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INSPIRING HEALTHY ACTS

RESEARCH BRIEF

INFANT MORTALITY PROFILE FOR ARKANSAS MEDICAID, 2013-2016

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Key Points

- Sudden infant death syndrome (SIDS) was the primary cause of death in the study population, affecting 78 (55.3%) out of 141 infants.
- More than half of infants overall (53.3%) utilized inpatient or hospital services prior to their death.
- All cause-of-death groupings had missed opportunities for infants to receive appropriate well-child visits.

DATA POINTS

55.3%
of infant deaths were due to SIDS.

53.3%
of infants overall utilized inpatient or hospital healthcare services before they died.

100%
of all cause-of-death groupings had missed opportunities for well-child visits.

Summary

WHAT IS ALREADY KNOWN ABOUT THIS TOPIC?

Arkansas's infant mortality rate is significantly higher than the national average and increased from the fifth-worst in the U.S. from 2013-2015 to the third-worst in 2022.

WHAT IS ADDED BY THIS REPORT?

Arkansas Department of Health birth and death certificate data were linked to Arkansas All-Payer Claims Database enrollment and claims data, which made it possible to identify infants covered by Medicaid who died within their first year of life (between 2013 and 2016), assess their causes of death, and profile their healthcare utilization.

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WHAT ARE THE IMPLICATIONS FOR PUBLIC HEALTH PRACTICE?

Identification of the causes of death and missed opportunities for healthcare utilization prior to an infant's death may offer information to help develop interventions. Using this information, state and local stakeholders, such as the Arkansas Department of Health, Arkansas Children's Hospital, Medicaid, provider associations, and providers, can collaborate to support more robust evaluations, promote safe sleep behaviors, and improve care to reduce infant mortality.

Introduction

Infant mortality, the death of an infant between birth and their first birthday,[1] has steadily declined nationally from 7.6 deaths per 1,000 live births in 1995 to 5.6 in 2022 — a 26% decrease. Unfortunately, Arkansas's 2022 infant mortality rate of 7.7 was significantly higher than the national average and was ranked as the third worst among all states.[2,3] Arkansas had the highest rate of mortality for infants of non-Hispanic White women at 7.0 deaths per 1,000 live births in the United States from 2013-2015.[2]

Nationally, the top five causes of infant deaths for 2015 and 2022, respectively, were classified as birth defects (21% vs. 20%), pre-term birth/low birth weight (17% vs. 14%), sudden infant death syndrome (SIDS; 7% for both years), maternal complications of pregnancy (7% vs. 6%), and unintentional injuries (6% vs. 7%).[3,4] In Arkansas, risk factors that influence infant mortality include: birth weight lower than 2.2 pounds, birth occurring at a gestational age of less than 28 weeks, birth defects, lack of prenatal care, age of mother (under 19 and over 40 at higher risk), complications during pregnancy, and smoking during pregnancy.[5]

The Arkansas Infant and Child Death Review (ICDR) Program, established in 2010 by Act 1818 of 2005, reported that the majority of infant deaths in 2022 were sudden and attributable to asphyxia from unsafe sleep habits.[6]

To support efforts to reduce infant mortality, the Arkansas Center for Health Improvement (ACHI) conducted analyses to identify infants among Medicaid recipients who died within the first 12 months of life and to generate a profile of their healthcare service utilization.

Methods

DATA SOURCES

ACHI requested the use of birth and death certificate data from the Arkansas Department of Health (ADH) under the authority of the Arkansas Health Data Initiative and existing data use agreements between ADH and ACHI.

Approval to use birth and death certificate data for this study was granted by the ADH Scientific Advisory Committee.

This study linked vital records — birth and death certificate data — with Arkansas All-Payer Claims Database (APCD) enrollment and claims data under the Arkansas Healthcare Transparency Initiative Act of 2015[7] to identify and assess infants covered by Medicaid who died within the first 365 days of life.

VARIABLES

Infants' and mothers' demographic variables extracted from birth and death certificates were age, race, gender, location of infants' birth and death, and mothers' previous birth count. Birth and death certificate data were also used to calculate infant lifespan.

For each infant, death certificate data were used to obtain cause of death. For the purpose of generating healthcare utilization profiles in this analysis, we grouped infants' causes of death into four categories:

- Sudden infant death syndrome (SIDS)
- Accidental suffocation and strangulation in bed (ASSB)
- Injury (injury-related causes of death)
- Other (other causes of death)

Appendix A includes a detailed list of which attributed causes of death are included in each category.

Infants who were covered by Medicaid were identified in the Arkansas APCD. For each Medicaid infant, the cause-of-death categories were summarized to create an individual-level frequency claims experience.

Four healthcare utilization-related outcome indicators were determined from claims:

- Well-child[a] (any child wellness visits)
- Sick/other (any medical utilization outside of well-child visits, emergency department visits, and inpatient or hospital visits)
- Emergency (any emergency department visits)
- Inpatient or hospital utilization (any inpatient usage or hospitalization)

STUDY POPULATION

For the period of 2013-2016, we identified 1,156 unique death certificates and were subsequently able to match these to 1,092 corresponding birth certificates, for an approximately 95% match rate. Among the 1,092 matched pairs, we identified 493 infants (45%) with a Medicaid recipient base ID in Medicaid enrollment data. To further validate the proportion of Medicaid infants in the study population (as designated by the presence of a Medicaid recipient base ID), we observed available "pay source" variable data from birth certificates spanning 2014-2016,[b] which resulted in a comparable rate of 48% for the available period.

