



Why do so many babies die in Indiana?

By Giles Bruce
The Times of Northwest Indiana

Every year, about 600 Indiana babies die before their first birthdays. That's enough to fill 33 kindergarten classrooms or 11 school buses. A baby dies about every 14 hours in this state.

Indiana has the eighth-highest infant mortality rate in the nation, with more than seven babies losing their lives for every 1,000 live births. Only Alabama, Mississippi, Oklahoma, Arkansas, Louisiana, Georgia and Kentucky do worse. Indiana is the farthest north of any state in the bottom 10 — and the only one in the Midwest on that list.

If the state lowered its rate to the national average, 118 infants would be saved every year. If Indiana had the same rate as the best-performing state, California, 275 fewer infants would die annually. If Indiana was on par with Finland, 471 more babies would survive past their first birthdays.

The fact that many of these deaths are preventable raises these questions: How many dead infants are we willing to accept? And why is our infant death rate so high? "This measure is the lens to the health of our state," said Dr. Jennifer Walhall, the former deputy state health commissioner and secretary of the Indiana Family and Social Services Administration.

State fares poorly in many health measures

Consider these facts:

- Indiana finished 39th out of 50 in the United Health Foundation's 2016 America's Health Rankings. The state ranked near the bottom in many areas that are risk factors for infant mortality: air pollution (47th), smoking (39th), diabetes (37th), obesity (36th), childhood poverty (32nd) and low birth weight (25th).

- Indiana ranked 43rd for women's health and 33rd in infant health. Less than a third of children younger than age 5 live in a protective home environment. The state also had the eighth-highest rates of female obesity and physical inactivity, and ranked in the bottom 10 for women's community and environment, clinical care, health behaviors and policy.

- Indiana ranked 49th in public health funding, spending \$41 per capita in state and federal dollars. The U.S. average is \$94, while the top state — Alaska — spends \$261.

"We're so far behind in public health in general," said Gabriel Filippelli, director of the Center for Urban Health at Indiana University-Purdue University Indianapolis.

"It's no surprise we had zero schools of public health until four years ago. Our public health professionals were not well trained in public health."

In 2013, the Indiana State Department of Health declared that reducing infant deaths would be its top priority. The Indiana Legislature has since allocated more than \$17 million to fight infant mortality. That money has gone toward grants to nonprofits, the development of a mobile app for pregnant women and a marketing campaign that focused on safe sleep practices and the importance of prenatal care. Despite these efforts, Indiana's infant death rate per 1,000 live births actually rose to 7.3 in 2015 from 7.1 in 2013.

The health department contends that the rate is down from 7.7 in 2011, and its work has



Nurse-Family Partnership nurse Amber Burleson plays with 6-month-old Kai'Dian during a home visit in Indianapolis last year. Photo by John J. Watkins, The Times of Northwest Indiana.

helped reduce the African-American infant death rate, the percentage of women who smoke during pregnancy and the number of preterm births, said spokeswoman Jennifer O'Malley. She also noted that there are now fewer elective deliveries and more babies with low birth weights being born in the proper facilities.

Babies die for any number of complex reasons. Many were delivered prematurely or low weight. Poverty, stress, nutrition, pollution and access to health care can all be contributing factors.

"It's such a hard nut to crack," said Dr. Debra Litzelman, a professor and researcher with the IU School of Medicine. "In Indiana, we rank poorly in so many areas: smoking, obesity, mental health, alcoholism, substance abuse, access to care. Each one of those is a cumulative risk for infant mortality."

"But many of the programs only focus on one thing. If you only focus on smoking, and a woman has nothing to eat, that's not going to change her health. If you only focus on safe sleep and not domestic violence and mental health, you're not going to make an impact."

The state of Indiana released a report in 2014 that examined the predictors of infant mortality. It found that the baby of a mother on Medicaid who is between the age of 15 and 20 and goes to fewer than 10 prenatal visits is at the highest risk for death. While these babies account for only 1.6 percent of the births in Indiana, they make up nearly half of the deaths.

