

Program: Antibiotic Resistance

Speaker: Robert Baker, MD, Internal Medicine and Infectious Diseases, Community Health Network

Introduced by: Dave Bash **Attendance:** 108

Guests: John Morrical Jr., Nick Beckert, Martin Rice, Jim Stohler, Patricia Keener, Christine Ward, Sandra Bettner

Scribes: Joyce and Malcolm Mallette

Editor: Bill Elliott

Dr. Robert Baker, MD graduated from Ball State and received his MD from IU Medical School. He is a specialist in Internal Medicine and Infectious Diseases at the Community Health Network. Dr. Baker gave a very interesting and up-to-date presentation on antimicrobial resistance.

The primary problems with antimicrobial resistance occur with the following bacterial infections: ■

MRSA/ VISA/ VRSA

- VRE
- Flouroquinolone resistance
- ESBL producers
- Carbapenemase producers
- *Acinetobacter* species
- *Pseudomonas aeruginosa*
- *Candida* species
- Influenza
- *Mycobacterium tuberculosis*/ malaria

In the United States there are 2 million serious infections and 23,000 deaths per year from antibiotic resistant organisms. The sources of the problem include the fact that 50% of antibiotics used are not appropriate or optional and 62% of antibiotics used in animals are medically important in humans. Health care associated infections result from clearing of the natural flora with antibiotics and cross contamination.

Some antibiotic resistance is unavoidable as it was present before the antibiotic was first used. Other antibiotic resistance is preventable. Some resistance results from doctors wanting to give the best treatment or excessive dosing. Inappropriate prophylaxis, use of multiple agents and pressure from the patient to prescribe something are also a factor. There are time constraints, cost and time for diagnostic tests, malpractice considerations and fear of litigation that all lead to excessive use of antibiotics. There are also many seminars by drug makers who push their products.

Antibiotics are not benign drugs and the absolute indications for their use are sepsis, neutropenic fever and documented infections. Development of new antibiotics is very slow and some old retired drugs are being pulled off the shelf and used despite their side effects as they are effective when nothing else is.

To help prevent excessive use of antibiotics there are Antibiotic Stewardship Programs required of hospitals by regulators and third party payers. The period of antibiotic use should be limited to what is necessary, usually a short-term course of treatment. The Indiana Coalition for Responsible Antibiotic Use has been started by the Butler Faculty and is working with practitioners, patients and families in the Indianapolis area.

Alternative new drugs are also important to treat infections that are resistant to current antibiotics. Development is slow with only 4 anti-infective drugs approved in 2106. Dr. Baker predicts that in the future we will be able to stimulate the immune system to target the infectious agent and antibiotic use will decline.



Dr. Robert Baker