

Please note: Proof Alliance acknowledges that not every person who can become pregnant identifies as a woman. Although we try to use gender-neutral language as often as possible, much of the current research available currently refers only to “women” when discussing the ability to become pregnant. When citing this research, we refer to the language used in the study. In these cases, “woman” refers to someone who was assigned female at birth.

Prevalence of prenatal alcohol exposure and FASD

All major medical organizations advise abstaining completely from alcohol during pregnancy – from conception through birth.^{1 2 3 4 5 6}

In the United States, at least 1 in 7 pregnancies is exposed to alcohol.⁷

- This rate has been steadily increasing over the last decade:
 - 2015: 10%⁸
 - 2019: 11.5%⁹
 - 2022: 13.5%¹⁰
- In Minnesota, the rate is similar to the national average: 13.1% of pregnancies are exposed to alcohol.¹¹
 - This means that an estimated 8,755 babies are born with prenatal alcohol exposure each year in Minnesota.¹²

Experts estimate as many as 1 in 20 children in the U.S. has an FASD:¹³

- Globally, more than 1,700 infants are born with an FASD each day.¹⁴

Prenatal alcohol exposure is the leading preventable cause of birth defects in the United States.¹⁵

In the United States, FASD is more common than spina bifida, anencephaly, and trisomy 18.¹⁶

Prenatal alcohol exposure can cause a number of birth defects, including:

- Microcephaly, a condition in which the baby’s head and brain are significantly smaller than expected^{17 18}
- Structural brain changes^{19 20}
- Congenital heart diseases²¹
- Abnormal facial development in the lip, mid-face, and eyes²²
 - This facial dysmorphism only occurs when alcohol is consumed during the first trimester. It affects 17% of individuals on the fetal alcohol spectrum.^{23 24}
 - In the absence of facial dysmorphism, FASD is commonly underdiagnosed or misdiagnosed as autism spectrum disorder, attention deficit hyperactivity disorder (ADHD), and conduct disorder.²⁵

Effects of prenatal alcohol exposure are lifelong.^{26 27 28}

FASD is a brain-based permanent disability that has wide ranging effects.^{29 30}

- Prenatal alcohol exposure may result in cognitive deficits related to executive function, learning, attention, language, memory, and visual spatial reasoning.^{31 32} These issues can last across the lifespan.^{33 34}
- Prenatal alcohol exposure alters the trajectory of brain development over the lifetime.³⁵

Effects of prenatal alcohol exposure are irreversible.³⁶

Prenatal alcohol exposure adversely affects brain development.³⁷

- Prenatal alcohol exposure can alter the brain size, brain shape, white matter, brain maturation, and brain activation related to sensory processing and cognition.^{38 39}
- Studies have demonstrated functional connectivity disruptions⁴⁰ and structural brain abnormalities,⁴¹ such as abnormal development of the cerebellum and brainstem⁴² and reductions in the temporal, frontal, and parietal lobes as well as the total brain, resulting from prenatal alcohol exposure.⁴³

Although the effects of prenatal alcohol exposure on the brain are irreversible, appropriate accommodations and supports can assist people with an FASD to lead empowering, successful lives.^{44 45}

There is no known safe amount of alcohol use during pregnancy.

Scientists have been unable to identify a safe “threshold” for prenatal alcohol exposure.

Even drinking at low levels can affect fetal development.^{46 47 48 49 50}

- Harmful effects from prenatal alcohol exposure have been well-documented by researchers for decades.^{51 52 53}
- The risks posed to the fetus increase as maternal alcohol use rises.⁵⁴
- Binge drinking has been found to be particularly harmful to fetal development.^{55 56}

Overall, the scientific community continues to advise that the healthiest and safest choice is to abstain from alcohol during pregnancy.^{57 58}

Drinking during pregnancy

Alcohol is a teratogen that crosses the placenta and can damage the central nervous system and other organs of the developing embryo/fetus.⁵⁹

- No more than two hours after ingestion, the blood alcohol level of the fetus is the same as or higher than the pregnant person's.⁶⁰

The latest data from the CDC suggests that 13.5% of pregnancies are exposed to alcohol, and nearly 1 in 20 are exposed to binge drinking.⁶¹ The highest prevalence of reported alcohol use during pregnancy was among those who were ages 35 – 49 (17%) and college educated (16%), as well as those who have frequent mental distress (27%) but do not have a usual health care provider (18%).

Many complex factors contribute to increased risk of prenatal alcohol exposure.^{62 63 64 65}

- This includes (but is not limited to) alcohol use disorder, incorrect or misleading information about alcohol use during pregnancy, adverse early life experiences, unplanned pregnancy, living with a partner who consumes alcohol, and lack of social support.