"The fact that so many of these mothers are on government-sponsored insurance shows the degree to which this is an economic issue that affects us all: A premature or low-weight birth costs \$54,499, or 12 times more than an uncomplicated delivery, according to the March of Dimes.

'You can't blame the women'

"You don't want to point a finger at women. You can't blame the women," said Jack Turman, a maternal and child health expert at Indiana State University.

"People living in poverty account for a very high percentage of people who are suffering from infant mortality. You have the issue of poverty. People living in poverty don't have access to good food. If they do, they don't know how to prepare it. People in poverty have a high risk of living with chronic stress — which changes the immune system, hor-

mones, the cardiovascular system, the reproductive system, leading to poor birth outcomes."

Dr. Sue Ellen Braunlin, co-president of the Indiana Religious Coalition for Reproductive Justice, said she was disappointed that Indiana's first infant mortality summit in 2013 focused so much on women's behaviors rather than the social determinants of health.

"It was very one-sided, and blaming and shaming women for eating too much and for not sleeping right and being in violent situations," she said.

"A lot of these women have no choice. They live in food deserts and have no money for fresh vegetables. They can't always go on bed rest when doctors tell them to."

Braunlin believes the state's policies on social issues contribute to infant deaths. Indiana's tight restrictions on abortion access make it more likely that low-income women will have unwanted pregnancies and deliver babies they're unable to care for, she said. And she asserted that Indiana's abstinence-only sex education contributes to the state's high teen birth rate; teens are the age group most likely to lose a baby.

The focus on women also lets men off the hook.

"We do know that when fathers are involved as supportive partners, the infant mortality rate does decrease," said Waldo Johnson, a professor at the Center for the Study of Race, Politics and Culture at the University of Chicago.

"A father can be there to listen, to soothe the mother when she is anxious, to encourage her to go to prenatal visits, to make sure she's eating more fruits and vegetables and less processed food."

Race a factor

A Times analysis of state mortality statistics shows that a mother's location and race greatly affect her risk of losing a baby.

"Your ZIP code matters more than your genetic code," said Dr. Anthony Iton, senior vice president of the California Endowment. "Where you live predicts how long you will live."

If you're an African-American born in the 46312 ZIP code — East Chicago, an economically depressed Rust Belt city in Indiana's northwest corner — you have a 1 in 36 chance of dying before your first birthday.

By comparison, if you're a white person born in a ZIP code in Hamilton County — a wealthy, suburban enclave north of Indianapolis — your odds

improve to 1 in 286.

African-Americans in Indiana have almost 2.5 times the infant death rate of whites. "We've shown that lifelong minority status seems to be a risk factor," said Dr. James Collins, a professor of pediatrics at Northwestern University.

"When black women come from Africa or the Caribbean, their birth outcomes are similar to the white population. But when the girls grow up in the U.S., by the next generation, their birth outcomes are similar to those of the general African-American population." He said that may be explained by the stress caused by racial discrimination.

Black Indiana residents have a poverty rate that is 2.5 times as high as the white population, according to the American Community Survey.

Risk factors for infant mortality in Indiana often differ by race. White mothers smoke and use alcohol at higher percentages than black mothers, while African-American women are more likely to use drugs during pregnancy and have an infant suffocate during sleep, and are less likely to get prenatal care and breastfeed, according to data from the Indiana State Department of Health.

Pollution, smoking raise risks

Numerous academic studies have found that pollution can lead to birth complications, and several studies have found Indiana to be among the most polluted states in the country:

- Three of the top 25 metro areas in the U.S. for particulate pollution are in Indiana, according to the American Lung Association.

