ference, Julie Gerberding, director of the Centers for Disease Control and Prevention, responded to their claims that vaccines had caused their daughter's autism. "Let me be very clear that the government has made absolutely no statement . . . indicating that vaccines are a cause of autism," she said.[5] Gerberding's biggest challenge was defining the term "autism." Because autism is a clinical diagnosis, children are labeled as autistic on the basis of a collection of clinical features. Hannah Poling clearly had difficulties with language, speech, and communication. But those features of her condition considered autistic were part of a global encephalopathy caused by a mitochondrial enzyme deficit. Rett's syndrome, tuberous sclerosis, fragile X syndrome, and Down's syndrome in children can also have autistic features. Indeed, features reminiscent of autism are evident in all children with profound impairments in cognition; but these similarities are superficial, and their causal mechanisms and genetic influences are different from those of classic autism.

Going forward, the VICP should more rigorously define the criteria by which it determines that a vaccine has caused harm. Otherwise, the message that the program inadvertently sends to the public will further erode confidence in vaccines and hurt those whom it is charged with protecting.

Dr. Offit reports being a co-inventor and co-holder of a patent on the rotavirus vaccine RotaTeq, from which he and his institution receive royalties, as well as serving on a scientific advisory board for Merck. No other potential conflict of interest relevant to this article was reported.

Dr. Offit is chief of infectious diseases at the Children's Hospital of Philadelphia and professor of pediatrics at the University of Pennsylvania School of Medicine — both in Philadelphia.

1. CNN. American Morning. March 6, 2008 (television broadcast).
2. Stratton K, Almario DA, McCormick MC, eds. Immunization safety review: hepatitis B vaccine and demyelinating neurological disorders. Washington, DC: National Academies Press, 2002.
3. Offit PA, Quarles J, Gerber MA, et al. Addressing parents' concerns: do multiple vaccines overwhelm or weaken the infant's immune system? Pediatrics 2002;109:124-9.
4. Dingle JH, Badger GF, Jordan WS Jr. Illness in the home: a study of 25,000 illnesses in a group of Cleveland families. Cleveland: Press of Western Reserve University, 1964.
5. Rovner J. Case stokes debate about autism, vaccines. National Public Radio (NPR), March 7, 2008. (Available at http://www.npr.org/templates/story/story.php?storyId=87974932.)

Like Night and Day — Shedding Light on Off-Hours Care

David J. Shulkin, M.D.

Lately, I've been coming to work at midnight. You see, I've begun making late-night administrative rounds at the hospital where I am president and chief executive officer. No, I'm not nostalgic for my harrowing days as a resident. Rather, these middle-of-the-nighters are part of an initiative of mine intended to address a matter that is of increasing concern at hospitals throughout the country: the stark discrepancy in quality between daytime and nighttime inpatient services.

Like many hospital executives, I've come to appreciate the fact that I work in two distinct places, though they share the same address. One is a hospital that operates from approximately 7 a.m. until 7 p.m., Monday through Friday. The other is a hospital that operates in the evening, through the night, and on weekends. Although these facilities appear to be one and the same, they in fact represent two very different medical environments.

The weekday hospital has a full administrative team, department chairs and service chiefs, experienced nurse managers, and a full complement of professional staff. The off-hours hospital, on the other hand, rarely, if ever, has senior managers present. Nurse-to-patient ratios are significantly lower. Even the number of residents is considerably lower — certainly lower than during my days of training — because of mandated work-hour restrictions.

The positive spin on these differences is that we are trying to achieve a calmer and quieter environment at night and on the weekend so that our patients can rest and recuperate. But there are serious downsides. Silent hospital corridors can also reflect sparse staffing and a lack of institutional leadership, which make important hospital services and consultative expertise difficult to obtain. This discrepancy in pro-

vider care between daytime and nighttime inpatient services is a matter of growing concern to health care professionals, because people get sick 24 hours a day. In fact, 50 to 70% of patients are admitted to the hospital at night or on the weekend.[1,2]

The consequences of service deficiencies during off-hours include higher mortality and readmission rates,[3] more surgical complications,[4] and more medical errors.[5] Given the health care industry's renewed focus on ensuring patient safety and providing high-quality medical care, why hasn't the situation changed at the "other hospital"?

Financial constraints play a role in the lack of provider services. Shrinking reimbursements from government programs and third-party payers make it economically prohibitive for many hospitals to fully staff their facilities 24 hours a day. (And that's before one takes into account the millions of dollars in uncompensated care that hospitals provide.) Instituting longer hours for care providers is not a reasonable solution to the problem, since medical professionals who work for too long at a stretch become fatigued and make more errors. Another major obstacle is the nursing shortage. More-experienced nurses understandably choose desirable day shifts. As a result, night and weekend shifts are filled with a greater percentage of temporary or agency nursing staff, many of whom have less training and less familiarity with the hospital.