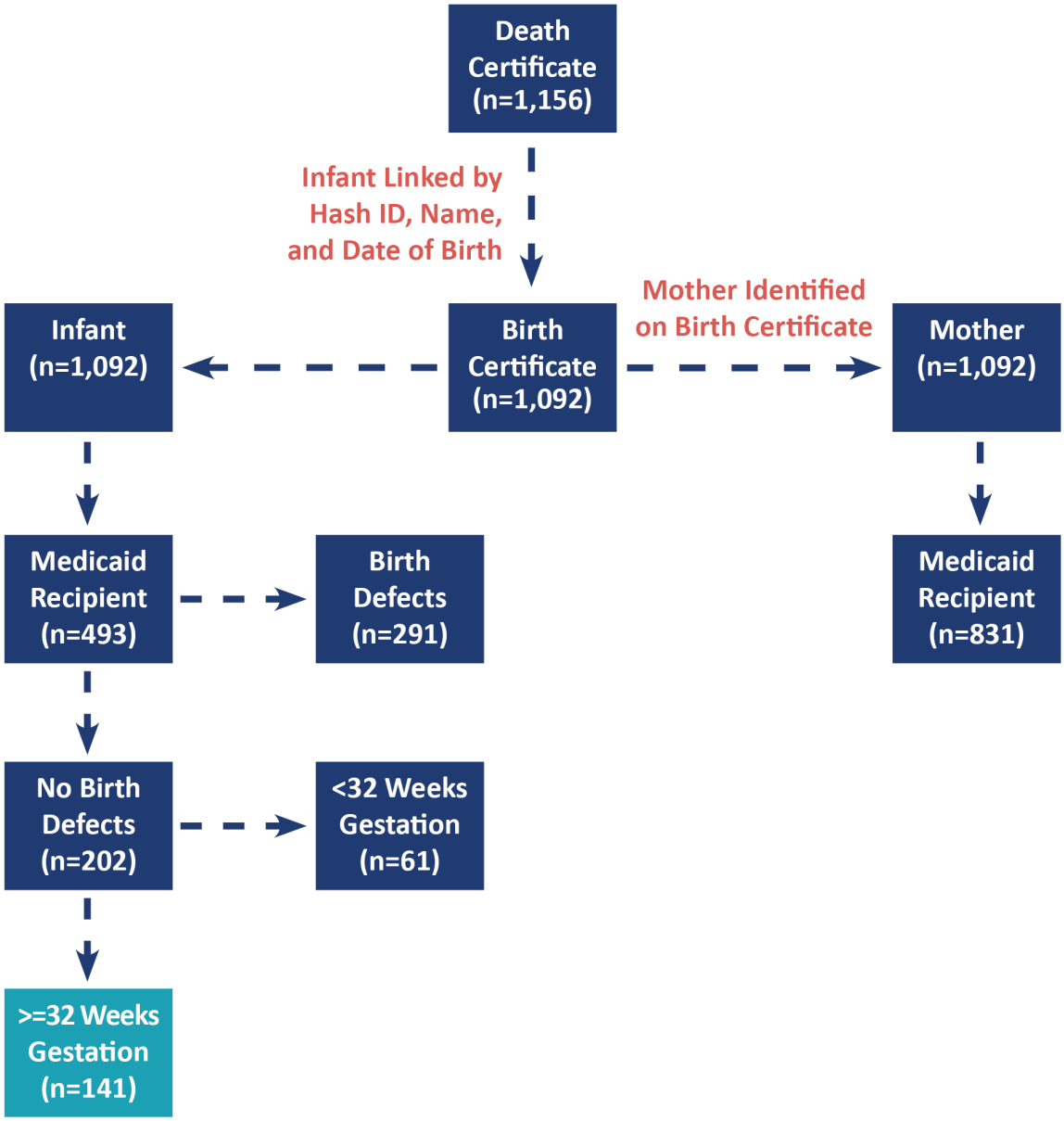
Among the 1,092 mothers of infants in the overall study cohort, we identified 831 as having a Medicaid recipient base ID. Among the identified 493 Medicaid infants, we isolated as our primary study population 141 infants for which no major risk factors existed at the time of birth, who were born at or beyond the gestational age of 32 weeks, and who did not have congenital birth defects as a cause of death (e.g., cardiac anomalies). Using this "lower risk" subset, we conducted a case-series analysis to profile their healthcare utilization.

Figure 1 displays the process used to determine the primary study population of Medicaid infants and their mothers. To create birth and death certificate linkages, we constructed and validated unique de-identified "hash IDs." This process included the linkage of personally identifiable information existing within birth and death records, in addition to infant and maternal claims data. Performance characteristics of the hash IDs were validated using identified data from Medicaid claims and linking it to birth and death records.

[a] Well-child visits were based on the presence of an Early and Periodic Screening, Diagnostic, and Treatment benefit code in the infant's medical claims.

[b] A "pay source" variable field was not included on 2013 Arkansas birth certificates.

FIGURE 1. STUDY COHORT MATCHING PROCESS



OUTCOMES

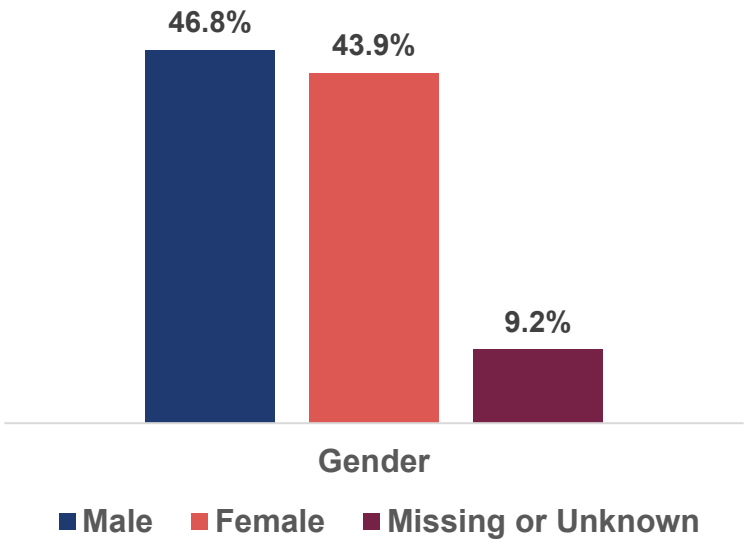
The primary outcome was the descriptive assessment of demographics associated with Arkansas Medicaid-covered infants who died within the first 12 months of life. The secondary outcomes were descriptive profiles of their causes of death and healthcare utilization.

