*Underreporting of Neonatal Deaths – Continued*

neonatal deaths occurred without being reported. This represented almost 1,000 unreported neonatal deaths—21% of all neonatal deaths and 17% of all infant deaths—during the years 1974 through 1977.

Although the Georgia DHR did not systematically identify the reasons why these deaths had not been reported, it did identify 2 patterns of nonreporting. First, when the hospital rather than the mortician disposed of the infant's body, the hospital staff often left the completed death certificate on the patient's chart; thus, the certificate was never filed. Second, morticians (who have the responsibility of filing most death certificates, except in cases of stillbirth) sometimes did not file the death certificates because they thought the infant had been born dead rather than alive. Most hospitals did not routinely distinguish between stillbirths and early neonatal deaths in the release form to the mortician. Hence, morticians often thought the hospital staff was filing a stillbirth certificate, while the hospital staff thought the mortician was filing a death certificate on a live-born infant.

Since January 1978 the Georgia DHR has required hospitals to report monthly to the local registrar all deaths which have occurred in the hospital. The registrar then informs the hospital if a death certificate has not been filed. The Georgia DHR is currently following up all live-born infants with birth weight of 1,500 g or less to determine if this review of hospital records will improve the completeness of reporting of infant deaths.

*Reported by J Alley, MD, J Terry, MD, Georgia Dept of Human Resources; Family Planning Evaluation Div, Bur of Epidemiology, CDC.*

**Editorial Note:** Currently, 42 states routinely match birth and infant death certificates (D Burnham, National Center for Health Statistics, personal communication). The completeness of reporting of infant deaths may be evaluated by determining weight-specific neonatal mortality rates for low-birth-weight infants. The corrected weight-specific neonatal mortality rate for the 500- to 1,000-g weight group (756 deaths per 1,000 live births) for Georgia and for other states reporting these data suggests that a neonatal mortality rate of less than 750 deaths per 1,000 live births for infants weighing between 500 and 1,000 g at birth may indicate underreporting of infant deaths. In 1959 incompleteness of death reporting for low-birth-weight infants was reported in North Carolina (*3*). Since then, no follow-up of low-birth-weight infants has been carried out on a statewide basis.

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## Carbon Monoxide Exposure in Aircraft Fuelers – New York City

On April 12, 1979, while investigating workplace health hazards of fuelers of commercial jet aircraft at Kennedy International Airport, investigators from the National Institute of Occupational Safety and Health (NIOSH) learned that in December 1977 a 51-year-old fueler had been found dead in the cab of his fuel truck. Since circumstances suggested the possibility of carbon monoxide (CO) poisoning, investigators examined the fuel trucks. It was noted that the exhaust pipe ran forward under the cab to a muffler mounted behind the front bumper. This configuration, apparently standard at airports, is intended to

*Carbon Monoxide Exposure – Continued*

minimize the proximity of the exhaust system to the jet fuel in the truck and aircraft.

On April 19-20, CO levels were measured in the cabs of 3 airport fuel trucks, in which the windows had been closed and the heaters turned on to simulate winter operating conditions. One of the 3 trucks had an average CO concentration of 180 parts per million over a sampling period of 103 minutes. The other 2 had average levels less than 50 ppm. (The standard set by the Occupational Safety and Health Administration is 50 ppm.) On April 30, 15 more vehicles were examined. Average levels in 7 exceeded 50 ppm; 1 of 7 exceeded 100 ppm and another, 300 ppm. Ambient CO levels in the test area were less than 1 ppm.

Several recommendations were made to the employer: 1) minimize exposure time of the fuelers, 2) maximize fresh air ventilation in the trucks, and 3) improve the maintenance of the vehicles. NIOSH has offered assistance in designing changes to avoid CO exposure.

*Reported by NIOSH Representatives, Div of Preventive Health Services, HEW Region II, and the Industry-wide Studies Br, Div of Surveillance, Hazard Evaluations and Field Studies, NIOSH, CDC.*

**Editorial Note:** In 1968-1975, CO was listed on death certificates as the underlying cause in 8,764 deaths in the United States—5,782 by motor vehicle exhaust, 1,093 by incomplete combustion of domestic fuels, and 1,889 through occupational exposure at blast furnaces and kilns or to partially combusted industrial fuels. CO is an occupational hazard for workers involved with internal combustion engines, foundries, petroleum refineries, pulp mills, and steel mills, among others.

