New Research Gives Clues Of Antibiotic Use And Resistance In U.S. Children's Hospitals

Two studies published in the December issue of Infection Control and Hospital Epidemiology show antibiotic resistance patterns for children have held stable over a seven-year period and surgical patients in U.S. children's hospitals account for 43 percent of all antibiotic use in children's hospitals, presenting an opportunity for targeted intervention.

The release of the findings coincides with the Centers for Disease Control and Prevention's (CDC) Get Smart about Antibiotics Week, an annual weeklong observance on antibiotic resistance and the importance of appropriate antibiotic use. The Society for Healthcare Epidemiology of America publishes Infection Control and Hospital Epidemiology and is a proud partner of Get Smart about Antibiotics Week.

"Inappropriate use of antibiotics can have serious and global consequences on the utility of these drugs and the spread of resistant bacteria," said Neil Fishman, MD, a past-president of SHEA and Associate Chief Medical Officer at the University of Pennsylvania Health System. "These studies help complement our collective knowledge of the resistant bacteria in vulnerable children populations and give us a better understanding of how children's hospitals use antibiotics."

Antibiotic Resistance Holds Stable in Children's Hospitals

Because there are few data describing antibiotic resistance in pediatric healthcare institutions, researchers from Johns Hopkins University School of Medicine reviewed institutional patterns of antibiotic susceptibility from 55 institutions reflecting data from 2005-2011.

They found antibiotic resistance has remained relatively stable for the majority of tested organisms over the seven-year period. The results must be considered with caution in the context of the limited number of new antibiotic agents coming down the pipeline and the increasing prevalence of drug-resistant infections among adults.

"Unless we are judicious with our use of antibiotics in children, we may encounter a resistance scenario similar to what is occurring in the adult population," said Pranita Tamma, MD, lead author of the study. "Pooling these data allows us to identify nationwide patterns of antibiotic resistance in children's hospitals, allows cross-hospital benchmarking, and allows under-resourced hospitals to use this information to better inform empiric antibiotic treatment practices."

Antimicrobial Stewardship in Children's Hospitals

Although mechanisms for implementing antimicrobial stewardship programs (ASPs) have been reported elsewhere, data-driven approaches to prioritize specific conditions and antibiotics for intervention have not been established. Researchers from The Children's Hospital of Philadelphia used a retrospective cross-sectional study to develop a strategy for identifying high-impact targets for stewardship efforts.

"The majority of patients admitted to U.S. children's hospitals receive antibiotic therapy," said Jeffrey Gerber, MD, lead author of the study. "Antimicrobial stewardship programs have been recommended to optimize antibiotic use and manage and reduce variability in care, helping reduce costs while maintaining or improving outcomes."

Analyzing more than 500,000 inpatient admissions and nearly three million patient-days from 32 hospitals, researchers found that surgical patients received 43 percent of all prescribed antibiotic therapy and a small number of clinical conditions contributed significantly to overall use, presenting an opportunity for ASPs to target these areas.

The four conditions associated with the highest use of antibiotics among pediatric patients were pneumonia, appendicitis, cystic fibrosis, and skin and soft-tissue infections. These conditions represented one percent of diagnoses, but accounted for more than 10 percent of antibiotic use.

Wide variability in antibiotic use occurred among three of the conditions: pneumonia, appendicitis, and cystic fibrosis. The researchers believe pediatric antimicrobial stewardship efforts should prioritize standardizing treatment approaches for these conditions.

Source URL (retrieved on *12/28/2014 - 9:27am*):
http://www.surgicalproductsmag.com/news/2013/11/new-research-gives-clues-antibiotic-use-and-resistance-us-childrens-hospitals