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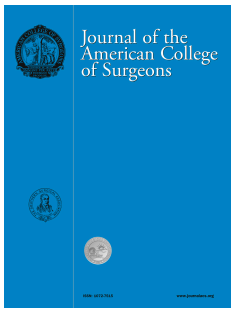

The Hidden Cost of Medicine

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PII: S1072-7515(16)31615-5

DOI: 10.1016/j.jamcollsurg.2016.11.003

Reference: ACS 8539

To appear in: *Journal of the American College of Surgeons*

Received Date: 2 November 2016

Accepted Date: 7 November 2016

Please cite this article as: Valentine RJ, The Hidden Cost of Medicine, *Journal of the American College of Surgeons* (2016), doi: 10.1016/j.jamcollsurg.2016.11.003.

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Disclosure Information: Nothing to disclose.

Presented at the Western Surgical Association 124th Scientific Session, Coronado, CA, November 2016.

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Running Head: Hidden Cost of Medicine

I would like to begin by remembering Dr. Lewis Thomas, an extraordinary man of his time. Dr. Thomas was a Harvard Medical School trained physician who took on many important jobs including Dean of Yale University School of Medicine and President of Memorial Sloan-Kettering Institute. Our focus this morning, however, is on his superb writing skills. Dr. Thomas was well recognized for his ability to simplify complex concepts and to catalogue great changes in the medical world. He was a regular contributor to the New England Journal of Medicine in a column called "Notes of a Biology Watcher," and he authored three non-fiction books. His third book, *The Youngest Science*, serves as his autobiography.[1] Dr. Thomas' life spanned the 20th century, and he had a unique opportunity to chronicle the many changes in medicine during that time. One of the most striking descriptions in the text is that of his father, an early 20th century general practitioner.

The elder Dr. Thomas worked hard. He had an office at home, and after a full day of seeing patients, he would have dinner and begin making house calls all night. He napped in a chair and never took a day off. From watching his father and subsequently from his experience in medical school, Dr. Thomas made the following observations: although the doctor of the early 20th century could not do much to alter the course of disease, he was expected to walk in, take over, explain what was going to happen, and stand by until the disease ran its course or the patient died. The qualities that made for a successful doctor included intense curiosity, the capacity for affection, and education for the art of prediction.

These descriptions of the consummate physician remind me of the reasons that we all went into medicine. Malcolm Gladwell, another well-known modern prolific writer, characterized the following qualities in an interview with Forbes[2]: as physicians, we are committed to helping people, we are grateful for the opportunity, we are proud of our special

ability to diagnose and treat, and we are inspired by the trust that people put in us. We are engaged in a profession, not a business. As documented in a 2003 white paper from the American College of Surgeons[3], a profession is characterized by four core elements:

- Monopoly over the use of specialized knowledge
- Autonomy and self-regulation
- Altruistic service
- Responsibility for maintaining knowledge and skills

Physicians have a solemn contract with society, in that we are given the right to considerable autonomy and the extraordinary privilege of self-regulation. In exchange, we are expected to place the needs of patients above our own and to behave as role models at all times. The physicians of the senior Dr. Thomas' era had great pride in their profession and put great value on public trust. For many generations, the public concept of a physician has included altruism, expertise, patience, and self-sacrifice. The television persona of the good Dr. Marcus Welby epitomized public sentiment in the 1970s. How are we doing in the second decade of the 21st century?

Medical Practice in the 21st Century

Monopoly over the Use of Specialized Knowledge and Skills. We learned from Dr. Thomas that his father had an extraordinary amount of autonomy with a practice that ranged from delivering babies, to setting fractures, and performing appendectomies. One could certainly argue that it is impossible to remain competent in every facet of medical care; the physician of today has a much more limited scope of practice. This is due in large part to invention and research. The rapidly evolving technology and explosion of new knowledge in surgery witnessed

over the past 50 years has been nothing less than breath taking. This progress has been good for patients, and it has defined new specialties that are becoming increasingly separate from general surgery such as surgical oncology, transplantation, endovascular surgery, and minimally invasive surgery. Others such as emergency general surgery continue to evolve. Although the separation allows for focused training, it has set up significant competition between specialties where the lines of the monopoly tend to blur. We see competition between colorectal surgeons, surgical oncologists and general surgeons. Similarly, vascular surgeons compete for patients with cardiologists, interventional radiologists, and neurosurgeons. There are many other examples. Although physicians as a group maintain the monopoly of specialized knowledge and skills, the monopoly is no longer restricted to a particular domain. The resulting competition breeds ill will between specialists.

