Testimony of Jonathan B. Perlin, MD, PhD, MSHA, MACP, FACMI
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Chairman Alexander, Ranking Member Murray and Members of the Committee, I am Dr. Jonathan Perlin, and I have the privilege of serving as the President of Clinical Services and Chief Medical Officer of Nashville, TN-based HCA Healthcare. Our organization includes 179 hospitals, 135 ambulatory surgical centers, 121 urgent care centers, and more than 1,200 additional sites of service. Our ranks number almost 250,000 colleagues, including 84,000 nurses, 30,000 allied health professionals and approximately 43,000 affiliated physicians. Together, we have the privilege of providing care through more than 30 million patient encounters every year.

I am delighted to be here with you today to discuss how innovation can help improve the value of healthcare. At HCA, we believe in math, science and evidence. First the math: Value is often defined as quality and safety divided by cost. Value improves whenever quality and safety increase, costs drop, or both occur.

As for the science and evidence, safety and quality are always most efficient. Every breach of safety (like an avoidable infection) or negative variation in quality (like ordering the wrong test) is not only hurtful to the patient, but inefficient. This relationship is so obvious in manufacturing. If rework is required, flaws in the manufacturing process not only erode quality, they erode efficiency and drive avoidable cost.

Good management means looking for opportunities to improve value where the science provides evidence of a known best practice. Innovation means using science to discover best practices when the answer is not known. Let's look at three examples of innovation in HCA that are not only changing practice for our patients, but through publication and sharing our innovations, are improving value for patients around the nation and the world.

Between the 1970's and the early 2000's, medical interventions shortened the length of pregnancy by about 10 days. Babies are pretty robust, so no hospital, let alone an individual obstetrician, appreciated differences in outcomes between 37, 38 or full-term, 39-week pregnancy. That said, there were some concerns that maybe there really was a difference.

Because HCA has the privilege of delivering over 200,000 babies a year, the March of Dimes asked to partner with us to study the issue. Over 90 days, at 27 HCA hospitals, we looked at 18,000 deliveries. Using admission to the Newborn Intensive Care Unit as a proxy for potentially avoidable complications (such as respiratory distress), we found that the risk for complications was four times greater at 37 versus 39 weeks and over twice as great at 38 than 39 weeks.

Having created this evidence, we felt the obligation to use it. In a series of following studies, we defined the now industry-standard, 39-week "hard stop," which sanctions obstetricians for elective, pre-term delivery. This, in turn, became the basis of the CMS "Strong Start for Healthy

Mothers and Newborns" program. This fundamental change in practice is estimated to save the Medicaid program over a billion dollars annually. Good quality is more efficient.

Let's turn our attention to the United States epidemic of avoidable hospital-acquired infections. This epidemic affects almost five percent of hospitalized patients or over two million people annually. 80,000 patients pay the ultimate price, and that toll is more than the annual mortality of breast cancer, car accidents and HIV combined. By the way, about one quarter of these infections are due to forms of the staph bacteria, including the highly drug-resistant "methicillin resistant staph aureus," known as MRSA.

After demonstrating how our initial approach reduced such infections in HCA to one third lower than expected, colleagues at AHRQ, CDC and Harvard asked if we could again use the HCA platform of hospitals to find out which among three competing "best practices" was truly best. In 18 months, across 43 hospitals, we enrolled nearly 75,000 patients and discovered that the practice of an antiseptic sponge bath with antibiotic nose drops reduced potentially fatal MRSA infections by 37 percent and all bloodstream infections by 44 percent. A follow-on study demonstrated that for every 1,000 patients treated this way, the health system saved $170,000. Safety is more efficient.

Let me offer one final clinical example—improving care for patients with sepsis. This committee held a hearing in conjunction with World Sepsis Day, September 2013. You inspired us to do better for patients with this condition in which overwhelming infection turns the body's immune system against itself. Sepsis is the 11th leading cause of death in the country, 9th in hospitals, and 3rd among all intensive care units. Unfortunately, for every hour of delay in diagnosis, mortality increases by an additional four to seven percent. Time is life.

Using data science to examine the "big data" product of meaningful use, we now have algorithms that monitor every patient in every hospital that's been part of HCA for more than a year. This system identifies patients with sepsis as accurately as the best clinicians and excludes patients without sepsis twice as accurately. It gives new clinicians a support system that can make them as good as the best clinicians, and it does what no clinician can do; it monitors all the relevant labs and other data 24x7x365. While we haven't yet done a formal financial assessment of how less care and shorter hospitalizations generate lower costs, what we can tell you is that this algorithmic system and its predecessor strategy have saved more than 5,500 lives.

Science provides the evidence that innovation is a central tool for higher quality and safety at lower cost. In turn, it underpins the math that we join with you in seeking for higher-value healthcare.

Let me close by briefly mentioning an exciting, recently announced initiative that HCA is a part of: HCA joined with a number of other major health care organizations, that collectively represent about 500 U.S. hospitals, to found Civica Rx—a new, not-for-profit generic drug company that will help patients by addressing shortages and high prices of life-saving medications. Civica Rx has identified 14 important generic drugs as its initial focus, which it will

either directly produce or subcontract to reputable manufacturers. In many instances, prices for generic drugs used in hospitals can be reduced to a fraction of their current costs. This can save patients, and the healthcare systems that care for them, hundreds of millions of dollars each year. We believe this initiative will result in lower costs and more predictable supplies of essential generic medications, helping ensure that patient needs come first in the generic drug marketplace.

HCA Healthcare is leading additional initiatives in infection prevention, timely identification of cancer patients, automating human labor with artificial intelligence tools, and stewarding laboratory tests more carefully that result in better care at lower cost. I look forward to discussing those with the Committee.

Thank you for both the privilege of testifying today and for your leadership in fostering improvement in healthcare value through innovation.