While it is recommended that medical care personnel screen all women of childbearing age for risky drinking, many feel uncomfortable discussing alcohol with patients, inadequately trained to do so, or feel that not all patients need to be screened.⁶⁶

- However, virtually all (97%) pregnant women consider verbal screening for alcohol use during prenatal care acceptable and indicated that they were willing to honestly confirm their use.⁶⁷

One in 5 women in Minnesota report either not receiving any message about alcohol use from their doctor or being told they could drink lightly or in moderation during pregnancy.⁶⁸

4% of female substance use disorder treatment admissions are pregnant.⁶⁹

40% of pregnancies in Minnesota, and nearly half (45%) across the United States, are unplanned.⁷⁰

- 70% of women in their childbearing years in the United States are at risk of having an unintended pregnancy.⁷¹
- Although most people quit drinking once they confirm their pregnancy, many continue to drink alcohol until confirmation and expose the embryo to alcohol within the first several weeks after conception.⁷² Because of this, it is critical that health care providers discuss alcohol use during preconception care.⁷³

Financial costs of FASD

Please note: It is important to be thoughtful about the benefits/consequences of sharing information related to the financial costs of FASD. For example, in their article in *Critical Public Health*, social scientist A. Salmon argues: "Although they have instrumental value as tools for garnering political support for preventive initiatives, using economic costing arguments can also undermine social justice concerns, by suggesting that mothers who give birth to children with an FASD threaten the interests of State institutions in the form of 'extra lifetime costs' they pose to those (presumably limited) resources." Focusing on the cost of FASD can be problematic if it dehumanizes people with an FASD and showcases them as nothing more than a financial burden.

In addition to the typical costs of raising a child, costs for a child with an FASD are an additional \$22,810 per year. The cost per year for an adult with an FASD is \$24,308.⁷⁴

- These costs include the economic impact of FASD on health care, special education, residential care, criminal justice system, productivity losses due to

morbidity and premature mortality, productivity losses of caregivers of children with FASD, and intangible costs.

Children with a diagnosed FASD incur 9 times more health care costs than children without an FASD.⁷⁵

Costs to people with an FASD

There are a number of barriers to diagnosis, and FASD is often under- or misdiagnosed.⁷⁶

- Barriers include: “frequent lack of clear physical findings in children affected by alcohol exposure, the historically confusing language and diagnostic terminology applied to alcohol-affected children, and the perceived stigma against addressing alcohol use by pregnant women.”⁷⁸
- In addition, in a survey of American Academy of Pediatrics members, only 50% of respondents felt prepared to make a diagnosis within the fetal alcohol spectrum.
- Because of this, people with an FASD are frequently identified later in life when issues and needs are identified by different (non-medical) systems, such as education or criminal justice. Those who do not receive an early diagnosis are often not able to access early intervention services.
 - More so, there is no clear path to obtaining a diagnosis of FASD in adulthood. In many cases, clinics providing diagnosis will exclude adults due to a lack of professional expertise to work with that population.⁷⁹

Early diagnosis is crucial for early intervention. Early intervention is important as it can decrease the risk of adverse life outcomes.^{80 81}

- Without intervention individuals with an FASD risk developing secondary issues such as school disruptions, unemployment, homelessness & incarceration.⁸²

Prenatal alcohol exposure has been linked with:

- Hearing or vision problems^{83 84}
- Difficulties in school⁸⁵
- Poor coordination⁸⁶
- Sensitivity to light, touch, and/or sound⁸⁷
- Hyperactive behavior⁸⁸
- Difficulty paying attention⁸⁹
- Memory issues⁹⁰
- Poor social skills⁹¹
- Impulsivity⁹²
- Poor reasoning and judgment skills⁹³

Children with an FASD have higher rates of mental illnesses, intellectual disabilities, and learning disabilities.^{94 95}

- 90% of individuals with an FASD have mental health concerns, with the most prevalent mental illnesses being depression and mood and anxiety disorders.⁹⁶
- 50% also have ADHD (10 times the expected rate). This is the highest rate among all mental health disorders that have been studied in relation to FASD.⁹⁷
- 23% also have an intellectual disability (23 times the expected rate).
- 20% also have a learning disability (twice the expected rate).
- 16% also have oppositional defiant disorder (5 times the expected rate).
- 14% also have depression (4 times the expected rate).
- 12% also have psychosis (25 times the expected rate).
- 9% also have bipolar disorder (3 times the expected rate).
- 6% also have post-traumatic stress disorder (1.5 times the expected rate).
- 5% also have obsessive-compulsive disorder (4 times the expected rate).
- 5% also have reactive attachment disorder (9 times the expected rate).

