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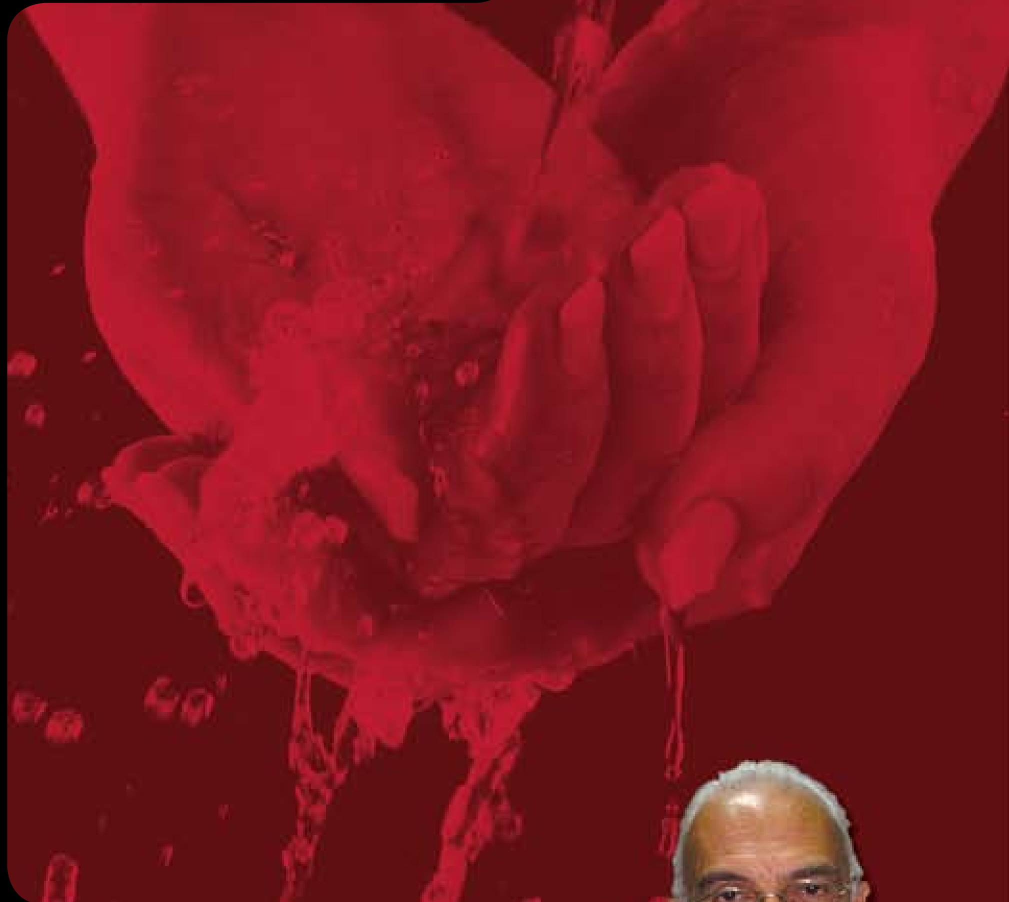

Insights From Italy's Servizio Sanitario Nazionale

Hand hygiene is one of the most effective ways to prevent nosocomial, or hospital-acquired, infections. Both the World Health Organization (WHO) and the U.S. Centers for Disease Control and Prevention have issued hand hygiene guidelines to reduce the risk of infection. But adherence to guidelines varies by country, by facility and even among departments and units within the same facility, as Professor **Sanjay Saint, MD, MPH** *(below right)*, learned during a six-month study conducted in Florence, Italy.

The Italian national health system, the Servizio Sanitario Nazionale, was ranked second in the world by the WHO in 2000. (France ranked first; the United States, 37th). Still, about five percent of patients in Italy develop infections during hospital stays. Not only do hospital-acquired infections in any country affect patient safety; they also drive up costs and negatively impact outcomes. In the United States, the Centers for Medicare and Medicaid Services no longer reimburse for several types of hospital-acquired infections, and plans are underway to expand the 'no pay' list, making hand hygiene and other infection control measures all the more timely and critical.

Dr. Saint served as a visiting scientist at the University of Florence Medical School from September 2007 to June 2008, and during that time he worked with collaborators on a five-unit, two hospital interventional study to improve hand hygiene adherence. The units included ophthalmology, cardiology, geriatrics, infectious diseases and the emergency department. At the start of the study, Dr. Saint and six nursing students acted as external observers on each of the five units to assess how often doctors and nurses washed their hands—either with soap and water or using an alcohol-based hand rub—prior to touching patients. They found that the rates of hand hygiene varied enormously: among doctors rates ranged from six to 66 percent; among nurses, it ranged from 19 to 56 percent.

The intervention the team devised focused on five strategies:

- Presenting data on current practices in order to elicit support and provide a rationale for the intervention
- Giving seminars and individual educational sessions regarding the importance of hand hygiene measures prior to touching patients
- Handing out and wearing colorful buttons that said, "*Chiedimi se mi sona lavato le mani,*" or "Ask me if I have washed my hands"
- Distributing pocket-sized bottles of alcohol-based hand sanitizer to all clinical staff
- Fostering a sense of urgency to improve—that is, over several weeks' time rather than months or years

Observations gleaned after the intervention period of nearly 4,000 patient-clinician interactions revealed significant improvement. Among nurses, hand-washing or use of the alcohol-based rub increased from 34 to 48 percent; among doctors, it improved from 28 to 47 percent. What was most surprising, however, was the variability among units even after the intervention. "Some units improved much more than others—one unit went from 8 to 51 percent," notes Dr. Saint. "But other units didn't show that much of a change."

