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ALASKA'S NEWSPAPER

A WOMAN CAN DAMAGE

HER DEVELOPING FETUS

MORE PROFOUNDLY

BY DRINKING ALCOHOL

THAN BY SMOKING CRACK

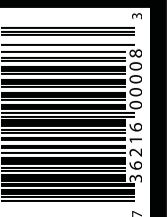
OR SHOOTING HEROIN.

THE DAMAGE IS PERMANENT,

AND IT CAN HAPPEN BEFORE

SHE EVEN KNOWS SHE'S PREGNANT.

See the first of two parts on Page A7



'Fetal Russian Roulette'

1. SUSAN ESSARY

About the time of her divorce, Susan Essary started meeting friends for beers and whiskey on the weekends.

She normally only drank on holidays, Essary said, but two cans of Miller and two shots of Jack Daniels made it easier to talk. She vented about co-workers, her ex's nosy family and the tiresome queasiness that gripped her each day after work.

"I could bring up things that really bothered me," she recalled.

Just 23, Essary wasn't alarmed to feel sick. Everyone seemed to be trading flu viruses at the hospital where she worked as a nurse's assistant, preparing operating tables. The graveyard shift and sunrise dinners upset her stomach. She had just filed paperwork to end a gut-wrenching marriage with a man who had choked and punched her, and was now bound for prison.

Essary's mother suspected something else. She noticed a familiar rhythm to her daughter's nausea and mood swings.

"Go to the store and pick up a pregnancy test," she texted.

Essary, who had been using birth control pills for months, told her mother she was crazy. "She just wanted another grandbaby."

Yet that night in the bathroom, Essary stared at a home pregnancy test as two blue lines appeared. Positive.

Doctors would tell Essary that antibiotics prescribed for an infection likely caused her birth control to fail. That discovery came much later.

For now, she pulled the second pregnancy test from the box. A shapeless worry began to form.

"That's actually when it came to my mind — about the drinking," she said.



- Prenatal alcohol exposure is considered the Western world's leading cause of "intellectual disability," which used to be called mental retardation. It is completely preventable.

- Each child born with fetal alcohol syndrome costs the public \$1 million to \$4 million in health care and social services over a lifetime. In Alaska, that's about 15 children each year.

- It costs the public 30 times more to raise a child with FAS than to prevent a second FAS birth by helping a mother get sober.

- One to 5 percent of Americans suffer some form of FASD. Alaska rates are believed to be far higher than the national average.

- Nationwide, the women most likely to drink during child-bearing years are white, in their 30s and 40s and college-educated.

Find our sources for this information on Page A-10.

What separates FASD from FAS?

FASD stands for fetal alcohol spectrum disorders, an umbrella term that refers to a variety of disabilities and birth defects caused by a mother's alcohol consumption while pregnant.

FAS stands for fetal alcohol syndrome, a specific medical condition that includes a trio of distinct facial features, undersized height and weight and damage to the central nervous system. It is considered the most severe of the fetal alcohol spectrum disorders.

State of
intoxication
ALASKA AND ALCOHOL
adn.com/alcohol

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•
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TELL US YOUR STORY:
Fetal alcohol spectrum disorders affect all Alaskans. If you would like to share your story on this topic, have ideas for ways that Alaska can address FASD or help people with the disability, email us at, alcohol@adn.com.

JOIN THE CONVERSATION
on Facebook and Twitter
(use the hashtag #FASD).



Susan Essary said she was using birth control and drank with friends while she was unknowingly pregnant with her son, Elijah. It wasn't until her son was in kindergarten that he was diagnosed with a fetal alcohol spectrum disorder.

Nearly half of Alaska women who become pregnant did not plan to have a baby. Many women don't know that even moderate drinking can do irreversible damage to a child from conception to birth, beginning well before they realize they are pregnant.

Others know the risk and want to stop drinking, but can't.

As a result, thousands of people living in Alaska today were born with lifelong, irreparable brain damage caused by alcohol exposure in the womb. More than 150 more are born each year. Some will cost the public millions of dollars in social services, hospital bills, court fees, prison expenses and foster care over the course of their lives.

