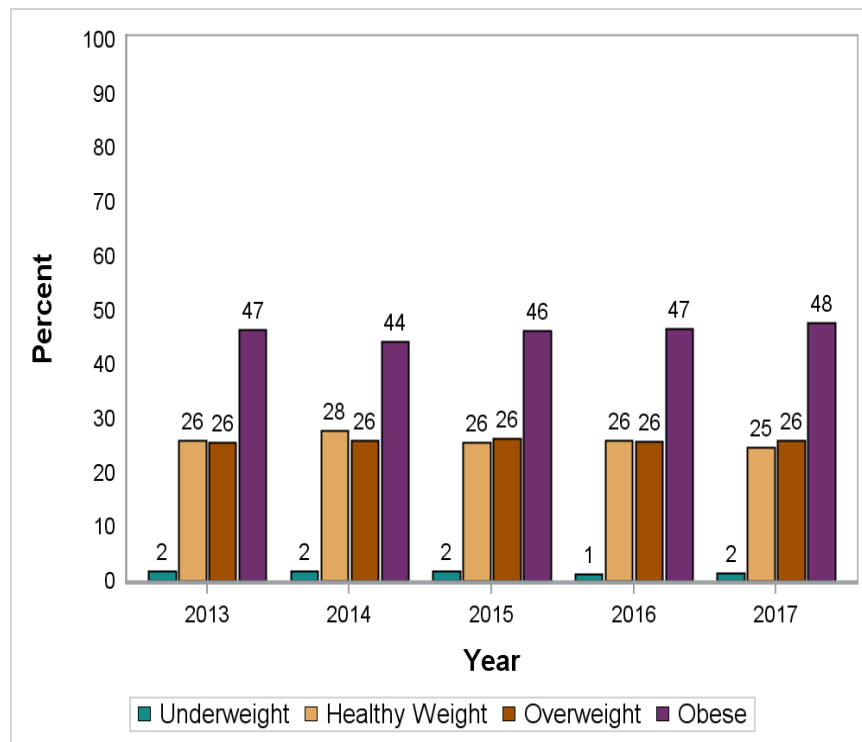
## Maternal Body Mass Index (BMI)

**Background Information:** Body Mass Index (BMI) is a tool used to calculate weight status in adults. Low pre-pregnancy weight is associated with low birthweight, preterm delivery, and birth defects<sup>3</sup>. Increased BMI measures are associated with a number of negative pregnancy and birth outcomes such as preeclampsia, hypertension, gestational diabetes, and a difficult vaginal delivery or need of a cesarean section (C-section)<sup>4</sup>.

**How Data Were Collected:** BMI is calculated with the height and weight of an individual. To calculate maternal pre-pregnancy BMI, maternal height was measured and pre-pregnancy weight was self-reported. BMI categories are in accordance with the groupings used by the Centers for Disease Control and Prevention (CDC)<sup>5</sup>.

**Healthy People 2020 Goal:** Maternal, Infant and Child Health (MICH)-16.5 states to “increase the proportion of women of child bearing age who have a healthy pre-pregnancy weight. Target: 57.8%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	N	%	n	%	n	%
<b>BMI</b>										
Underweight	52	1.8	53	1.9	49	1.9	37	1.4	37	1.6
Healthy Weight	731	26.0	787	28.0	670	26.0	693	26.0	583	25.0
Overweight	723	26.0	737	26.0	693	26.0	687	26.0	616	26.0
Obese	1,310	47.0	1,252	44.0	1,212	46.0	1,242	47.0	1,129	48.0
<b>Total (n)</b>	2,816		2,829		2,624		2,659		2,365	



**Key points:**

- ❖ Majority of mother's in the ITCA WIC population are in the obese category.
- ❖ Very few mothers are in the underweight category.
- ❖ On average, about a quarter of the mothers are in the healthy weight category.
- ❖ The BMI categories tend to be similar throughout the five year analysis.
- ❖ The ITCA WIC population does not meet the Healthy People 2020 target (57.8%) for a healthy pre-pregnancy weight.

**Institute of Medicine Recommendation:** Prior to conceiving, women should have a BMI within the normal BMI range (18.5 kg/m<sup>2</sup> – 24.9 kg/m<sup>2</sup>)<sup>7</sup>.

## Maternal Low Hemoglobin/Hematocrit (Hgb/Hct)

**Background Information:** Low hemoglobin (Hgb) and low hematocrit (Hct) suggest iron deficiency in the body. On average, iron-deficiency anemia affects one in six pregnant women<sup>8</sup>. Pregnant women have a higher risk of developing iron-deficiency anemia since pregnancy requires more iron to support the baby's development<sup>8</sup>. Insufficient iron during pregnancy increases the infants' risk of a premature birth, low birth weight, and health and developmental delays<sup>8</sup>.

**How Data Were Collected:** Maternal hemoglobin values were measured at the WIC clinic using a finger stick for blood draws and a HemoCue<sup>®</sup> Hgb 201+ Analyzer. Hematocrit values were obtained from a healthcare provider. Pregnancy trimester was determined from the self-reported estimated date of confinement (estimated due date). Postpartum Hgb values were taken at least 4 weeks after delivery. Each trimester referenced in the table below shows low Hgb and Hct status within each trimester. Women who have normal levels of Hgb and Hct in their first trimester may be represented in later trimesters. Refer to Definitions of Variables for a description of how low Hgb/Hct was determined.

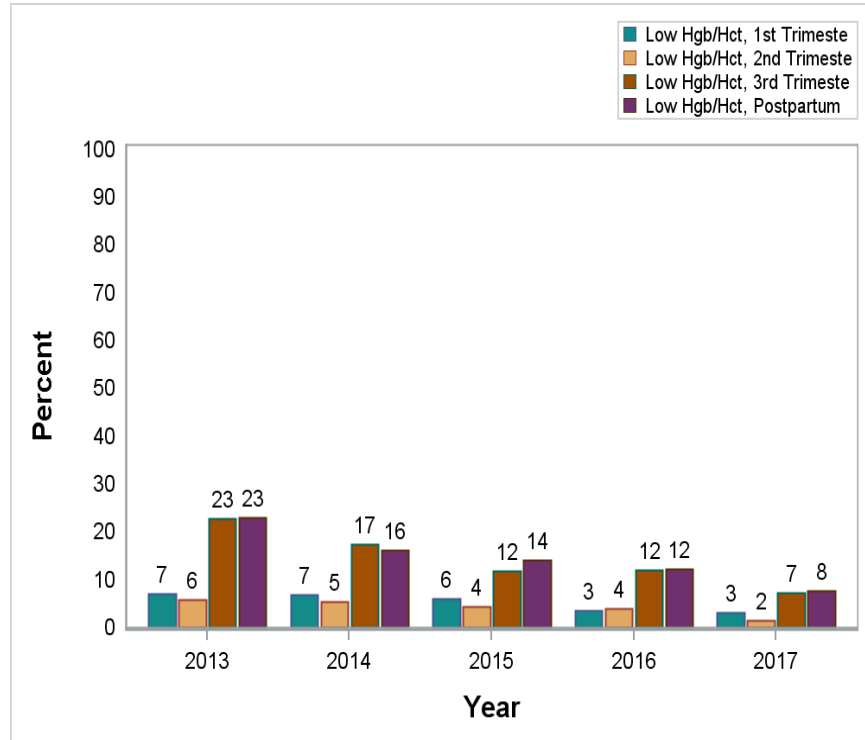
**Note:** The term low Hgb/Hct used in this report meets the CDC definition for diagnosis of anemia by a health care provider. However, WIC cannot medically diagnose its participants. For this reason, the term low Hgb/Hct is used instead of anemia.

**Table and graph available on the following page.**

**Key points:**

- ❖ ITCA WIC women in their 3<sup>rd</sup> trimester and postpartum had the highest percentages of low hemoglobin levels compared to ITCA WIC women in their 1<sup>st</sup> and 2<sup>nd</sup> trimesters.
- ❖ The percentage of women with low hemoglobin levels decreases from 2013 to 2017 in all categories. In 2013, the highest low Hgb/Hct are in the third trimester (23%) and postpartum (23%). In 2017, the percent of low levels of Hgb/Hct were 7% in the third trimester and 8% at postpartum.

**CDC Recommendation:** The CDC recommends periodic screening for low Hgb and Hct among pregnant women to ensure that the recommended iron levels are being met<sup>9</sup>.



ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>1st Trimester</b>										
<b>Yes</b>	25	7.1	22	6.9	18	6.1	9	3.5	7	3.1
<b>No</b>	326	93.0	295	93.0	279	94.0	249	97.0	218	97.0
<b>2nd Trimester</b>										
<b>Yes</b>	46	5.8	39	5.4	29	4.3	26	4.0	9	1.5
<b>No</b>	750	94.0	679	95.0	644	96.0	623	96.0	576	98.0
<b>3rd Trimester</b>										
<b>Yes</b>	127	23.0	102	17.0	69	12.0	73	12.0	39	7.2
<b>No</b>	432	77.0	486	83.0	510	88.0	533	88.0	501	93.0
<b>Postpartum</b>										
<b>Yes</b>	392	23.0	261	16.0	217	14.0	185	12.0	104	7.7
<b>No</b>	1,314	77.0	1,362	84.0	1,332	86.0	1,328	88.0	1,246	92.0
<b>Total</b>										
<b>Yes</b>	198	7%	163	5%	116	4%	108	4%	55	2%
<b>No</b>	2,822	93%	2,822	95%	2,765	96%	2,733	96%	2,541	98%

n= Number of women in each category.

By trimester: Total number with valid Hemoglobin/Hematocrit values with date & expected date of delivery.

Postpartum: Total number with valid postpartum Hemoglobin/Hematocrit values and dates, maternal and expected date of delivery.

Adjusted for smoking and altitude.

## Inter-Pregnancy Interval

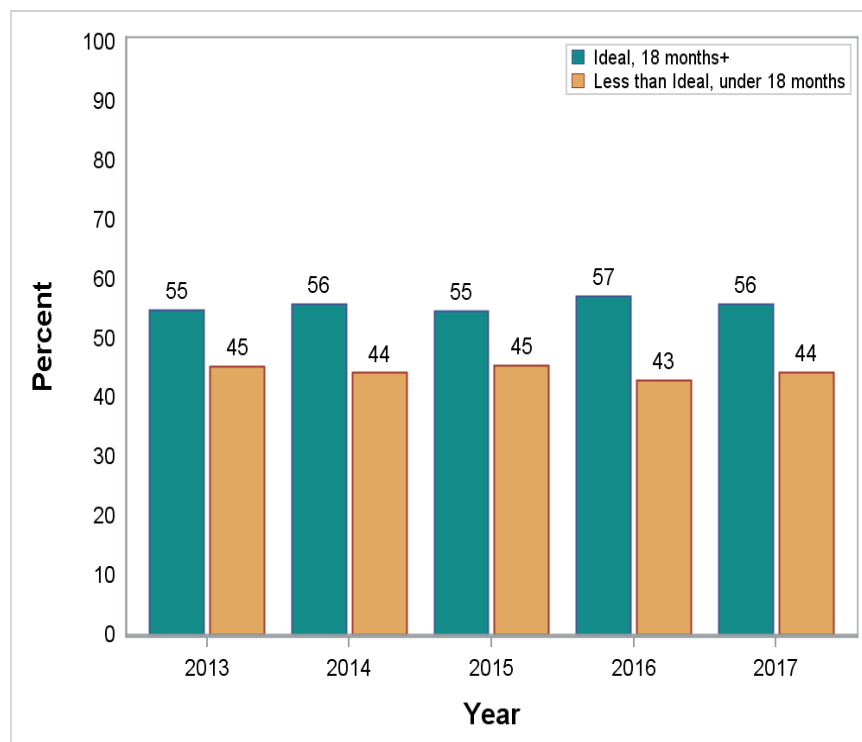
**Background Information:** Inter-pregnancy interval is defined as the time between two pregnancies<sup>10</sup>. The World Health Organization recommends inter-pregnancy intervals to be longer than 18 months<sup>11</sup>. In this report, short inter-pregnancy intervals are defined *less than ideal* when shorter than 18 months; *ideal* inter-pregnancy intervals are categorized as those greater than or equal to 18 months. Short inter-pregnancy intervals put infants at risk for preterm birth, small size for gestational age, low birth weights, and fetal death<sup>11</sup>. Maternal morbidity and mortality are also associated with short inter-pregnancy intervals<sup>11</sup>.

**How Data Were Collected:** The birth date or end of the previous pregnancy was self-reported by the pregnant women. To calculate when the following pregnancy began, the date of conception was calculated by the expected date of delivery. The inter-pregnancy interval was computed from aforementioned dates.

**Healthy People 2020 Goal:** Family Planning (FP)-5 states to “reduce the proportion of pregnancies conceived within 18 months of a previous birth. Target 29.8%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>Ideal, ≥ 18 months</b>	881	55.0	900	56.0	826	55.0	866	57.0	1,522	56.0
<b>Less than Ideal, &lt; 18 months</b>	726	45.0	712	44.0	686	45.0	651	43.0	1,206	44.0
<b>Total (n)</b>	1,607		1,612		1,512		1,517		2,728	

n= Number of women in each category





**Key points:**

- ❖ Majority of ITCA WIC participants had an inter-pregnancy interval of 18 months or more between 2013 and 2017.
- ❖ In 2017, ITCA WIC exceeded the Healthy People 2020 goal with 56% of pregnancies occurring in 18 months or more.

