

## The final word

By Wendy A. Wells, M.D.

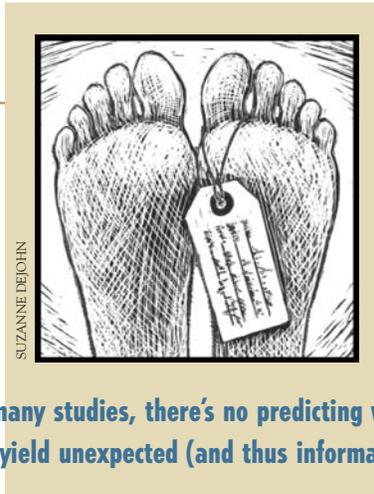
One cool fall morning, a 43-year-old man was jogging with his wife when he started gasping for breath and collapsed. Resuscitation attempts failed and he was pronounced dead in the emergency room. Five years earlier, he had been diagnosed with sarcoidosis, a chronic disorder characterized by granulomas (small groups of inflammatory cells) involving many organs. But his wife worried that an inheritable cardiovascular disease—rather than the sarcoidosis—might have caused his death. So for the sake of their three young children, she gave permission for an autopsy. It revealed that granulomas had interfered with the heart's conduction system, causing a fatal arrhythmia, and showed no evidence of coronary artery disease.

**Closure:** Indeed, as well as establishing a cause of death, an autopsy can provide reassurance and closure for the deceased's family. And it serves other important functions, too: correlating and monitoring clinical diagnoses; evaluating therapeutic interventions; providing information for public health notifications (such as asbestos exposure or drug reactions); educating medical students, residents, and other physicians in gross anatomy and disease processes; and providing information for genetic counseling.

There are major discrepancies between the clinical diagnosis and the autopsy findings in 15 to 30% of patients; in other words, had the information revealed during the autopsy been known during the patient's life, the clinical treatment and outcome might have been different. Such discrepancies have been documented both at academic medical centers and at community-based hospitals. Last year at DHMC, for instance, the major diagnostic disagreements included unsuspected infections, pulmonary embolisms, malignant tumors with metastases, bowel perforations, acute myocardial infarcts, neuromuscular disease, acute cardiac rejection following transplantation, and subacute bacterial endocarditis. An array of minor disagreements (findings at autopsy that would not have affected the clinical outcome if found during life) was also recorded. Yet, according to many studies, there's no predicting which autopsies are likely to yield unexpected (and thus informative) findings.

**Rate:** But as useful as autopsies are, they aren't performed as often as they used to be. The national rate of autopsies has declined from 50% of all deaths in the 1950s to 10% in the late 1990s. At DHMC, the autopsy rate for adults has declined from 58% in 1980 to 22% in 2002. (Interestingly, the rate of pediatric autopsy requests at DHMC has increased steadily since 1997—from 15% to 27%.)

There are many reasons fewer autopsies are being performed today:



**According to many studies, there's no predicting which autopsies are likely to yield unexpected (and thus informative) findings.**

■ Clinicians don't believe that future care will be improved as a result of understanding the discrepancies between the clinically diagnosed cause of death and what is revealed at autopsy. However, published studies have described improvements—in tumor subtyping, surgical techniques, postoperative management, and clinical protocols—attributable to autopsy findings.

■ Many clinicians believe that advances in diagnostic and imaging techniques have made

the autopsy obsolete. But recent studies that have reviewed diagnostic errors from 1959 through 1989 show that the decline in the autopsy rate coincides with a steady misdiagnosis rate of 10% and with a false-negative diagnosis rate of between 12% and 25%.

■ Often the most junior and inexperienced members of the clinical team are expected to seek autopsy consent from families and aren't usually successful in getting permission. Fewer staff members are willing to be mentors for this delicate task, and there is almost no instruction provided regarding it during medical school.

■ Unless there are clinical-pathologic review conferences, clinicians may not see the organ findings in the autopsies they've requested and therefore acquire no direct benefit from the results.

■ Although pathology residents are required to complete 50 autopsies, they spend less time on the autopsy service than on other aspects of surgical pathology and laboratory medicine.

■ Poor communication between clinicians and pathologists, combative notification of any major discrepancies, and late final autopsy reports can discourage clinicians from requesting autopsies.

■ Thanks to sensational media coverage and inaccurate portrayals of how autopsies are conducted, there is increased public resistance to the dissection and examination of the body after death. Some people think of the autopsy as a disrespectful and mutilating procedure and of the practice of retaining tissue for microscopic analysis or of whole organs for teaching purposes as "organ snatching." But the family can give permission for a limited autopsy examination and request that only certain organs be evaluated or that no tissue be retained for microscopic analysis or teaching purposes. Also, funeral arrangements need not be delayed, and the patient can be prepared for post-autopsy viewing, should the family wish that.

The autopsy should be recognized as an essential clinical quality-assurance tool today, just as it was 30 years ago. Important clinical lessons can be learned if autopsy results are presented in a non-threatening, informative, and educational way at gross organ review conferences and multidisciplinary grand rounds. Pathologists and clinicians alike must better mentor their trainees in the role of the hospital autopsy. Finally, we must improve public education about autopsies and their benefits for the health of future patients. ■

*"Grand Rounds" covers a topic of interest to the Dartmouth medical faculty. Wendy Wells is an associate professor of pathology and the director of autopsy services at DHMC.*