Findings

STUDY POPULATION DEMOGRAPHICS

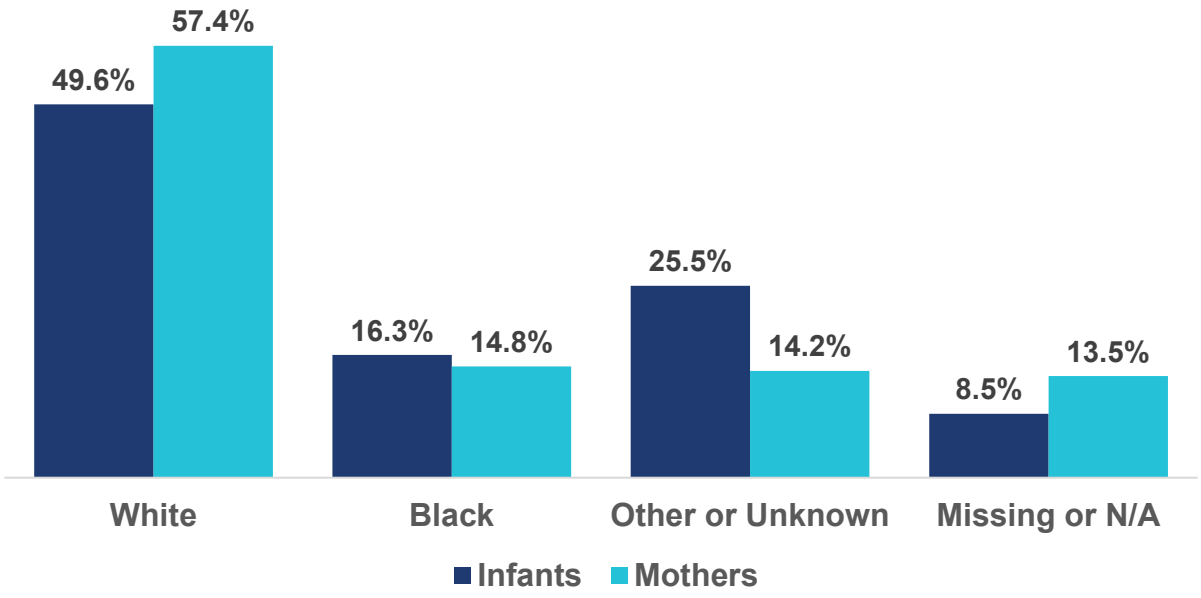
Demographic variation exists among those impacted by infant mortality. Figures 2 and 3 display gender and race variables for the study cohort of 141 infants. Among the infants in the study population, 46.8% were male, 43.9% were female, and gender was unknown for 9.2% of the records (Figure 2).

FIGURE 2. STUDY POPULATION INFANT GENDER DISTRIBUTION (N = 141)



Among infants in the study population, 49.6% were White and 16.3% were Black. Race was listed as other or unknown for 25.5% of infants, and information was unavailable for 8.5%. Among mothers in the study population, 57.4% were White and 14.8% were Black. The percentage of mothers whose race was listed as other or unknown was 14.2%, while 13.5% of mothers' race information was either missing or listed as not applicable (Figure 4).

FIGURE 3. STUDY POPULATION INFANT AND MOTHER RACE DISTRIBUTION (N = 141)



LIFESPAN

The time of infant death may inform the need for interventions alongside usual healthcare utilization intervals. Therefore, we plotted an infant survival curve and grouped lifespan into five categories selected to overlap recommended intervals for infant wellness visits at one, two, four, six, and nine months old.[8]

Figure 4 displays the lifespan distribution of the study population. While the study only included infants who did not survive more than 365 days, 80.1% of infants in the study population did not survive past 155 days (5 months). The average age at time of death is 103.8 days, with a median of 96 days. The average age of mothers at infants' time of death is 24.5 years.

FIGURE 4. STUDY POPULATION SURVIVAL CURVE (N = 141)

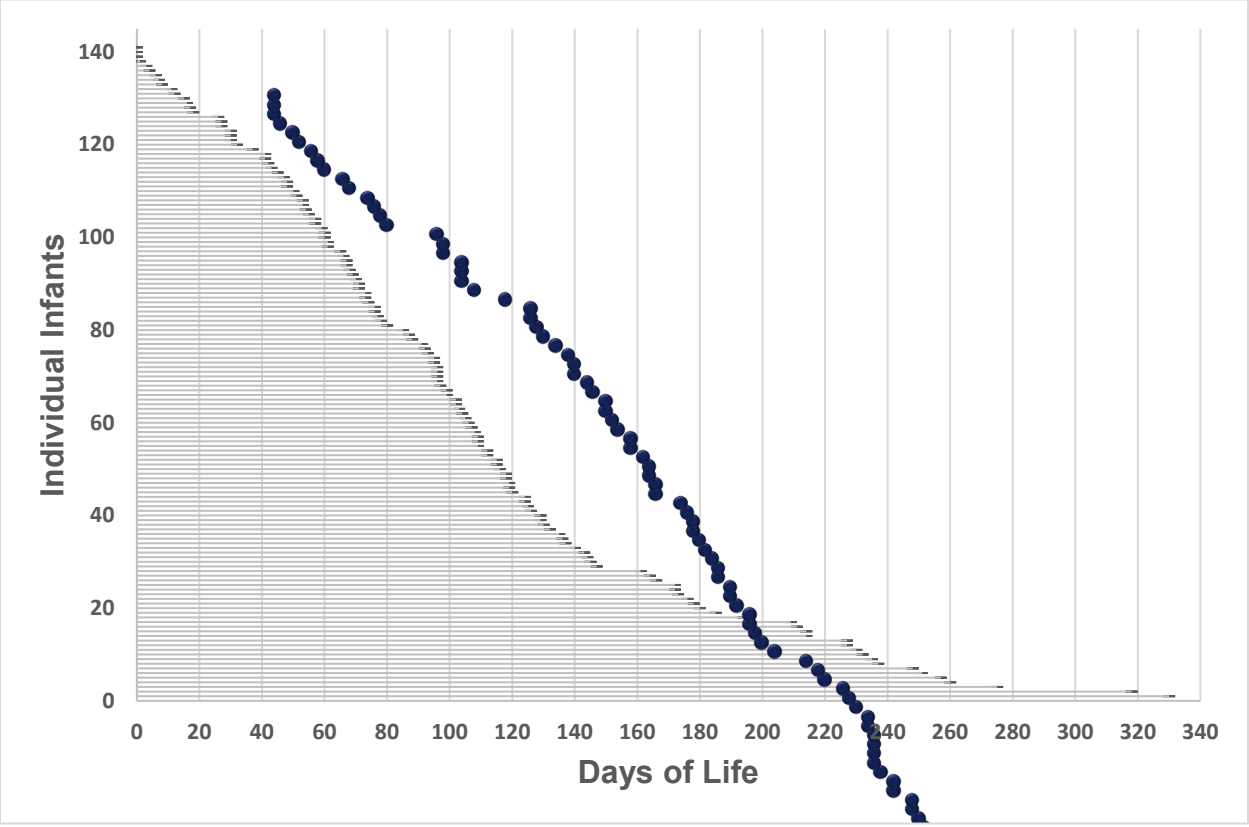
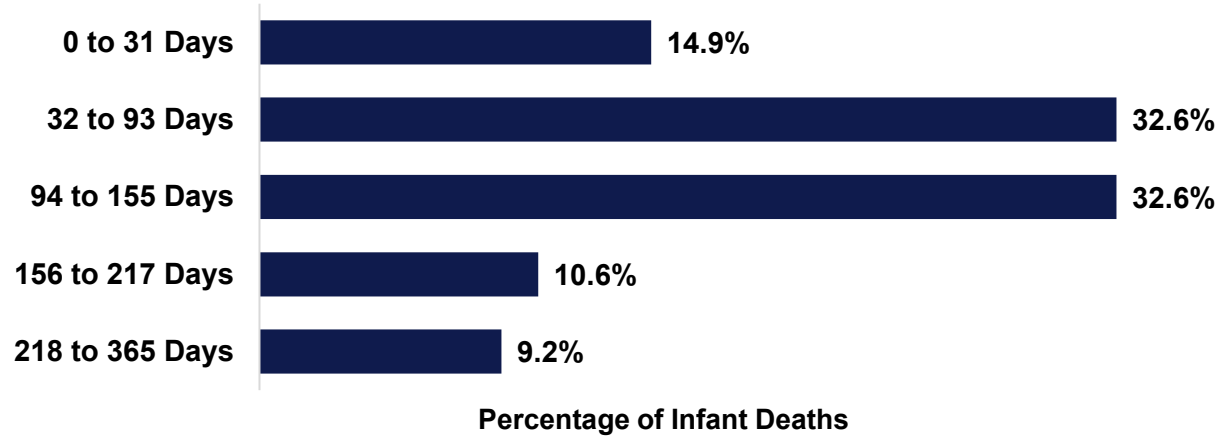