**The World Health Organization Recommendation:** It is recommended that women have inter-pregnancy intervals of 24 months; intervals less than 18 months are to be avoided<sup>11</sup>.

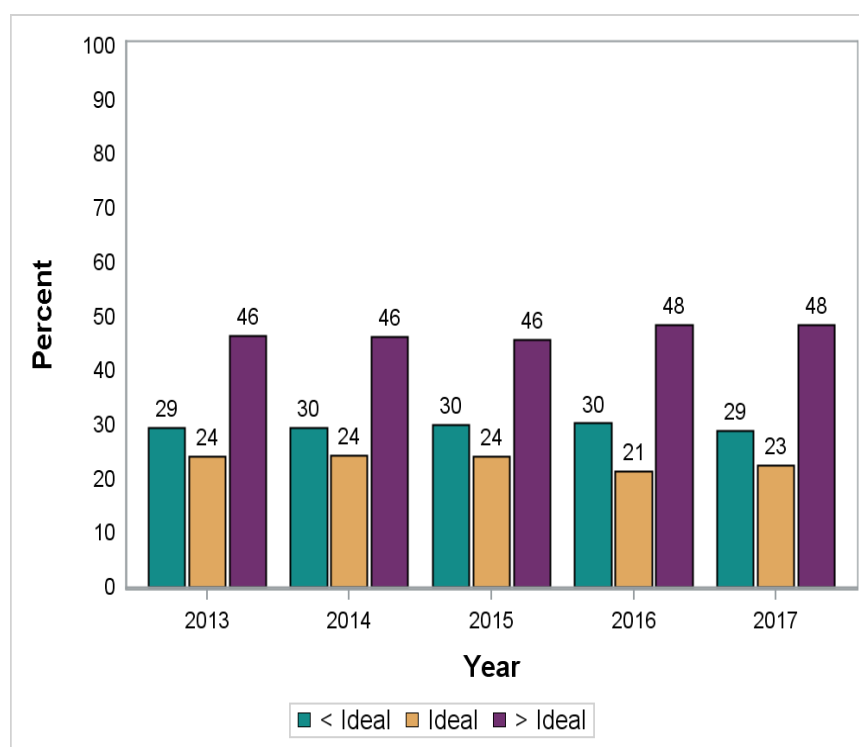
## Maternal Weight Gain

**Background Information:** The ideal weight a woman should gain during pregnancy depends on their pre-pregnancy BMI. At a healthy weight, an ideal pregnancy weight gain ranges from 25-35 pounds<sup>7</sup>. However, at a higher BMI category such as overweight or obese, it is recommended that the woman gain less than 25 pounds<sup>7</sup>. Less than ideal weight gain in underweight or healthy weight women is associated with premature delivery, low birth weight, and infant mortality<sup>7</sup>. Weight gain that exceeds the recommended amount increases the mother's risks for developing gestational diabetes, hypertension, and requiring a C-section<sup>7</sup>. Exceeding the recommended weight gain has risks for infants as well, such as high birth weight, complications during delivery, and infant mortality<sup>7</sup>.

**How Data Were Collected:** Maternal weight gain was self-reported by the mothers at their postpartum visit. Pre-pregnancy BMI categories were determined using measured height and self-reported pre-pregnancy weight. See Definition of Variables for definitions of the weight gain categories.

**Healthy People 2020 Goal:** Maternal, Infant and Child Health (MICH)-13 states to “increase the proportion of mothers who achieve a recommended weight gain during their pregnancies. Target not stated”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
Less than Ideal	830	29.0	835	30.0	787	30.0	805	30.0	685	29.0
Ideal	679	24.0	687	24.0	636	24.0	567	21.0	534	23.0
Greater than Ideal	1,307	46.0	1,307	46.0	1,201	46.0	1,287	48.0	1,146	48.0
<b>Total (n)</b>	2,816		2,829		2,624		2,659		2,365	



**Key points:**

- ❖ Majority of the women enrolled in ITCA WIC from 2013-2017 had a greater than ideal weight gain.
- ❖ Less than a quarter of the women enrolled (23%) in 2017 had an ideal pregnancy weight gain.

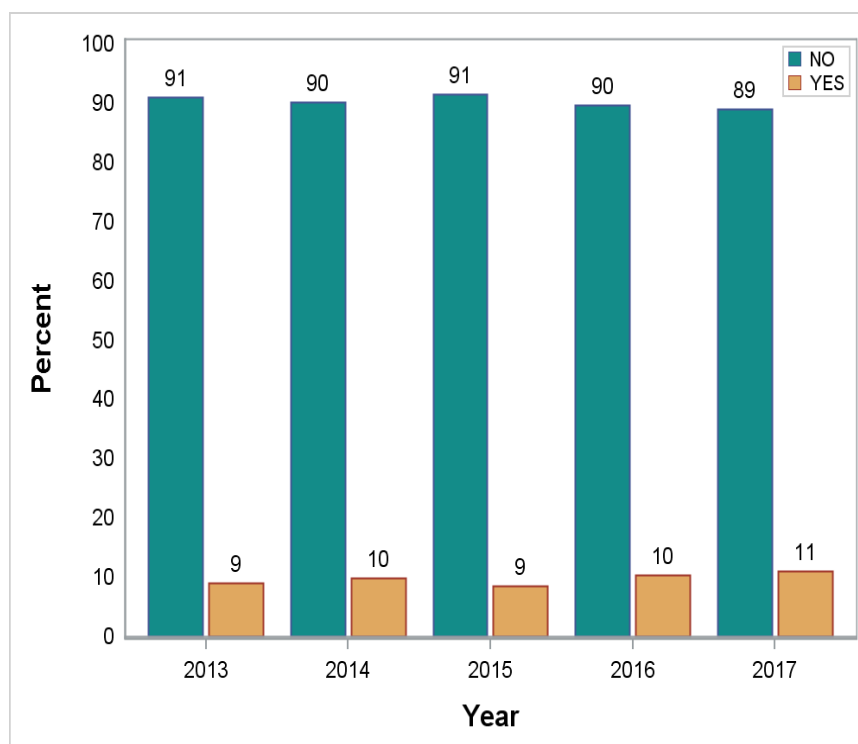
**Institute of Medicine Recommendation:** Women with a normal BMI classification should gain between 25 – 35 pounds. Overweight and obese women should aim to gain between 15 – 25 pounds and between 11 – 20 pounds, respectively<sup>7</sup>. Regardless of BMI category, a healthy diet, exercise, and abstaining from active weight loss is recommended for all pregnant woman<sup>7</sup>.

## Gestational Diabetes

**Background Information:** Women who are first diagnosed with diabetes during pregnancy are reported as having gestational diabetes<sup>12</sup>. Gestational diabetes affects 2-10% of pregnancies in the United States and can later develop into type 2 diabetes<sup>12</sup>. It is estimated that developing type 2 diabetes after gestational diabetes occurs in 50% of women<sup>12</sup>. Gestational diabetes increases the risk of high blood pressure, high birth weight, and needing a C-section<sup>12</sup>.

**How Data Were Collected:** Diabetes status was self-reported (as diagnosed by a physician) by the postpartum ITCA WIC participants.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>No</b>	2,216	91.0	2,213	90.0	2,129	91.0	2,058	90.0	1,831	89.0
<b>Yes</b>	221	9.1	243	9.9	199	8.5	238	10.0	227	11.0
<b>Total (n)</b>	2,437		2,456		2,328		2,296		2,058	



**Key points:**

- ❖ From 2013 to 2017, majority of ITCA WIC participants did not have gestational diabetes.

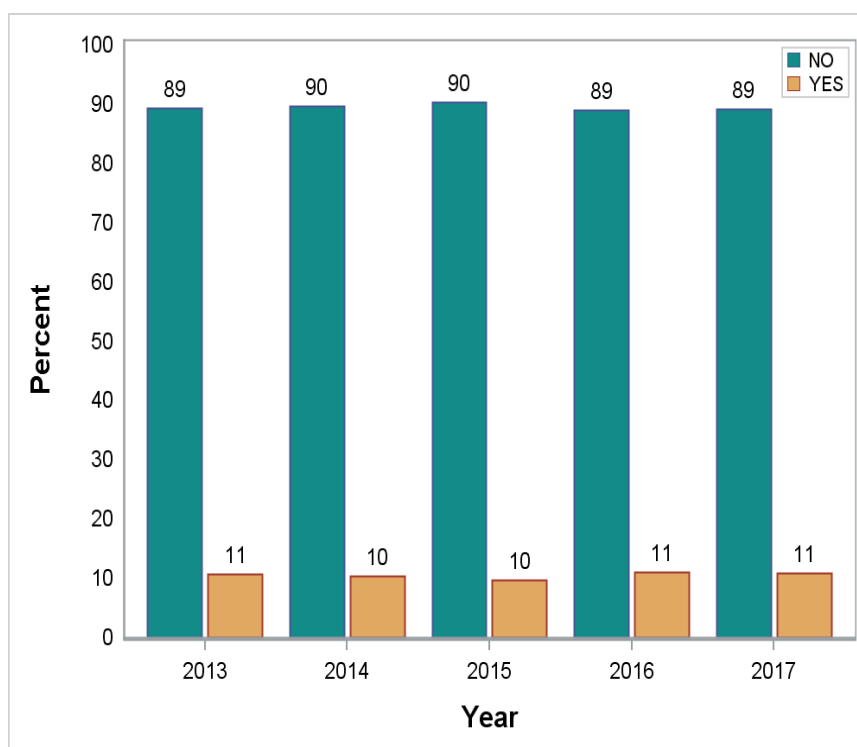
**CDC Recommendation:** Steps to decrease the chances of developing gestational diabetes include maintaining a healthy body weight and regular physical activity prior to becoming pregnant<sup>12</sup>.

## Hypertension During Pregnancy

**Background Information:** In the age range of 20 to 44 years old, hypertension occurs in 6-8% of pregnancies in the United States<sup>13</sup>. Hypertension during pregnancy is linked to preeclampsia, stroke, pregnancy induction, and placental abruption<sup>13</sup>. As for infants, hypertension during pregnancy increases the risk of a preterm delivery and low birth weight<sup>13</sup>.

**How Data Were Collected:** Hypertension status was self-reported (as diagnosed by a physician) at the certification visit by the postpartum ITCA WIC participants.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	2,144	89.0	2,187	90.0	2,087	90.0	2,024	89.0	1,822	89.0
Yes	255	11.0	252	10.0	224	9.7	252	11.0	222	11.0
<b>Total (n)</b>	2,858		2,862		2,670		2,705		2,409	



**Key points:**

- ❖ In the 2013 to 2017 range, majority of ITCA WIC participants did not experience hypertension during their pregnancy.

**CDC Recommendation:** Women who plan on becoming pregnant should speak with their physician to screen them for hypertension in order to treat and control high blood pressure before pregnancy<sup>13</sup>.

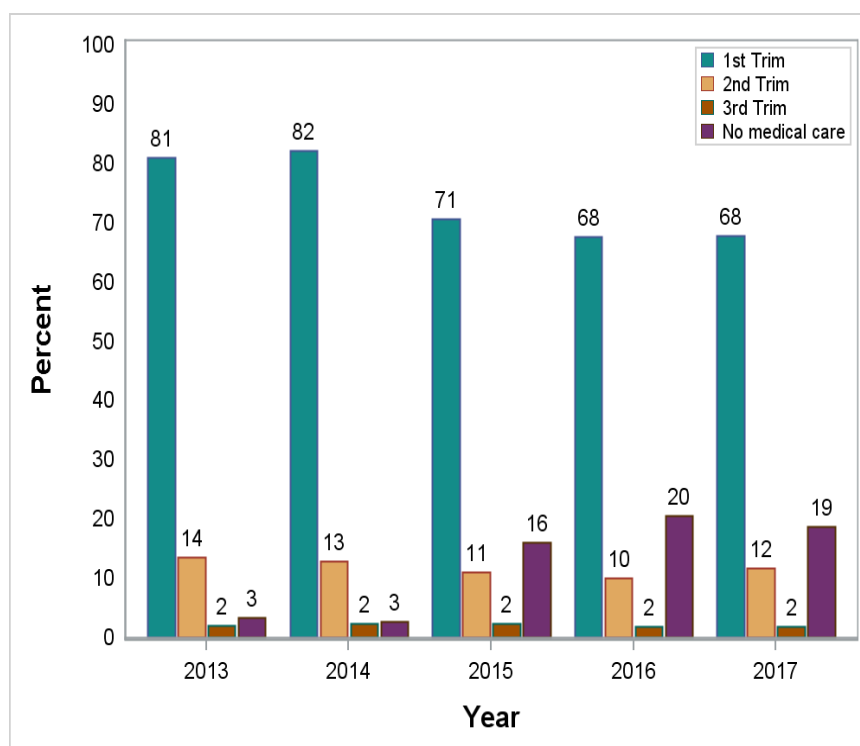
## Prenatal Care

**Background Information:** Women who do not receive early or adequate prenatal care are more likely to deliver low birth weight infants<sup>14</sup>. However, with prenatal care expectant mothers can be informed of the nutrition and behavioral risk factors that can affect her and her infants' health<sup>14</sup>.

**How Data Were Collected:** The month that prenatal care was initiated was self-reported by the pregnant woman at the certification visit.

