

# Brief Economic Cost Analysis of Substance Exposed Newborns, Babies, and Young Children in Hernando County

Examining the Financial Cost of Parental Substance Abuse Throughout the System of Care Identified by Service Utilization and Cost Estimation Research

*Prepared by*

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The Hernando SEN Taskforce provides the supports, services and understanding necessary so that Hernando substance exposed newborns and children may thrive and develop - remember they are Hernando's future!

Visit us at [hernandosen.org](http://hernandosen.org)  
to learn more and find local support services.



# Background

According to the Surgeon General's 2016 report, "Over-prescription of powerful opioid pain relievers beginning in the 1990s led to a rapid escalation of use and misuse of these substances by a broad demographic of men and women across the country. This led to a resurgence of heroin use, as some users transitioned to using this cheaper street cousin of expensive prescription opioids. As a result, the number of people dying from opioid overdoses soared—increasing nearly four-fold between 1999 and 2014."\*

The Health Resources and Services Administration (HRSA) reports, "While Neonatal Abstinence Syndrome (NAS) has been documented since at least the nineteenth century, statistics on opioid misuse and NAS during the last few years elevate it to a public health epidemic. Babies with NAS represent a subset of the larger issue of infants with prenatal exposure to substances."\*

According to the Centers for Disease Control (CDC), between 2004 and 2014, the incidence of NAS increased 433 percent from 1.5 to 8.0 per 1000 hospital births, which translates into one baby born with NAS every 15 minutes in the U.S.\*

NAS is associated with an increased risk of complications in the neonatal period and higher costs to the healthcare system, particularly Medicaid, which covers the majority of mothers with opiate exposure during pregnancy (60%) and infants diagnosed with NAS (78%).\*\*

Along with the increases in NAS from opioid/opiate use, the impact of other substances exposed prenatally continues to affect childhood development. Substances like nicotine, alcohol, and other illegal drugs are associated with long-term mental and behavioral effects in children exposed.

# Purpose

The purpose of this analysis is to gain increased understanding of how exposure to substances during pregnancy impacts the larger community through resource and service needs and utilization among Hernando County residents.

This analysis does not include the societal and longterm impact of substance exposure, just looking at associated costs from birth to 5 years of age that could be identified.

It is important to note that the methodology used to determine associated costs includes figures identified from various studies and agencies, thereby providing only rough cost estimates based on state or national data. Local costs will vary.

This analysis was done to provide an idea of associated costs to substance exposure in newborns and demonstrate the benefits of investing in alcohol and drug prevention and treatment in financial terms.



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## Page Sources:

\* U.S. Department of Health and Human Services, Health Resources and Services Administration. (2018). *HRSA's Home Visiting Program: Supporting Families Impacted by Opioid Use and Neonatal Abstinence Syndrome*. Rockville, Maryland: U.S. Department of Health and Human Services.

\*\*Neonatal Abstinence Syndrome: How States Can Help Advance the Knowledge Base for Primary Prevention and Best Practices of Care. Association of State and Territorial Health Officials. 2014. <https://www.astho.org/Prevention/NAS-Neonatal-Abstinence-Report/>

# Prenatal Substance Exposure

The term **Substance Exposed Newborns (SEN)** refers to infants that are affected by prenatal exposure (while the mother is pregnant) to substances such as prescribed medications, alcohol, illicit drugs, and tobacco. Nearly every substance taken by a woman passes from her blood stream through the placenta to her fetus.

Unfortunately, when a mother uses legal drugs such as alcohol and cigarettes or other illicit drugs she places her unborn baby at risk for many problems. Many substances affect fetal growth and development, as well as the long-term health of the baby. Substances like nicotine, alcohol, opioids, and illegal drugs are associated with long-term mental and behavioral effects in children exposed to them prenatally.

## Neurobehavioral Effects on Newborns & Infants

**Nicotine** is linked to neurobehavioral impacts in infants and long-term effects on cognition, achievement, language, and behavior.

**Alcohol** is associated with neurobehavioral effects in infants, and long-term impacts on cognition, language, achievement, and behavior.

**Marijuana** exposure prenatally is related to some infant neurobehavioral alterations and long-term effects on cognition, behavior, and achievement.

Babies exposed to **opioids** prenatally may have neurobehavioral changes as an infant and long-term behavioral effects.