This is the story of what happens to babies exposed to alcohol during pregnancy, told by four Alaska mothers who hope to help other women avoid repeating their mistakes.

First, the science.

The trouble begins within days of conception, as alcohol consumed by the mother kills cells destined to become the building blocks of her baby's brain, organs and central nervous system. Her child may suffer memory lapses, learning disabilities and a range of behavioral problems, including dangerous impulsivity.

In the most serious cases, the disability is called fetal

alcohol syndrome. It punches holes in the brain's ability to process information and reshapes the child's face.

While most states do not reliably track the number of children born with FAS or other fetal alcohol spectrum disorders, health officials suspect hard-drinking Alaska has the highest rate in the country. Women of child-bearing age here are 20 percent more likely to binge drink than the national average, according to the national Centers for Disease Control and Prevention.

After a decline in FAS cases in the state, the Division of Public Health more recently reports a puzzling trend of Alaska women increasingly saying they drank while pregnant.

"At the grocery store I see the kids running up and down the aisles and I see it in their faces," said Gayle Young, coordinator for the FAS diagnostic team in Sitka.

At the current rate of testing, most children and especially most adults with an alcohol-related birth defect will never be diagnosed. Yet Young recognizes the hallmark facial features of FAS on parents and grandparents too, she said, and in white-collar offices and corporate board rooms around Alaska.

"It's a silent epidemic," she said.

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Jamie Gagnon says she struggled with alcoholism and a difficult home life while she was pregnant with her second daughter. Now she says her daughter, who was diagnosed with an FASD in 2012, inspires her to stay away from alcohol. She has been sober for nearly five years, she says.

2. JAMIE GAGNON

Jamie Gagnon knew drinking while pregnant was dangerous. Her sister-in-law had warned her about fetal alcohol syndrome. Even though she had once been fired from a restaurant for drinking cooking vodka as a teenager, she stayed dry all through her first pregnancy.

When Gagnon later moved to Alaska and divorced, the bingeing still felt under control. That changed when Gagnon began dating a neighbor in her South Anchorage apartment, she said. He was always angry, it seemed, but she married him anyway.

Usually her clothes hid the bruises, she said. Once a beer drinker, she progressed to buying a gallon of rum every weekend. She cured hangovers with more booze. This time, she figured, pregnancy was no reason to stop drinking. Afraid to have her husband's baby, Gagnon had been planning an abortion. When Anchorage police watched her Oldsmobile Bravada bounce across a Dimond Boulevard median, it led to a charge of drunken driving. Her blood-alcohol level was more than twice the legal limit.

The judge told Gagnon, then 24, to stay away from liquor. She showed up to court smelling like Captain Morgan's.

Gagnon walked into her cell three months pregnant. By the time she left prison, she had abandoned thoughts of terminating the pregnancy. She now thought of her unborn daughter as a guardian angel.

"I'm in jail and she was like my best friend," said Gagnon, who is now 35 and will be five years sober in March. "I wasn't alone," she said. "It's been that way ever since."

Although rates of FAS are highest in rural corners of the state, the disability crosses all races, cultures and regions. Nationwide, it's white, college-educated women in their mid-30s and 40s who are most likely to drink during pregnancy, the CDC says.

Contrary to conventional wisdom, "this is not just a problem in the Alaska Native population. It's not just a problem anywhere people drink," said Deb Evensen, an FAS expert for the Anchorage School District.

Just two generations ago, the disability went undiagnosed by modern medicine. Though scholars across history had speculated about a link between alcohol and "withered" newborns, University of Washington Medical School researchers first named and identified FAS in 1973.

"Clear references to the dangers of drinking alcohol while pregnant date back to biblical days," said Dr. Susan Astley, a University of Washington fetal alcohol syndrome expert and director of the Washington State FAS Diagnostic & Prevention Network.

"Behold, thou shalt conceive, and bear a son; and now drink no wine nor strong drink," warns the King James Bible, in Judges 13:7.

Today FAS is considered the leading cause of "intellectual disability," what used to be called mental retardation, in the Western world. Although wholly preventable, FAS is as common as autism in the United States.

The availability and toxicity of alcohol to a developing fetus both fuel the problem.