**Healthy People 2020 Goal:** MICH-10.2 states to “increase the proportion of women who receive early and adequate prenatal care. Target: 77.6%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
1st Trim	1,990	81.0	1,873	82.0	1,804	71.0	1,825	68.0	1,628	68.0
2nd Trim	332	14.0	293	13.0	281	11.0	270	10.0	281	12.0
3rd Trim	51	2.1	53	2.3	59	2.3	51	1.9	43	1.8
No medical care	84	3.4	62	2.7	411	16.0	553	20.0	450	19.0
<b>Total (n)</b>	2,858		2,862		2,670		2,705		2,409	



### Key points:

- ❖ ITCA WIC participants who did not seek medical care during their pregnancy increased from 2013 (3%) to 2017 (19%).
- ❖ Majority of the mothers in the 2013 to 2017 data range sought medical care in their first trimester.

- ❖ In 2017, ITCA WIC did meet the Healthy People 2020 target (77.6%) for seeking early prenatal care when including only the first trimester (68%). However, when including both first (68%) and second trimester (12%), 80% of their participants sought prenatal care.

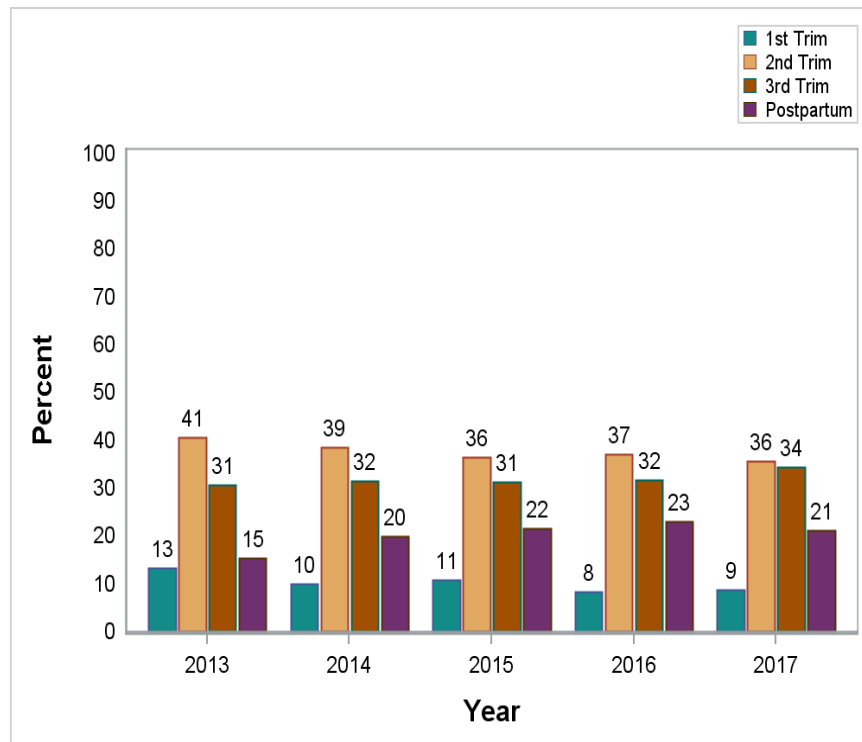
**CDC Recommendation:** Due to the known health benefits to both mother and child, women who want to become pregnant should consider a preconception visit<sup>14</sup>. Once aware of their pregnancy, pregnant women are recommended to get early prenatal care<sup>14</sup>.

## WIC Enrollment

**Background Information:** Women who are enrolled in the WIC Program have nutrient rich diets, longer pregnancies, fewer premature births, fewer infant deaths, and are more likely to be receiving prenatal care<sup>15</sup>. Additionally, studies have shown that children enrolled in WIC have improved upon diets, a higher likelihood of having a primary source of medical care, and up to date immunizations<sup>15</sup>.

**How Data Were Collected:** The month that the client enrolled in the WIC Program was recorded by the data system. National comparison uses PNSS data.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>1st Trim</b>	303	13.0	227	10.0	234	11.0	180	8.3	336	8.8
<b>2nd Trim</b>	923	41.0	872	39.0	788	36.0	802	37.0	1,368	36.0
<b>3rd Trim</b>	697	31.0	714	32.0	675	31.0	684	32.0	1,316	34.0
<b>Postpartum</b>	347	15.0	448	20.0	466	22.0	496	23.0	810	21.0
<b>Total (n)</b>	2,270		2,261		2,163		2,162		3,830	



**Key points:**

- ❖ In 2017, majority of ITCA WIC participants enrolled in the WIC program in their second (36%) or third trimester (34%).
- ❖ From 2013 to 2017, majority of women enrolled in the ITCA WIC program in the following order: second trimester, third trimester, postpartum, and first trimester.

**United States Department of Agriculture (USDA) Recommendation:** Nutritionally at-risk women, infants and children eligible to receive WIC services are encouraged to enroll in a WIC Program to ensure optimal health<sup>15</sup>.



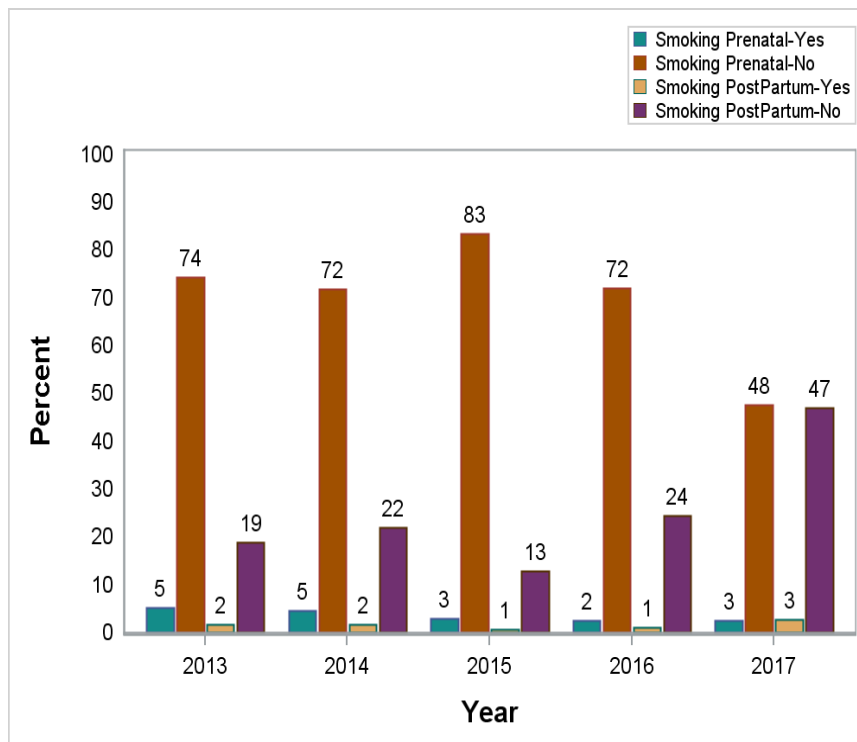
## Smoking in Household

**Background Information:** Smoking during pregnancy and being exposed to secondhand smoke is related to birth defects, premature birth, and infant death<sup>16</sup>. The benefits of quitting smoking during pregnancy are almost immediate. With one day of not smoking, a fetus will receive more oxygen in the womb<sup>16</sup>. After pregnancy, smoking in a household with infants is a risk factor for Sudden Infant Death Syndrome (SIDS) and increases a child’s risk of developing asthma<sup>16</sup>.

**How Data Were Collected:** Smoking in the household was self-reported by the client at the certification visit.

**Healthy People 2020 Goal:** MICH-11.3 states to “increase abstinence from cigarette smoking among pregnant women. Target: 98.6%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>Prenatal</b>										
<b>Yes</b>	147	5.2	130	4.6	78	2.9	67	2.5	29	2.6
<b>No</b>	2,116	74.0	2,047	72.0	2,221	83.0	1,943	72.0	532	48.0
<b>Postpartum</b>										
<b>Yes</b>	46	1.6	47	1.6	18	0.7	26	1.0	31	2.8
<b>No</b>	535	19.0	628	22.0	345	13.0	658	24.0	527	47.0
<b>Total (n)</b>	2,844		2,852		2,662		2,694		1,119	



**Key points:**

- ❖ In 2017, less participants answered the question concerning smoking in the household. For this reason, the trend difference in 2017 from 2013-2016 may be a result of a smaller sample size.
  - Note: In each year from 2013-2016, ITCA WIC had over 2,000 responses; 2017 had 1,119 responses.
- ❖ Overall, the maternal participants of ITCA WIC were in households that abstained from smoking during the mother's pregnancy and at postpartum.

**CDC Recommendation:** Smoking cessation is recommended prior to conception since smoking can make becoming pregnant more difficult<sup>16</sup>. As for secondhand smoke, women and families are advised to maintain a smoke free home, choose smoke-free environments, and teach children to avoid smoke<sup>16</sup>.

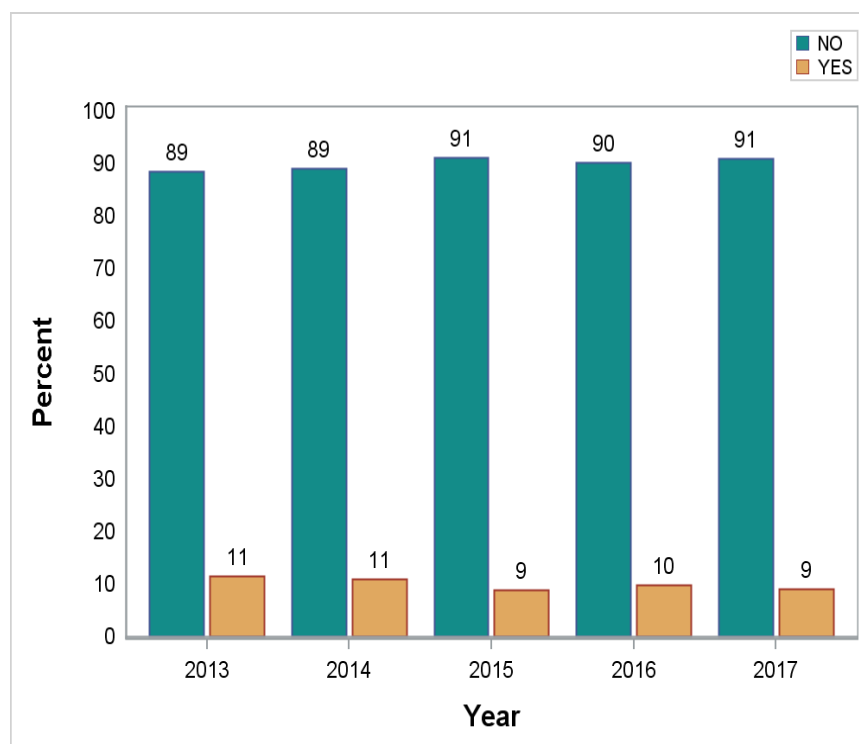
## Alcohol Consumption Before Pregnancy

**Background Information:** In general, it is recommended to limit alcohol consumption and consider alcohol abstinence while trying to get pregnant as there is no safe level for fetal alcohol consumption<sup>18</sup>.

**How Data Were Collected:** Alcohol consumption was self-reported by each client at the certification visit.

**Healthy People 2020 Goal:** MICH-16.4 states to “increase the proportion of women delivering a live birth who did not drink alcohol prior to pregnancy. Target 55.6%<sup>6</sup>.”

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	2,505	89.0	2,521	89.0	2,407	91.0	2,414	90.0	1,010	91.0
Yes	324	11.0	312	11.0	234	8.9	261	9.8	101	9.1
<b>Total (n)</b>	2,829		2,833		2,641		2,675		1,111	



**Key points:**

- ❖ Overall, the ITCA WIC program met the Healthy People 2020 target (55.6%) for abstaining from alcohol prior to pregnancy in all years from 2013-2017.
- ❖ On average, 10% of ITCA WIC participants from each year from 2013 to 2017 reported consuming alcohol before their pregnancy.

**CDC Recommendation:** Women who are sexually active and are not using contraception are recommended to not drink alcohol to avoid accidental fetal alcohol exposure before she knows she is pregnant<sup>18</sup>.

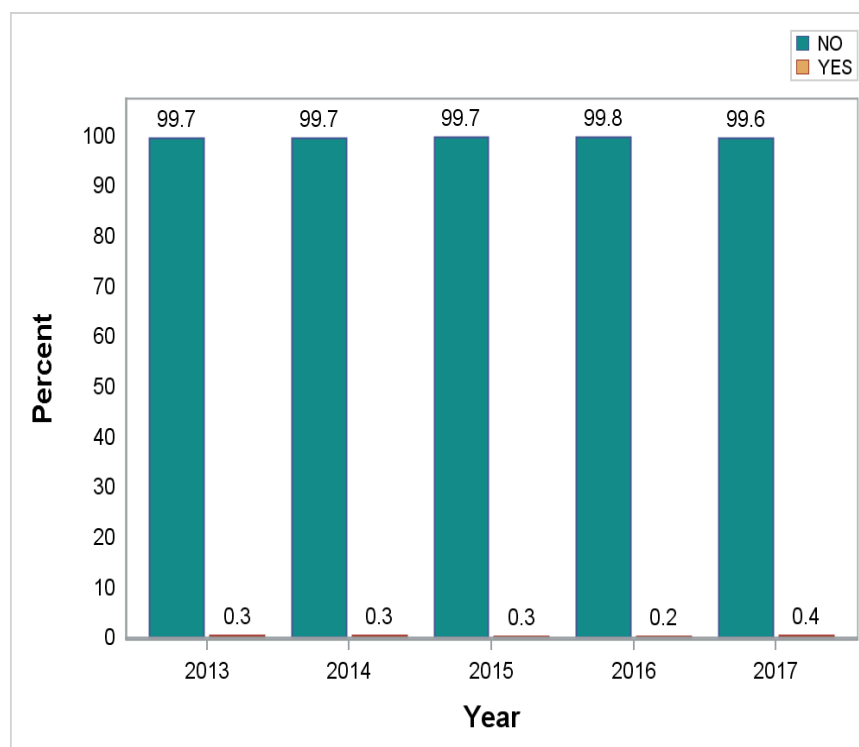
## Alcohol Consumption During Pregnancy

**Background Information:** Consuming alcohol during pregnancy is not recommended regardless of alcohol type or trimester and can result in Fetal Alcohol Spectrum Disorders (FASDs)<sup>17</sup>. FASDs are completely preventable as long as women avoid drinking alcohol during pregnancy<sup>17</sup>. Characteristics of FASDs include low birth weight, abnormal facial features, life-long behavioral problems, learning disabilities, speech and language delays, and shorter-than-average height<sup>18</sup>.