Figure 5 displays the lifespan of infants segmented into groups of 0-31 days, 32-93 days, 94-155 days, 156-217 days, and 218-365 days. Among the 141 infants, 14.9% did not survive more than 31 days, 32.6% survived between 32 and 93 days, 32.6% survived between 94 and 155 days, 10.6% survived between 156 and 217 days, and the remaining 9.2% survived between 218 days and 365 days.

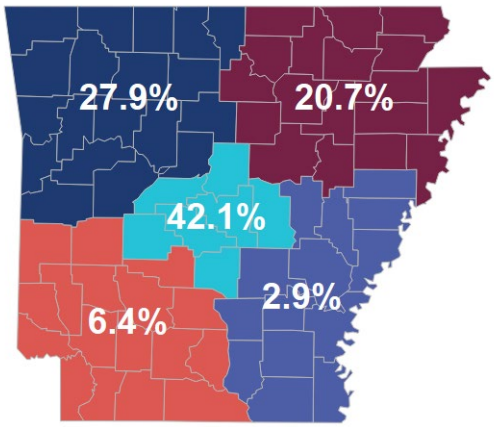
FIGURE 5. STUDY POPULATION INFANT LIFESPAN DISTRIBUTION GROUPINGS (N = 141)



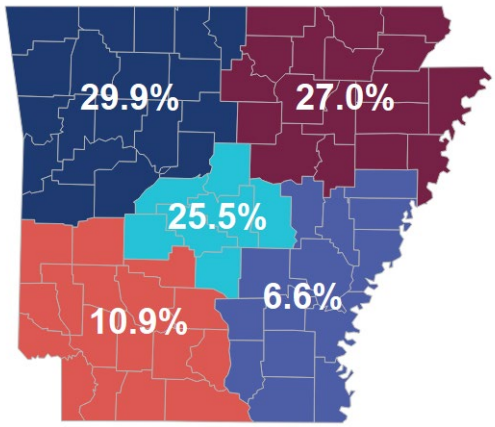
To determine whether there were regional disparities in public health for the 141 infants in the study population, infants were attributed to a public health region based on the location of their birth and death. Panel A of Figure 6 displays the percentage of births by public health region. The majority of births occurred in the Central (42.1%), Northwest (27.9%), and Northeast (20.7%) regions. Births in the Southwest and Southeast regions accounted for 6.4% and 2.9% of the overall study population, respectively.

Panel B of Figure 6 displays the percentage of deaths by public health region. The majority of deaths occurred in the Northeast (29.9%), Northwest (27.0%), and Central (25.5%) regions. Deaths in the Southwest and Southeast regions accounted for 10.9% and 6.6% of the overall study population, respectively.

FIGURE 6. LOCATIONS OF INFANT BIRTHS (PANEL A) AND DEATHS (PANEL B) BY PUBLIC HEALTH REGION AMONG THE PRIMARY STUDY POPULATION (N = 141)



A



B

CAUSES OF DEATH

Identifying the causes of death for infant mortality in Arkansas is imperative for targeting public health initiatives. Table 1 displays the rank-order causes of death among all “lower-risk” Medicaid-covered infants in our study population. SIDS was the most prominent cause of death, as indicated for 78 of the 141 (55.3%) infants. Ill-defined and unknown cause of mortality was the second-most indicated cause for nine (6.4%) infants.