The dose-response relationship for CO is strongly time-dependent and reasonably well understood. While CO levels of 200-400 ppm may cause headache, and levels of 800-1,600 ppm, unconsciousness (*1*), even 50 ppm for 120 minutes has been shown to reduce exercise tolerance in subjects with angina (*2*). The NIOSH-recommended standard for occupational exposure—35 ppm time-weighted average for a 40-hour workweek with 8 hours' exposure per day and a ceiling concentration of 200 ppm—is designed to avoid adverse cardiovascular effects (*3*).

It was not proven that CO contributed to the death of the above fueler, but the circumstances indicate the presence of a remediable health hazard.

*References*

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2. Aronow W, Isbell MW: Carbon monoxide effect on exercise-induced angina pectoris. Ann Intern Med 79:392-395, 1973
3. NIOSH: Criteria for a Recommended Standard Occupational Exposure to Carbon Monoxide. Rockville, DHEW, 1972

## Follow-up on Poliomyelitis – United States, Canada

As of June 5, a total of 12 cases of poliomyelitis caused by the type 1 virus had been reported in 1979 from the United States (10 cases) and Canada (2 cases). Ten of the 12 patients had paralytic poliomyelitis; 2 had aseptic meningitis. The total of 12 cases includes the 4 suspected paralytic cases (now confirmed) identified previously in Pennsylvania, Wisconsin, and Iowa (*1*). In addition, there is 1 more suspected paralytic case that has been reported since May 30 from Wisconsin. All paralytic cases in this outbreak, including the 1 new suspected case, have been in unvaccinated Amish persons. State health departments are continuing their primary effort to vaccinate all Amish persons against poliomyelitis.

*Reported by R Gens, MD, WE Parkin, DVM, DrPH, State Epidemiologist, Pennsylvania Dept of Health; LA Wintermeyer, MD, State Epidemiologist, Iowa State Dept of Health; JP Davis, MD, State*

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MORBIDITY AND MORTALITY WEEKLY REPORT





*Epidemiologic Notes and Reports*

## Underreporting of Neonatal Deaths — Georgia, 1974-1977

From 1974 through 1977, an estimated 21% of all deaths of neonates (0 to 28 days of age) in Georgia and almost one-quarter of deaths of low-birth-weight neonates were not reported. Of nearly 1,000 unrecorded neonatal deaths, 72% were in blacks, and 35% were in infants born out of wedlock. Forty percent of the mothers were less than 20 years of age, and 66% were rural residents. These data were obtained from 2 studies conducted by the Georgia Department of Human Resources (DHR). The first study examined unreported deaths of infants born weighing 1,500 g or less in 1974 through 1976; the second reviewed unreported infant deaths in all weight groups in 1977.

The Georgia DHR linked infant death and birth certificates for the years 1974 through 1976. Data analyzed in May 1977 indicated that weight-specific neonatal mortality rates for low-birth-weight infants were low when compared with published weight-specific mortality rates for the United States in 1960 and New York City in 1968 (*1,2*). In a follow-up study on infants born weighing 1,500 g or less during the years 1974 through 1976, the neonatal outcome for 3,369 infants was determined. Of these, 103 were reclassified into birth-weight groups of greater than 1,500 g, but 1,465 others were linked with their death certificates. The remaining 1,801 infants—who were purported to be alive and to have weighed 1,500 g or less at birth—were grouped by hospital of birth. A total of 139 hospitals were involved, 49 of which were visited to ascertain the birth weight recorded in the delivery room record and the disposition of the neonate at the time of discharge. The remaining 90 hospitals were contacted by mail survey. All but 18 infants were followed up.

Of the 1,783 infants followed up, 513 were found to have died. Birth certificates of these 513 infants were compared with the unlinked death certificates, and 60 infants who were not previously linked were identified. Therefore, death certificates had not been registered with the local county registrar for 453 infants who had died in the neonatal period. These 453 neonatal deaths represented 25% of all deaths of neonates weighing 1,500 g or less and 13% of all neonatal deaths that occurred during this 3-year period.

Since the initial investigation was restricted to neonates weighing 1,500 g or less, a second investigation was undertaken to examine all birth-weight groups. Hospitals submitted a list of all infant deaths that occurred in those hospitals during 1977. This list was compared with the death certificates that had been filed during 1977 and early 1978 for infants born in 1977. Death certificates had not been filed for 236 infants who were reported to have died in a hospital. Only 60% of the 236 infants weighed 1,500 g or less at birth. Applying this percentage to the 1974-1976 investigation, an estimated 755