

DR. ISSAM RAAD

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## **Using Technology to Fight Infection: A Multifaceted Approach**

- NARRATOR: Welcome to part two of our conversation with Dr. Isaam Raad.
- C. TUCKER: We hear reports that physicians are not adopting new technology. Why is adoption so slow, and what can be done to change that?
- DR. RAAD: I think there are multiple factors. There are some, particularly in the infection-control environment, that (are) sort of anti-technology. If we were anti-technology in this country, we would have paid a tremendous price, particularly in the field of medicine. The reason we have probably the best medicine in the world is because we have a posture of adopting good technology as long as it is safe, and as long as it is efficacious and, ultimately, cost effective.
- C. TUCKER: Is it standard for hospitals when they adopt a new technology to do that self-analysis like M.D. Anderson did?
- DR. RAAD: I think it would be most appropriate, and it would strengthen even their argument for the Joint Commission (on the Accreditation of Healthcare Organizations), because the Joint Commission would like to see an intervention that made a difference. I think the problem in most hospitals now is a situation where there is a denial syndrome. They will tell you that, "Well, the infection rate is not high." This is the argument I faced when I did my first clinical trials on central venous catheter-related infections using the maximal sterile barrier. The same thing with antimicrobial catheters — "Oh, our infection rate is not high. You are not going to show a difference." We ultimately showed a twelvefold difference. This was in addition to maximal sterile barrier. Now it is also a CDC recommendation.
- People have not studied this very rigorously. They go in and they say, "Well, I see one every week." But one is too many. Put yourself in the place of that person who is critically ill. There is a 25 percent chance of dying.
- C. TUCKER: When dealing with hospital-acquired infections, is a holistic approach required? In other words, are there a host of measures that need to be taken to effectively reduce hospital-acquired infections? Or if a hospital follows most of the recommended approaches, will infection rates likely decrease?

DR. RAAD:

I think there needs to be a strategy — when it comes to bloodstream infections, when it comes to ventilator-associated pneumonia, when it comes to surgical-wound infections, when it comes to urinary tract infections — which is multifaceted. In my opinion, this multifaceted approach involves good aseptic techniques. For example, central venous catheters: You need to have good antiseptic techniques during insertion, make sure you have good hand hygiene, apply maximal sterile barrier during insertion, good cutaneous antisepsis and so forth.

This is part and parcel of the fact that you can never decontaminate the skin, no matter what barriers you use. We are made to have bacteria on the skin, and catheters go through the contaminated skin into the bloodstream. We have probably moved from 8 to 10 percent of CVCs being associated with bloodstream infections to 5 percent. But when we applied technology, we moved from 5 percent to .5 or .3 percent. In other words, the technology moved us to a lower level. We should not neglect the fact that we are applying good antiseptic techniques. This is part of the strategy. But novel technology — antimicrobial technology — that deals with the device itself is essential. And these devices, no matter what you do, if you don't protect them with a good antimicrobial agent, they are going to be colonized, and ultimately they are going to be the foothold for bacteria to invade the blood.

NARRATOR:

Issam Raad and Rabih Darouiche are co-inventors of the minocycline/rifampin technology, and this technology is licensed to Cook Medical. Dr. Raad is entitled to compensation through a royalty-sharing contract with the M.D. Anderson Cancer Center.