

## Department of Communication

2901 Hubbard St. Suite 2400 Ann Arbor, MI 48109-2435

734-764-2220 734-615-2169 fax www.med.umich.edu



October 5, 2016 For more information, contact: Kara Gavin, kegavin@umich.edu 734-764-2220

## For immediate release WHEN CDC RELEASES

## CDC taps U-M researchers for major effort to fight "superbug" bacteria through research

\$1.5 million in grants will fund U-M Medical School work to develop better tests and prevention strategies for antibiotic-resistant bacteria

**ANN ARBOR, Mich.** — The last thing any hospital patient or nursing home resident needs is to get infected with "superbug" bacteria that don't respond to treatment with antibiotics. But tens of thousands of times a year, those infectious happen, and kill vulnerable people in the very places where they went to get better.

Today, the federal Centers for Disease Control and Prevention announced that it will pour \$14 million into urgently needed research on this issue, and steps to prevent, test for and understand antibiotic-resistant bacteria.

Four University of Michigan Medical School teams will receive funding through this effort, for a total of nearly \$1.6 million. That's on top of other funding the U-M researchers have previously won for their work, and a major investment by the Medical School over recent years to create a hub for research on the microbes that inhabit the human body, and how antibiotics and superbugs affect them.

The new funds relate to two major national initiatives created in recent years since the threat of "superbugs" became a national issue: the CDC Antibiotic Resistance Solutions Initiative and the National Action Plan for Combating Antibiotic-Resistant Bacteria.

With the new funding, U-M teams will:

- Develop a faster, less-expensive test for the presence of the most dangerous superbugs: A team led by Michael Bachman, M.D., Ph.D., of the Department of Pathology will focus on an especially dangerous group of antibiotic-resistant bacteria known as Extended-Spectrum Beta-Lactamase (ESBL)-producing *Enterobacteriaceae*, which kill about 1,700 Americans each year and sicken many more. Using samples from real patients, Bachman will try to improve on the current approach by using modern genetic techniques that hospital labs could use to flag patients most at risk of ESBL-related infections.
- Focus on the role of patients' hands as key factors in the spread of superbugs in hospitals and nursing homes: Lona Mody, M.D., M.Sc., and her team in U-M's Geriatrics and Infectious Diseases divisions will build on their previous research showing that one in four nursing home residents have superbugs on their hands. They'll study the role of patients' own hands in the spread of antibiotic-resistant bacteria, and develop a toolkit that hospitals and nursing homes can use to help staff and patients prevent that spread.

- Track the real-time effect of antibiotics on the balance of bacteria in the guts of surgery patients: Although surgery patients often get antibiotics to reduce their chance of an infection, no one knows how those drugs affect the ecosystem of bacteria that live inside the human digestive tract, also known as the gut microbiome. Krishna Rao, M.D., and his team in Infectious Diseases will create the first-ever real-time tracking effort to study how antibiotics alter the balance of gut bacteria, and how the population recovers including how some bacteria start to evolve antibiotic-resistant traits. This could lead to future tests and tool for evaluating new treatments.
- Figure out how superbugs spread within and between nursing homes: Evan Snitkin, Ph.D. and his team in the Department of Microbiology & Immunology will use an approach called genomic epidemiology to study the bacteria found in patients in 18 nursing homes, and fill a critical gap in understanding of how antibiotic resistance emerges and spreads in these settings. The approach involves studying the entire genome, or set of DNA, of all the bacteria species found in these samples, to look for tiny differences that can trace how a specific superbug traveled from person to person.

The four researchers who lead these teams are all part of a broader U-M effort to study the human microbiome, and the ways that diseases and treatments alter the balance of microscopic organisms in and on our bodies.

Through the U-M <u>Host Microbiome Initiative</u>, they have access to advanced equipment for rapidly spelling out bacterial DNA, assessing the biodiversity of microbe populations in a sample, growing cultures under the same conditions found in the body, and processing and analyzing the massive amounts of data that microbiome research generates.

For more information on the new CDC funding, visit the agency's <u>Antibiotic</u> <u>Resistance Solutions Initiative</u> webpage.

###