Physician Autonomy. Surgeons are transitioning to employed status. A 2013 study from the AMA Masterfile Data reported the proportion of surgeons who were in solo or two-person practice versus those who were employed by hospitals, universities, or large group practice in which they had no ownership.[4] Figure 1 shows that the number of surgeons entering employment increased steadily from about 50% in 2001 to 68% in 2009. This was true for surgeons practicing in both urban and rural settings. The transition to employed status certainly has many benefits, including a secure salary and administrative support to deal with paperwork hassles. However, employed status also means loss of autonomy. The employed surgeon accepts administrative oversight by business-minded people whose priorities may not be in the best interest of the patient.

The burden of administrative paperwork has certainly increased over the past four decades. In addition to pre-certifying operations, filing claims for rendered care, and appealing

denials, doctors must document everything they do and a reason for every test they order or operation they perform. Based on a national survey of 4,720 US physicians working 20 or more hours each week in direct patient care, Woolhandler and Hummelstein reported that physicians spend 1/6 of their time doing non-patient paperwork and 1/5 of their time doing administrative activities such as dictating notes.[5] Doctors spending more time in administrative activities had lower career satisfaction.[5] The electronic medical record has made this even worse. Compared to Canadian counterparts, US doctors spend four times more money interacting with payers[6].

Self-regulation. The concept of self-regulation is eroding. Surgeons are now subject to oversight by hospital administrators who grant practice credentials and determine the type of online training each of us must complete to maintain credentials. We are rated by non-scientific patient satisfaction surveys, and we are under scrutiny by state medical boards that serve as watchdogs of our practices and issue their own learning requirements. These differ from state to state. For example, Texas physicians must complete two hours of training in ethics, while Tennessee physicians must complete two hours of training in prescribing to maintain licensure. Ongoing training requirements are not a small consideration. I recently tallied my own training requirements for maintaining credentials at Vanderbilt University Medical Center and the Tennessee Valley Veterans Administration Medical Center as well as maintaining certification by the American Board of Surgery and the Registered Physician in Vascular Interpretation. This came to 68 hours, or more than a week and a half of training exclusive of patient care that must be worked into my schedule every year. I am sure that every US surgeon has a similar story.

Pride in the Profession. On April 14, 2014, an article appeared with great fanfare in a news reporting and opinion website known as *The Daily Beast.* Entitled “How being a doctor became the most miserable profession,” the article detailed widespread unhappiness among physicians,

evidenced by the high rate of suicide among physicians as well as other factors.[7] While the article is laden with hyperbole, it cast light on an issue that had heretofore received little public attention. Facts aside, the article received a great deal of attention on web opinion pages and in the lay press. Sadly, many of the comments came from physicians who supported the piece, especially recent graduates with large educational loans.

Public Trust. The physicians of the senior Dr. Thomas' generation could count on the unwavering trust of the general public. A century later, this no longer seems to be the case. Not a week goes by without an article appearing in the lay press describing doctors exhibiting unprofessional behavior, assault, public intoxication, Medicare fraud, and a host of other shocking behaviors. Perhaps the best perception of public perception is to consider the persona of the physician being presented in recent popular television shows. In the sitcom *Scrubs,* we see doctors portrayed as idiots who are moody, distractible, and totally fallible. In the series *House,* the central physician character is angry, depressed, and a sociopath. The public trust that Dr. Thomas' father valued so highly seems to have evaporated. The change in public sentiment has not escaped notice from the certifying bodies. A number of formal programs were developed under the banner of maintaining public trust including the National Surgical Quality Improvement Program, Maintenance of Certification Programs, and the National Practitioners Databank – to name only a few. While these programs certainly have merit, they come at a cost to physicians, who must now perform more paperwork, take additional training without compensation, and subject themselves to public reporting. The risk is that physicians will come under greater pressure, need to work harder, and have less time for patients and home life. The personal toll is perhaps the greatest burden of all and leads to an inevitable end: burnout.

