

Editorial

The Decline of the Hospital Autopsy: A Missed Opportunity for Quality and Education in Healthcare

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When most people think of autopsy, the first thought that springs to mind is the medico-legal procedure where an individual's cause of death is discovered to help with a police investigation. While this is an important use of autopsy, it is not the only one. Autopsy can also be used to provide important clinical data. Autopsies can be performed on patients who died in hospital with the permission of their family, at the request of a physician or the family itself. These types of autopsies have seen a sharp decline over the past few decades, both in North America and abroad [1-10]. Studies show that in the mid-20th century, as many as 40-50% of hospital deaths were autopsied [7-9], but more modern data show autopsy rates at less than 10% [3,6,7,10,11]. We believe that the decline of autopsy rates in modern hospitals is unfortunate, but the reasons for the decline are well understood. Autopsy is not overly costly, but using it sparingly is a good way to save resources [12-14]. The procedure is not always pleasant, both for the pathologist and family of the deceased. Many families decline the procedure, or at least physicians perceive they will, for personal, cultural or spiritual reasons [12,13,15-17]. From the clinician's perspective, any autopsy will either confirm what they already knew or prove them wrong and potentially harm their relationship with the patient's family or even lead to legal conflict [7,12,14,15]. Finally, with modern imaging techniques, autopsy may seem obsolete to some [7,13-15]. If a full body scan has shown us clear evidence of a specific disease while a patient was alive, what need is there to do an autopsy? When you combine all of these factors it becomes clear why most hospitals have done away with minimum required autopsy rates. If the interest from pathologists, clinicians and patients is not there, let the procedure be used only when absolutely necessary or when specifically requested.

When autopsy, like any medical technique, declines in use, so too does our ability to educate new physicians [10,18-21]. Medical students have less opportunity to observe, and pathology residents have fewer opportunities to hone their skills. The decline in autopsy has occurred over only a few decades, so most physicians practicing today had plenty of education on and exposure to the importance

of autopsy. As these doctors retire, we will be left with individuals who have not had the same level of education regarding autopsy, and low autopsy rates will be due not to any of the reasons listed above but because of a lack of knowledge of its importance and a lack of confidence when performing it. This seems somewhat irresponsible, as many still argue the value of autopsy an educational tool [10,13,15,18-20,22,23].

The decline in autopsy rates is unfortunate because we as physicians are missing out on an important opportunity to help us assess and ensure the quality of care we provide. A definition for quality healthcare has many different aspects, but two of the most universal and important are effectiveness and safety. Effective healthcare should provide evidence-based treatments that lead to an improved outcome for a patient's health, and safe healthcare should minimize the risks of any negative outcome [24]. Whenever a patient whose diagnosis is even slightly puzzling goes un-autopsied, we miss out on an opportunity to add to the evidence upon which we base our treatments. Additionally, we may miss instances where a patient was misdiagnosed and received treatments which did not lead to an improved health outcome and may actually have led to a negative outcome.

Because the results of autopsy are so closely linked to important aspects of healthcare quality, we can see why many studies have used it as a tool to assess healthcare quality in a given location. Specifically, studies evaluate the rate at which the clinical diagnoses of patients do not match their autopsy diagnosis, the rate at which clinical diagnosis and autopsy diagnosis are discordant [7-9,12,15-17,22,23]. In 1983 Goldman created a series of criteria for evaluating such misdiagnoses at autopsy that is still used today. He grouped these misdiagnoses into four classes. Class one consisted of missed major diagnoses with the potential to negatively impact the patient's survival and that would have led to a change in how the patient was managed. Class two consisted of missed major diagnoses that did not impact patient survival, nor would they have led to a change in the medical management of the case. Classes three and four were made up of missed minor diagnoses that would not have impacted patient care and may not even have been related to the fatal disease [1]. We can easily see how patients who suffered a Class I or II misdiagnosis have not received quality healthcare. Using Goldman's and similar criteria, researchers have published rates of discordant autopsies in healthcare centers around the world. Studies have reported discordance rates ranging anywhere from 17-48% [12,13,15-17,22,23].

This system isn't perfect; it only allows for retrospective analysis and many studies have noted a potential selection bias: if autopsy is only being performed on the most puzzling cases, it stands to reason that the chances of misdiagnosis would be higher among autopsy patients due to the difficult nature of their cases. It should be noted that the reason for this potential bias is the low rate of autopsy.

While the extent to which an autopsy discordance rate represents the overall quality of healthcare is debatable, we cannot deny that each instance of autopsy discordance represents a failure to provide quality healthcare, and the elimination of these errors in the future represents an improvement.

Previous and current research into the discordance rates of the Saskatoon Heath Region have yielded two major results. First, the autopsy rate for inpatient deaths has been stable at, on average, 6% for more than a decade [25]. Second, despite more than a decade of progress in imaging and clinical diagnostics, the rate of discordant autopsies has also remained stable at an average of approximately 20% [25]. This value is well within the range of those reported internationally, so the issue is not an issue of quality. The issue is that ten years of advancements in clinical diagnostics and imaging have not led to a noticeable reduction in the rate of discordant autopsies. We believe that autopsy can impact this rate, as every time an autopsy uncovers an elusive diagnosis, that information can be relayed back to clinicians and, hopefully, be of use in future cases.

The practice of autopsy has been on the decline for more than half a century, despite the fact that it is still the gold standard for post-mortem diagnosis, and therefore, an important tool for quality assurance in healthcare [26]. It should be apparent that physicians and administrators need to increase the autopsy rates. It has been suggested that we implement a system in which the healthcare provider incentivizes the legally responsible party to allow autopsy, and promotes the benefits of postmortem findings[25]. This can be achieved, in part, by re-implementing a mandatory minimum autopsy rate. The specific value of this rate requires further study, but it is clear that current rates are far too low to have any significant impact on the quality of healthcare. We cannot allow cost, time and worries about reputation to impede our ability to improve the quality of care we provide. Hopefully, with future advancements, the process of autopsy can be made more efficient. The idea of autopsies performed entirely by non-invasive imaging is exciting, and removes many of the issues that have led to autopsy's decline. At the moment, we clearly do not have technology or the expertise to supplant traditional autopsy [10,27,28]. In the meantime, we need to stop letting the opportunity for education and quality assessment pass us by and make better use of the autopsy.

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