Many substances, including most illegal drugs, can damage an unborn child. The worst of these — the ones that can cause serious malformations in developing fetuses — are called teratogens. Lead, mercury and radiation are all teratogens.

Alcohol is a teratogen and by far the one most commonly encountered by humans. Alcohol is more likely to cause brain damage and lifelong behavior problems

in unborn children than either crack cocaine or heroin, which can also harm the baby, according to The Institute of Medicine.

"The legal drug is worse than the illicit drugs in terms of its impact on a fetus," said Marilyn Pierce-Bulger, an Anchorage nurse practitioner who diagnoses alcohol-related birth defects in Alaska children. "(Alcohol) kills and alters cells in a way that these other things can't."

The damage can begin immediately after conception, when heavy drinking can kill the just-fertilized egg.

Six to nine days after conception, the developing embryo anchors to the wall of the mother's uterus. Now connected by the umbilical cord, the once-floating embryo and its mother share a common blood supply. From now until birth, for nine months, the mother and baby will drink — or not drink — together.

During the third week of gestation, about 17 to 21 days after conception, the embryo is the size of the tip of a pen, yet the brain, spinal cord and other organs are forming.

During this narrow span of days, alcohol can alter the blueprint for a child's face, resulting in narrow eye openings, a thin upper lip and a flattening of the philtrum (the indentation between the nose and upper lip).

"Nothing except alcohol will cause these three features together," Pierce-Bulger said.

At this point, less than a month after conception, most women still wouldn't realize they're pregnant.

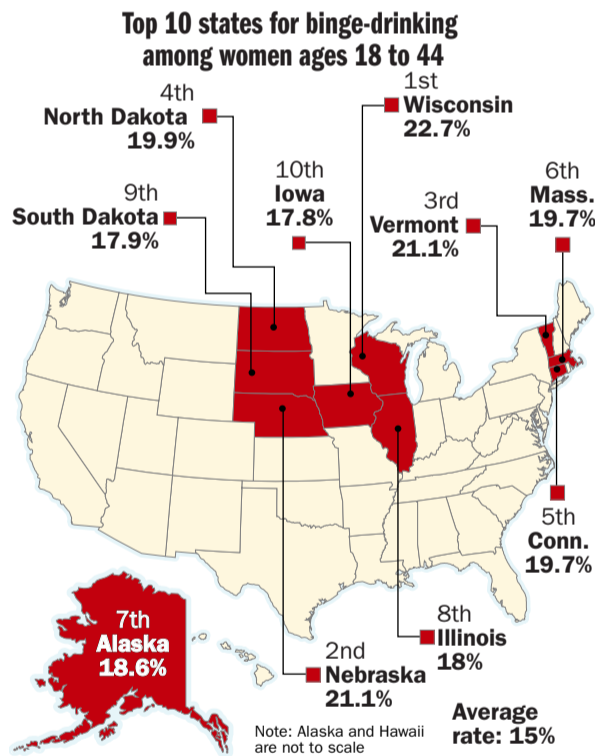
"Those facial features are forming right around the time she may miss a (menstrual) period," said Pierce-Bulger, who worked for decades as a nurse midwife at the Alaska Native Medical Center. "Most of the women that I know and have worked with for 30 years aren't paying attention (this early in a pregnancy)."

● The size of an embryo at 17 to 21 days.

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The hardest-drinking women

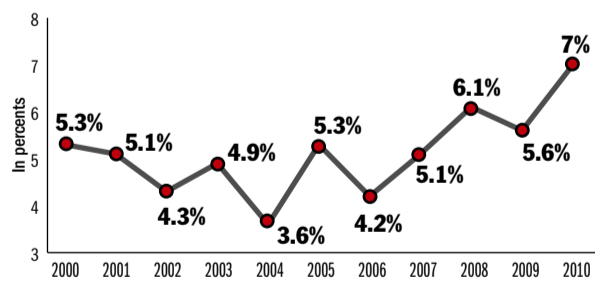
Alaska has one of the country's highest rates of binge drinking among women, which greatly increases the risk of prenatal brain damage in their children. Women of child-bearing age drink harder here than in all but six states.