Prenatal exposure to **cocaine** is associated with some impacts on infant neurobehavior and long-term effects on behavior, executive function, and language.

**Methamphetamine** is linked to neurobehavioral alterations in infants.

## Neonatal Abstinence Syndrome (NAS)

**Neonatal Abstinence Syndrome (NAS)** is a term used to describe a **set of problems** a baby experiences when withdrawing from exposure to drugs. NAS is a withdrawal syndrome experienced by substance-exposed infants after birth. NAS often follows an opiate exposure such as heroin or a prescription opioid, however other drugs such as alcohol, cocaine, benzodiazepines or barbituates can also result in withdrawal syndromes.

Almost every drug passes from an expecting mother's bloodstream from the placenta to the fetus. Drugs that cause a pregnant mother to become drug dependent and addicted also cause the baby to become dependent. When a baby is born, dependence on the drug or drugs continues once they are no longer exposed to the drug. Symptoms of withdrawal may begin as early as 24 to 48 hours after birth, or as late as five to 10 days. NAS increases the risk of respiratory complications at birth, low birthweight, prematurity, feeding difficulties, and seizures.

Symptoms of NAS may vary depending on the type of substance used, the last time it was used, and whether the baby is full-term or premature.

## Fetal Alcohol Spectrum Disorder (FASD)

**Fetal Alcohol Spectrum Disorders (FASD)** is a non-diagnostic umbrella term describing the range of effects that can occur in an individual whose mother consumed alcohol during pregnancy. These effects may include physical, mental, behavioral, and/or learning disabilities with possible lifelong implications. Often, a person has a mix of these problems. FASDs are a leading known cause of intellectual disability and birth defects.

Children with FASD can experience high rates of sleep disorders, eating problems, toilet training difficulties, temper tantrums, developmental disorders needing therapy, school problems, and more with increasing severity with age.

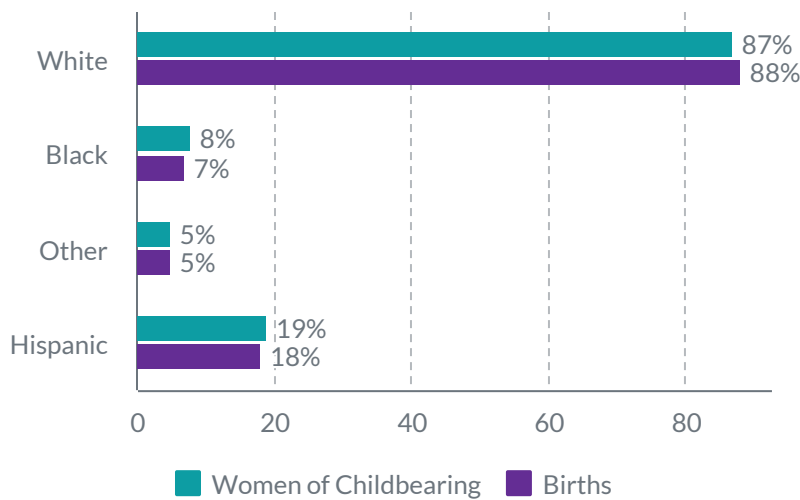
# Overview of Hernando County Births



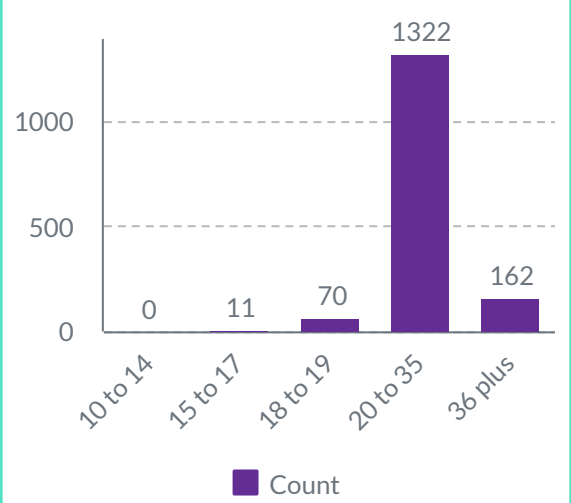
## In 2019 in Hernando County:

- there were 29,208 women considered childbearing age - 14 to 44 years of age.
- there were 1,565 total births.

