DEAR DR. JEFF

Jeffrey Nichols, MD, CMD

How To Be a Good Antibiotic Steward

Dear Dr. Jeff:

I have recently been asked to lead our facility’s antibiotic stewardship program. “Stewardship” seems to be the new buzzword, but I am not entirely sure that I know what it means. Different articles seem to suggest everything from “antibiotics czar” to “advisory resource.” What do you suggest?

Dr. Jeff responds:

Your confusion is entirely understandable, particularly as the concept of “steward” has many meanings in English and no real background in health care. Despite many excellent articles in Caring and other journals explaining the need, many in the world of long-term care remain confused about expectations and anticipated outcomes. Although the Oxford English Dictionary doubts the commonly asserted belief that the origin of the word “steward” relates to a medieval term for “keeper of the pigsties,” certainly its usages — even today — vary from the humble to the exalted.

At the exalted end is the history that Scotland had High Stewards who were chief assistants to the king and led the army in battle. When one High Steward advanced to the throne, he originated the royal House of Stuart, which ruled Scotland for several centuries. At the humble end of meanings would be the Shakespearean reference to “stewers” who were prostitutes working in brothels that may have doubled as bathhouses.

In long-term care, professionals have been trained to provide responsible care for the frail patients placed in their charge. Leaders have accepted responsibility to create systems that enhance that care, and are also charged with financial stewardship of institutional monetary resources. These clinical and financial concerns have not extended to the use and abuse of antibiotics. Insurance plans must also address the actions and recommendations from acute care referral sources and outside consultants.

As with so many other quality improvement activities — and certainly antibiotic stewardship should be seen as a part of the facility quality improvement program — successful projects are likely to be most effective when interdisciplinary in both formulation and implementation, and when they concentrate on improved care systems, rather than purely educational interventions. Although Cochrane Reviews have confirmed that provider education programs can improve antibiotic selection and ordering practices, these improvements have not been sustained over time. Without changing systems, practices revert to baseline.

Hospital antimicrobial stewardship programs frequently start by implementing pre-authorization requirements for the use of certain expensive broad-spectrum antibiotics, producing immediate cost savings and reserving these antibiotics for selected multi-drug resistant organisms. Authorization is usually restricted to a limited group of infectious disease specialists. Obviously, this tactic does not suit long-term care.

Antibiotic usage in post-acute care is often based on recommendations from the hospital physicians who provided care. Commonly, culture results that might have driven decisions are not available to the nursing facility at all. Recommendations on the duration of treatment may be influenced by the belief (often correct) that long courses of intravenous antibiotics, because they create a “skilled need,” will make potential transfers more attractive to skilled nursing facilities and will persuade managed care companies that these transfers should be authorized.

The same infection, when treated in a patient who will be going directly home, might lead to an earlier transition to an oral antibiotic or a dramatically shortened course of therapy. Treatment regimens are inappropriately prolonged when a recommendation for a length of treatment is not accompanied with adequate transfer information regarding the start-of-treatment date. In this way, an infectious disease recommendation for 2 weeks of therapy can become 3 or more weeks when the clock is restarted on the day of transfer. Although individual clinicians struggle against some of these problems, only improved communication systems organized around the needs of patients can significantly improve them.

Unfortunately, the overuse of antibiotics for long-stay residents may exceed that in the subacute population without any one to blame except ourselves. Antibiotics are the most frequently prescribed category of medications in nursing homes. The Centers for Disease Control and Prevention has asserted that 40% to 70% of all antibiotic orders in nursing homes are inappropriate or unnecessary.

Two Culprits

The most commonly treated infections in nursing homes are urinary tract infections. Many of those treated receive empiric treatment without urinalyses or cultures ever being performed. Floor nurses frequently call practitioners with descriptions of patients with foul or strong-smelling urine (I wonder what staff thinks urine is supposed to smell like) or even dark or cloudy urine. All too often, the response is a diagnosis of presumed UTI and a verbal order to begin antibiotics. Of course, the color and odor of urine is primarily determined by the resident’s diet and hydration status. Residents with inadequate fluid intake will appropriately concentrate their urine, enhancing its color and odor.

Most of these so-called infections are never confirmed. Even when urinalyses and cultures are performed and greater than 100,000 colonies of bacteria are confirmed, this is often simply asymptomatic bacteriuria, which geriatricians agree should not be treated. Demented residents who express behavioral symptoms instead of symptoms that might indicate the need for the laboratory. Residents may have urinary catheters (especially if diabetic) receive repeated courses of antibiotics — even rotating regimens — because they have positive urinalyses and urine cultures despite total lack of symptoms. These practices put residents at risk of medication side effects while fostering the selection of drug-resistant organisms within our facilities.

All of this demonstrates both poor stewardship of resources and poor medical practice.

Similarly, viral upper respiratory infections, chronic congestion from low-grade aspiration, and seasonal allergies are frequently treated with multiple courses of antibiotics, again without any performance of sputum or throat cultures or demonstration of leukocytosis. At least one study showed that more than one half of all nursing home antibiotic orders are verbal orders, suggesting that many residents are treated without being examined.

McGeer Criteria

In 1991, Allison McGeer, MD, of the University of Toronto and a group of colleagues published a proposed list of definitions to standardize surveillance criteria for infections in long-term care. They became known as the McGeer criteria and were widely accepted as they were based on the best available science at the time. In 2012, the criteria were updated by a committee of experts sponsored by the Society for Healthcare Epidemiology of America Long-Term Care Special Interest Group. These criteria have been endorsed by AMDA — The Society for Post-Acute and Long-Term Care, the National Association of Directors of Nursing Administration (NADONA) and the Association of Professionals in Infection Control and Epidemiology (APIC, among other professional organizations). These criteria represent an excellent basis on which to begin an antibiotic stewardship program. The McGeer criteria for UTIs and can be found in the August issue of Caring for the Ages (Kaldy J. Study suggests nursing home UTI policies lack consistency. Caring for the Ages 2016;17[8]:4.)

The McGeer criteria are not, of course, clinical practice guidelines. Similarly, there are clinical scenarios in which the use of an antibiotic may be appropriate even though the McGeer criteria for an infection are not met. Residents may have purulent sputum but still be unable to cough strongly and produce a specimen for the laboratory. Residents may have underlying hematologic disorders, such as chronic leukemia or myelodysplastic syndromes, which make interpretation of white blood cell counts problematic. But exceptions to recommended criteria should be documented and relatively rare.

Achieving these goals requires improved communication between floor nursing staff and prescribers, including protocols concerning the needed information before the telephone call is made. In the end, mechanisms designed to provide better stewardship of resources will ultimately lead to better care for individuals and help protect the health of our residents and our community.