Source: Centers for Disease Control & Prevention. Figures are for 2010. For women, binge drinking is defined as four or more drinks on any one occasion during the prior 30 days.

Drinking during the last trimester

Shows percentage* of Alaska mothers who say they drank in the last three months of pregnancy



*Data based on an ongoing random survey of mothers who recently delivered a live birth, conducted for the CDC.

Source: Centers for Disease Control & Prevention, Pregnancy Risk Assessment Monitoring System

PAMELA DUNLAP-SHOHL / Anchorage Daily News



Diagnosing FAS and FASD

Four experts work as a team to diagnose a child with fetal alcohol syndrome. A psychologist, a medical professional, a speech pathologist and an occupational therapist examine the child in a process that can last from hours to months.

Diagnosing FAS is more complicated than simply looking for physical features caused by alcohol, although those traits are crucial to a diagnosis. Children with FAS are smaller than their peers and have unique facial features, including small eyes, a thin upper lip and a smooth philtrum (the groove between the nose and upper lip).

"... Nothing except alcohol will cause these three fea-

tures together," said Marilyn Pierce-Bulger, a nurse practitioner and member of Assets Inc., one of six diagnostic teams across the state.

Diagnostic teams here use facial recognition software created by the University of Washington to help determine whether a child meets the criteria for fetal alcohol syndrome.

Most children damaged by a pregnant mother's drinking do not have full FAS. Some patients with a less visible fetal alcohol spectrum disorder may actually have more severe behavioral or learning disabilities than those with full FAS.

TO LEARN MORE about the diagnostic process, go to www.depts.washington.edu/fasdpn

3. HEIDI ANNE CASE

Raised a member of the Church of Jesus Christ of Latter-day Saints in Utah, Heidi Anne Case was married at 19. The Mormon faith emphasizes teetotaling and abstinence before marriage. She never learned much about dating or drinking.

After her divorce in 2004, at age 27, Case test-drove a new life. First there was the guy at the pool hall and a one-night stand. "I know his name, and that's about it," she said.

Then the three-day cruise along the lagoons and sun-baked cities of the Mexican Riviera. Case read magazines and watched the waves with her best friend, always with a Malibu Rum and Coke in hand.

"We actually were on the 'party boat,' so that made it even worse. The drinks are free," she said.

About two weeks after the cruise, a bolt of realization struck her. When was her last period? She raced to a dollar store and bought a pregnancy test.

"I had no clue, first of all, that I was pregnant, and second of all, that FAS even existed," Case said. "It's against our religion, basically to drink and be that type of person."

Already the mother of four healthy children, she knew how a pregnancy ought to feel. This one was different.

She made an appointment for an abortion, which was also against her religion — and something she had never thought she could do. "That's when they told me I was too far along."

She had passed her first trimester. Six weeks before her due date, the doctors urged her to induce delivery because the baby was showing "a failure to thrive."

"He had stopped growing," Case said.



Heidi Case says she took an "FASD 101" class while living in Alaska. She said it was the first time she had heard the term. "When that class got over, I just lost it. It was then that I realized that this could be what's wrong with Jacob." Heidi and Jared Case uprooted their family from Utah and moved to Alaska in 2011 to seek psychiatric care for their son. While living in Wasilla, Heidi began to learn about the effects her drinking had on Jacob while she was pregnant. Jacob was diagnosed with partial fetal alcohol syndrome in 2012.

By the fourth week of pregnancy, a baby's rapidly developing heart is beating. Alcohol exposure can cause either too little or too much vitamin A, leading to heart valve abnormalities and a greater risk of heart disease.

All areas of the brain are vulnerable. The corpus callosum — the bundle of fibers responsible for communication between the left and right halves of the brain — can under-develop, leading to a slew of behavioral and brain problems.

Damage to the fetal central nervous system can leave children overwhelmed by their senses, making bright lights, loud sounds or even the touch of certain clothing and fabrics unbearable.

A recent study by the University of California-San Francisco found that children with such sensory processing disorders were likely to have abnormal "white matter," meaning nerves damaged by alcohol exposure in the womb.