Racial/Ethnic Breakout of Women of Childbearing Age versus Race/Ethnicity of Babies Born in Hernando County, 2019



Births By Age Group in Hernando County, 2019



## Teen Births

The rate of **births to teen mothers** ages 15 to 19 in Hernando County is 17.8 births per every 1,000 females, above the State rate of 17.1.

2017-2019 three-year rolling average

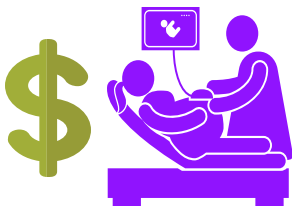


## Prenatal Care

**Among Hernando women who gave birth:**

- 74.8% had adequate prenatal care.
- 82.3% had 1st trimester prenatal care.
- 4.9% had late or no prenatal care.

2017-2019 three-year rolling average



**In 2019 in Hernando County there were:**

- 11 births to mothers who were uninsured (self-pay status).
- 950 births to mothers covered by Medicaid - 60.7% of all births.
- 596 cesarean births - 38.1% of all births.

## Estimated Cost of Medicaid Covered Childbirth in United States - 2013 National Study

Average payments for births covered by Medicaid:  
 \$9131- vaginal births,  
 \$13,590- cesarean births

Source: *The Cost of Having a Baby in the United States*, commissioned by Childbirth Connection

## Estimated costs of Medicaid covered births in Hernando County 2019:

**10 million+ per year**

- 950 births covered by Medicaid (588 vaginal, 362 c-section - based off percent of Hernando births)
- Vaginal births - 588 x \$9,131= \$5,369,028.00
- Cesarean births- 362 x \$13,590= \$4,919,580.00

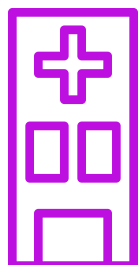
Data Sources: Florida CHARTS, Florida Agency for Healthcare Administration,

# Identifying the Local Costs of SEN

## Estimated Costs Due to NAS in the Neonatal Intensive Care Unit (NICU)

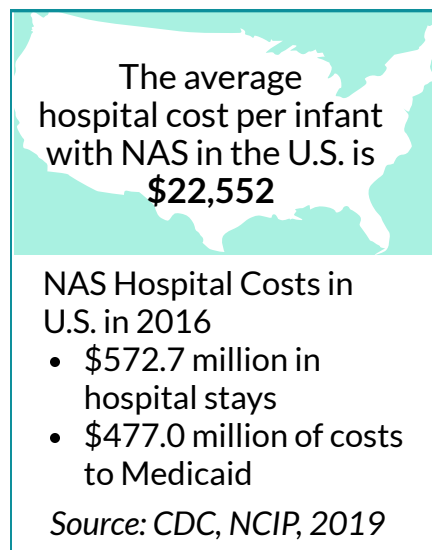
Estimated Cost of Babies Diagnosed with NAS in a Hernando County NICU Per Year = **\$1,082,496.00**

 **1 million+ per year**



Estimate Based on Three Year Average of Hernando County NAS Babies - 2016, 2017, 2018  
Total=144 babies / average 48 per year

- 48 newborns diagnosed with NAS per year
- 48 x \$22,552 = **\$1,082,496.00**



The average hospital cost per infant with NAS in the U.S. is **\$22,552**

NAS Hospital Costs in U.S. in 2016

- \$572.7 million in hospital stays
- \$477.0 million of costs to Medicaid

Source: CDC, NCIP, 2019

Hernando County NICU - NAS Babies on Medicaid  
Estimate Based on Three Year Average - 2016, 2017, 2018  
Total n=112 babies / average 37 per year

- 37 of 48 newborns with NAS on Medicaid per year
- 37 x \$22,552 = \$834,424.00

The Average Length of Stay in a Hernando NICU for Babies with NAS is 12 days.