About this series

Every year, around 600 Indiana babies die before their first birthdays. Indiana has the eighth-highest infant mortality rate in the nation, with more than seven babies losing their lives for every 1,000 live births. Only Alabama, Mississippi, Oklahoma, Arkansas, Louisiana, Georgia and Kentucky do worse. Indiana is the farthest north of any state in the bottom 10 — and the only one in the Midwest on that list.

If the state lowered its rate to the national average, 118 infants would be saved every year. How did the state get to this point?

That's the question Munster's NWI Times health writer Giles Bruce tried to answer in his series, "What's Killing Indiana's Infants?"

Early last year, he applied for a fellowship at the University of Southern California's Center for Health Journalism. The fellowship provides a week of training, grant money and ongoing mentoring for journalists

willing to report on health issues affecting vulnerable children. His proposed project was to explore why Indiana has such a high rate of infant deaths by examining the

smoke, the fifth-worst rate in the nation, according to the United Health Foundation, and more than 30 percent of kids live in households with a smoker.

Smoking during pregnancy is a risk factor for low-birth weights and can harm a baby's lungs, heart and sleep arousal, potentially causing sudden infant death syndrome.

A 2016 study in Pediatrics found that a dollar cigarette-tax increase leads to a 0.2 reduction in a state's infant mortality rate. If that theory holds true, Indiana could save the lives of 17 infants for every dollar it raised its cigarette tax. Indiana has the 19th-lowest such tax in the nation, at 99 cents a pack, according to the Tax Foundation (New York ranks first at \$4.35 per pack). A proposed tax hike last year in the Indiana General Assembly went nowhere.

Many deaths due to unsafe sleep

In 2015, the third-leading cause of infant deaths in Indiana was accidental suffocation and strangulation in bed. Many of these deaths used to be classified as sudden infant death syndrome, but coroners are increasingly coding them as suffocation, due to the sleeping conditions the bodies were found in.

Public health experts say a surefire way to lower infant deaths is to make sure all babies sleep alone, on their backs, in a crib — known as the "ABCs" of safe sleep.

"It really is a culture change," said Dr. Nancy Swigonski, an IU professor of pediatrics and public health.

"People look at this naked, bare, hard surface and think, I want something cuddly, I want color. People think that's showing their baby love. I think we really need to help people understand that love is making your baby safe."

Right here in Indiana, a professor at the University of Notre Dame has come to a different conclusion.

James McKenna, an anthropologist who runs the Mother-Baby Behavioral Sleep Laboratory, says telling parents their babies have to sleep alone in cribs pushes co-sleeping underground, rather than teaching how to do it safely.

He also says advocating for both increased breastfeeding and the "ABCs" of sleep is counterintuitive, as babies who breastfeed will inevitably fall asleep on their mothers' chests.

"Parents are being deprived of the very fundamental insight of how to minimize risk in a bed-sharing environment," he said.

"The same exposures to an adult might have no impact on their health. To a developing child, whose cells are growing and dividing and developing along their course, their organs are susceptible to changes in chemistry."

In Indiana, about a fifth of pregnant women

communities where it's highest.

He was awarded the fellowship in June. The next month, he spent a week at USC's Annenberg School of Journalism. He and his fellow winners toured a toxic neighborhood where children were getting sick from pollution from a nearby lead smelter. They went to a preschool for kids affected by toxic stress. They heard from experts in the field of childhood health. They interacted with one another in discussions and seminars.

When he returned to Indiana, he had six months to complete his series. Traversing the state and visiting the cities with the highest rates of infant deaths, he found mothers willing to share their stories, and health and social workers trying to stem the tide of loss and improve the health of women around the state. He also interviewed experts from around the country and state.

He requested, often through Freedom of Information Act requests, copious amounts of data, which informed his nine stories and wrap-up column giving readers a look at how he did the series.

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2017

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Infant mortality in Indiana

What's killing Indiana's babies?: East Chicago has long led Indiana in babies dying

By Giles Bruce
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EAST CHICAGO, Ind. A hundred years ago, this city on the south banks of Lake Michigan had a problem: Most babies died before reaching their first birthdays.