Many of the most serious defects in the heart, organs and limbs of an alcohol-exposed fetus occur in the first eight weeks. But a mother's later drinking can damage the fetus' central nervous system, meaning the

brain and spine, at any point during the pregnancy. It also leads to a physically smaller child.

Kids with fetal alcohol syndrome are generally shorter and weigh less than 97 percent of their peers.

The brain of a child with FASD is like a jigsaw puzzle. Pieces are missing, but no one knows which ones. Family genetics, a mother's diet, how much alcohol the mother drank and what parts of the brain and body were forming at the time all play a role in whether the baby will develop fetal alcohol syndrome, some less visible disability or no measurable disability at all.

It's fetal Russian Roulette.

Studies of non-identical twins exposed to alcohol in the womb have found that one sibling can be diagnosed with fetal alcohol syndrome while the other shows no serious damage.

As an entirely avoidable birth defect, FASD is not hereditary. A girl born with a fetal alcohol spectrum disorder will not give birth to a baby with FASD unless she also drinks while pregnant.

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'HOW MUCH CAN I DRINK?'

Confused as to whether any amount of alcohol is safe for an expecting mom to drink? You're not alone.

Recent, well-publicized studies from researchers in Denmark downplay the risks of consuming alcohol during pregnancy.

Such a suggestion is wrong, according to Dr. Susan Astley, a University of Washington fetal alcohol syndrome expert and director of the Washington State FAS Diagnostic & Prevention Network.

"At the moment there's a lot of press misunderstanding (of) a handful of research studies that have gone to publication that insinuate a little bit of drinking is not only OK but is beneficial to the developing fetus," she said. "We contend that the reason the children in these studies do not appear to be harmed by alcohol is because the children were too young to measure the full impact alcohol may have had on their brains."

Children damaged by prenatal alcohol exposure do deceptively well in their preschool years. The full effect of the damage caused by their mothers' drinking while pregnant will not be evident until their adolescent years, she said.

Some doctors say there is little reason to believe an occasional glass of wine or a margarita consumed before a woman knows she is pregnant could do noticeable damage to a child. A "significant" number of people whose mothers drank during pregnancy have no measurable fetal alcohol spectrum disorder, said Dr. David Sperbeck, director of psychological services for North Star Hospital in Anchorage.

Yet a review of 2,600 children diagnosed with full fetal alcohol syndrome in Washington state found that one in every seven kids with FAS had been exposed to just one to eight drinks a week while in the womb. In 2000, researchers in Berlin, Tokyo and St. Louis found that exposing infant rats to a single dose of alcohol — equivalent to two times the legal limit over four hours — caused "considerable damage" to the developing brain.

The harm done to each child depends on the mother's genetics, the child's genetics and what parts of the brain and body were developing when she drank.

Doctors can diagnose a child based on the hallmark facial features of FAS alone but it is difficult to predict or measure the severity of brain injury and potential behavior problems until the child is 6 years old or older. It's harder still to determine whether a child has alcohol-induced brain damage without visible, physical signs of disability. Such children far outnumber those with FAS but they may have just as much brain damage, if not more, than children whose facial features hint at the injury to their brains.

"They don't have the outward signs, they don't have the face," said Marilyn Pierce-Bulger, a nurse practitioner who diagnoses children for fetal alcohol spectrum disorder in Anchorage. "It's the hidden disability."

The Surgeon General in 2005 urged women who are pregnant or may become pregnant to stop drinking in order to prevent alcohol-related disabilities in their unborn children.

Prenatal Development

Drinking alcohol while pregnant can cause lifelong brain damage and other birth defects in a baby.