Physician Burnout

Burnout is characterized by physical and emotional fatigue after doing a difficult job for a long time. Characteristics include emotional exhaustion, cynicism, detachment, and a decreased sense of personal accomplishment.[8] While the condition affects individuals in nearly every career pathway, physicians seem to be at particularly high risk. It is a serious problem that is known to lead to a number of adverse consequences, including increased medical errors, malpractice lawsuits, substance abuse, disruptive behavior, intent-to-leave practice, and divorce.[9-12] Burnout is a very likely explanation for the bad behavior that has challenged the public trust in recent decades.

Burnout is considered to be at one end of a spectrum that is bracketed by suicide on the other end (Table 1). Physicians die of suicide more frequently than non-physicians, and this is especially true for women.[13] Last year, there were approximately 400 physician suicides. To put that in perspective, it would take more than three graduating medical school classes to replace these physicians.

Burnout Prevalence

Physician burnout has become a hot topic in many circles, prompting a number of interesting survey studies. The problem of burnout is not relegated to practicing surgeons. Using a number of validated methods, the prevalence of burnout has been measured in many different medical practice scenarios, ranging from pediatrics to palliative care.[14,15] Most studies are small or based on data from single institutions, but all have shown remarkably high burnout scores, with a prevalence ranging from 30 to 50%. The burnout spectrum does not begin when a physician enters practice. The prevalence of depression has been evaluated in first-year residents

in internal medicine.[16] Participants were surveyed one to two months before starting residency and every three months thereafter. Before residency, 4% met the definition of major depressive disorder. The prevalence jumped to 27% after three months and was sustained for the remainder of the year. The prevalence of burnout in US general surgery residents was recently reported by Elmore et al.[17] Three scales from the Maslach Burnout Inventory were used to assess the prevalence of burnout in 665 resident participants: depersonalization, emotional exhaustion, and personal accomplishment. As noted in Figure 2, 69% met at least one subscale, while 44% met two or more. The prevalence of burnout was not different between years of training.

What is the prevalence of burnout in practicing surgeons? The American College of Surgeons (ACS) Governors' Committee on Physician Competency and Health conducted a survey of the 25,000 members who had email addresses on file.[9] A total of 7905 surveys were completed, 90% by Fellows and 10% by Associate Fellows. 40% of the respondents met criteria for burnout, and 30% screened positive for depression. 28% had mental Quality of Life scores that were more than ½ the standard deviation below the population norms. These data were corroborated in the 2015 Medscape Physician Lifestyle Report[18] based on 20,000 survey responses from physicians in all specialties: 50% of surgeon respondents met the criteria for burnout (Figure 3). Among all specialists, surgeons ranked third in the prevalence of burnout behind critical care specialists (53% prevalence) and emergency medicine (52% prevalence). These data show that burnout is a highly prevalent problem among surgeons. The prevalence of burnout in surgeons appears to be increasing.[19]

Risk Factors for Burnout

Work-home life imbalance. The most commonly identified risk factor for burnout is difficulty balancing work and home life.[20-23] The risk factors contributing the work-home life imbalance are shown in Table 2. A number of independent risk factors for burnout were identified in the ACS survey that could underlie the work-home life imbalance: younger age, having children, number of nights on call per week, hours worked per week, and having compensation depend entirely on billing.[9] Despite equal work hours, Dyrbye et al[24] have reported that burnout is more common in women surgeons compared to men. Among the many internal and external factors that lead to difficulty in the work-home life balance, financial issues weigh heavily. In his 2014 Presidential Address at the Southern Association for Vascular Surgery, Dr. Tom Huber noted that the current compensation model is flawed and that fee-for-service is like an addictive drug: the more you do, the more you want, and the more willing you are to stay late and add on cases.[22] The rising student debt only flames the desire for higher compensation and may explain why younger surgeons are at higher risk for burnout. The net result is that the surgeon spends less time nurturing relationships, leading to stress and, ultimately, neglect.