The community had been incorporated, just decades earlier, as a regional steel and railroad hub. Like many industrial cities of its day, East Chicago struggled with overcrowding, lack of sanitation, a spoiled food supply, contagious diseases.

"Infant mortality last year in East Chicago was six out of 10," a Mrs. A.T. Cox said at a 1915 meeting of the state Child Welfare Round Table, according to a newsletter from the time. "There is only one place in the world that has a worse record. That is somewhere in Russia."

Back then, Indiana's infant death rate was 87.7 per 1,000 live births. East Chicago's was 600.

By 1916, at the insistence of Cox and fellow members of her local women's club, East Chicago had hired its first health inspector. Her club also solicited local businessmen for donations to hire a visiting nurse.

At a subsequent meeting of the child welfare group, Cox gave an example of the work the visiting nurse did. The nurse had gone to a home where the child had an infected bone that had been neglected for a year and a half. The nurse insisted that the mother clean up the house, but the woman resisted.

"You will either take care of this child, or I will come with proper authority to take the child from you and place it in a home with proper sanitation," the nurse told her, according to Cox. The woman cleaned the home.

Fast forward to 100 years later.

In late December 2016, visiting nurse Djenaba Shine stopped by the East Chicago apartment of April Allen, a 21-year-old college student who was seven months pregnant with her first child.

The public housing building where Allen lives with her boyfriend, mother and brother stands in the shadows of the smokestacks of the massive ArcelorMittal steel plant.

Shine, who works for **Nurse-Family Partnerships**, took Allen's blood pressure. It was high. Shine called Allen's midwife at a local safety-net clinic.

"They want you to go the hospital," Shine said, after hanging up the phone. "Go straight to labor and delivery." Allen and the child's father, Orlando Graves, got ready to leave. Graves teased his girlfriend about her salt intake, saying her high blood pressure was the result of all that bacon and Flamin' Hot Cheetos she'd been eating lately. They had no idea what was about to happen.

A few days later, Amari Lee Graves was born, six weeks early, at a local neonatal intensive care unit. He had a low birth weight of 4 pounds and 7 ounces.

Over the next 100 years, public health improvements like clean drinking water, vaccinations and food inspections have decreased the East Chicago infant mortality rate dramatically. But other things haven't changed. Home visiting nurses and social workers are still on the front lines of saving babies. And this city still has the highest infant death rate in Indiana.

The state's infant mortality rate is 7.3 per 1,000 live births. East Chicago's is 16.3.

Alarming statistics in NWI Northwest Indiana, the region where East Chicago is located, has among the highest rates of babies dying in the nation. Most of the infant deaths happen in the northern, largely minority communities near Lake Michigan, an area that is home to some of the most concentrated industry in the world.

"That's not a coincidence," said the Rev. Marie Siroky, a local community activist who works as a hospital chaplain, noting that pollution is a risk factor for birth complications. "I think it's the industry. I also think it's the water quality."

East Chicago had the highest infant mortality rate of any Indiana ZIP code between 2010 and 2014. A ZIP code in neighboring Hammond (46324) had the third highest, ZIP codes in nearby Merrillville, LaPorte and Michigan City were also in the top 25. The city of Gary, which has been economically devastated by the decline in U.S. manufacturing, had an infant death rate of 17 per 1,000 live births during that time period, 50 percent higher than the state average.

"We rival Third World nations," said Tracy Lewis, executive director of the Lake County Minority Health Coalition. "Lake County ranks in the bottom quartile in America for diabetes deaths, adult smoking and annual average concentration of fine particulate matter, all risk factors for infant mortality, according to the Centers for Disease Control and Prevention's Community Health Status Indicators."

"Our infant mortality rate reflects the general health of our population," said Mary Pintillo, neonatal nurse clinician for St. Catherine Hospital in East Chicago.