Some modest changes have been made to address the differential in inpatient services between daytime and nighttime. Some teaching hospitals have mandated 24-hour coverage by attending physicians in key clinical areas, such as intensive care units — a move that has led to improvements in the supervision of residents. And off-hour coverage by hospitalists — salaried physicians

who specialize in providing inpatient care — is more common than ever. System improvements, such as the deployment of rapid-response teams, are becoming more common, making lifesaving interventions accessible throughout a hospital. In addition, technological advances have led to improved outcomes and reductions in medical errors. Electronically monitored intensive care units and other strategies for remote monitoring create safety nets and permit better medical supervision, even when attending physicians are not present. Many hospitals have begun using digital and Internet-based methods to have imaging studies read during off-hours by radiologists in different time zones, and experienced physicians can now provide their medical-imaging expertise from home.

Yet it's extraordinary that, despite these changes, we have not done more to eliminate differences in outcome that are attributable solely to the time of day. Perhaps one reason is that we take for granted that hospitals are run differently during off-hours, when instead we should be establishing equal standards for staffing and service and striving for acceptable outcomes for every hour of the week. Public policymakers, insurance companies, patient-advocacy groups, and nursing and medical educators must work together with hospital leaders to support this broader goal.

Within each hospital, physicians, nurses, and ancillary staff members need to be directly engaged in improving nighttime and weekend clinical services. It makes sense to explore pay-for-performance strategies to support these changes. In addition, hospitals need to publicize their off-hour improvements in a consumer-friendly way that helps patients make informed decisions. This year, more than 80 Massachusetts hospitals went public with their staffing numbers for every shift of the day (www.patientsfirstma.org). I've always felt that a little competition never hurt anyone.

Twenty years ago, when I was in training, my fellow residents and I firmly believed that we were the ones running our hospitals on nights and weekends. We had much more freedom back then and therefore did much more by ourselves. But with greater responsibility came a greater sense of ownership. For me, this meant taking a stronger interest in improving the quality of patient care and safety. I pursued a career in hospital administration to gain a better understanding of how hospital systems work and how a hospital can respond to change when needed.

Which brings me back to my midnight rounds. They are proving to be a good way to help me

understand and address the concerns of our off-hours staff. Recently, I surveyed our evening and weekend hospital managers and was surprised to learn that many of them had never before been asked their opinions.

In order to identify problems and design effective solutions, it is critical to gather such front-line information, and to do so, senior hospital administrators need to see firsthand the workings of the "other hospital." I strongly encourage my counterparts elsewhere to conduct at least 1 week's worth of night rounds each quarter. Administrators on weekend calls should spend some time on the hospital floors. Close attention should be paid to the needs of patients and their families, any procedural and communications issues among staff members, and most important, the quality of dialogue between administration and staff members regarding the organization's inpatient service and safety priorities.

Improvement takes time. The wheels are turning slowly, but lately, I'm more confident that we have them moving in the right direction. As a chief executive officer, I am just as responsible for managing the "other hospital" as I am for managing the one where I show up to work each weekday morning. The bottom line is that we must always strive to improve the overall quality of care — in both of our hospitals. There's still a lot to learn and accomplish, but we can do it. We just have to be willing to get a little less sleep once in a while.

No potential conflict of interest relevant to this article was reported.

Dr. Shulkin is the president and chief executive officer of Beth Israel Medical Center and a professor of medicine at Albert Einstein College of Medicine — both in New York.

1. Luyt CE, Combes A, Aegerter P, et al. Mortality among patients admitted to intensive care units during weekday day shifts compared with "off" hours. Crit Care Med 2007;35:3-11.

2. Arabi Y, Alshimemeri A, Taher S. Weekend and weeknight admissions have the same outcome of weekday admissions to an intensive care unit with onsite intensivist coverage. Crit Care Med 2006;34:605-11.

3. Saposnik G, Baibergenova A, Bayer N, Hachinski V. Weekends: a dangerous time for having a stroke? Stroke 2007;38:1211-5.

4. Bendavid E, Kaganova Y, Needleman J, Gruenberg L, Weissman JS. Complication rates on weekends and weekdays in US hospitals. Am J Med 2007;120:422-8.

5. Hendey GW, Barth BE, Soliz T. Overnight and postcall errors in medication orders. Acad Emerg Med 2005;12:629-34.