The reasons for the variability observed is likely due to multiple factors, Dr. Saint and the team surmise, including having an engaged, motivated and respected unit champion. Dr. Saint also came away with an important observation: "A one-size-fits-all strategy may not work because of microcultures of each unit. Units might be separated by just a wall, but their cultures can be quite different in terms of how they embrace change and approach collaboration. It's one of those things that sounds obvious, but before going to Italy it wasn't so apparent to me," he says.

The team reported their initial observations and findings in the *American Journal of Infection Control* with another manuscript currently undergoing peer review. The collaboration will continue as the group plans to conduct a follow-up study to assess sustainability of the improvements. The work was supported by the Ann Arbor VA Medical Center/University of Michigan Patient Safety Enhancement Program and the Tuscan-American Safety Collaborative.

During his time as visiting professor, Dr. Saint also visited the World Health Organization in Geneva, Switzerland, and he was subsequently invited back to Italy to present the work to the U.S. ambassador in Rome. "The ability to take part in an international implementation project like this was incredibly useful to our work here in the United States, both at the U-M and the Ann Arbor VA Medical Center," he says. "Other countries face some of the same challenges we do, and to be able to go into a new environment and see things as an outsider provides important insight into health care delivery in this country, too."

LEFT: *Dr. Gian Franco Gensini, Dean of Medicine at the University of Florence Medical School.*

Revising and Expanding the National Health Expenditure Accounts

When it comes to health care spending, one of the key questions policymakers—and patients—ask is: What are we getting for our money? "You might buy a pill, but what does that pill give you in terms of health?" says **Sandeep Vijan, MD** *(below left)*, a co-principal investigator on a large program project funded by the National Institute on Aging (NIA).

The goal of the five-year, five-project effort is to produce the first set of U.S. "national health accounts," or detailed statistics tracking the impact of medical spending on health and life expectancy. The federal government currently tracks medical spending, but not the health benefits of this spending. "When all we measure is spending, we are tempted to cut costs without considering the impact this may have on patient health, and that's bad policy," says **Allison Rosen, MD, MPH, ScD** *(below right)*, principle investigator of the program project.

The program of research, a continuation of Dr. Rosen's work with Harvard economist David Cutler, is aimed at improving policy makers' understanding of both the costs and benefits of care for patients. "The research involves developing a national infrastructure that uses standardized methods to track and attribute changes in health care spending and health outcomes to specific diseases. We hope to provide policymakers with a more nuanced understanding of the impact of resource allocation decisions on disease-specific spending and health," says Dr. Rosen.

The effort is not without challenges. To have a meaningful impact, national health accounts must not simply track overall health benefits and costs; they must also identify the specific services that provide the greatest health improvements relative to their costs. Two projects will explore national trends in health care spending and in measures of life expectancy and quality of life, parsing out which diseases are contributing to each of these trends. Three disease-specific projects will then develop more detailed models identifying specific therapies responsible for changes in the value of care for cardiovascular disease; colon, breast and lung cancer; and depression and cognitive impairment.

The models can then be used to better predict whether specific payment policies are creating the right incentives for value and, if not, whether other policy options might increase the health improvements we get from spending. "The goal is to target resources to their best possible uses," says Dr. Vijan, who is developing a detailed model of depression and cognitive impairment with co-investigators **Kenneth Langa, MD, PhD** *(far right)*, and Kara Zivin, PhD, of the Psychiatry department.

The cardiovascular disease modeling project has particular relevance to the University, as it will extend prior U-M research on the impact of targeted copayment reductions for high value but underutilized chronic disease therapies. In 2005, Drs. Rosen and Vijan and colleagues published a groundbreaking study using a disease model similar to those being developed in the program project. Their findings suggested that providing ACE inhibitors free of charge to patients over 65 with diabetes would save Medicare over 400,000 quality-adjusted life years and $9.2 billion in the first ten years of the program. This study led to a pilot program of targeted copayment reductions for U-M employees and dependents with diabetes. The findings of the initial two year study, led by Dr. Rosen and colleagues **A. Mark Fendrick, MD**, and Dean Smith, PhD, at the U-M Center for Value-Based Insurance Design, were so promising that the University has extended the program for three more years.

"We hope the models developed in the program project can incorporate findings from the U-M study, and others like it, to model the effects of these types of payment policy changes on a broader scale, across several diseases," said Dr. Rosen. In addition to the National Institute on Aging, investigators will work closely with the National Bureau of Economic Research, Centers for Medicare and Medicaid Services, and Bureau of Economic Analysis to disseminate findings to key policy makers. The goal is to eventually transfer these accounts to a federal agency to maintain and update on an ongoing basis.

"Ultimately we want to use this information to reform how we pay for health care—to focus on the places where we get more value," says Dr. Vijan. "Fundamentally, patients are in the midst of all this, and they need to know that we are spending money in ways that will most improve their health and wellbeing."