Antibiotics are generally safe and effective medications which treat infections caused by bacteria and save lives. However, the recent overuse of antibiotics increases antibiotic resistance in the general population, increases cost of care, and can, at times, impact the individual patient's health. In order to reduce antibiotic overuse, antibiotic stewardship programs have been widely adopted, where infectious disease doctors counsel healthcare team on whether antibiotics are necessary, and, if so, which are most appropriate. The article in Pediatrics by Dr. Schulman et al. (10.1542/peds.2018-0115) found that antibiotic use in 148 California Neonatal Intensive Care Units (NICUs) declined 21% from 2013 to 2016. NICUs participating in external antibiotic stewardship programs had a 29% decline in antibiotic use compared to a 16% decline in those that did not.

An accompanying commentary by Dr. Flannery (10.1542/peds.2018-1942) points out an important limitation of this study. Data was reported by each NICU to California Department of Healthcare Services. No information is available about any individual patient or an individual unit of the hospital, which limits our ability to understand why the variation in antibiotic use occurs and what it means for the health of newborns.

How do we move from these interesting and provocative findings to improvements in healthcare for babies in the NICU? Variation in healthcare creates an opportunity to identify best practices which lead to better outcomes for patients. The study explores associations between antibiotic use, surgery, and death. By identifying NICUs which have the lowest mortality rates, best surgical outcomes, or other health outcomes, hospitals can collaborate to identify what the best performing hospitals are doing differently than other hospitals. Antibiotic stewardship, a process rather than a health outcome, may be one of several processes considered in identifying best practices. This information is then used to create care guidelines, which can be implemented at the bedside by doctors, nurses, and hospitals. Collaboration is required to share practices and outcomes openly and is necessary to identify best practices. This study is set in one such collaborative, the California Perinatal Quality Care Collaborative. Several others exist including the Vermont Oxford Network or the Children's Hospitals Solutions for Patient Safety Network, a collaborative of over 100 children's hospitals working together to eliminate harm due to healthcare. Research that identifies variation is a critical first step, raising questions which can be answered by hospitals in collaboration to improve care at the bedside for babies.