**How Data Were Collected:** Alcohol consumption was self-reported by each client at the certification visit.

**Healthy People 2020 Goal:** MICH-11.1 states to “increase the abstinence from alcohol among pregnant women. Target: 98.3%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>No</b>	2,380	99.7	2,405	99.7	2,311	99.7	2,323	99.8	735	99.6
<b>Yes</b>	8	0.3	8	0.3	7	0.3	4	0.2	3	0.4
<b>Total (n)</b>	2,388		2,413		2,318		2,327		738	



**Key points:**

- ❖ Of the participants that responded, majority stated that they abstained from alcohol during their pregnancy.
- ❖ ITCA WIC met the Healthy People 2020 target (98.3%) for abstaining from alcohol prior to pregnancy in each year from 2013-2017.

**CDC Recommendation:** No type of alcohol is recommended as safe to drink during pregnancy nor is it safe to drink in any trimester<sup>17</sup>.

# Infant & Children Indicators

## Number of Births by Year at IHS Facilities

**Background Information:** Currently there are two IHS facilities that have birthing units in the Phoenix service area, Whiteriver Indian Hospital and Phoenix Indian Medical Center. Whiteriver Indian Hospital is located on the Fort Apache Indian Reservation at Whiteriver, AZ. The Phoenix Indian Medical Center is located in Phoenix, AZ. Previously Hopi Health Care Center offered birthing services but have been discontinued after the 2016 Fiscal Year.

**How Data Were Collected:** The data was collected by using inpatient reports by month.

IHS Hospitals	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>Hopi Health Care Center</b>	28	4	18	2	20	3	3	0	0	0
<b>Phoenix Indian Medical Center</b>	550	84	658	90	656	89	657	93	598	93
<b>Whiteriver Indian Hospital</b>	77	12	55	8	64	9	44	6	47	7
<b>Total (n)</b>	655		731		740		704		645	

**Key points:**

- ❖ Newborns are tracked by inpatient records to IHS facilities.
- ❖ Parker Hospital and San Carlos do not have a birthing unit.
- ❖ Hopi Health Care Center discontinued their newborn delivery services after the 2016 Fiscal Year.

## Infant Mortality Rate

**Background Information:** Infant mortality is the death of an infant that is less than a year old<sup>19</sup>. The rate of infant death is a marker for the health of a society and an indicator of maternal and infant health<sup>19</sup>. For reference, in 2016 the United States infant mortality rate was 5.9 infant deaths per 1,000 live births<sup>19</sup>.

**How Data Were Collected:** Infant mortality rates for American Indians in the Phoenix and Tucson IHS Service Areas were collected from several sources. Arizona’s data came from the yearly Health Status Profile of American Indians in Arizona report and is publicly available from ADHS. American Indian Infant mortality was requested by ITCA from CHIA and the Utah Department of Health for Nevada and Utah, respectively.

**Note:** When available, infant mortality rates from 2013-2017 was presented to match the ITCA WIC analysis. Infant mortality rates from 2012 were included when 2016 or 2017 data was not available.

**Table 1. Arizona Infant Mortality**

Year	Average Rate for All Groups	Infant Mortality Rate for American Indians
2012	5.8	7.4
2013	5.3	6.6
2014	6.2	8.7
2015	5.6	7.8
2016	5.4	8.3

Rates per 1,000 live births

**Table 2. Nevada Infant Mortality**

Year	Death Count	Birth Count	Infant Mortality Rate for American Indians
	<b>n</b>	<b>n</b>	
2013	<10	335	3.0
2014	<10	358	8.4
2015	<10	386	10.4
2016	<10	332	18.1
2017	<10	352	2.8

Rates per 1,000 live births

For confidentiality purposes, values less than 10 are displayed as “<10”

**Table 3. Utah Infant Mortality**

Year	Death Count	Birth Count	Infant Mortality Rate for American Indians
	<b>n</b>	<b>n</b>	<b>n</b>
2012	<10*	670*	0.111*
2013	<10*	633*	0.111*
2014	<10	<10	<10
2015	<10	<10	<10

Rates per 1,000 live births

\*The estimate has a coefficient of variation > 30% and is deemed unreliable

For confidentiality purposes, values less than 10 are displayed as “<10”



**Key points:**

**Arizona:**

- ❖ In the available data from 2013 to 2017, Arizona had infant mortality rates of American Indians greater than the 2016 United States infant mortality rate of 5.9 per 1,000 live births.
- ❖ From 2013 to 2017, American Indians in Arizona had a higher infant mortality rate compared to Arizona as a whole.

**Nevada:**

- ❖ Nevada's infant mortality rates from 2013 to 2017 had a range of 2.8 – 18.1.
- ❖ In Nevada, the highest infant mortality rate per 1,000 live births occurred in 2016 with 18.1 and decreased to 2.9 in 2017.
- ❖ In the year 2016, American Indians in Nevada infant mortality rate of 18.1 per 1,000 live births was over 3x as much as the 2016 United States infant mortality rate of 5.9.

**Utah:**

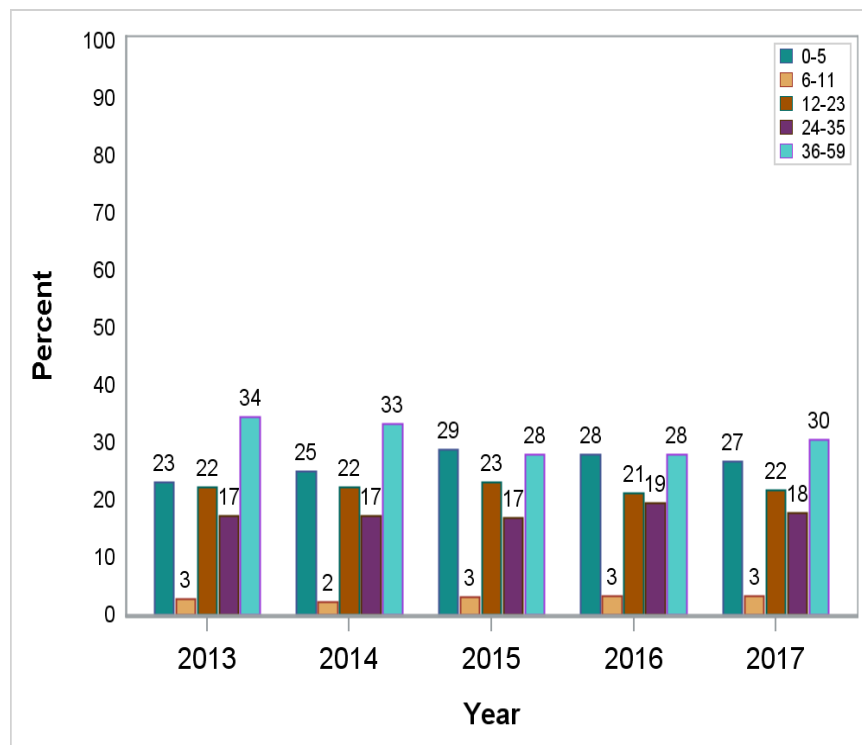
- ❖ Due to small counts, the available data from Utah was suppressed to maintain patient privacy when applicable.

## Infant and Child Age Distribution

**Background Information:** WIC serves infants and children up to their 5<sup>th</sup> birthday. The information provides the ages of infants and children that are participants of ITCA WIC from 2013-2017.

**How Data Were Collected:** Age was calculated based on the date of birth of the child and the date of data collection. Age in months was used to describe both infants and children participants.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>Age in Months</b>										
<b>0-5</b>	2,685	23	2,817	25	2,739	29	2,725	28	2,412	27
<b>6-11</b>	327	3	256	2	294	3	321	3	300	3
<b>12-23</b>	2,600	22	2,499	22	2,194	23	2,071	21	1,958	22
<b>24-35</b>	2,021	17	1,935	17	1,613	17	1,890	19	1,598	18
<b>36-59</b>	4,016	34	3,746	33	2,657	28	2,724	28	2,749	30
<b>Total (n)</b>	11,649		11,253		9,497		9,731		9,017	



**Key points:**

- ❖ ITCA WIC had similar age distributions throughout 2013-2017.
- ❖ From 2013-2017, there is a drop in participants in the 6-11 month age category.
- ❖ Majority of participants from 2013-2017 were in the 0-5 and 36-59 month categories.

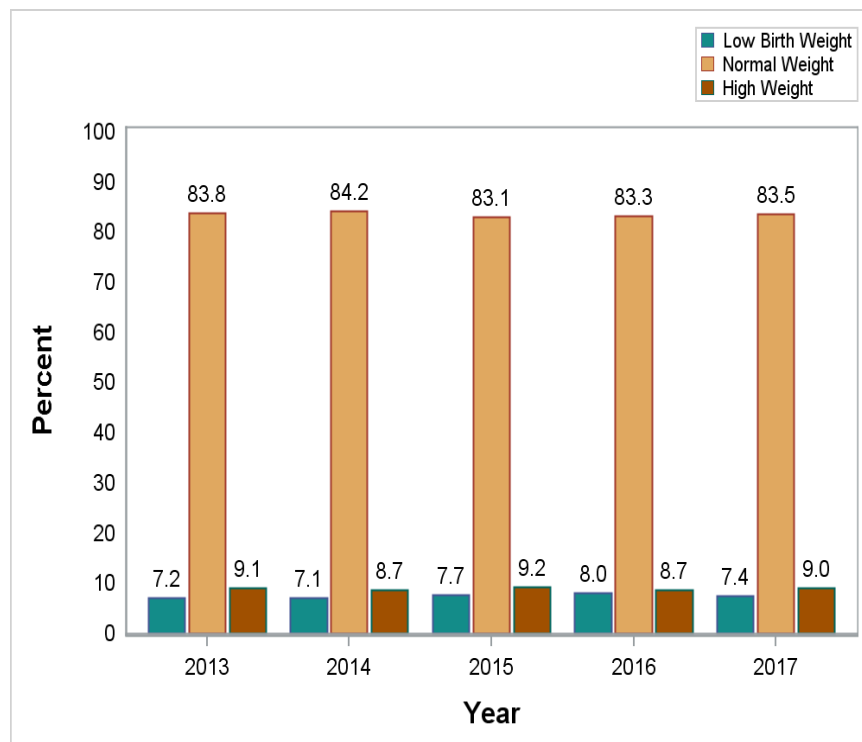
## Birth Weight

**Background Information:** Infants with a low birth weight have a higher risk of health problems compared to normal birth weight infants<sup>20</sup>. Health conditions such as diabetes, heart disease, high blood pressure, and intellectual and developmental disabilities are more likely to develop in infants who had a low birth weight<sup>20</sup>. Increased risk of delivery complications and childhood obesity are associated with high birth weight infants<sup>21</sup>.

**How Data Were Collected:** Birth weight was self-reported by each client at the certification visit.

**Healthy People 2020 Goal:** MICH-8.1 states to “reduce low birth weight. Target: 7.8%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
Low Birth Weight	360	7.2	342	7.1	347	7.7	343	8.0	289	7.4
Normal Weight	4,196	84.0	4,081	84.0	3,758	83.0	3,557	83.0	3,250	84.0
High Weight	454	9.1	424	8.7	418	9.2	372	8.7	351	9.0
<b>Total (n)</b>	5,010		4,847		4,523		4,272		3,890	



**Key points:**

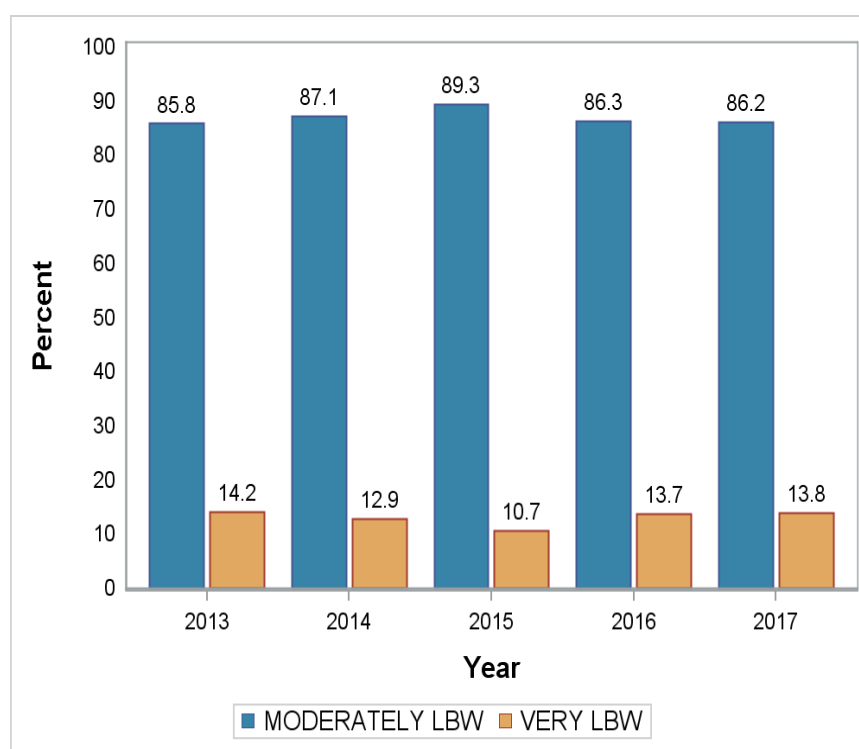
- ❖ From 2013-2017, majority of infants in the ITCA WIC program were in the normal birth weight category.
- ❖ In 2017, ITCA WIC narrowly met the Healthy People 2020 target (7.8%) with 7.4% of infants in the low birth weight category.

