

# Reducing epic proportions

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Hospitals are supposed to be havens for healing, but the numbers tell a different story. Too many people are infected by illnesses they acquire after they've been admitted, and hospital-related infections continue to be the number-two killer of hospitalized Americans after heart disease.

Now, a radical new high-tech software program developed by Tel Aviv University researchers to fight these infections is now catching on faster than the flu.

Prof. Yehuda Carmeli from the Sackler Faculty of Medicine at Tel Aviv University has developed a security system for preventing hospital epidemics. Integrating basic sanitary procedures, his system uses the tools of high-tech communication — email alerts, SMS's, and online communication — to alert hospital staff of potential threats.

Two years ago Prof. Carmeli's team adopted this system in their own institutions, and the work paid off. "We stopped forty-five percent of the primary hospital-borne organisms that attack patients from spreading," says Prof. Carmeli. His most recent paper on the topic appeared in *Antimicrobial Agents and Chemotherapy* this year.

## Good Medical News Travels Fast

Top medical centers in America are now asking for his help. Prof. Carmeli was recently invited to top U.S. medical centers, including Cedars-Sinai Hospital in Los Angeles, and to the medical schools at Ohio State University and Philadelphia's Temple University, to

demonstrate the new high-tech line of defense against infection.

The first step to fighting hospital epidemics, Prof. Carmeli says, is the identification of potentially contagious patients. "What we have done is built a computerized system that collects information from microbial lab cultures and sends real-time alerts and reminders to the wards every day. The system also allows nurses and doctors to send feedback so infections are closely monitored, with special patients being handled very differently from the others," he explains.

Prof. Carmeli suggests that medical practitioners must also be reminded to use simple measures they already know. Improved hand washing and hygiene techniques, an obvious first line of defense against infection, are not practiced as much as they should be. He advises nurses to keep an alcohol-based cream solution next to each patient's bed for ease of use. In some cases, visitors and nurses should wear masks and gloves when handling or visiting a patient.

## **Preventing the Preventable**

"When a patient comes to the hospital for treatment, the natural barriers that protect them against infection are bypassed," says Prof. Carmeli, who is also a physician at the Tel-Aviv Sourasky Medical Center.

"Intubations, IV lines, catheters and other common hospital procedures expose a patient's most delicate tissues to the world. If a patient is taking immunosuppressants, steroids, or antibiotics, this can be a dangerous cocktail, and infections are just waiting to attack."

"A large proportion of these infections are preventable," he says.

In the research setting, Prof. Carmeli investigates the biological processes of how anti-microbial resistant organisms are spread. His team investigates a number of systems in the hopes of creating super-drugs

that could one day make hospital-borne infections a thing of the past.

Source: American Friends of Tel Aviv University

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