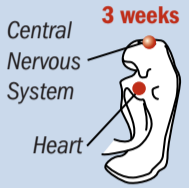
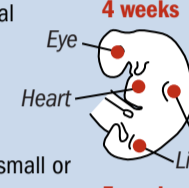
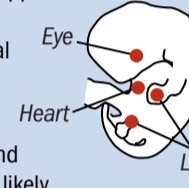

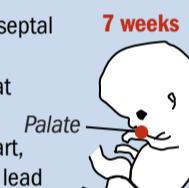
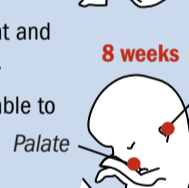
Some researchers disagree on whether small amounts of alcohol can cause measurable damage, but the Surgeon General warns that no amount has been proven safe for a pregnant mother. For now, scientists are still learning exactly how and when alcohol exposure injures a developing embryo or fetus. Here's some of what they know so far:

ZYGOTE TO EMBRYO

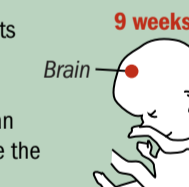



- During the first two weeks after fertilization, there is a chance heavy drinking will kill the developing embryo by preventing proper implantation in the uterus. However, alcohol exposure is not likely to cause birth defects at this pre-embryo stage.



EMBRYONIC PERIOD

- Early embryos that develop major nervous system malformations sometimes die in the first six to eight weeks of gestation. **3 weeks**

- A trio of subtle facial features, caused by alcohol exposure, may begin to form at about 17 to 21 days. They include: small or narrow eyes, a thin upper lip and a smooth philtrum (the vertical groove between the upper lip and nose). **4 weeks**

- Between days 15 and 60, alcohol is more likely to cause major birth defects than later in the pregnancy. During this period, deformities of joints, limbs and fingers may occur. **5 weeks**

- Heart defects, such as ventricular septal defect, a hole or holes in the wall that separates the left ventricles of the heart, may occur. This can lead to a fast heart rate, failure to gain weight and shortness of breath. **6 weeks**

- The brain is vulnerable to alcohol throughout gestation. At six to seven weeks, the corpus callosum or "white matter" that bridges the left and right side of the brain is particularly vulnerable to alcohol and can become under-developed. **7 weeks**

- Specific birth defects to organs are not normally expected, although alcohol can continue to damage the brain and central nervous system at any point from now until birth. **8 weeks**


FETAL PERIOD

- The fetus may grow more slowly and emerge undersized during this period. **9 weeks**

- Asymmetric growth restrictions, meaning a normal-sized head but smaller-than-normal abdominal cavity, may occur because of heavy drinking during the third trimester. The fetus protects brain and heart growth at the expense of less vital processes like digestion. **16 weeks**

- There is no point during development when a mother's drinking lacks potential consequences for the baby. **20-36 weeks**

- **38 weeks**


Source: Adapted from Moore, K., & Persaud, T. (1998); Wendy Chung, M.D. Ph.D., Columbia University "Teratogens and Their Effects" National Library of Medicine: <http://www.nlm.nih.gov/medlineplus/ency/article/000911.htm>, <http://embryo.asu.edu/pages/developmental-timeline-alcohol-induced-birth-defects>, <http://embryo.asu.edu/pages/developmental-timeline-alcohol-induced-birth-defects>



Helen Benson takes a moment to herself on her front steps in December. Benson had been dealing with behavior challenges in her daughter, Serenity. Benson attributes her daughter's behavior to her partial fetal alcohol syndrome. "I wish I could say that every time I deal with it, it gets a little easier to deal with," Benson said. "But every single time I have to deal with one of these episodes it wipes me out. It's really exhausting."

About State of Intoxication

The State of Intoxication series is a year-long reporting project examining the social costs of alcohol use and abuse in Alaska. The series is controlled and directed by the Anchorage Daily News. It is financially supported by a grant from the Recover Alaska Media Project fund at the Alaska Community Foundation. Contributors to the fund are the Alaska Children's Trust, the Alaska Mental Health Trust Authority, Bristol Bay Native Corp., the John S. and James L. Knight Foundation, Providence Health & Services Alaska, the Mat-Su Health Foundation, Wells Fargo and the Rasmuson Foundation.

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4. HELEN BENSON

"I drank as an escape. I knew it wasn't good for my baby," said Helen Benson, who began using cocaine at 16. By her late 20s she had graduated to smoking crack.

In 2006, at age 30, she became pregnant. The baby's father, tall and blonde with ice blue eyes, seemed nice enough at first, she said. After a few months, Benson heard rumors he was cheating and the couple began to squabble constantly — about money, house-cleaning, his drinking.