## Low Birth Weight by Year

**Background Information:** Infants with a very low birth weight face greater risks of infant mortality, long-term disability, and delayed motor and social development when compared to normal birth weight infants<sup>22</sup>.

**How Data Were Collected:** Historical data were determined by reviewing previous Maternal and Child Health ITCA WIC reports.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
Moderately Low	309	86.0	298	87.0	310	89.0	296	86.0	249	86.0
Very Low	51	14.0	44	13.0	37	11.0	47	14.0	40	14.0
<b>Total (n)</b>	360		342		347		343		289	



### Key points:

- ❖ From 2013-2017, majority of the low birth weight infants are in the moderately low birth weight category with ranges between 85-89%.
- ❖ In 2015, the very low birth weight category had a percentage of 10.7%. This was the lowest in any of the years from 2013-2017.

**CDC Recommendations:** It is recommended that mothers seek prenatal care to be informed on nutrition and behavioral risk factors that may influence the health of the baby, including risk factors for low birth weight<sup>14</sup>.

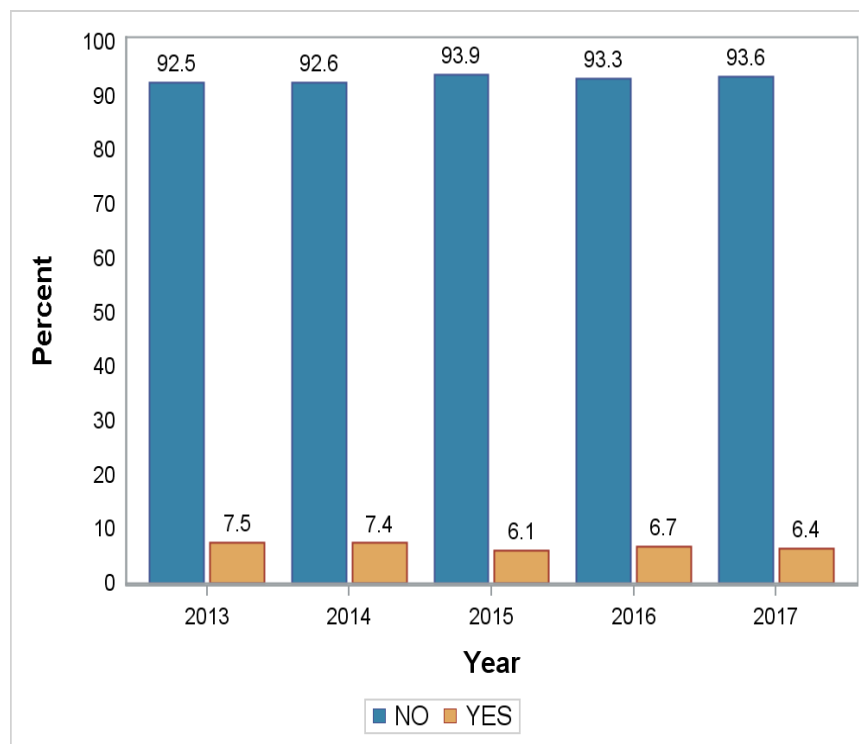
## Preterm Births

**Background Information:** It is estimated that preterm births occur in 1:10 infants in the United States<sup>23</sup>. The underdevelopment of vital organs in the last weeks of gestation increase the risk for premature babies having breathing problems, developmental delays, and vision and hearing problems<sup>23</sup>. In addition, premature infants tend to have low birth weights<sup>23</sup>.

**How Data Were Collected:** Preterm births were categorized by using the date of birth and estimated date of confinement and were self-reported by the client at the certification visit.

**Healthy People 2020 Goal:** MICH-9.1 states to “reduce total preterm births. Target: 9.4%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	2,099	92.0	2,093	93.0	2,031	94.0	2,017	93.0	3,584	94.0
Yes	171	7.5	168	7.4	132	6.1	145	6.7	246	6.4
<b>Total (n)</b>	2,270		2,261		2,163		2,162		3,830	



### Key points:

- ❖ Over 90% of ITCA WIC participants did not have a preterm delivery from 2013-2017.
- ❖ From 2013-2017, ITCA WIC met the Healthy People 2020 target (9.4%) for total live births that were preterm

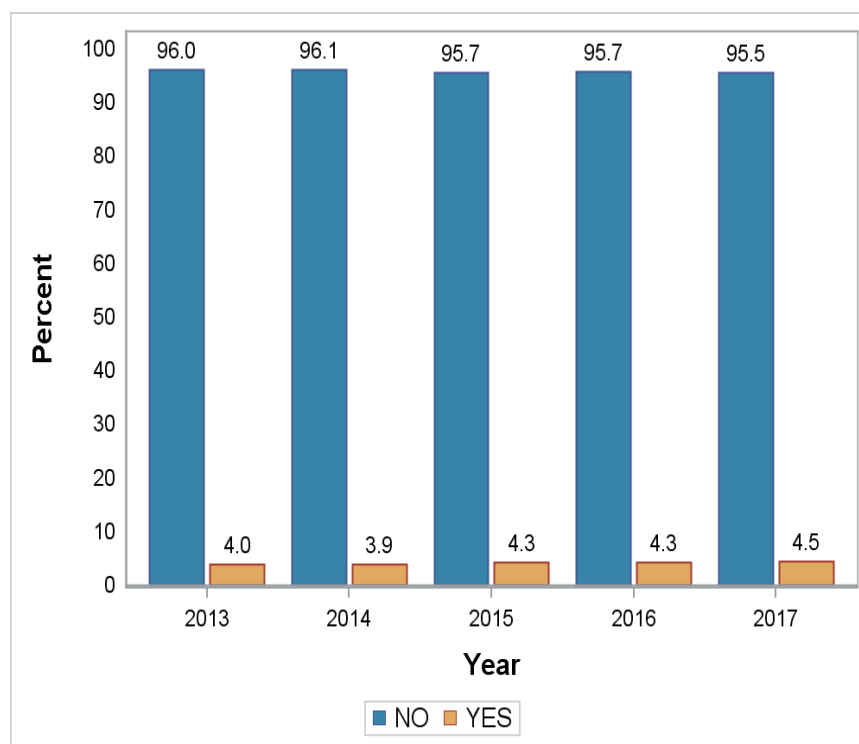
**CDC Recommendations:** There are multiple causes of preterm births. To decrease the risk of preterm delivery, women should quit smoking, avoid alcohol and drugs, and seek prenatal care<sup>23</sup>.

## Full Term Low Birth Weight by Year

**Background Information:** Low birth weight is usually a result of premature birth or fetal growth restriction (FGR)<sup>20</sup>. The fetus receives its oxygen and nutrients from the placenta. If the placenta has a reduction in oxygen flow and nutrients, the fetus' growth may be limited<sup>20</sup>. However, a low birth weight may simply be related to the parents' small size<sup>20</sup>.

**How Data Were Collected:** Historical data were determined by reviewing previous Maternal and Child Health ITCA WIC reports.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	1,963	96.0	1,939	96.0	1,848	96.0	1,814	96.0	3,170	95.0
Yes	81	4.0	78	3.9	84	4.3	82	4.3	150	4.5
<b>Total (n)</b>	2,044		2,017		1,932		1,896		3,320	



### Key points:

- ❖ From 2013-2017, ITCA WIC reported its highest percentage of infant participants with full term low birth weight in 2017 with 4.5%.
- ❖ Majority of ITCA WIC participants did not experience a full term delivery with a low birth weight in the years 2013-2017.

**March of Dimes Recommendations:** Attend prenatal visits regularly in order for a physician to monitor the growth and development of the fetus<sup>20</sup>.

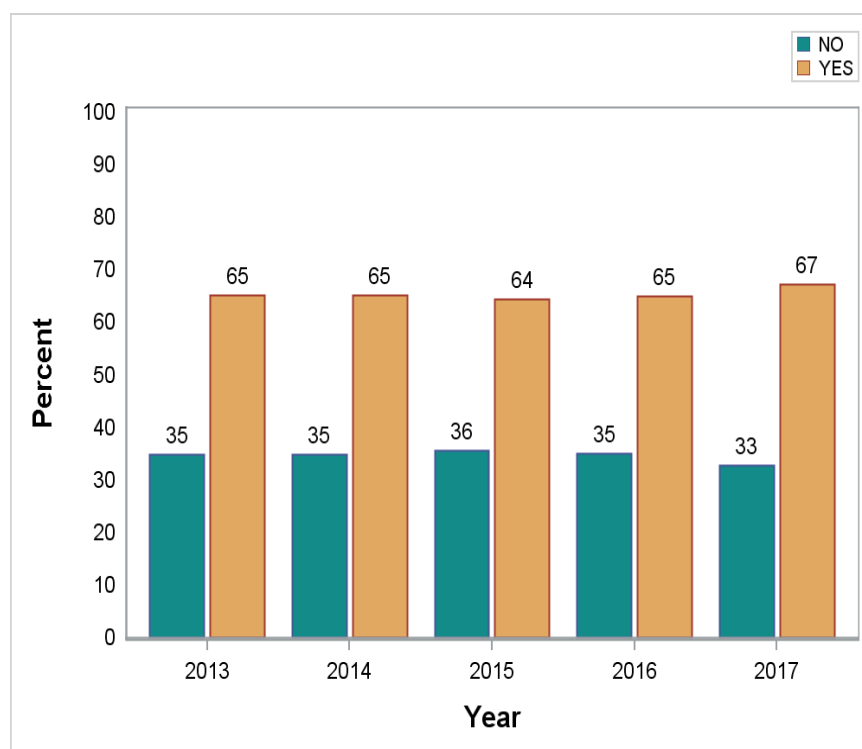
## Breastfeeding

**Background Information:** The benefits of breastfeeding an infant include a decreased risk of developing asthma, diabetes, gastrointestinal infections, and SIDS<sup>24</sup>. Mothers also benefit from breastfeeding and by doing so can decrease their risks for diabetes, high blood pressure, and breast and ovarian cancers<sup>24</sup>.

**How Data Were Collected:** Breastfeeding information was self-reported by the client at each clinic visit. If the woman reported breastfeeding the infant at least once per day they were classified as breastfeeding.

**Healthy People 2020 Goal:** MICH-21.1 states to “increase the proportion of infants who are ever breastfed. Target: 81.9%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	1,843	35.0	1,814	35.0	1,702	36.0	1,625	35.0	1,352	33.0
Yes	3,457	65.0	3,380	65.0	3,089	64.0	3,007	65.0	2,774	67.0
<b>Total (n)</b>	5,300		5,194		4,791		4,632		4,126	



**Key points:**

- ❖ In 2017, ITCA WIC had 67% of participants categorized as having ever breastfed their infant.
- ❖ ITCA WIC did not meet the Healthy People 2020 target (81.9%) for having ever breastfeed their infant in any of the data years<sup>6</sup>.

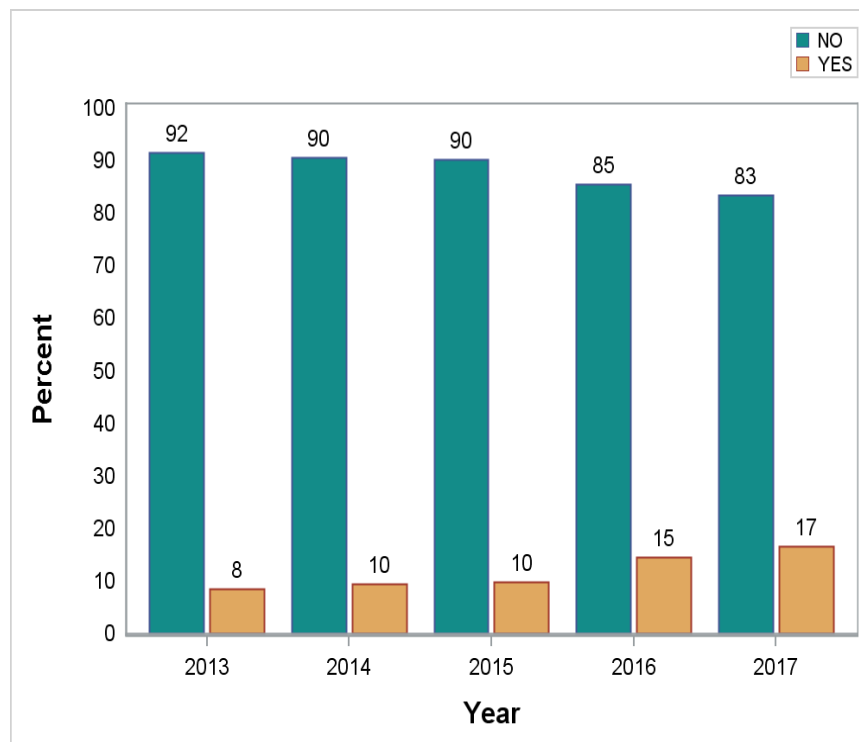
## Breastfeeding Exclusively for 6 months

**Background Information:** For infants, breastmilk is the ideal source of nutrients<sup>24</sup>. As the baby grows, the mother’s breastmilk will adapt to the infants nutritional needs<sup>24</sup>.