Practice scenarios. A number of practice-related variables have been identified as risk factors for surgeon burnout. In the 2010 ACS study, the following specialties were identified as being at highest risk for burnout: trauma, otolaryngology, urology, vascular surgery, and general surgery.[9] In a subsequent analysis of the same dataset, Balch et al[25] showed that the number of hours worked and nights on call were strongly related to burnout, depression, career satisfaction, and work-home life balance. Practice setting was also related to burnout. The ACS survey found that surgeons in private practice were more likely to experience burnout compared to counterparts in academics.[9]

Additional factors. Several other variables related to physician burnout have been examined in surgical subspecialties. Inability to cope with patients' suffering and death, lack of administrative support, and legal issues were identified as risk factors among surgical oncologists.[20] Debt load was identified as a risk factor among orthopedic residents and faculty members.[26] Among transplant surgeons, giving up activities and the perception of limited control over delivery of medical care were significant predictors of emotional exhaustion.[27] In addition to other factors, plastic surgeons that have a reconstructive practice appear to be at higher risk for burnout compared to those with cosmetic practices.[28] Regardless of specialty, the high stress associated with a career in surgery carries a substantial risk to mental well-being.[29]

Surgeons have a special focus on quality of care that may inadvertently accelerate burnout. From the first day of internship, surgeons are immersed in a culture of blame epitomized by the Morbidity and Mortality conference. The surgeon must ultimately accept responsibility for a bad outcome, even if the complication or death was related to causes beyond the surgeon's control. In the worst case scenario, blame leads to embarrassment, shame, and a heightened sense of self-doubt – all of which are associated with burnout and depression.

Protective Factors

A number of qualities have been identified that may be protective against burnout. In a second survey of ACS members performed in 2010[30], the Governors' Committee of Physician Competency and Health sponsored a study on factors preventing burnout. Rates of burnout were lowest among surgeons who actively protected time away from work to be with family and friends, took vacations, exercised according to CDC guidelines[31], and saw their primary care

physician annually. Additional wellness factors included having a positive outlook and finding meaning in work.

Is physician burnout a 21st century phenomenon, or are we just now beginning to recognize the problem? Dr. Thomas' father had many of the risk factors for burnout including every day call, long work hours, having children, and having compensation depend entirely on billing. However, it is clear from the description in *The Youngest Science* that the elder Dr. Thomas did not manifest symptoms of burnout. This is probably due to the overwhelming influence of wellness factors including finding meaning in work, maintaining a positive attitude, and resilience. Resilience (sometimes known as "grit") is the quality that lets some people bounce back from adversity and come back with a renewed sense of purpose. It is characterized by having a positive attitude, maintaining optimism, and accepting failure as a form of feedback. Although some people are innately endowed with heightened resilience, it is a quality that can be learned.

Solutions

Physician burnout is a pervasive problem with serious consequences. The Accreditation Council for Graduate Medical Education (ACGME) has made physician well-being a top priority for physicians in training[32], and this initiative should be extended to physicians in practice. Barriers to solving the problem of physician burnout include failure to recognize the problem, stigma, and shame. Ultimate solutions involve multiple stakeholders, including hospital/institutional leadership, health care teams, and individuals (Table 3).

Institutional leadership. Administrators at all levels, including the hospital board members, the hospital "C suite", deans, department chairs, division chiefs, and senior partners,

have a stake in solving the burnout problem. The first step is to acknowledge that the problem exists, and then make the necessary changes to mitigate burnout risk factors. Employee surveys can be introduced to study the scope of the problem. Based on previous studies discussed above, there are many identifiable risk factors for physician burnout, and leadership might use these indices to monitor surgeons who are at risk. For example, past surveys have shown that surgeons in certain subspecialties such as trauma and vascular surgery are more prone to burnout. Leaders should monitor employees in these areas and intervene when necessary. Monitoring behavior trends in all surgeons is one way to detect burned out surgeons and to intervene before damage has occurred. Changes in performance indicated by falling Press Ganey scores, increased staff and patient complaints, and absenteeism should be considered red flags possibly indicating that the practitioner has developed burnout, or worse. Early intervention in the form of an informal discussion and referral to the institution's Employee Assistance Program may be all that is necessary. Intervention can be escalated to formal sanctions including required psychiatric evaluation if the behavior is egregious.

