

Joseph Bolivar DeLee (1869–1942)

Joseph Bolivar DeLee was an obstetrician in the US between the nineteenth and twentieth centuries who advocated for the specialized teaching of medical students in the field of obstetrics to address problems occurring during pregnancy. He claimed obstetricians maintained a wider skillset than midwives, and founded the Chicago Lying-In Hospital to provide affordable obstetric care to women in Chicago, Illinois. According to Carolyn Herbst Lewis, critics of DeLee's practices often cite his 1920 article, "The Prophylactic Forceps Operation," as catalyzing a cultural shift toward overly clinical birthing practices. However, rather than solely advocating for its use, he had cautioned against the extreme use of forceps during delivery, and emphasized that obstetricians needed to know the information in the case it could ever save a woman's life. Though some of DeLee's philosophies were controversial, such as his disapproval of midwifery, he provided the emerging specialization of obstetrics with new technologies and interventions, cleanliness standards, and the introduction of film as a teaching method.

DeLee was born in Cold Springs, New York, on 28 October 1869 to Dora Tobias and Morris DeLee. He had four brothers and five sisters. As a child, DeLee had two main hobbies, farming and photography. He began schooling in Cold Springs, New York, at four years of age. At age seven, DeLee moved to New Haven, Connecticut, where, from ages eleven to thirteen, he lived with a rabbi and graduated from his program with high honors in Hebrew scripture. According to historian Judith Walzer Leavitt, DeLee's father wished for DeLee to become a rabbi. His mother and brother, in contrast, assisted DeLee in the pursuit of a medical career. After his program in Hebrew scripture, DeLee relocated to Chicago, Illinois, graduating from South Division High School in 1888. He then attended Chicago Medical College located in Chicago, Illinois, later renamed Northwestern University Medical College. After graduation, DeLee interned at Cook County Hospital in Chicago, Illinois, from 1891 to 1893.

During his early college years, DeLee worked at what was called a baby farm in Chicago. A baby farm was an early form of childcare, where unwanted infants of impoverished women were given to caretakers in exchange for money. At the baby farm, DeLee witnessed high numbers of infant death, primarily from fetal cerebral hemorrhages, or bleeding in the brain, that often resulted from trauma sustained before or during the birthing process.

In July of 1893, DeLee moved to Europe, studying for a year and half in Vienna, Austria, Berlin, Germany, and Paris, France. Gaining clinical experience in different places was a common practice among healthcare professionals from the United States at the turn of the twentieth century. Upon his return, DeLee opened up a small clinic that would be later known as the Chicago Lying-In Hospital and Dispensary in February 1895, and, in 1896, expanded the clinic by purchasing the land located across the street. At his clinic, he established an obstetrics training program for nurses who assist women during pregnancy, delivery, and the postpartum period, and began training medical students and physicians in the specialty of obstetrics. During that time, DeLee also acted as a senior lecturer at Northwestern Medical School. He was made professor of obstetrics in 1898. With an influx of patients, students, physicians, and nurses, DeLee again increased the size of his clinic, opening the Chicago Lying-in Hospital in 1917.

According to Leavitt, in his writings DeLee referred to the clinic, later renamed the Chicago Maternity Center of the Chicago Lying-in Hospital, as his first love. He devoted most of his time and personal funds to the hospital and initially offered his services for twenty-five cents or less. Once the hospital's popularity increased, he continued providing low-income Chicago women with affordable pregnancy and birth care.

DeLee also used the Chicago Lying-in Hospital and Dispensary as a teaching hospital, mentoring medical students in the way of obstetrics. It was uncommon in the early 1900s that a medical student would be able to witness a live birth before graduating with their medical degree. Further, few medical students studied and trained in the field of obstetrics. Therefore, DeLee offered apprenticeships at his hospital, enabling medical students to accompany a physician to births in order to gain experience. DeLee also put his past hobby of photography to use at the hospital, using film to record lectures and live births for his mentees. He was one of the first to use film as a teaching method.

DeLee advocated for the replacement of midwives with specialized physicians. He described midwives as providing inferior care, and asserted that trained physicians would be able to give better care and improve maternal survival rates. According to historian Lewis, DeLee was not the only physician who held that opinion at the time, and many active members of the American Medical Association condemned midwifery. In 1900, about ninety-five percent of all women in the US gave birth at home. DeLee observed that there was a high number of maternal deaths, particularly in the lower income population, who primarily relied on midwifery for delivery. According to the CDC, in the early 1900s, nine out of 1000 women died while giving birth due to pregnancy-related complications and ten percent of infants died before one year of age. DeLee therefore concluded that midwives lacked training and professionalism. He advocated that all childbirth should be handled by specialized, medically-trained professionals known as obstetricians. However, throughout his career, DeLee advocated for maintaining access to home births, waiting for birth to progress on its own, and minimal intervention, according to historian Lewis.