People with an FASD are overrepresented in the child welfare system.⁹⁸

- On average, a child with an FASD is 17 to 19 times more likely to be in the child welfare system than someone without an FASD.⁹⁹
- In Minnesota, 41% of children with an FASD are in foster care, and an additional 28% have been placed in adoptive homes.¹⁰⁰
 - These numbers are further exacerbated among children of color.¹⁰¹ For example, child welfare agencies in Minnesota are 12 times more likely to place American Indian children in out-of-home placement than white children.¹⁰² Nationally, a third of children in foster care are Black, although they make up only 15% of the child population.¹⁰³
- Despite being overrepresented in these systems, most (86.5%) of children with an FASD in out-of-home placement have never been diagnosed or have been misdiagnosed.¹⁰⁴ Without a proper diagnosis, children are not accessing the crucial FASD-informed supports and services needed.

People with an FASD are overrepresented in the criminal justice system.¹⁰⁵

- As many as 60% of adolescents and adults with an FASD have contact with the criminal justice system, a rate 30 times higher than the general population.¹⁰⁶

Dr. Ann Striessguth's 2004 study is still the largest study on secondary outcomes beyond the mental health implications of FASD. It is important to note that within the adult sample used in this study, 59% had a diagnosis of Fetal Alcohol Syndrome (FAS). She and her team found:

- 61% of adolescents experienced school disruptions (e.g., dropped out).¹⁰⁷
- 60% of people with an FASD had a history of trouble with the law.¹⁰⁸
- 50% of people with an FASD had a history of confinement in a jail, prison, residential treatment drug facility, or psychiatric hospital.¹⁰⁹
- 50% of adolescents and adults with an FASD display inappropriate sexual behaviors.¹¹⁰
- 79% of adolescents and adults with an FASD experienced problems with employment.¹¹¹

Strengths of people with an FASD

While it is important to discuss the risks of prenatal alcohol exposure, it is crucial that we also acknowledge and highlight the strengths of people with an FASD.

- The majority of existing research on FASD focuses on neurodevelopmental deficits and the adversity faced by people with FASD and their families.¹¹²
 - This exclusive focus on deficits and negative experiences may contribute to a sense of shame, victimization, and suffering, which may in turn add to the already profound stigma associated with FASD.

Each person with an FASD is unique, with distinct strengths, abilities, and interests.

Common strengths found in people with an FASD include:^{113 114}

- Strong self-awareness
- Being open to accepting help
- Being kind, compassionate, and caring
- Capacity to persevere
- Hope for the future
- Often concrete, experiential, kinesthetic learners who learn by doing
- Many positive personality traits: friendly, verbal, creative, artistic, musical, mechanically inclined, and determined.

¹ Centers for Disease Control and Prevention. *Fetal Alcohol Spectrum Disorders (FASDs)*. <https://www.cdc.gov/ncbddd/fasd/alcohol-use.html>

² American Academy of Pediatrics. *AAP Says No Amount of Alcohol Should Be Considered Safe During Pregnancy*. <https://www.aap.org/en-us/about-the-aap/aap-press-room/Pages/AAP-Says-No-Amount-of-Alcohol-Should-be-Considered-Safe-During-Pregnancy.aspx>

³ Centers for Disease Control and Prevention. *Notice to Readers: Surgeon General's Advisory on Alcohol Use in Pregnancy*. <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm5409a6.htm>

⁴ National Institutes of Health, National Institute on Alcohol Abuse and Alcoholism. *Fetal Alcohol Exposure*. <https://www.niaaa.nih.gov/alcohol-health/fetal-alcohol-exposure>

⁵ World Health Organization. *Counting the Costs of Drinking Alcohol During Pregnancy*. <https://www.who.int/bulletin/volumes/95/5/17-030517/en/>

⁶ The American College of Obstetricians and Gynecologists. *Alcohol and women*. <https://www.acog.org/Patients/FAQs/Alcohol-and-Women>

⁷ Gosdin LK, Deputy NP, Kim SY, Dang EP, Denny CH. *Alcohol consumption and binge drinking during pregnancy among adults aged 18–49 years – United States, 2018–2020*. *MMWR Morb Mortal Wkly Rep*. 2022;71(1):10–13.

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¹¹ Minnesota Department of Health. *Estimates of Alcohol-Exposed Pregnancies: Minnesota 2020*.

¹² 2019 Annual MN Births, Minnesota State Demographic Center *X percentage of pregnancies exposed to alcohol in Minnesota. (67,348 births*13%)*

¹³ May et al. *Prevalence of Fetal Alcohol Spectrum Disorders in 4 US Communities*. *JAMA*. 2018;319(5):474–482.

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