

Cardiovascular Institute Researcher Develops First Blood Test to Predict Risk of Sudden Cardiac Death

Pilot trial shows blood test much more effective than current risk stratifications

PROVIDENCE – A researcher at the Cardiovascular Institute (CVI) at Rhode Island, The Miriam and Newport hospitals has found that a simple blood test can predict a person's risk for sudden cardiac death, enabling physicians to more quickly and accurately assess a patient's need for an implantable cardiac defibrillator (ICD).

That paper by **SAMUEL C. DUDLEY, MD, PhD**, chief of cardiology at the CVI, is published online in advance of print in the *Journal of the American College of Cardiology*.

"This is the first test of its kind; never before have clinicians been able to accurately assess a patient's risk of sudden cardiac death by performing a blood test," Dr. Dudley said. "The primary prevention model for at-risk patients in the U.S. is to implant an ICD before a cardiac event happens. While it's better to be safe, this has led to widespread overuse of ICDs throughout the U.S. and abroad."

Dr. Dudley continued, "With this blood test, we can refine the need for such a device, and instead implant the cardiac



Samuel C. Dudley, MD

defibrillators only in the most severe cases of sudden cardiac death risk."

The new blood test is in a pilot phase in a large, multi-site trial led by Dr. Dudley and other researchers at Lifespan's CVI anticipated to start this fall. ❖

RIH Researchers Find Increase in Patients Admitted with Infections Resistant to Common Antibiotics

Study reviewed patients with community-acquired, healthcare-associated and hospital-acquired infections

PROVIDENCE – The emergence of community-acquired infections, such as urinary tract infections (UTI), due to strains resistant to common antibiotics are on the rise, according to Rhode Island Hospital researchers. The study is published online in the journal *Antimicrobial Resistance and Infection Control*.

"Over the last several years, we've seen an increase in the number of bacteria – many of which are forms of *E. coli* – that are resistant to commonly administered antibiotics," said **LEONARD MERMEL, DO**, medical director of the department of epidemiology and infection control at Rhode Island Hospital. "However, we also found that many of these bacteria causing urinary tract infections were susceptible to an older, inexpensive antibiotic, nitrofurantoin."

The study involved patients with infections documented from 2006 to 2011 that were due to extended-spectrum

beta-lactamase (ESBL)-producing bacteria. These bacteria are resistant to most antibiotics in the penicillin and cephalosporin families of antibiotics. The incidence of infections due to these microorganisms is increasing, which creates a challenge regarding appropriate antimicrobial therapy, especially in a community or outpatient setting where oral antibiotics are used.

The study noted the emergence of community-acquired infections due to ESBL-producing bacteria, a significant increase in healthcare-associated infections, as well as *E. coli* becoming the predominant pathogen in all three acquisition groups (community-acquired, healthcare-associated, and hospital-acquired). The researchers found high levels of resistance to the antibiotics Ciprofloxacin and Trimethoprim-Sulfamethoxazole (TMP-SMZ), which could lead to poor outcomes in the community as these are the commonly used antibiotics in outpatient settings

for urinary tract infections.

"Recognizing the strains that are resistant to common antibiotics is critical to providing proper treatment and better outcomes," Dr. Mermel said. "The incidence of overall antibiotic resistance is also on the rise, likely due to overuse in both humans and farm animals, so what may have been effective in the past, may no longer work to fight infection today. Therefore, greater efforts in controlling unnecessary antibiotic use in the community, healthcare settings, and in agriculture are critical."

"The overuse of antibiotics is a big concern, with real implications for patients," said co-author **STEVE KASAKIAN, MD**. "It's imperative that we determine why these bacteria are resistant to some antibiotics so that we can develop new ones to combat dangerous, and possibly fatal infections." ❖