TABLE 1. RANK ORDER CAUSES OF DEATH AMONG STUDY POPULATION (N = 141)

Description	Number	Percent
Sudden infant death syndrome with mention of autopsy	78	55.32
Ill-defined and unknown cause of mortality	9	6.38
Accidental suffocation and strangulation in bed	5	3.55
Assault by unspecified means	5	3.55
Bronchitis, not specified as acute or chronic	5	3.55
Pneumonia, unspecified organism	4	2.84
Acute bronchiolitis, unspecified	3	2.13
Spinal muscular atrophy, unspecified	3	2.13
Unspecified threat to breathing	3	2.13
Anoxic brain damage, not elsewhere classified	1	0.71
Assault by rifle, shotgun, and larger firearm discharge	1	0.71
Benign neoplasm of heart	1	0.71
By unspecified person	1	0.71
Condition originating in the perinatal period, unspecified	1	0.71
Hydrops fetalis not due to hemolytic disease	1	0.71
Hypoxic ischemic encephalopathy [HIE]	1	0.71
Inhalation of gastric contents	1	0.71
Lobar pneumonia, unspecified organism	1	0.71
Malignant neoplasm of connective and soft tissue, unspecified	1	0.71
Meconium aspiration	1	0.71
Muscle wasting and atrophy, not elsewhere classified	1	0.71
Myocarditis, unspecified	1	0.71
Neonatal cardiac dysrhythmia	1	0.71
Neonatal cardiac failure	1	0.71
Newborn affected by other forms of placental separation and hemorrhage	1	0.71
Newborn (suspected to be) affected by premature rupture of membranes	1	0.71
Other specified cerebrovascular diseases	1	0.71
Other specified conditions originating in the perinatal period	1	0.71
Other specified respiratory conditions of newborn	1	0.71
Person injured in unspecified motor-vehicle accident, traffic	1	0.71
Sequelae of motor-vehicle accident	1	0.71
Struck by thrown, projected, or falling object	1	0.71
Unilateral inguinal hernia, with obstruction, without gangrene	1	0.71
Unspecified kidney failure	1	0.71
Missing	1	0.71
Total	**141**	**100.00**

MOTHERS' PRIOR BIRTH HISTORY

Because mothers' obstetric history can influence subsequent infant mortality events, we recounted the mothers' previous birth history by cause of death for infants in the study population (Table 2). Among the 141 mothers in the study population, the majority (78 mothers, or 55.3%) were new mothers or had only one previous birth.

TABLE 2. MOTHERS' PRIOR BIRTH HISTORY BY CAUSE-OF-DEATH GROUPS (N = 141)

Death Type	Mothers' Previous Birth Count						
	0	1	2	3	4	5	7
Injury-Related	2	1	4	1	0	0	0
Other	14	17	6	8	5	0	0
SIDS	23	20	23	6	3	2	1
ASSB	0	1	2	1	0	1	0

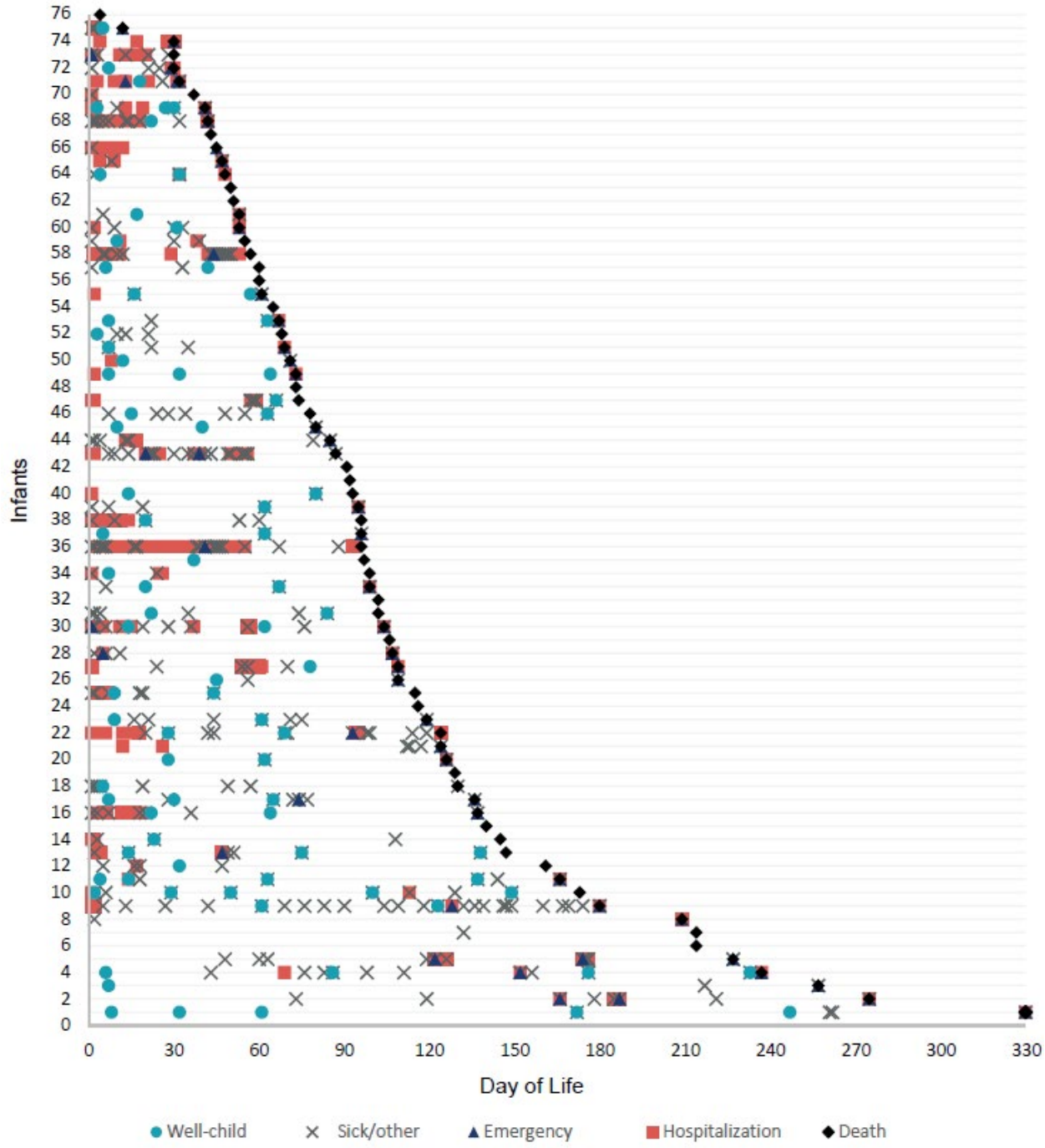
Abbreviations: SIDS, sudden infant death syndrome; ASSB, accidental suffocation and strangulation in bed

HEALTHCARE UTILIZATION PROFILES AND INDICATORS

We generated healthcare utilization profiles for the infants in the study population overall (N = 141). However, we excluded four infants due to the presence of medical claims occurring after the date listed on the death certificate. It appears that this discrepancy is a result of incorrect claims or death certificate data for these four cases. Utilization profiles in this brief are based on the remaining 137 infants.