Data Sources Used for Estimates: Florida Medicaid: Hospital with Newborns Diagnosed with Neonatal Abstinence Syndrome; CDC, NCIP, 2019

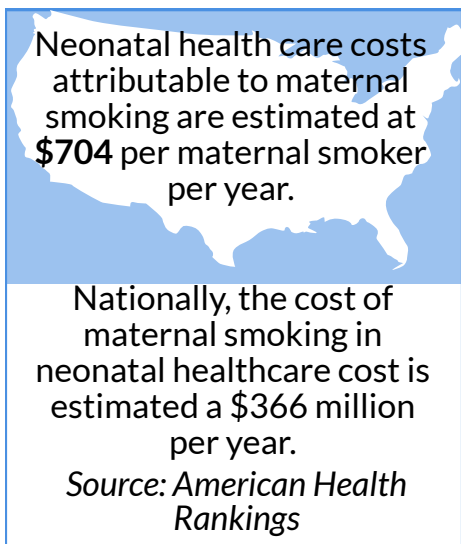
Estimated Births to Teen Mothers (15-19) with NAS in Hernando

- 81 births to teen mothers in 2019 /1,565 total births = 5.2%
- 5.2% of 48 babies with NAS per year = 2.5

**Est. 2 to 3 babies born per year to teen mothers \$56.380 per year**

## Estimated Cost of Neonatal Healthcare Due to Smoking

 **100k+ per year**



Neonatal health care costs attributable to maternal smoking are estimated at **\$704** per maternal smoker per year.

Nationally, the cost of maternal smoking in neonatal healthcare cost is estimated a \$366 million per year.

Source: American Health Rankings

Estimated Cost of Neonatal Healthcare for Infants Birthed to Mothers Who Smoked During Pregnancy in Hernando County Per Year = **\$126,720.00**

Estimate Based on Three Year Average of Hernando County Births to Mothers Who Reported Smoking During Pregnancy - 2016, 2017, 2018  
Total n= 541 / average 180 per year

- 180 births x \$704 = \$126,720

In 2019, the rate of mothers who report smoking in Hernando County is more than double the State rate.  
11.4 - Hernando County; 4.4 - Florida

Data Source: Florida CHARTS, American Health Rankings

# Overview of Child Welfare Involvement Costs

## Child Welfare Agency Spending in Florida, 2016, by Funding Source Type\*

Federal- \$736,366,057  
 State- \$541,784,720  
 Local- \$513,811  
**Overall- \$1,278,664,588.00**

## Spending on Out of Home Care in Florida, 2016, by Funding Source Type\*

**Federal expenditures**  
 Family foster care \$59,924,920  
 Congregate care \$80,135,211  
**State/local expenditures**  
 Family foster care \$24,389,699  
 Congregate care \$851,332

## Estimated Cost of Out-of-Home Care in Florida Per Child\*\*

1 Child in Group Care = \$31,000 per year  
 1 Child in Foster Care (family home)= \$6,000 per year

Sources: \* Child Welfare Agency Spending SFY 2016: Florida  
 \*\* Child Trends Foster Care's Looming Crisis; Florida's Children First



## Estimated Cost of Hernando County Children in Foster Care Ages 4 and Under

In 2019, there were a total of 118 Hernando County children from birth through age 4 in Foster Care, above the Statewide rate.

- Infants (0-1): n=13  
 Rate per 100,000 persons: Hernando- 841.1; Florida- 482.0
- Hernando Children ages 1-4: n=105  
 Rate per 100,000 persons: Hernando- 391.2; Florida- 220.4

 **700k+ per year**

Annual Estimated Cost of Hernando County Children Ages 0-5 in Foster Care:  
 118 children x \$6,000 per child = **\$708,000 per year**

## Estimated Cost of Maltreatment Investigations (Calls) to Child Welfare in Hernando County

The estimated cost per investigation for child maltreatment by child welfare is \$88.00.

In 2019 in Hernando County, there were a total of 3,367 calls.

- 3,367 calls x \$88 = \$296,296.00

 **300k+ per year**

**Annual Estimated Cost of  
 Hernando County Children  
 17 and under in Out of  
 Home Care:  
 \$1,410,000.00**

Group Home = \$558,000 (n=18)  
 Foster Care = \$852,000 (n=142)  
 \*based off average # of youth in placement types in 2019



# Identifying the Local Costs of Parental Substance Use in the Child Welfare System

## Estimated Cost of Child Welfare Maltreatment Investigations for Substance Exposed Newborns in Hernando County

**Estimated Annual Cost: \$5,984**

The estimated cost per an investigation for child maltreatment conducted by child welfare is \$88.00.