**How Data Were Collected:** Breastfeeding information was self-reported by the client at each clinic visit. If the woman reported breastfeeding the infant at least once per day, they were classified as breastfeeding.

**Healthy People 2020 Goal:** MICH-21.2 states to “increase the proportion of infants who are ever breastfed at 6 months. Target: 60.6%”<sup>6</sup>.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	4,362	92.0	4,108	90.0	3,313	90.0	2,088	85.0	1,177	83.0
Yes	405	8.5	432	9.5	363	9.9	357	15.0	233	17.0
<b>Total (n)</b>	4,767		4,540		3,676		2,445		1,410	



### Key points:

- ❖ The percentage of the ITCA WIC population that were breastfeeding at 6 months ranged from 8-17%.
- ❖ ITCA WIC did not reach the Healthy People 2020 target of 60.6% breastfeeding at 6 months in any of the years from 2013-2017<sup>6</sup>.

**American Academy of Pediatrics Recommendation:** Exclusive breastfeeding for the first six months and continued breastfeeding with the addition of supplemental foods through the first year of life<sup>25</sup>.



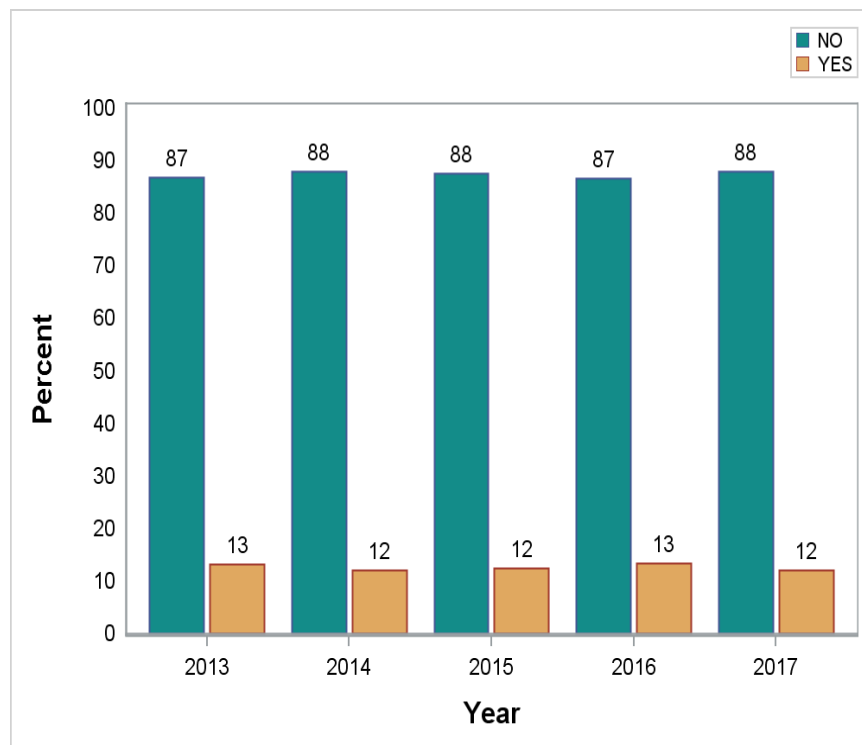
## Low Hemoglobin (Hgb) in Children

**Background Information:** Low hemoglobin or iron levels are an indicator of iron deficiency anemia, a common result of nutritional deficiency in children<sup>26</sup>. Symptoms of iron deficiency anemia include delayed growth and development, fatigue, rapid breathing, and frequent infections<sup>27</sup>.

**How Data Were Collected:** Hemoglobin values were measured in the WIC clinic using a finger stick procedure for blood draws and a HemoCue® Hgb 201+ Analyzer to measure the level of hemoglobin in the blood. Refer to Definitions of Variables for a description of cut-off values for low Hgb/Hct status.

**Note:** The term low Hgb/Hct value used in this report meets the CDC definition for diagnosis of anemia by a health care provider; however, since the WIC program does not make medical diagnoses, the term low Hgb/Hct is used.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	4,285	87.0	4,180	88.0	3,233	88.0	3,276	87.0	2,969	88.0
Yes	655	13.0	572	12.0	456	12.0	509	13.0	409	12.0
<b>Total (n)</b>	4,940		4,752		3,689		3,785		3,378	



### Key points:

- ❖ Majority of ITCA WIC children did not experience low hemoglobin levels in any of the years from 2013-2017.

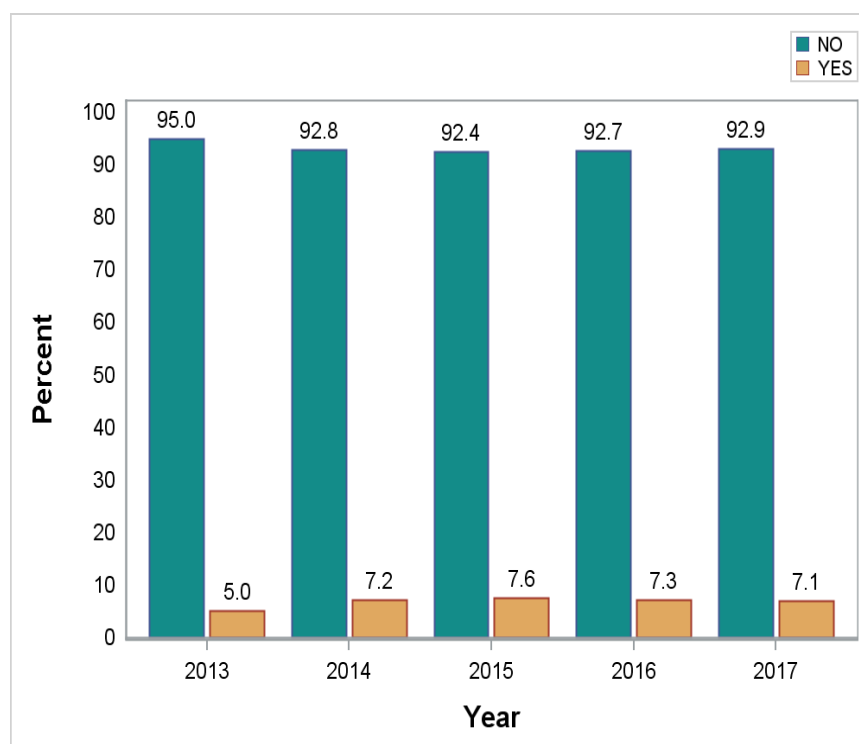
**American Academy of Pediatrics Recommendation:** Infants are recommended to be screened for hematocrit or hemoglobin at 15 and 30 months of age to detect anemia<sup>28</sup>.

## Short Stature in Children, Under 2

**Background Information:** The CDC recommends using the World Health Organizations' growth standards to monitor growth from infancy to 2 years old<sup>29</sup>. Children's height is usually determined by the parents' height, the cause for concern is when the child's growth deviates from the recommended growth pattern. Abnormal growth patterns may be the result of inadequate nutrition, disease, or a genetic disorder<sup>30</sup>.

**How Data Were Collected:** Infants and children were measured at certification visits by trained WIC Program staff. Refer to Definitions of Variables for a description of how short stature was determined.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	5,329	95.0	5,171	93.0	4,828	92.0	4,745	93.0	4,340	93.0
Yes	283	5.0	401	7.2	399	7.6	372	7.3	330	7.1
<b>Total (n)</b>	5,612		5,572		5,227		5,117		4,670	



**Key points:**

- ❖ The lowest percent of participants under 2 that were classified as short for their age was in 2013 (5%).
- ❖ The highest percent of participants under 2 that were classified as short for their age was in 2015 (7.6%).

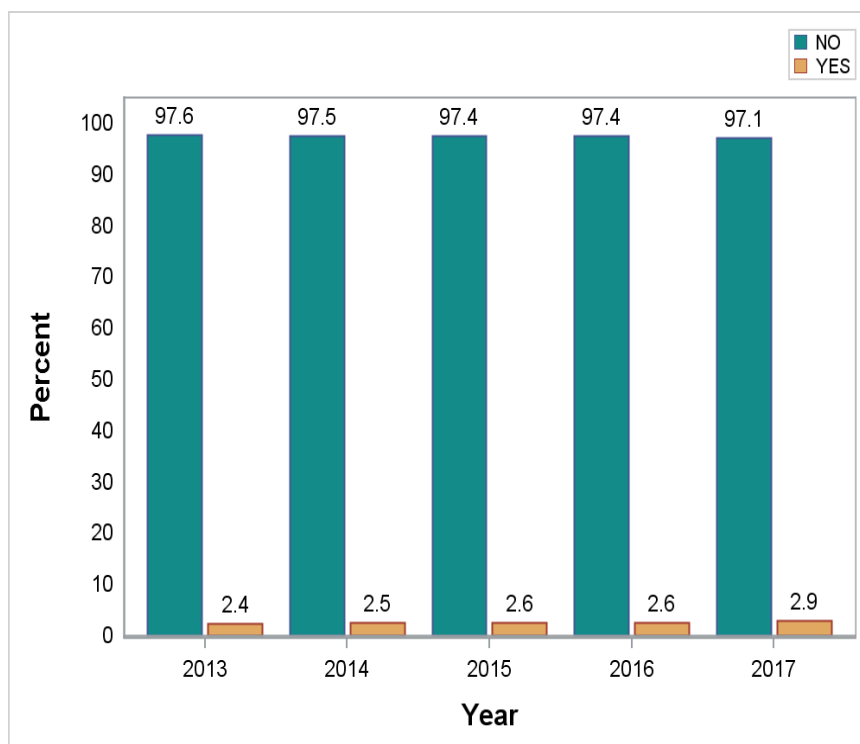
**American Association of Family Physician Recommendations:** To determine growth velocity, it is recommended that height measurements be taken at least three to six months apart and if possible, six to twelve months apart<sup>30</sup>.

## Short Stature in Children, Over 2

**Background Information:** For children in the United States, the CDC recommends using its growth chart for children 2 years old and older<sup>29</sup>. It may be easier for parents to notice abnormal short stature as a child gets older. In cases where a short statured child is underweight, the underlying cause might be illness or malnutrition<sup>30</sup>. As for short statured children who are overweight, the cause might be related to an endocrine disorder such as growth hormone deficiency, hypothyroidism, or excess glucocorticoids<sup>30</sup>.

**How Data Were Collected:** Infants and children were measured at certification visits by trained WIC Program staff. Refer to Definitions of Variables for a description of how short stature was determined.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
No	5,891	98.0	5,541	98.0	4,161	97.0	4,493	97.0	4,223	97.0
Yes	146	2.4	140	2.5	109	2.6	121	2.6	124	2.9
<b>Total (n)</b>	6,037		5,681		4,270		4,614		4,347	



**Key points:**

- ❖ From 2013-2017, ITCA WIC participants over the age of 2 had a normal height stature with an average of 97% for all years.

**American Association of Family Physician Recommendations:** To determine growth velocity, it is recommended that height measurements be taken at least three to six months apart and if possible, six to twelve months apart<sup>30</sup>.

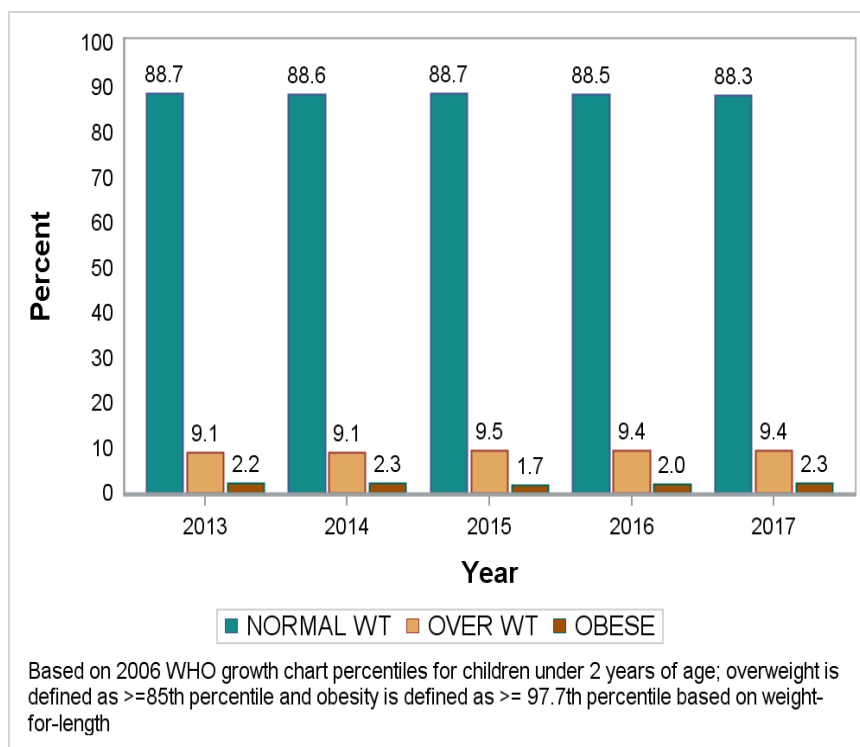
## BMI in Children, Under 2

**Background Information:** Infants who have a high weight to length ratio have an increased risk of obesity in childhood<sup>31</sup>. Health risks related to childhood obesity include high blood pressure, glucose intolerance, low self-esteem, and depression<sup>32</sup>. Factors that can increase excess weight gain in children include eating low-nutrient food, lack of physical exercise, and genetic predisposition<sup>32</sup>.