"As a whole community, this is something we have to address because it affects the well-being of all of us. And the bottom line is it dips into all of our pockets when babies are sick."

Lake County also has above-average rates of low birth weights, teen births, adult obesity, food insecurity, physical inactivity, sexually transmitted diseases, children in poverty, income inequality, children in single-parent households, violent crime and severe housing problems, according to the Robert Wood Johnson Foundation.

Another factor: A legacy of lead East Chicago was founded as a base for manufacturing and shipping along the heel of Lake Michigan, so it's been hit hard by the forces of globalization and technology. The population of 28,699 is half its peak level of 1960. Closed-down factories litter the landscape, posing a health risk for adjoining neighborhoods. This is exemplified by the former USS Lead plant in the southeast part of town. The lead smelter ceased operations in the mid-1980s after federal, state and local environmental officials found lead particles downwind of the facility.

Most at-risk in state An African-American woman living in East Chicago is more at risk of losing a baby than anyone in the state. The black infant mortality rate in East Chicago (27.3) is on par with such developing nations as Zimbabwe or Guatemala.

If you're an African-American born in East Chicago, you have a 1 in 36 chance of dying before your first birthday. To compare, if you're a white person born in wealthy Hamilton County, your odds improve to 1 in 286.

"What we really have here are health disparities," said Rise Ratney, chairwoman of the Lake County Maternal Child Health Network.

East Chicago has a shortage of primary care providers, including OB-GYN specialists. Much of the city is classified as a food desert. Nearly 36 percent of East Chicago residents, including about half of children younger than 5, live in poverty. The unemployment rate is the highest in Indiana. The city has an economic distress score — based on factors like jobs, education and housing — of 97.9 out of 100, according to the Economic Innovation Group. The violent crime rate is the fifth-highest in the state.

"Education and poverty together play a role," noted Dr. Rajaraman Iyer, an East Chicago pediatrician.

Iyer has a high rate of no-shows at his office, and holds parenting classes that are sparsely attended. That's because of the fleeting nature of his patient base.

"These populations constantly move, change their address, change their phone," he said. "When you go to the physician routinely, you learn how to take care of a situation before it turns really bad."

Prenatal care lacking Only half of pregnant women in East Chicago receive prenatal care during their first trimester, compared to 68 percent statewide, according to a 2011 study by the Indiana State Department of Health.

Part of that is due to lack of transportation, said Paulette Maxie, director of Lake County **Nurse-Family Partnerships**, noting that Medicaid's transport system only picks up women at home, a barrier for pregnant teens.

"Some of it is fear. Some are trying to hide it. They don't want to let people know they're pregnant, so they hold it out on getting prenatal care," she said.

"Some is financial and lack of knowledge about insurance. They think if they go they have to pay out of pocket and they don't have the money to pay for doctors' visits. So many are struggling to make ends meet as far as rent, utilities, groceries."

Mental Health America of Lake County has a teen parenting program that partners with five area schools. Its biggest program is at East Chicago Central High School. The initiative has been successful: Only 2 percent of enrolled teens go on to have another baby within two years (compared to at least a fourth nationwide), and all the participants have gotten their high school diploma or equivalent.

The programs help teens overcome the influence of family members. For instance, the teens might live in a household of people who smoke. Or their parents might have different ideas about child-rearing. "I've had girls say, 'My mom said I slept on my stomach and I was fine,'" said Heather Himes, a social worker at E.C. Central.

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April Allen and her baby, Amari. Photo by John T. Watkins.

In spring 2016, the city advised residents of a local public housing project to relocate after high levels of lead and arsenic were found in its soil. Pregnant women exposed to lead are at an increased risk for premature birth and low birth weight, two of the leading causes of infant death.

Michael and Katie Jacobi, who are expecting their first child this summer, live in one of the lead-contaminated neighborhoods in East Chicago. Despite the fact the Environmental Protection Agency has cleaned their home, declaring it lead-free, and provided them with a water filter, they intend to eventually move to the nearby suburb of Crown Point.