6k per year

Three Year Average - 2018, 2019, 2020

- Substance Exposed Newborns: n=203; 68 calls per year
- Substance Exposed Newborns: 68 calls per year x \$88 per call = \$5,984

## Estimated Cost of Foster Care for Children Ages 0-4 with Parental Substance Use as Initial Removal Reason in Hernando County



400k per year

Determining the number of children placed in Foster Care due to substance exposure as a newborn is not identifiable based off data collected and the various outcomes of prenatal drug use. What is clear, is that substance use among parents of young children is impacting the life of many children and the child welfare system.

Three Year Average - 2018, 2019, 2020

- Children Ages 0-4 with Parental Substance Use (Alcohol or Other Drugs) Initial Reason for Foster Care Placement in Hernando County: n= 191; average of 64 children per year
- 64 children (age 0-4) per year x \$6,000 per year = **\$384,000.00**

## Estimated Cost of Child Welfare Maltreatment Investigations for Infants, Children, and Teens Ages 0-17 for Parental Substance Misuse in Hernando County

**Estimated Annual Cost: \$99,352**

Three Year Average - 2018, 2019, 2020

- Substance Misuse - Alcohol: n=1,045; 348 calls per year x \$88 per call = \$30,624
- Substance Misuse- All Drugs Combined: n= 3,386; 1,129 calls per year x \$88 per call = \$99,352

## Estimated Cost of Foster Care for Infants, Children, and Teens Ages 0-17 with Parental Substance Use as Initial Removal Reason in Hernando County

Three Year Average - 2018, 2019, 2020

- Children Ages 0-4 with Parental Substance Use (Alcohol or Other Drugs) Initial Reason for Foster Care Placement in Hernando County: n= 191; average of 64 children per year
- 64 children (age 0-4) per year x \$6,000 per year = **\$384,000.00**

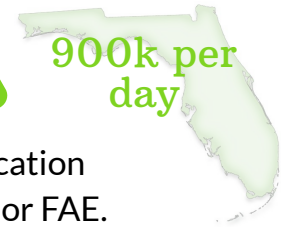
# Estimated Costs of Fetal Alcohol Spectrum Disorder (FASD)

According to the Centers for Disease Control and Prevention:

- One in eight women of childbearing age (18 to 44 years old) reported, “risk drinking” (seven or more drinks per week, or five or more drinks on any one occasion).
- One of every 29 women who knows that she is pregnant reports risk drinking
- Birth defects associated with prenatal alcohol exposure can occur in the first three to eight weeks of pregnancy, before a woman even knows that she is pregnant.

## Estimated Prevalence and Cost of FASD in Florida

- 2,040 Florida infants are born with FAS or FAE each year.
- 156,582 Floridians of all ages are affected with FAS or FAE.
- Florida spends an estimated \$78,918,000 yearly providing special education and juvenile justice services to children 5-18 years old affected by FAS or FAE.
- This amounts to an estimated \$914,183 spent per day.



Source: Fetal Alcohol Spectrum Disorders- 2005 Florida Resource Guide.

Produced jointly by the Florida Department of Children and Families, the Florida Department of Health, and the Florida State University Center for Prevention & Early Intervention Policy

## National Cost Estimates of FASD

- Each year we spend an extra \$22,810 per child with FASD.
- By 21 years of age we have spent \$479,010 per person.
- For adults the annual cost is \$24,308, so by age 40 we will have spent another \$461,852.
- On average we hit the million dollar cost of care for FASD at age 43 years.



Source: Dr. Larry Burd - Presentation at the April 2020 Hernando and Pasco SEN Conference

## Estimated Annual Cost of FASD in Hernando County Among Children 0 to 5 Based off State and National Estimates

- In 2019, births in Hernando County made up 0.71% of total births in Florida.  
.71% of 2,040 FASD births per year = 14.48
- Estimated babies born with FASD per year in Hernando County = 14
- Estimated cost of babies from birth to one year of age from FASD in Hernando County = \$319,340.00 per year (14 babies x \$22,810 per child)
- Among children 0-5, the estimated cost per year equates to 70 children ages 0-5 in one year with FASD in Hernando County (14 x 5=70).
- 70 x annual cost of \$22,810 per child = \$1,596,700.00



1.5 million per year