Breast milk reduces risk of sepsis and intensive care costs in very-low-birth-weight infants

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Feeding human breast milk to very-low-birth-weight infants greatly reduces risk for sepsis and significantly lowers associated neonatal intensive care unit (NICU) costs, according to a study by Rush University Medical Center researchers.

The study, published Jan. 31 in the advance online version of the *Journal of Perinatology*, showed that every 10 milliliters of human milk per kilogram that a very low birth weight infant received during the first 28 days of life decreased the odds of sepsis by almost 20 percent.

A daily dose of 25 to 49.99 milliliters of human milk per kilogram cut NICU costs by more than $20,000, while 50 milliliters per kilogram per day lowered NICU costs by nearly $32,000.

The research, which was led by Dr. Aloka L. Patel, is the first report of an economic impact of an average daily dose of human milk for days 1 to 28 of life on risk of infection and related hospital care costs. Dr. Patel is an associate professor in pediatrics at Rush University Medical Center. She specializes in neonatal and perinatal medicine.

Of 175 very-low-birth-weight infants, , 23 (13 percent) developed sepsis from gram-positive bacteria such as staphylococci, Streptococcus and Enterococcus species, and gram-negative bacteria such as Escherichia coli (E. coli), as well as species of Klebsiella, Enterobacter,

Pseudomonas and Serratia.

Late-onset sepsis commonly occurs in about 22 percent of very-low-birth-weight babies the United States. In addition to predisposing these infants to other diseases and later neurodevelopmental disabilities, sepsis significantly raises NICU costs due to increased use of ventilation and longer lengths of stay. It also translates into higher societal and educational costs for neurologically affected survivors.

"The substantial NICU hospital cost savings associated with increased dosages of human milk are likely to offset the maternal and institutional costs of providing and feeding human milk, such as breast pump rental, lactation care providers and milk storage," Patel stated.

She and her co-researchers are further investigating this premise.

Collaborating with Patel on the current study were Tricia J. Johnson; Janet L. Engstrom; Louis F. Fogg; Briana J. Jegier; Harold R. Bigger; and Paula P. Meier at Rush University Medical Center, Chicago. Dr. Engstrom is also affiliated with Frontier Nursing University, Hyden, Ky.

Provided by Rush University Medical Center