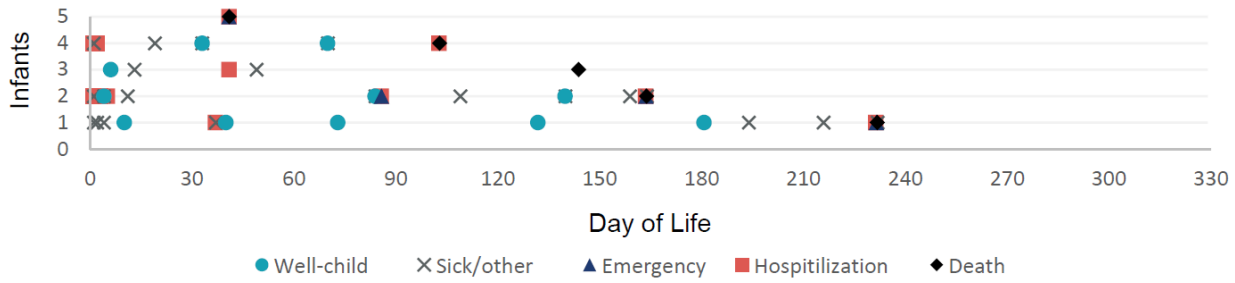
Figures 7-10 include associated utilization profiles for the SIDS, ASSB, Injury-Related, and other causes-of-death groups. Individual-level profiles include the indicators of well-child visits and emergency department, inpatient/hospital, and sick/other utilizations. For example, in Figure 7, Child 53 had a well-child visit on day six, a sick visit on day 22, another well-child visit on day 64, and died on day 67; Child 54 did not have any contact with the healthcare system prior to dying on day 65; and Child 58 had three hospitalizations and an emergency department visit prior to death on day 58.

FIGURE 7. HEALTHCARE UTILIZATION PROFILE PRIOR TO SIDS DEATH (N = 76)



Abbreviation: SIDS, sudden infant death syndrome.

FIGURE 8. HEALTHCARE UTILIZATION PROFILE PRIOR TO ASSB DEATH (N = 5)



Abbreviation: ASSB, accidental suffocation and strangulation in bed

FIGURE 9. HEALTHCARE UTILIZATION PROFILE PRIOR TO INJURY-RELATED DEATHS (N = 8)

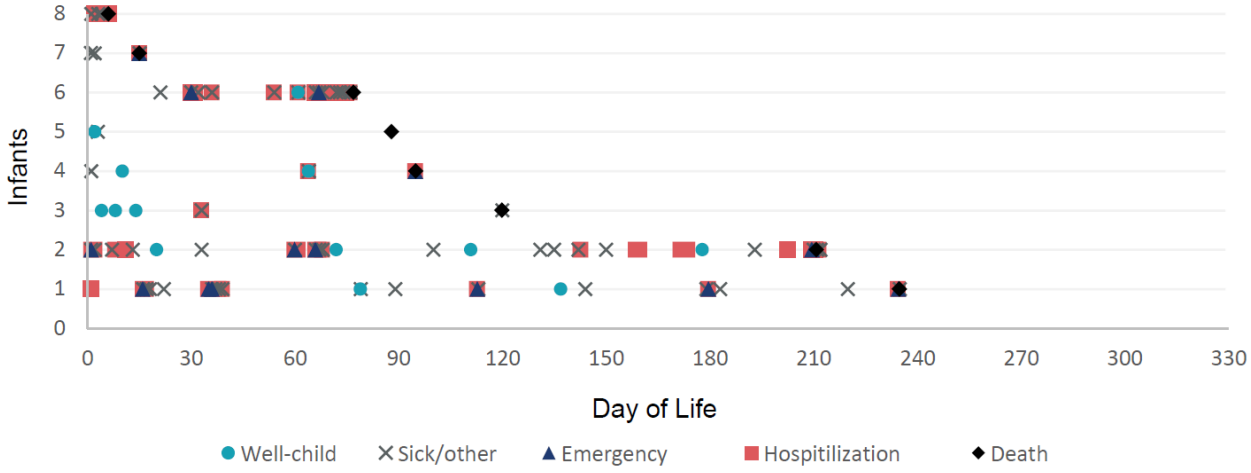
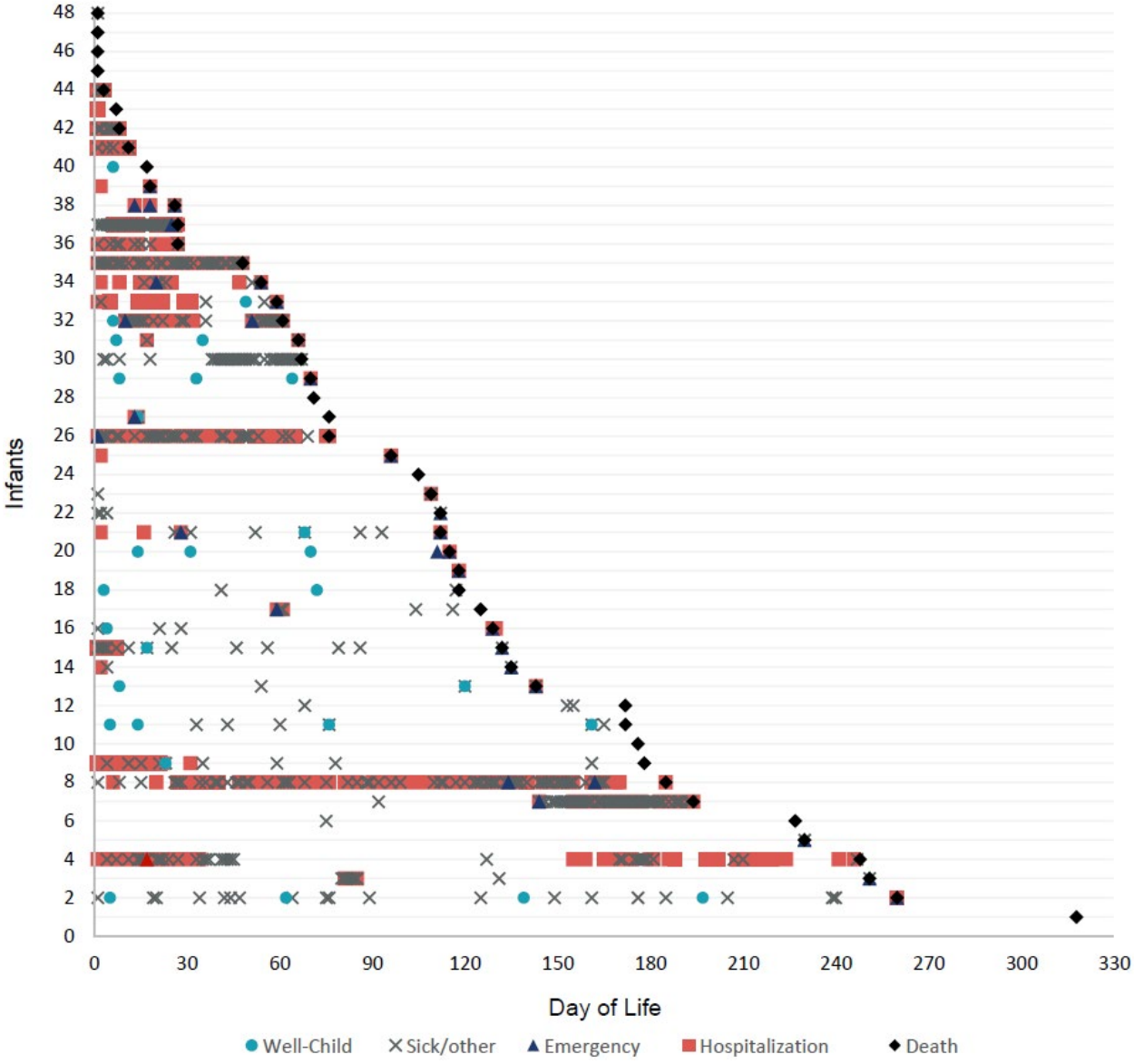


