

MEDICAL RECORD REVIEW OF INFANT DEATHS IN 2004

Report prepared by the
Infant Mortality Subcommittee of the
Hamilton County Child Fatality Review Team
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PURPOSE and PROCEDURE

The Infant Mortality Subcommittee of the Child Fatality Review Team in Hamilton County, Ohio reviewed medical records related to all infant deaths of Hamilton County residents that occurred in 2004 and were identified by the Child Fatality Review Team. The review had three purposes: (1) to evaluate circumstances and causes of infant death in Hamilton County, (2) to identify potentially preventable infant deaths and (3) to evaluate the quality of record keeping systems that could inform efforts to reduce infant death. The study included a review of death certificates and birth and death hospital medical records of infants who died in 2004 along with mothers hospital medical records associated with the birth, including prenatal records when available. Hospital medical records were retrieved from Good Samaritan Hospital, University Hospital, Bethesda North Hospital, Jewish Hospital, the Christ Hospital, and Mercy Franciscan Hospitals. A total of 120 infant deaths were identified in 2004. All 120 deaths were reviewed; however, records were missing for two cases. Some data was collected for these two cases thus they were kept in the following analysis.

KEY FINDINGS (See Tables 1 and 2 for specific frequencies and percents)

- Medical records associated with a total of 120 infant deaths were reviewed.
- The mean age of mothers was 26 years; 25.7% were either younger than 19 or older than 35.
- Information regarding maternal smoking was missing for 24 mothers (20.8%). Of the remaining 96, where smoking history was reported, 19.8% of mothers smoked during their pregnancies.
- Over half of mothers of infants who died in 2004 had Medicaid or SCHIP health insurance (56.5%); while 6.1% did not have health insurance.
- 40.5% of the deaths were reviewed by the coroner.
- Information regarding prenatal care was missing for 49 mothers (40.8%). Of the remaining 71 mothers, 87.3% received some prenatal care.
 - Many cases could not be evaluated for prenatal care because the appropriate records were not available in the charts at the time of review.
- Nearly two-thirds of deaths were infants less than 32 weeks gestational age (63.0%).
- 55.8% of deaths occurred less than 8 days after birth.
- Cause of death was not documented in 14.2% of deaths at time of review.

- 56.7% of all infant deaths in 2004 were related to prematurity.
 - All deaths due to disorders of short gestation and low birth weight occurred in babies less than 32 weeks gestational age at birth.
 - 64.0% of deaths due to disorders of short gestation and low birth weight (N=50) were to mothers who had a history of previous premature births.

Table 1. Chart Review Sample Characteristics		
Total deaths = 120		
	N	%
<i>Mother's age</i>		
< 19 years	15	13.3
19-35 years	84	74.3
> 35 years	14	12.4
Missing	7	5.8
<i>Smoked during pregnancy</i>		
Yes	19	16.8
No	77	68.1
Not documented	17	15.0
Missing	7	5.8
<i>Mother's health insurance</i>		
Private	43	37.4
Medicaid	65	56.5
No insurance coverage	7	6.1
Missing	5	4.2
<i>Death referred to coroner</i>		
Yes	45	40.5
No	52	46.8
Not documented	14	12.6
Missing	9	7.5
<i>Gestational age at birth</i>		
< 32 weeks	75	63.0
>= 32 weeks	44	37.0
Missing	1	0.8
<i>Age at death</i>		
Less than 8 days	67	55.8
Less than 29 days	12	10.0
29 to 120 days	23	19.2
120 to 365 days	18	15.0

CAUSES OF INFANT DEATH

	Chart Review Analysis		Death Certificate Analysis	
	N	%	N	%
Congenital Malformations	26	21.7	25	20.8
Disorders related to short gestation and low birth weight	50	41.7	64	53.3
Sudden Infant Death Syndrome	3	2.5	8	6.7
Respiratory distress of newborn	6	5.0	2	1.7
Accidents (unintentional injuries)	5	4.2	6	5.0
Bacterial sepsis of newborn	5	4.2	4	3.3
Intrauterine hypoxia and birth asphyxia	1	0.8	1	0.8
Necrotizing enterocolitis of newborn	7	5.8	1	0.8
Other	0	0.0	2	1.7
Undetermined/Not documented	17	14.2	7	5.8
Total	120	100.0	120	100.0

POSSIBLY PREVENTABLE DEATHS

Disorders related to short gestation and low birth weight	41.7%	(N=50)
Sudden Infant Death Syndrome	2.5%	(N=3)
Respiratory distress of newborn	5.0%	(N=6)
Accidents (unintentional injuries)	4.2%	(N=5)
Bacterial sepsis of newborn	4.2%	(N=5)
Necrotizing enterocolitis of newborn	5.8%	(N=7)
Total possibly preventable deaths	63.3%	(N=76)

QUALITY OF RECORD KEEPING SYSTEMS

1. Process of reviewing records

Locating medical records

Health care providers found it difficult to locate medical records at times.

At least 16 of the 120 charts were difficult to locate because of discrepancies in last names.

Data on mother's last name (including married and maiden names) and date of birth, father's last name and date of birth, and infant's date of birth and corresponding parents' names should be collected before medical record retrieval.

2. Variables with large amounts of missing data

Smoking during pregnancy (20.8%)

Alcohol use during pregnancy (24.1%)

Illicit drug use during pregnancy (23.3%)

Caregiver told to put baby to sleep on back (98.4%)

Maternal infections from birth record (53.3%)

Death referred to coroner (20.1%)

Cause of death (14.2%)

Prenatal record (40.8%)

3. Uncertainty in the cause of death data. (See Table 2)

Accidental deaths and SIDS deaths as causes of death were not typically identified during the medical record review process. For example, it was apparent that data reported in the medical record on SIDS cases, accidental deaths, and undetermined or not-documented deaths was not congruent with data provided on death certificates.

4. Apply multidisciplinary approach to development of data collection form.

Data collection form should include input from medical professionals (i.e. obstetrics and gynecology, neonatologists), social science professionals, and epidemiologists.

5. Absence of data on fetal deaths hinders interpretation of infant death findings.

The common causes of late fetal deaths often are the same as early infant death. Interventions to prevent infant death may have variable effects on the risk of fetal death. For some causes, the timing of death (fetal or infant) may depend on the specific health management strategies and treatments applied.

6. Duration of chart review process

A. Contact Medical Records

Phone or email medical record representative
Fax appropriate paperwork about review
Response from medical records
Retrieval of records
4 hours x 8 hospitals = 32 hours

Total: 32 hours

B. Travel Time

4 trips x 1 hour travel time x 8 hospitals = 32 hours

Total: 32 hours

C. Chart Review

1 hour review time per chart
240 charts = 240 hours
Learn hospital chart layout and/or computer system
2 hours x 8 hospitals = 16 hours

Total: 256 hours

D. Locating Missing Records

Re-contacting hospitals with missing charts
20 hours x 2 weeks = 40 hours

Total: 40 hours

E. Managing and Analyzing Data

Creating database 16 hours
Entering data into computer program
20 hours x 4 week = 80 hours
Cleaning data file
15 hours x 4 weeks = 60 hours
Reviewing Death Certificate information = 20 hours
Analyzing data
20 hours x 2 weeks = 40 hours
Drafting report
20 hours x 2 week = 40 hours

Total: 256 hours

F. Administrative

Monthly meetings 2 hrs/month x 10 mo = 20 hours
Developing and refining data collection tool = 20 hours

Total: 40 hours

Total hours to complete project: 656 hours

Note: This report summarizes findings derived from a database that includes all data collected as part of the review process. The database contains no individual identifiers.