DeLee encouraged cleanliness at the Chicago Lying-In Hospital and managed the clinic's staff with strict guidelines and procedures regarding the care of the patients. An example of one of his procedures was implementing mandatory hand washing between seeing different patients. According to writer Stephan Benzkofer, DeLee noticed that pathogens, or microorganisms that can cause disease, could be carried from one woman to the next via the nurses and doctors who provided care for that woman. Around the time he opened the Chicago Lying-In Hospital, DeLee wrote a letter criticizing an obstetrician for suturing a tear in a woman's vagina after childbirth whilst still wearing his regular clothing and using non-sterile cotton bandages to stop the bleeding. Many of the topics DeLee focused on during his career were related to keeping his patients safe and healthy during childbirth.

DeLee also was one of the first physicians who required face masks to be used in midwifery practices. Face masks are made of a fabric material that covers the nose and mouth of the wearer. Using face masks decreases the spread of pathogens by providing a barrier between the person wearing the mask and those around them. If the person wearing the mask is sick, a face mask can reduce the spread of their infection by containing much of the respiratory droplets that emit when talking, coughing, or sneezing. In addition to requiring face masks, DeLee further proposed that women about to give birth occupy a separate wing of the hospital and have their own staff dedicated to obstetric care. That separation decreased the exposure of maternity patients and neonates to the variety of pathogens brought in by the rest of the hospital's patients and visitors.

According to historian Lewis, much of DeLee's academic writing throughout the 1910s and 1920s focused on how physicians could prevent and treat potential dangers that occur during childbirth for both the woman and neonate. DeLee invented multiple devices used in infant care after birth. First, DeLee built one of the first neonatal incubators, or warming devices in which the infant is placed following birth. Incubators can stabilize the infant's temperature, as infants can become hypothermic quickly. Along with the neonatal incubator, DeLee co-engineered the DeLee-Hillis head fetoscope and self-designed the infant tracheal suction catheter. The DeLee-Hillis head fetoscope was a cone-like instrument set in a band attached to the physician's forehead. Doctors used the fetoscope to listen to the fetal heartbeat during delivery. DeLee's other invention, the infant tracheal suction catheter, suctioned out mucus and other bodily secretions in an infant's endotracheal tube that the physician accesses via the infant's mouth or nose. Physicians used the infant tracheal suction catheter to keep the airway open and unobstructed.

Though DeLee's contributions impacted obstetrics, his ideas were controversial to the medical community of the early 1900s, according to historian Lewis. Because DeLee focused on the po-

tentially fatal complications that could occur when women gave birth, DeLee proposed that labor was pathogenic. By that, he meant that it was abnormal and needed to be treated as a disease. He wrote that because of the complications that occurred during labor, nature intended women to die or become injured during labor. Therefore, DeLee stated that, in order to preserve women and the condition of their bodies, obstetricians should be aware of certain routine medical interventions designed to treat, and sometimes prevent, common complications during labor and delivery, and should know other more advanced medical interventions that they may not perform regularly in order to save women's lives.

During a meeting of the American Gynecological Society in 1920, DeLee presented a paper titled, "The Prophylactic Forceps Operation." There DeLee proposed a medical procedure called the prophylactic forceps operation, intended to facilitate a woman's labor and delivery. He asserted that the use of the operation would decrease the chance of the neonate impacting its head on the woman's pelvic floor during delivery, thus decreasing the risk of two common delivery complications. Those complications included neonatal cerebral hemorrhage, or heavy bleeding in the brain, and damage to the maternal pelvic floor, a system of muscles used to contain and support the pelvic organs. The operation involved removing the neonate with forceps while the pregnant woman remained unconscious in an anesthetic-induced twilight sleep. DeLee provided detailed instructions of supplemental intervention for other complications such as vaginal tearing if that occurred during delivery. According to Lewis, DeLee made it certain that he was not advocating the procedure for routine use, but only as a procedure he thought necessary to understand in the event it could save a woman's life. Lewis states that DeLee's intentions were misrepresented by a publication that did not include that the procedure was not meant to become routine. However, according to Leavitt, the operation was opposed by the majority of the medical community when initially proposed due to its perceived invasiveness.