FIGURE 10. HEALTHCARE UTILIZATION PRIOR TO OTHER CAUSES OF DEATH (N = 48)



HEALTHCARE UTILIZATION AMONG CAUSE-OF-DEATH GROUPS

Summarizing case-series data, we created descriptive profiles of clinical utilization for each cause-of-death group. This analysis also includes the frequency of well-child visits among cause-of-death groups to further examine utilization of this type of health care. Table 3 displays the frequency of well-child visits segmented by cause-of-death groups and by lifespan groups. Lifespan groups are segmented by those who survived at least 31 days, at least 93 days, at

least 155 days, and at least 217 days. For each of these lifespan groups (with each having a unique denominator count), we determined the frequency of infants who had a well-child visit within the corresponding period (e.g., any well-child visit within 0-31 days, 32-93 days, 94-155 days, and 156-217 days).

TABLE 3. WELL-CHILD VISITS BY CAUSE-OF-DEATH GROUP AND LIFESPAN GROUPS (N = 137)

	Survived at Least 31 Days	Well-Child Visit Within 0-31 Days	Survived at Least 93 Days	Well-Child Visit Within 32-93 Days	Survived at Least 155 Days	Well-Child Visit Within 94-155 Days	Survived at Least 217 Days	Well-Child Visit Within 156-217 Days
SIDS	71	37 (52%)	39	21 (54%)	12	3 (25%)	5	2 (40%)
Injury	6	4 (67%)	4	4 (100%)	2	2 (100%)	1	1 (100%)
ASSB	5	3 (60%)	4	3 (75%)	2	2 (100%)	1	1 (100%)
Other	35	12 (34%)	25	5 (20%)	12	1 (8%)	6	1 (17%)

Table 4 includes the rate of any emergency department, inpatient/hospitalization, or sick/other utilization. The frequencies in Table 4 do not include any utilization that occurred on the date of death.

TABLE 4. EMERGENCY DEPARTMENT, INPATIENT/HOSPITALIZATION, AND SICK/OTHER UTILIZATION AMONG CAUSE-OF-DEATH GROUPS (N = 137)

	Total Number of Infants	Any Emergency Department Use	Any Inpatient/ Hospitalization	Any Sick/Other Utilization
SIDS	76	14 (18.4%)	38 (50.0%)	56 (73%)
Injury	8	3 (37.5%)	6 (75.0%)	6 (75.0%)
ASSB	5	1 (20.0%)	4 (80.0%)	4 (80.0%)
Other	48	12 (25.0%)	25 (52.1%)	25 (52.1%)
Total	137	30 (21.9%)	73 (53.3%)	91 (66.4%)

Implications

This case-series study used ADH and APCD data assets to link birth and death certificate records with enrollment and medical claims records to identify "lower-risk" infants among Arkansas Medicaid beneficiaries and provides insight into the overall infant mortality profile for the state.

We determined the proportion of infants and their mothers among known cases of infant mortality from 2013 to 2016. We then identified demographic profiles for this study population. White mothers experienced the most instances of infant mortality in Arkansas. The majority of cases in this study were attributable to SIDS. Our findings also show that the majority of mothers in the study were new mothers or had previously given birth to only one child. Outreach and advocacy regarding safe activities such as prevention of co-sleeping, provision of education materials and cribs, and increasing awareness of other known mortality-inhibiting factors such as breastfeeding must be sustained by statewide entities,[3,9-11] especially among first- or second-time mothers.

Frequency and type of healthcare service utilization profiles were unique for each of the four cause-of-death groups. Importantly, we assessed the frequency of well-child visits at intervals recommended by the Bright Futures initiative led by the American Academy of Pediatrics.[8] There were missed opportunities for infants to receive appropriate well-child visits in each cause-of-death group in this study. Reinforcing maternal education regarding appropriate frequencies for well-child visits is encouraged and may improve opportunities for effective infant mortality interventions. ACHI has emphasized the importance of well-child visits as one of the "9 Points on a Healthy Birthing Journey" that begins with pre-pregnancy preparation.[12]

More broadly, changes to Medicaid and reimbursement pathways will come with the recent enactment of the Arkansas Healthy Moms, Healthy Babies Act (Act 124 of 2025).[13] Access to telemedicine, doulas, and community health workers is expected to be expanded, potentially providing additional opportunities to promote awareness of infant mortality risk factors across the state.

Because nearly half of the infants in this study had inpatient care or were hospitalized and over one-fifth visited the emergency department at least once prior to death, future studies should include additional analyses to investigate the causes of these types of healthcare utilizations to identify potential interventions and understand the related mortality risk before these services

are needed. Further analyses could also be broken out by neonatal deaths (occurring before the 28th day of life) and postneonatal deaths (occurring between the 28th and 364th day of life) as temporal indicators of opportunities to provide care.

