

# A Historical Perspective on the Transport of Premature Infants

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## ABSTRACT

A premature newborn was first transported via helicopter from place of birth to a specialty nursery 50 years ago. Since that time, the care of high-risk and premature newborns has evolved, but specialized services are not always available at the birth site. As a result, the demand for newborn transfer continues to grow. Today, neonates are transported to tertiary centers via ground ambulances, helicopters, and airplanes by highly trained personnel using sophisticated incubators and equipment.

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Fifty years ago, on January 10, 1967, a premature newborn was transported approximately 200 miles via helicopter from his place of birth in Zion, Illinois to the premature infant center at St. Francis Hospital in Peoria, Illinois. This event is believed to represent the first helicopter transport of a premature newborn (Butterfield, 1993; Children's Hospital of Illinois [CHI], 2016a; Vogel, 1967). As Sister M. André, RN, I was the nurse in attendance and the supervisor of the premature infant center in Peoria, and I conceived of the idea for the transport. I left the religious community in August, 1967 and resumed my birth name (Shannon Vogel, now Perry). In this article I describe the evolution of the care of premature newborns, specifically the St. Francis experience, from the perspective of a first-hand participant and provide a brief discussion of neonatal transport past and present.

early years, many neonates were born at home, and some needed to be transported to hospitals for specialized care. Until transport was available, their temperatures were maintained by warmed blankets and hot water bottles; some were placed in boxes or baskets on oven doors. Various modes were used to transport them to hospitals, including car, train, taxicab, and eventually ambulance (Butterfield, 1993). Evelyn Lundeen of Michael Reese Hospital in Chicago implemented a system of cabs used as ambulances; specially trained public health nurses accompanied the newborns (MacMullen & Bruckner, 1986).

Dr. Joseph DeLee founded the Chicago Lying-In Hospital in 1899, founded the first incubator station in the United States, and designed the first transport incubator (Butterfield, 1993; Gartner & Gartner, 1992). DeLee was concerned with the prevention of heat loss during transit from the home to hospital for neonates who were premature or sick, and the ambulance incubator provided a warm environment for transport (Butterfield, 1993).

The care of neonates born prematurely became well established when Dr. Julian Hess created a premature infant station at Michael Reese Hospital in Chicago in 1922 (Gartner & Gartner, 1992; Hess, 1951). He developed the Hess bed and the Hess premature infant ambulance. Hess hired Evelyn Lundeen, RN, as supervisor, and

## Transport of Premature Newborns in the 20th Century

### Evolution of Care for Premature Newborns

The care of premature newborns has evolved since the early 20th century, when it was focused on physiologic needs: maintenance of a normal temperature, prevention of infection, provision of adequate nutrition, and minimal handling (Lundeen, 1937; O'Donnell, 1990). During these

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## Helicopter transport of premature newborns was initiated 50 years ago and resulted in a change in the method of transport to specialty care nurseries.

together they became legendary in the care of premature infants. They disseminated their work and published the first edition of *The Premature Infant* in 1941 and a second edition in 1949; an entire chapter was devoted to newborn transport (Hess & Lundeen, 1941, 1949). During that time, the Chicago health department, police, and private ambulances provided newborn transport between homes and hospitals and between community hospitals and specialized hospitals (Butterfield, 1993). The first ambulance dedicated for neonatal transport was donated by Dr. Martin Couney to the Chicago Department of Health in 1934 (Butterfield, 1993; see Figure 1). Initially, Dr. Couney used the ambulance to transport newborns to the Century of Progress World's Fair in Chicago; when he no longer needed the ambulance, he donated it to the Chicago Department of Health for use in transporting newborns from home to hospital and from community hospital to specialized centers.

In the specialized hospital setting, a variety of early incubators was used to regulate and maintain the

newborn's temperature (Klimaszewski & Jeanette, 1944; Meiks, 1937; Silverman & Parke, 1965; Wuellner, 1939). Feedings were withheld for the first 12 to 24 hours, and nurses practiced strict aseptic technique (Lundeen, 1937; Meiks, 1937; Wuellner, 1939). Oxygen was given to all neonates who weighed less than 3½ pounds, those in poor condition, and those birthed by cesarean (Klimaszewski & Jeanette, 1944; Wallinger, 1945; Wuellner, 1939). Breast milk was the preferred nutrition, and if the mother could not provide milk, wet nurses were used (MacMullen & Bruckner, 1986). Feedings were given by eye dropper, nipple, or gavage (Wallinger, 1945). At times subcutaneous injections of a salt solution were used (Meiks, 1937; Wuellner, 1939). Minimal handling was the norm (Wuellner, 1939), and parents were not allowed in the nursery.

### Regionalization of Neonatal Care in Illinois

Concerns about the high rate of infant mortality in the United States led to regionalization of neonatal care in the 1930s and 1940s (Butterfield, 1992), and premature and high-risk newborns were transported to nurseries where they could receive specialized care that was not available in local community settings. Illinois was a leader and early adopter of specialized infant care, and



**Figure 1.** Martin Couney with nurse and ambulance. Photographer unknown. Courtesy of the New York Public Library, Manuscripts and Archives Division, image ID: 1675809. Retrieved from <http://digitalcollections.nypl.org/items/5e66b3e8-d861-d471-e040-e00a180654d7>.

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