**How Data Were Collected:** Children were measured and weighed by trained WIC Program staff in the clinic at certification visits. Refer to Definition of Variables for a description of how weight status was determined.

**Note:** No child under the age of 2 was categorized as underweight. As such, the underweight category is not displayed in the following table and graph.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
<b>Normal Weight</b>	4,741	89.0	4,608	89.0	4,317	89.0	4,228	89.0	3,850	88.0
<b>Overweight</b>	484	9.1	473	9.1	463	9.5	451	9.4	409	9.4
<b>Obese</b>	120	2.2	117	2.3	85	1.7	96	2.0	101	2.3
<b>Total (n)</b>	5,345		5,198		4,865		4,775		4,360	



### Key points:

- ❖ Majority of ITCA WIC children under the age of 2 were in the normal weight category from 2013-2017.
- ❖ In 2017, 9.4% of children under the age of 2 were in the overweight category with 2.3% classified as obese.

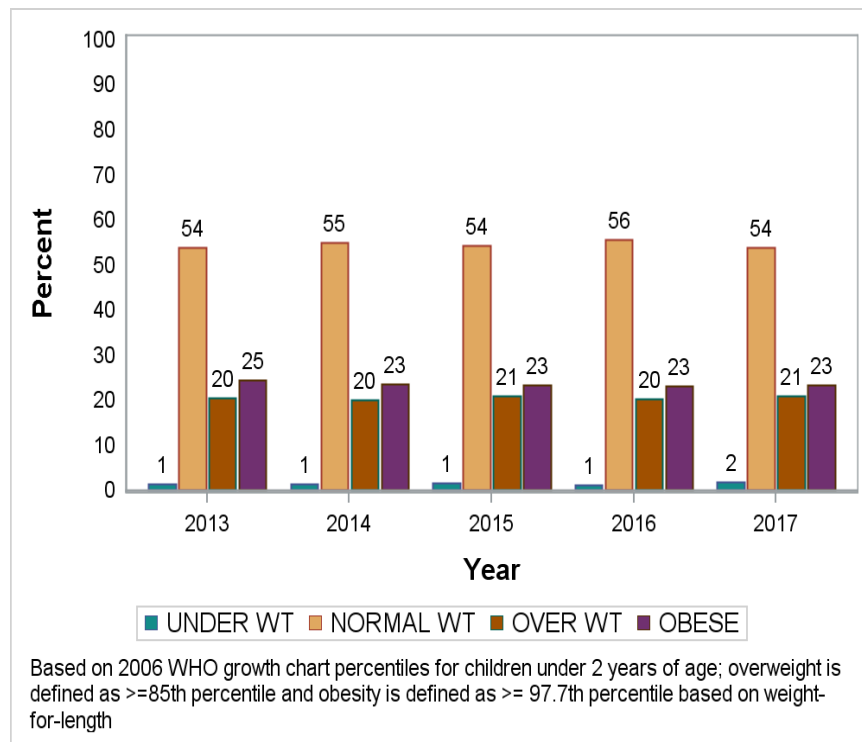
**CDC Recommendation:** It is recommended that families develop healthy eating habits that include portioned vegetables, fruits, and whole grains and limits the consumption of sugar and saturated fats<sup>31</sup>.

## BMI in Children, Over 2

**Background Information:** Overweight children are more likely to be overweight or obese in adulthood<sup>32</sup>. Adult obesity increases the risk of developing heart disease, diabetes, and cancer<sup>32</sup>. It is in the best interest of the child to establish healthy habits in childhood that can carry on into adulthood.

**How Data Were Collected:** Children were measured and weighed by trained WIC Program staff in the clinic at certification visits. Refer to Definition of Variables for a description of how weight status was determined.

ITCA WIC	2013		2014		2015		2016		2017	
	n	%	n	%	n	%	n	%	n	%
Underweight	77	1.3	83	1.5	63	1.5	51	1.1	81	1.9
Normal Weight	3,236	54.0	3,114	55.0	2,315	54.0	2,555	56.0	2,334	54.0
Overweight	1,230	20.0	1,141	20.0	892	21.0	927	20.0	907	21.0
Obese	1,475	25.0	1,329	23.0	991	23.0	1,066	23.0	1,014	23.0
<b>Total (n)</b>	<b>6,018</b>		<b>5,667</b>		<b>4,261</b>		<b>4,599</b>		<b>4,336</b>	



### Key points:

- ❖ Over 50% of children over the age of 2 in the ITCA WIC program from 2013-2017 were in the normal weight category. However, the following majority throughout 2013-2017 was often in the obese and overweight categories. Less than 2% were in the underweight category.

**CDC Recommendation:** It is recommended that families develop healthy eating habits that include portioned vegetables, fruits, and whole grains and limits the consumption of sugar and saturated fats<sup>31</sup>. In addition, sedentary activities such as watching tv and screen time should be limited, physical activity encouraged, and sleep routines established<sup>31</sup>.

## Arizona Hospital Discharge Data Infants Injury Type

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic (2008). The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** ADHS provided inpatient hospital discharge data for American Indians from 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. A compilation of injury codes for ICD9 and ICD10 were utilized. Infants were defined as being less than 1 year old.

### ICD9 2013-2015

Injury type	Frequency	Percent
	n	%
<b>Burns</b>	11	3.83
<b>Certain traumatic complications and unspecified injuries</b>	100	34.84
<b>Complications of medical care</b>	20	6.97
<b>Contusion skin intact</b>	41	14.29
<b>Dislocation</b>	<10	<10
<b>Foreign body through orifice</b>	13	4.53
<b>Fracture of limb</b>	10	3.48
<b>Fracture of skull</b>	12	4.18
<b>Fracture of spine trunk</b>	<10	<10
<b>Intracranial injury</b>	11	3.83
<b>Internal injury</b>	<10	<10
<b>Open wound of head</b>	<10	<10
<b>Open wound of limb</b>	<10	<10
<b>Other unspecified effects of external cause</b>	19	6.62
<b>Poisoning, drugs or medication</b>	<10	<10
<b>Poisoning, nonmedicinal in source</b>	<10	<10
<b>Superficial injury</b>	24	8.36

For confidentiality purposes, values less than 10 are displayed as "<10"

## Arizona Hospital Discharge Data Infants Injury Type Continued

### ICD10 2015-2017

Injury Type	Frequency	Percent
	n	%
<b>Burns</b>	<10	<10
<b>Complications of medical care</b>	<10	<10
<b>Dislocation, sprains strains of joints and ligaments</b>	<10	<10
<b>Fracture of limb</b>	<10	<10
<b>Fracture of skull</b>	16	14.81
<b>Injury unspecified</b>	<10	<10
<b>Intracranial injury</b>	10	9.26
<b>Open wound of head</b>	<10	<10
<b>Open wound of limb</b>	<10	<10
<b>Poisoning, drugs or medication</b>	<10	<10
<b>Superficial injury</b>	53	49.07

For confidentiality purposes, values less than 10 are displayed as "<10"

**Key points:**

- ❖ From 2013-2015, the top injuries for American Indian infants were traumatic complications and unspecified injuries which accounted for 34.84% of all injuries.
- ❖ However, between 2015 and 2017 the highest injury type was superficial injuries (49%).



## Arizona Hospital Discharge Data Infants Injury Cause

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic (2008). The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** ADHS provided inpatient hospital discharge data for American Indians from 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. A compilation of injury codes for ICD9 and ICD10 were utilized. Infants were defined as being less than 1 year old.

### ICD9 2013-2015

Injury Cause	Frequency	Percent
	n	%
Adverse effects of medicine	25	7.02
Falls	139	39.04
Homicide and injury inflicted by others	17	4.78
Medical or surgical procedures	<10	<10
Motor vehicle traffic accidents	17	4.78
Nature/environmental factors	30	8.43
Other accidents	89	25.00
Poisoning, drugs or medicine	<10	<10
Poisoning, not drugs or medicine	<10	<10
Submersion, suffocation, foreign body	21	5.90
Unknown if cause was accidental or intentional	<10	<10
Vehicle accidents	<10	<10

For confidentiality purposes, values less than 10 are displayed as "<10"

## Arizona Hospital Discharge Data Infants Injury Cause Continued

### ICD10 2013-2015

Injury Cause	Frequency	Percent
	n	%
<b>Falls</b>	133	79.64
<b>Fire and flames</b>	<10	<10
<b>Medical or surgical procedures</b>	22	13.17
<b>Motor vehicle traffic accidents</b>	<10	<10
<b>Other road vehicle accidents</b>	<10	<10
<b>Submersion, suffocation, foreign body</b>	<10	<10

For confidentiality purposes, values less than 10 are displayed as "<10"

**Key points:**

- ❖ Less infants were available in the 2013-2015 dataset (n=167) compared to the 2015-2017 dataset (n=356).
- ❖ From 2013-2015, majority of injuries were caused from falls (39%) and other accidents not specified (25%).
- ❖ The 2015-2017 dataset has a similar trend with falls accounting for the highest frequency (79.64%).

## Arizona Hospital Discharge Data Children Injury Type

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic (2008). The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** ADHS provided inpatient hospital discharge data for American Indians from 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. Children were defined as being 1-9 years old.

### ICD9 2013-2015

Injury Type	Frequency	Percent
	n	%
Burn	215	2.94
Certain traumatic complications and unspecified injuries	715	9.78
Complications of medical care	120	1.64
Contusion skin intact	861	11.78
Crushing injury	32	0.44
Dislocation	100	1.37
Foreign body through orifice	373	5.10
Fracture of limb	865	11.84
Fracture of skull	62	0.85
Fracture of spine trunk	17	0.23
Injury to blood vessel	<10	<10
Injury to nerves spinal cord	<10	<10
Intracranial injury	136	1.86
Internal injury	21	0.29
Late effect of injury	<10	<10
Open wound of head	1403	19.20
Open wound of limb	638	8.73
Other unspecified effects of external cause	194	2.65
Poisoning, drugs or medication	145	1.98
Poisoning, nonmedicinal in source	306	4.19

<b>Sprains strains</b>	306	4.19
<b>Superficial injury</b>	792	10.84
For confidentiality purposes, values less than 10 are displayed as "<10"		

## ICD10 2015-2017

Injury Type	Frequency	Percent
	n	%
<b>Burns</b>	186	4.53
<b>Complications of medical care</b>	<10	<10
<b>Crushing injury</b>	38	0.93
<b>Dislocation, sprains strains of joints and ligaments</b>	276	6.72
<b>Fracture of limb</b>	616	15.00
<b>Fracture of skull</b>	64	1.56
<b>Fracture of spine trunk</b>	<10	<10
<b>Injury to blood vessel</b>	<10	<10
<b>Injury to nerves spinal cord</b>	<10	<10
<b>Injury unspecified</b>	25	0.61
<b>Intracranial injury</b>	84	2.05
<b>Open wound of head</b>	983	23.93
<b>Open wound of limb</b>	477	11.61
<b>Poisoning, drugs or medication</b>	112	2.73
<b>Superficial injury</b>	1230	29.95
For confidentiality purposes, values less than 10 are displayed as "<10"		

### **Key points:**

- ❖ From 2013-2015, the top injuries were open wound of head (19.2%), fracture of limb (11.8%), and contusions (11.78%).
- ❖ From 2015-2017, the most common injuries were superficial injuries (29.95%), open wound of head (23.9%), and fracture of limb (15%).
- ❖ Between ICD9 and ICD10 coding, the most common injuries were open wound of head and a fracture of a limb.

## Arizona Hospital Discharge Data Children Injury Cause

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic (2008). The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** ADHS provided inpatient hospital discharge data for American Indians from 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. Children were defined as being 1-9 years old.

### ICD9 2013-2015

Injury cause	Frequency	Percent
	n	%
Adverse effects of medicine	135	1.72
Air and space transport accidents	<10	<10
Falls	2672	34.09
Fire and flames	27	0.34
Homicide and injury inflicted by others	66	0.84
Late effects of accidental injury	28	0.36
Medical or surgical procedures	<10	<10
Motor vehicle non traffic accidents	75	0.96
Motor vehicle traffic accidents	366	4.67
Nature/environmental factors	1008	12.86
Other accidents	2562	32.68
Other road vehicle accidents	158	2.02
Poisoning, drugs or medicine	143	1.82
Poisoning, not drugs or medicine	64	0.82
Submersion, suffocation, foreign body	438	5.59
Suicide and self-inflicted injury	<10	<10
Unknown if cause was accidental or intentional	21	0.27
Vehicle accidents	70	0.89

For confidentiality purposes, values less than 10 are displayed as "<10"

## Arizona Hospital Discharge Data

## Children Injury Cause Continued

### ICD10 2015-2017

Injury Cause	Frequency	Percent
	n	%
<b>Falls</b>	1927	90.22
<b>Fire and flames</b>	25	1.17
<b>Medical or surgical procedures</b>	54	2.53
<b>Motor vehicle traffic accidents</b>	23	1.08
<b>Other road vehicle accidents</b>	104	4.87
<b>Submersion, suffocation, foreign body</b>	<10	<10
<b>Water transport accidents</b>	<10	<10

For confidentiality purposes, values less than 10 are displayed as "<10"

#### **Key points:**

- ❖ The top causes of injury were a result of falls (34%) followed by other accidents between the years 2013-2015.
- ❖ A similar trend also occurred from 2015-2017, falls had the highest occurrence with 90% of injury causes.
- ❖ Note the higher frequency of missing in the ICD10 2015-2017 table compared to the ICD9 2013-2015 table. ICD10 codes are much more specific than ICD9, comparisons between the two are meant to be preceded with caution.