Limitations

Study limitations include lack of commercial payer claims data in our analysis and a lack of maternal claims analysis. Further, we do not segment the Other cause-of-death group into more granular subgroups related to condition. Analysis of smaller cause-of-death groups may inform more targeted interventions. We did not fully explore provider variation, however, a preliminary assessment of mortality rate across providers did not result in any substantial variation of concern. Also, this study period coincides with the expansion of commercial coverage in Arkansas beginning in 2014, which may limit comparison to any analysis of Medicaid claims experience prior to 2014.

Conclusions

Our analysis profiled population demographics, causes of death, and indicators of healthcare utilization for infants who died within their first year of life. These profiles may serve to inform interventions to lower infant mortality rates for Arkansas Medicaid recipients and the state overall.

References

1. US Centers for Disease Control and Prevention. Infant mortality. CDC. Updated September 16, 2024. Accessed April 28, 2025. https://www.cdc.gov/maternal-infant-health/infant-mortality/index.html

2. Mathews TJ, Ely DM, Driscoll AK. State variations in infant mortality by race and hispanic origin of mother, 2013–2015. NCHS Data Brief, no 295. National Center for Health Statistics. Updated January 4, 2018. Accessed March 12, 2025. https://www.cdc.gov/nchs/products/databriefs/db295.htm

3. Ely DM, Driscoll AK. Infant mortality in the United States, 2022: Data from the period linked birth/infant death file. *Natl Vital Stat Rep*; 2024;(5). doi:10.15620/cdc/157006.

4. Heron M. Deaths: Leading causes for 2015. *Natl Vital Stat Rep*. 2017;66(5):1-76.

5. Nugent RR. From data to action: A background paper on infant mortality in Arkansas. Arkansas Department of Health. Updated 2012. Accessed March 12, 2025. https://www.arkmed.org/wp-content/uploads/2012/05/Data_to_Action_Nugent_2012.pdf

6. Arkansas Infant and Child Death Review Program Injury Prevention Center. Arkansas infant and child death review annual report. 2024 report reviewing deaths from 2022. Arkansas Children's Hospital. Accessed March 12, 2025. https://www.archildrens.org/-/media/Files/2024/injury-prevention-center/ICDR-Annual-Report-FY25.pdf?rev=e1922f73a7c840caa7f99b08b0403f76&hash=7B01C42FCFB31EAADF98561C6B1F17EE

7. Arkansas Healthcare Transparency Initiative Act of 2015, https://arkleg.state.ar.us/Bills/Detail?ddBienniumSession=2015%2F2015R&measureno=SB956

8. American Academy of Pediatrics. Recommendations for preventive pediatric health care, 2017. American Academy of Pediatrics. Updated February 6, 2025. Accessed March 12, 2025. https://www.aap.org/periodicityschedule?srsltid=AfmBOoq0rt4zW5Qcurm5cisVuDhtxM2KyA8jebE9relrki-T4E2qHB_M

9. Arkansas Infant and Child Death Review Program Injury Prevention Center. Arkansas infant and child death review program annual report, 2017. Arkansas Children's Hospital. Accessed March 12, 2025. https://arkleg.state.ar.us/Home/FTPDocument?path=%2FAssembly%2FMeeting+Attachments%2F000%2F218%2FExhibit+H.2+-+ACDR+Annual+Report+2017.pdf

10. Arkansas Department of Health. Infant mortality. Arkansas Department of Health. Updated May 30, 2024. Accessed March 12, 2025. https://healthy.arkansas.gov/programs-services/community-family-child-health/family-health/infant-mortality/

11. Arkansas Maternal and Perinatal Outcomes Quality Review Committee. Legislative report, December 2023. Arkansas Department of Health. Updated May 30, 2024. Accessed April 15, 2025. https://www.archildrens.org/-/media/Files/2024/injury-prevention-center/ICDR-Annual-Report-FY25.pdf

12. Arkansas Center for Health Improvement. 9 Points on a Healthy Birthing Journey. Updated May 12, 2025. Accessed May 13, 2025. https://achi.net/publications/birthing-journey/

13. Healthy Moms, Healthy Babies Act, Ark. Act 124 (2025). https://arkleg.state.ar.us/Bills/Detail?id=HB1427

APPENDIX A. CAUSE-OF-DEATH CATEGORIZATIONS USED TO GROUP STUDY POPULATION FOR UTILIZATION PROFILES

Cause-of-Death Group	Description
SIDS	Sudden infant death syndrome with mention of autopsy
ASSB	Accidental suffocation and strangulation in bed
Injury	Assault by unspecified means
Injury	Assault by rifle, shotgun, and larger firearm discharge
Injury	Assault by drugs, medicaments, and biological substances
Injury	Struck by thrown, projected, or falling object
Injury	By unspecified person (abandonment)
Injury	Person injured in unspecified motor-vehicle accident, traffic
Other	Spinal muscular atrophy, unspecified
Other	Bronchitis, not specified as acute or chronic
Other	Ill-defined and unknown cause of mortality
Other	Blank or missing any information
Other	Malignant neoplasm of connective and soft tissue, unspecified
Other	Unspecified threat to breathing
Other	Pneumonia, unspecified organism
Other	Benign neoplasm of heart
Other	Muscle wasting and atrophy, not elsewhere classified
Other	Lobar pneumonia, unspecified organism
Other	Acute bronchiolitis, unspecified
Other	Anoxic brain damage, not elsewhere classified
Other	Hypoxic ischemic encephalopathy [HIE]
Other	Other specified cerebrovascular diseases
Other	Unilateral inguinal hernia, with obstruction, without gangrene
Other	Unspecified kidney failure
Other	Newborn (suspected to be) affected by premature rupture of membranes
Other	Inhalation of gastric contents
Other	Other specified respiratory conditions of newborn
Other	Meconium aspiration
Other	Other specified conditions originating in the perinatal period
Other	Myocarditis, unspecified
Other	Neonatal cardiac failure
Other	Condition originating in the perinatal period, unspecified
Other	Hydrops fetalis not due to hemolytic disease
Other	Newborn (suspected to be) affected by other forms of placental separation and hemorrhage
Other	Neonatal cardiac dysrhythmia

Author Information and Acknowledgements

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