Preserving Antibiotics For Future Generations

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The discovery of antibiotics is one of the most significant medical achievements of the 20th century. In the 1920s Alexander Fleming pioneered the discovery and use of penicillin, winning the Nobel Prize in Physiology and Medicine for his work. Other pioneers built upon his success and scientific research to pave the way for even more antibiotic development. The ability to fight infections has ultimately resulted in longer life spans and lower patient mortality rates. There is no question that the development of antibiotics has propelled modern medicine and improved health on a global scale.

Yet despite all the benefits of antibiotics their overuse has, in less than 100 years, led us to a point where we need to be seriously concerned about the efficacy of antibiotics in the future. Antibiotic resistance is considered one of the most critical public health and patient safety threats facing us today. The Centers for Disease Control and Prevention (CDC) reports that on an annual basis in the United States alone, at least 2 million people become infected with bacteria that are resistant to antibiotics, and at least 23,000 people die from those infections. At the same time, it is estimated that as much as half of antibiotic prescribing in hospitals is not necessary.

As antimicrobial resistance spreads rapidly around the globe and our antibiotic

armamentarium dwindles, we are coming dangerously close to a return to the pre-antibiotic era, lacking effective treatments for common infections. Antibiotics, created to save lives, are now contributing to patient's deaths by promoting the emergence of highly resistant bacteria and leading to deadly adverse events such as C. difficile infection.

The Vital Signs report released by the CDC provides further evidence of the substantial overuse of antimicrobials in hospitals, and uses modeling to demonstrate the large opportunity to prevent complications through more appropriate prescribing. The authors highlight an antibiotic stewardship program that has the potential to decrease overuse and simultaneously improve the overall quality of care.

It is critical that health care facilities take a proactive approach and implement programs such as the one outlined in this study that improve antibiotic prescribing and tracking. At the same time, health care professionals need to personally combat the spread of resistance through straightforward, proven strategies such as appropriate hand hygiene and evidence-based antibiotic prescribing. Patients also need to be informed about the risks of antibiotics and empowered to question their doctors and nurses about whether an antibiotic prescription is necessary.

While the report focuses on acute care facilities, it is imperative that other health care settings, such as long term care facilities and dialysis units, implement similar strategies expeditiously. This is everyone's concern and the only way to address the issue is through a coordinated, multidisciplinary approach.

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