Mutual drug use amplified the fighting. Sometimes the boyfriend got high on meth and slammed her into walls. The sex turned violent, with his big hands at her throat.

Benson began missing her periods. Pregnancy made the relationship worse.

"He fed me (crack) like it was candy," she said. "He hoped I would miscarry."

Alcohol was always easier to get than drugs, so Benson binged on Jack Daniels and Coke more often than crack cocaine. She drank until she threw up, then drank some more.

It was her boyfriend's mother, in a series of furtive phone calls, who convinced her to escape the relationship and get sober.

"She said, 'You're carrying my grandchild, please give this baby a chance.'"

Benson fled to a domestic violence shelter. Six months pregnant, she began meeting with an obstetrician.

As her mind cleared, Benson began to wonder: Would her daughter be born with disabilities? Would she look different than other children? Would she be OK?

There was nothing to do except stop drinking and using drugs.

"She changed my life," said Benson. "If it wasn't for her, I can't say that I'd still be here. She was my motivation for sobering up."

Benson named her Serenity.

Next: In Part 2, on Tuesday, meet the children.

Photographer Marc Lester contributed to this story. Reach Kyle Hopkins at 257-4334 or khopkins@adn.com, and Marc Lester at mlester@adn.com. For Twitter updates: twitter.com/adn_lylehopkins and twitter.com/marclasterphoto.

ALCOHOL & me
adn.com/alcohol

If you think FASD doesn't affect you and your family, Deb Evensen wants you to think again.



Evensen has been educating Alaskans about fetal alcohol spectrum disorders for more than 30 years. She works with school districts and organizations across Alaska and the U.S. to address the issue. In this video, she explains the five things everyone should know about FASD.

"We cannot deal with bullying and violence in schools," recidivism in the correctional system or dropout rates until the community looks at the number of kids prenatally exposed to alcohol, she says.

"It's the elephant in the living room, the whale in our umiak."

Autism or FASD?

Autism and fetal alcohol spectrum disorders are different disabilities with some similar symptoms.

The causes of autism are not fully known, though most scientists agree genetics plays a role. Fetal alcohol spectrum disorders, including fetal alcohol syndrome, can only be found in children whose mothers drank during pregnancy.

The problems are about equally common, estimated to affect about 11 out of every 1,000 children, according to the federal Centers for Disease Control and Prevention.

A child can be diagnosed with both an FASD and autism, although sometimes children whose mothers drank during pregnancy are wrongly assumed to be autistic.

Children with FASD may be sociable and outgoing, while autistic children are often aloof and prefer to be alone, for example. While FASD occurs in boys and girls at roughly the same rate, boys are four times more likely to be diagnosed as autistic.

Both problems are incurable developmental disabilities, though friends and family members can help afflicted children live rich, happy lives.

Here are the symptoms of each disorder, and how they overlap.

Children with autism may:

- Have difficulty relating to others in a meaningful way
- Demonstrate restricted patterns of behavior, interests and activities
- Speak in a robotic, formal way
- Show ritualistic behaviors
- Have trouble expressing humor

Children with FASD may:

- Feel different from other people
- Experience disturbed sleep
- Be indiscriminately affectionate with strangers
- Lie about the obvious
- Have an increased startle response
- Develop depression, often in teen years
- Have difficulty initiating activity or following through
- Manage time poorly or lack comprehension of time
- Actively defy or refuse to comply
- Act touchy or easily annoyed
- Become angry and resentful

Children with either autism or FASD may:

- Show developmental dysmaturity
- Interrupt or intrude on others
- Act without considering consequences
- Have difficulty organizing tasks and activities
- Have difficulty with transitions
- Be impulsive, hyperactive
- Avoid eye contact
- Not be cuddly
- Chatter incessantly or have delayed speech
- Be emotionally volatile or exhibit wide mood swings
- Have problems with social interaction
- Have an over- or under-sensitive sense of touch
- Struggle to understand cause and effect of their actions
- Show exceptional abilities in a single area, such as music or math
- Have difficulty with friendships

Sources: Cathy Bruer-Thompson, Adoption Training Coordinator, Hennepin County, Minn., via Assets Inc.; Minnesota Organization of Fetal Alcohol Syndrome.