## Nevada Hospital Discharge Data Infants Injury Type

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic (2008). The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** CHIA provided inpatient hospital discharge data for American Indians in the state of Nevada for years 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. Infants were defined as being less than 1 year old.

**Results:** In the ICD9 dataset from 2013-2015, less than 10 infants had unspecified effects of external causes of injury. The ICD10 2015-2017 dataset did not include infants.

**Key points:**

- ❖ The top injury type for American Indian infants in Nevada from 2013-2015 was unspecified effects of external causes.

## Nevada Hospital Discharge Data Infants Injury Cause

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic (2008). The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** CHIA provided inpatient hospital discharge data for American Indians in the state of Nevada for years 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. Infants were defined as being less than 1 year old. The ICD10 2015-2017 dataset did not include infants.

**Note:** As a result of a small population size, the frequency is removed from the table.

### ICD9 2013-2015

Injury Cause	Frequency	Percent	Cumulative Percent
	n	%	%
<b>Adverse effects of medicine</b>	<10	33.33	33.33
<b>Homicide and injury inflicted by others</b>	<10	33.33	66.67
<b>Other accidents</b>	<10	33.33	100.00
For confidentiality purposes, values less than 10 are displayed as "<10"			

**Key points:**

- ❖ From 2013-2015, the top causes of injury were adverse effects of medicine, homicide, and unspecified other accidents.



## Nevada Hospital Discharge Data Children Injury Type

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic (2008). The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** CHIA provided inpatient hospital discharge data for American Indians in the state of Nevada for years 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. Children were defined as being 1-9 years old. The ICD10 2015-2017 dataset did not include children between the ages of 1-9 years old.

### ICD9 2013-2015

Injury Type	Frequency n	Percent %	Cumulative Percent %
<b>Fracture of skull</b>	<10	50.00	50.00
<b>Intracranial injury</b>	<10	33.33	83.33
<b>Poisoning, drugs or medication</b>	<10	16.67	100.00
For confidentiality purposes, values less than 10 are displayed as "<10"			

**Key points:**

- ❖ The top injury types were fracture of skull (50%), intracranial injury (33%), and poisoning from either drugs or medication (17%).

## Nevada Hospital Discharge Data Children Injury Cause

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic (2008). The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** CHIA provided inpatient hospital discharge data for American Indians in the state of Nevada for years 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. Children were defined as being 1-9 years old. The ICD10 2015-2017 dataset did not include children between the ages of 1-9 years old.

**Note:** As a result of a small population size, the frequency is removed from the table.

### ICD9 2013-2015

Injury Cause	Frequency	Percent	Cumulative Percent
	n	%	%
<b>Adverse effects of medicine</b>	<10	22.22	22.22
<b>Falls</b>	<10	22.22	44.44
<b>Motor vehicle traffic accidents</b>	<10	11.11	55.56
<b>Other accidents</b>	<10	11.11	66.67
<b>Other road vehicle accidents</b>	<10	11.11	77.78
<b>Poisoning, drugs or medicine</b>	<10	11.11	88.89
<b>Suicide and self-inflicted injury</b>	<10	11.11	100.00

For confidentiality purposes, values less than 10 are displayed as "<10"

**Key points:**

- ❖ The top causes of injury were adverse effects of medicine (22%) and falls (22%).

## Utah Hospital Discharge Data Infants and Children Injury Type

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic<sup>33</sup>. The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** The Utah Department of Health provided inpatient hospital discharge data for American Indians from 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. Infants and children were defined as ages 0-9 years old. Due to limited numbers, separating the age category into infants (<1 year old) and children (1-9 years old) was not possible for this analysis. In the ICD10 2015-2017 dataset, none of the infants or children had a diagnosis that can be defined as an injury. The ICD10 2015-2017 dataset had less than 10 infants and children.

### ICD9 2013-2015

Injury Type	Frequency n	Percent %	Cumulative Percent %
<b>Fracture of limb</b>	<10	40.00	40.00
<b>Fracture of spine trunk</b>	<10	40.00	80.00
<b>Intracranial injury</b>	<10	20.00	100.00
For confidentiality purposes, values less than 10 are displayed as "<10"			

**Key points:**

- ❖ From 2013-2017, the top injury types for American Indian infants and children were fractures of the limb, spine trunk, and intracranial injuries.

## Utah Hospital Discharge Data Infants and Children Injury Cause

**Background Information:** The CDC states that the leading cause of death in children ages 0-19 is unintentional injuries such as falls, drownings, burns, poisoning, and road traffic<sup>33</sup>. The CDC Childhood Injury Report compared the risk for injury death by race and found that the highest injury death rates occurred in American Indian and Alaska Natives<sup>33</sup>.

**How Data Were Collected:** The Utah Department of Health provided inpatient hospital discharge data for American Indians from 2013-2017.

**Analysis:** The data range includes both ICD9 and ICD10 hospital discharge codes. Since it is not recommended that ICD9 codes be translated into ICD10 codes, the tables are separated. Infants and children were defined as ages 0-9 years old due to limited numbers. Due to limited numbers, separating the age category into infants (<1 year old) and children (1-9 years old) was not possible for this analysis.

**Results:** The results from the ICD9 2013-2015 data showed that less than 10 infants had adverse effects to medication. In the ICD10 2015-2017 dataset, none of the infants or children had a diagnosis that can be defined as an injury. The ICD10 2015-2017 dataset had less than 10 infants and children.

**Key points:**

- ❖ From 2013-2017, the top injury cause for American Indian infants and children was adverse effects of medicine.

## Action Items

Below are points of action specifically geared to individuals, tribal communities, tribal health care providers, tribal leaders working in tribal communities in an effort to improve upon maternal and child health. These action items are specific to American Indians in Arizona, Nevada, and Utah.

### Individuals

- ❖ Seek prenatal care once a pregnancy is known
- ❖ Seek resources to support a healthy pregnancy such as medical care providers and programs
- ❖ Promote healthy eating and exercising in the household

### Tribal Communities

- ❖ May consider entering in to memorandum of agreement or data sharing agreement with state health departments to ensure more complete data
- ❖ Consider implementing breastfeeding friendly policies in tribal offices and employers
- ❖ Educate the community of resources for prenatal and postnatal services

### Tribal Health Care Providers

- ❖ Support breastfeeding in communities
- ❖ Support healthy eating and exercising, especially for young children

### Tribal Leaders

- ❖ Promote breastfeeding in communities
- ❖ Promote healthy eating and exercising programs in their community

### Non-Tribal Public Health

- ❖ Work to improve AI/AN surveillance data with tribes, IHS, state registries and Tribal Epidemiology Centers
- ❖ Participate in data sharing

## Technical Notes

### ITCA WIC

The Inter Tribal Council of Arizona, Inc. (ITCA) Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) serves low to moderate-income women, infants and children through thirteen local programs, including twelve Tribes and one urban Indian health site. The population includes pregnant women, breastfeeding women, non-breastfeeding postpartum women, infants, and children up to their 5<sup>th</sup> birthday. WIC eligibility criteria requires clients live within the area served by the ITCA WIC Program, have an income less than 185 percent of the federal poverty guidelines, and have a nutrition risk as deemed by a health professional. The WIC data is comprised of two data collecting programs.

The analyses of ITCA's WIC database were completed for the years 2013-2017 in aggregate form to maintain confidentiality. It is also important to note that WIC is a non-discriminatory program where as long as applicants meet the eligibility criteria, clients were served.

Pregnancy Nutritional Surveillance System (PNSS) is a program-based public health surveillance system that monitors risk factors associated with infant mortality and poor birth outcomes among low-income pregnant women who participate in federally funded public health programs including WIC. Data sources include WIC and Title V MCH Programs.

Pediatric Nutrition Surveillance System (PedNSS) is a child-based public health surveillance system that describes the nutritional status of low-income U.S. children who participate in federally-funded maternal and child health and nutrition programs including WIC. PedNSS provides data on the prevalence and trends of nutrition-related indicators. Data sources include WIC, Title V MCH Programs and the Early and Periodic Screening, Diagnosis, and Treatment (EPSDT) Program.

### Indian Health Services (IHS)

IHS provided data on the number of births at IHS hospitals in the state of Arizona.

### Hospital Discharge Data

Inpatient hospital discharge data from Arizona, Nevada, and Utah were used in the analysis. The hospital discharge data had American Indians exclusively or the participants were filtered for American Indian classification during analysis.

#### Arizona Department of Health Services (ADHS)

Arizona Department of Health Services provided hospital discharge data for American Indians in the state of Arizona.

#### Utah Department of Health

The Utah Department of Health provided hospital discharge data for American Indians in the state of Utah.

#### Center for Health Information Analysis for Nevada (CHIA)

CHIA provided inpatient hospital discharge data for American Indians in the state of Nevada.

### National Data

Where applicable, Healthy People 2020 goals are shown in order to compare ITCA's WIC program to national standards. Healthy People, a national program that sets health promotion and disease prevention goals every 10-year's, aims to improve the health of the nation by the year 2020<sup>6</sup>.

Data from 2017 were the main focus of this analysis since it was the most recent data available.

## Definitions of Variables

<b>Low Hemoglobin/Hematocrit (Hgb/Hct) in Women<sup>11</sup></b>		
<u>By Trimester</u>	<u>Hemoglobin concentration (&lt;g/dL)</u>	<u>Hematocrit (&lt;%)</u>
1 <sup>st</sup>	11.0	33.0
2 <sup>nd</sup>	10.5	32.0
3 <sup>rd</sup>	11.0	33.0
<u>Postpartum (By Age Group)</u>		
12 to <15 years	11.8	37.5
15 to <18 years	12.0	35.9
18+ years	12.0	37.7
<b>Low Hemoglobin/Hematocrit (Hgb/Hct) in Children<sup>11</sup></b>		
<u>Children (age, in years)</u>	<u>Hemoglobin concentration (&lt;g/dL)</u>	<u>Hematocrit (&lt;%)</u>
0.5 to <2	11.0	32.9
2 to <5	11.1	33.0
<b>Maternal Weight Gain<sup>7</sup></b>		
<u>Pre-pregnancy Weight Status</u>	<u>Ideal Weight Gain</u>	
Underweight	28-40 pounds	
Normal Weight	25-35 pounds	
Overweight	15-25 pounds	
Obese	11-20 pounds	
<b>Pre-pregnancy Body Mass Index (BMI)<sup>9</sup></b>		
Underweight = BMI <18.5	Normal weight = BMI 18.5-24.9	
Overweight = BMI >25.0-29.9	Obese = BMI >29.0	
<b>Preterm Births and Full Term Low Birth Weight Births<sup>27</sup></b>		
Preterm births are at <37 weeks gestation.		
Full term, low birth weight = ≥37 weeks gestation and < 5.5 lbs.		
<b>Short Stature<sup>34</sup></b>		
<u>Children over 2 years of age:</u>		
Stature ≤ 5th percentile on the CDC age- and gender-specific stature reference		
<u>Children under 2 years of age:</u>		
Defined as length ≤ 2.3rd percentile		
<b>Underweight and Overweight<sup>34</sup></b>		
<u>Children over 2 years of age:</u>		
Underweight = ≤5th		
Obesity = ≥95th percentile		
Overweight (2 years and older) = between 85th and 95th percentiles		
<u>Children under 2 years of age:</u>		
Underweight = ≤2.3rd		
High Weight-for-Length = <sup>3</sup> 97.7th (Overweight and Obesity are not used for children under 2 or infants)		

# Statistical Notes Table

Measurement	Definition	Formula
<b>Counts</b>	The number of observations	$\frac{\text{Number of participants in each health indicator category}}{\text{Total number of participants with valid data for the health indicator}}$
<b>Percent</b>	One part per hundred	$\left\langle \frac{\text{Number of participants in each health indicator category}}{\text{Total number with valid data for the health indicator}} \times 100 \right\rangle$
<b>Infant Mortality Rate (IMR)</b>	The number of deaths under one year of age occurring among the live births in a specific area during a given year, per 1,000 live births occurring among the population of the given geographical area during the same year.	$\left\langle \frac{\text{Number of infant deaths}}{\text{Number of live births}} \times 1,000 \right\rangle$

## Data Barriers

- ❖ Hospital discharge data may have tribal affiliation/race/ethnicity coded incorrectly.
- ❖ The report includes hospital discharge data from 2013-2017. The transition from ICD9 to ICD10 occurred in October of 2015. For this reason, the 2015 year includes both ICD9 and ICD10 code.
- ❖ Although an exact translation from ICD9 to ICD10 is not possible, closely related codes were chosen. For this reason, 2015 data is split between ICD9 and ICD10 in the tables and bar graphs.
- ❖ The WIC programs serve those under the federal poverty level. Low socioeconomic status has been tied to poor health outcomes for both mothers and children<sup>34</sup>.



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