As referenced by public denunciation of his ideas among many of his peers at an American Gynecological Society meeting, DeLee's philosophy of preventative medical interventions was deemed as unnecessary and invasive to women by the medical community. According to Lewis, DeLee's opinions about introducing more medical interventions into childbirth further became a contentious position as time proceeded, and eventually became a discussion point within popular culture. By the late twentieth century, popular culture figures blamed DeLee for institutionalizing childbirth in the US and enforcing medical interventions, despite the fact that those assumptions did not match DeLee's practices.

Despite the controversy surrounding his work, DeLee received acclaim for numerous awards throughout his career. DeLee was awarded the Daves award at Chicago Medical School for the best thesis titled "The Reaction of Regeneration." He was also awarded the Rosenberger Medal in 1934 for his beneficial achievements for society. Furthermore, DeLee was featured on the cover of Time magazine in 1936.

DeLee never married. He died on 2 April 1942.

Sources

1. Bell, Edward F. "Infant Incubators and Radiant Warmers." *Early Human Development* 8 (1983): 351-75.
2. Benzkofer, Stephan. "Saving the Children." *Chicago Tribune*, 2012.
3. Chicago Lying-in Hospital Board of Directors Staff. "History." *Chicago Lying-in Hospital Board of Directors*, 2019. <https://chicagolyinginboard.uchicago.edu/chicago-lying-in-history/> (Accessed December 28, 2019).
4. DeLee, Joseph Bolivar. "The Prophylactic Forceps Operation" *The American Journal of the Medical Sciences* 161 (1921): 924. <https://academyofpelvicsurgery.com/wp-content/uploads/2017/10/delee-jb-1920.pdf> (Accessed December 28, 2019).
5. Homrighaus, Ruth Ellen. *Baby Farming: The Care of Illegitimate Children in England, 1860-1943*. Ph.D. diss., 2003. <http://historytools.davidjvoelker.com/babyfarming/baby-farming.html> (Accessed December 28, 2019).

6. Leavitt, Judith Walzer "Joseph B. DeLee and the Practice of Preventive Obstetrics." *American Journal of Public Health* 78 (1988): 1353-60. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1349440/> (Accessed December 28, 2019).
7. Leavitt, Judith Walzer. *Brought to Bed: Childbearing in America, 1750-1950*. New York, Oxford University Press, 1986.
8. Lewis, Carolyn Herbst. "The Gospel of Good Obstetrics: Joseph Bolivar DeLee's Vision for Childbirth in the United States." *Social History of Medicine* 29 (2016): 112-30.
9. New York Times Staff. "Dr. Joseph DeLee, Obstetrician, Dies." *The New York Times*, April 3, 1942.
10. "Obituary". *British Medical Journal* (1942): 711. <http://europepmc.org/backend/ptpmcrender.fcgi?accid=PMC2161670&blobtype=pdf> (Accessed December 28, 2019).
11. Peatse, Warren H. "Some Comments on the Many Achievements of Dr. Joseph B. DeLee." *American Journal of Public Health* 78 (1988): 1361. <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1349442/pdf/amjph00249-0103.pdf> (Accessed December 28, 2019).
12. Rothman, Barbara Katz. *Encyclopedia of Childbearing: Critical Perspectives*. Phoenix: The Oryx Press, 1993. <https://books.google.com/books?id=Np8HQbKRY68C> (Accessed December 28, 2019).
13. Smith, Paige Hall, Bernice Hausman, and Miriam Labbok. *Beyond Health, Beyond Choice: Breastfeeding Constraints and Realities*. New Brunswick: Rutgers University Press, 2012. <https://books.google.com/books?id=D2OBbKWjax4C> (Accessed December 28, 2019).
14. Society, American Gynecological. *Transactions of the American Gynecological Society Volume 45*. <https://books.google.com/books?id=1qBEAAAAYAAJ> (Accessed December 28, 2019).
15. Stanford Children's Hospital Staff. "Default - Stanford Children's Health." *Stanford Children's Health - Lucile Packard Children's Hospital Stanford*. 2019. <https://www.stanfordchildrens.org/en/topic/default?id=warmth-and-temperature-regulation-90-P02425> (Accessed December 28, 2019).
16. Waugh, Benjamin. "Baby-farming." *The Contemporary Review* 57 (1890): 700. <https://archive.org/details/babyfarming00wauguoft> (Accessed December 28, 2019).