"I don't want my children raised here and contaminated with lead, arsenic and whatever else they love to put in the land," said Michael, 31, a dental student.

At community meetings about the lead crisis, he has encountered several local women who have had birth complications, leading to preterm births, miscarriages and abortions.

He was asked what he would recommend to people thinking about having children here. "Don't. Don't," he said. "Or figure out the best way to get out." He acknowledged that he has means to move, while many East Chicago residents don't.

Katie, a 27-year-old nurse, tested negative for lead but doesn't fully trust the results, because the East Chicago Health Department was only able to extract a minimal amount of blood.

"There's only so much you can do to avoid it," she said of the lead. "Because it's in the dust particles, you can breathe it in and you're risking being exposed to it."

Unsafe sleep deaths The city health department keeps death certificates for infants who died at East Chicago's only hospital. Four of the 16 babies who died there from 2010 to 2014 lived in the housing project at the center of the lead crisis. Four of the 16 deaths were due to respiratory conditions. The majority (six) were caused by positional asphyxia, including bed sharing with parents or siblings.

"It's heartbreaking for our staff when it happens, when babies come into the emergency department and they've suffocated from sleeping with a family member," said Paula Swenson, chief nursing officer for St. Catherine Hospital. "It breaks your heart. It's a life-changing event for everyone involved."

Nonprofits in the community disperse portable cribs, infant sleep sacks and sleep education — "the ABCs of safe sleep" are that babies should always be alone, on their backs, in a crib.

HealthLine, a federally qualified health center in East Chicago, also gives moms the book, "Sleep Baby, Safe and Snug," which is distributed by a safe-sleep organization called

Charlie's Kids Foundation. That group, based in Louisville, Kentucky, was founded by the family of a 3-week-old boy who died after falling asleep on the couch with his dad, a pediatrician.

"This is not a socioeconomic issue. I'm just amazed my children lived. When my kids were little, we had bumper pads, pillows and stuffed animals in the crib," said HealthLine CEO Beth Wrobel. "We can do this for Northwest Indiana. The numbers I saw were that about 40 percent of infant lives could be saved if there was safe sleeping."

Indiana is not among the states that require hospitals and birthing centers to educate parents on safe sleep.

A triumphant homecoming Earlier this month, Amari Graves and his parents were reunited. The baby had spent a week in the neonatal intensive care unit. Now he was back in his family's modest East Chicago apartment, which had white brick walls, a fish tank full of family photos, basketball trophies and Three Stooges bobbleheads on the radiator. A Yorkie named Ace paced around the living room.

April Allen hadn't gotten over the fact that she already had given birth. Her baby shower wasn't for another two weeks.

"How are you feeling now that you got him home?" asked nurse Djenaba Shine, who was back for her first home visit since the high-blood-pressure incident.

"Excited. Happy," Allen said.

Allen was watching her diet, trying not to eat as much salt as before. She returned to college four days after giving birth (she's studying human development). She said she's noticed a change in her boyfriend.

"He's overprotective over Amari," she said. "When we went to pick him up, he wanted to sit in the back seat with the baby. I said, 'You get in the front seat.'"

She brought the baby out from his crib — his father was sleeping — so Shine could weigh him. A week after his birth, Amari had gained a pound. He was wrapped in a snug sleep sack, wore a knit baby cap and sucked intensely on a green pacifier.

"I couldn't believe everything went down the way it did. I'm still shocked from it all," Shine said. "What do you think would have happened if you didn't have a nurse come here to see you?"

Allen said she probably would have had a C-section. If her blood pressure had gotten any higher, she could have had a stroke. She could have lost the baby.

"You would have never known. You would have never known," Shine said. "So, thank God."

This series was produced as a project for the University of Southern California Center for Health Journalism's National Fellowship.

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