A Comparative Study of Hospital Fetal Death Records and Washington State Fetal Death Certificates

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Abstract: Hospital fetal death records were compared with Washington State fetal death certificates to ascertain the completeness of reporting. Washington State law requires reporting of all fetal deaths of 20 or more weeks gestation. For 16 hospitals reporting 603 fetal deaths, an additional 49 fetal deaths were identified in the mother's charts. The study documents underreporting, especially in the gestational ages closest to the 20-week age limitation where 71 per cent of the 48 unreported cases were 20 to 27 weeks gestation. (*Am J Public Health* 1986; 76:1333–1334.)

Introduction

Complete and accurate fetal death reporting is essential for the identification of risk factors associated with fetal loss. The National Center for Health Statistics (NCHS) currently collects fetal death data from 52 registration areas within the United States (50 states plus Washington, DC and New York City) and from Guam, Puerto Rico, and the Virgin Islands.

There have been very few efforts to determine reporting completeness for fetal deaths for the registration areas. Two prospective pregnancy studies showed reporting rates of 55 per cent[1] and 67 per cent[2] for all fetal deaths and 80 per cent for fetal deaths of 20 of more weeks gestation.[1]

Washington State law requires the registration of fetal deaths of 20 or more weeks gestation; in 1981 there were 69,756 live births and 489 reported fetal deaths, giving a ratio of 7.0 fetal deaths per 1,000 live births.

To ascertain the completeness of fetal death reporting in Washington State, a survey was conducted to compare fetal death records of hospitals to fetal death certificates filed with the state. Reasons for discrepancies were examined.

Methods

Sixteen hospitals, representing 36.5 per cent of 1981 Washington live births and 40.5 per cent of 1981 fetal deaths, were selected for the survey. Hospitals surveyed represented the size range of Washington hospitals offering obstetric services (Table 1). Relatively fewer small hospitals (<600 births/year) were surveyed. To include the same proportion of births for small hospitals would have required surveying about 20 small hospitals. This was not feasible due to time and funding limitations.

The hospitals were also chosen to represent the geographic distribution of Washington hospitals. Ten of the 16 hospitals were located in the more populous western half of the state; six were in eastern Washington.

Each participating hospital was asked to identify all mothers' charts coded with a spontaneous fetal death of 20 or more weeks gestation for the years 1982 and 1983; hospitals with less than 15 fetal deaths per year were asked to identify charts for an additional three years: 1979, 1980, and 1981. A listing of the recorded fetal death certificates for each survey hospital was made from state Vital Records data. The hospital charts were then matched with state certificates on a case-by-case basis.

Results

For the 16 hospitals surveyed, 603 fetal deaths had been reported to Vital Records. An additional 49 deaths were identified in hospital records. Using the definition of fetal death required by state law, these 49 deaths should have had certificates filed. This gave a non-reporting proportion of 7.5 per cent.

The mother's charts of the 49 unreported fetal deaths were examined for information on fetal age, weight, and twin gestation. For 13 of the 49 fetal deaths, more than one gestational age was recorded on the mother's chart; 11 of the 13 gave at least one gestational age below Washington's 20-week reporting cut-off. Almost three-fourths of the 49 unreported cases were less than 27 weeks gestation (Table 2). One-third of the unreported fetuses weighed less than 350 grams and 59 per cent weighed 500 grams or less.

For the registered fetal deaths, 28.9 per cent were less than 27 weeks gestation and 13.6 per cent weighed less than 500 grams.

For the 49 unreported fetal deaths, seven (14.3 per cent) were twin gestations where one twin died in utero. For the 603 reported fetal deaths, 22 (3.7 per cent) were twin gestations where one twin died in utero.

Discussion

The information from the mothers' charts provides some insight into the possible reasons for non-compliance with state requirements. Low fetal weight was common. Some of the non-reported fetuses were dead in utero several days prior to birth and were severely macerated. Some fetuses were malformed. There were conflicting gestational ages in the mother's chart and there was uncertainty about whether to report a dead fetus twin.

Six unreported full-term fetal deaths were a special concern as there was no information in the mothers' charts to explain the lack of reporting.

Requirements for reporting fetal deaths vary between registration areas. The most common requirements are gestational ages of more than 20 weeks (29 states) and all gestational ages (seven states). Some areas use weight requirements ranging from 350 to 500 grams, alone or in addition to age. The 1979 fetal death ratio for all states having a limited reporting requirement (20 or more weeks gestation) is 48.9 at the 20–27 week category; for Washington State, it is 31.8. The fetal death ratio for states requiring the reporting of all fetal deaths regardless of gestation is 98.0 at the 20–27 week category. (Calculations based on data from 1979 Natality and Fetal Mortality tables).

This study identified 49 non-reported fetal deaths. Adding the 49 unreported to the reported fetal deaths brings the total for each gestational age category closer to the ratios of those states which have all-age reporting. However, the 20–23 week category is still comparably low.

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TABLE 1—Washington State Hospitals Surveyed by Number of Live Births

Number of Live Births per Year per Hospital	Total Number of Live Births for 1981 Occurring in the Hospitals	Per Cent of Births Surveyed	Number of Hospitals	Number of Hospitals Surveyed
10–600	10,994	5.8	54	3
601–1200	9,360	23.3	11	3
1201–1800	12,587	48.6	9	4
1801–2400	18,963	33.0	8	3
2401–3000	8,260	69.0	3	2
3000+	6,578	52.2	2	1
TOTAL	66,742*	36.5	87	16

*Excluding home births, military hospitals, birthing centers, hospitals with less than 10 births per year.

We have documented what has long been suspected:[3,4] underreporting occurs in the gestational age closest to the cutoff. The question is how a state with age-limited reporting can gain reporting compliance so that reliable statistics on fetal mortality are generated. Possible solutions are:

- Add a weight standard to the definition of fetal death: in 1979, Mississippi defined a fetal death as having 20 completed weeks or as weighing at least 350 grams. Mississippi's reporting pattern for the 20–23 week gestation age category is comparable to states having all age reporting.[3] Many Washington hospitals already use 350 grams as an unofficial criterion.
- Lower the gestational age limit required: Pennsylvania lowered the gestational age for reporting from 20 to 16 weeks.

TABLE 2—Reported and Non-Reported Fetal Deaths by Gestational Age, Washington State

Weeks of Gestation	Fetal Deaths Reported	Fetal Deaths Not Reported	Per Cent Not Reported
20–23	79	22	22
24–27	90	13	13
28–31	70	3	4
32–35	87	3	3
36–39	122	5	4
40+	108	1	1
Unknown	47	2	4
TOTAL	603	49	7.5

It now has poor reporting at the 16–19 week category compared to states with all age reporting but has comparable reporting in the 20–23 week category.[3] Thus, the most successful method of assuring reporting may be to determine the minimum age at which complete reporting is essential and establish a minimum reporting age four weeks earlier.

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