Physicians often do not diagnose depression in themselves and do not seek treatment as they would for other disorders such as pneumonia. Hospitals and medical schools should implement programs to train medical students, residents, and attending physicians to recognize burnout and depression in themselves, colleagues and patients. Barriers to self-reporting include concern for lack of confidentiality, fear of documentation or academic records, and stigma.[33] These areas must be managed carefully.

Financial issues weigh heavily in burnout. To encourage balance in work and home life, the compensation model should be reassessed. Although clinical revenue is very important to the business enterprise, it should never be the only factor that determines compensation and

incentives. As more surgeons opt for employed status, employers should recognize and reward desirable behavior beyond clinical productivity such as citizenship, professional behavior, and performance of administrative duties. In the academic setting, a higher premium should be placed on publication, teaching, and research.

If leaders are going to place high demands on surgeons they should provide the necessary resources to meet them. This includes hiring physician extenders to offload redundant clinical work and recruiting surgeon partners to ensure a reasonable call schedule. Surgeons should not be burdened with excessive paperwork; secretaries and other personnel must be available to assist with billing correspondence. Although continuing educational activities are potentially important, the leadership must ensure that required annual training sessions are worthwhile and not redundant. Above all, the leadership should strive to express appreciation for their surgeons.

The Health Care Team. Medicine is a team activity; colleagues, partners, and co-workers also have a hand in preventing burnout. Although professionalism dictates that physicians must put the needs of patients above their own, the concept says nothing about needing to remain at the bedside. Physicians must recognize their limitations and choose other competent individuals to care for their patients when they are off duty. This means conducting responsible hand-offs, but it also means that physicians accepting responsibility for the patients must treat them as their own. Physicians should take care of each other by recognizing fatigue in their partners and encouraging time off when necessary.

Individual responsibilities. It is axiomatic that those surgeons most dedicated to their profession are at the highest risk for burnout. We have a job to do, but we are also responsible for taking care of ourselves. Wellness programs emphasize fostering resilience, restoring energy, and setting limits.[34-36]

Resilience is a personal quality that allows an individual to bounce back from adversity and become stronger. Personal traits for resilience include a positive attitude, optimism, the ability to regulate emotion, and the ability to see failure as a form of helpful feedback.[37] Although some component of resilience is based on genetics, survey studies have shown that individual habits can have a great influence on the ability to cope with stress. Individuals who successfully complete surgical residencies seem to be well endowed with this attribute.[38,39] Burnout is the inevitable result of resilience atrophy. It follows then that restoring resilience is the key factor in relieving burnout. Wellness strategies emphasize finding meaning, purpose, and value in one's work[23,29], especially deriving gratification from the doctor-patient relationship and from treatment success.[33] In some cases, this may entail personal reinvention by redirecting one's interest at work or even changing jobs. Other job-related factors that increase resilience include self-monitoring and setting personal limits – both of which are important in maintaining the work-home life balance.[23,34,35] Above all, maintaining relationships with family and friends is paramount to achieving the proper work-home life balance.[23,34]

Additional factors that increase resilience are directly related to maintaining personal health. Recharging is critical to maintaining energy and handling stress in surgery. We need to take protected time away from work in the form of planned vacations to recharge and in the form of scheduled time off to build and maintain relationships with family and friends. It is also important to take brief protected moments during the workday to rest and recover; the specific type of renewal activity is also deeply personal. Attention to personal health maintenance appears to be a very important part of resilience. Previous surveys have shown that surgeons who see their own doctors and dentists at least once each year are less prone to burnout.[30] Exercise is very important, and burnout was much less common among surgeons who reached CDC exercise

goals of at least 150 minutes a week of moderate-intensity, or 75 minutes a week of vigorous-intensity aerobic physical activity .[31] Hobbies and other leisure-time activities such as music, literature, and art[33] are also important for renewal and emotional rest.[30] In the final analysis, surgeons should identify their life priorities, seek the optimal work-home life balance, and maintain personal health.

Conclusions

Surgeon burnout is a pervasive problem that can lead to adverse consequences including medical errors, disruptive behavior, substance abuse, divorce, depression and suicide. Recent studies report that approximately 50% of surgeons manifest signs of burnout, and the prevalence appears to be increasing. A number of independent risk factors for burnout have been identified that lead to difficulties with the balance between work and home life. Solutions begin with recognition of the problem, increasing awareness among health care workers, and identifying surgeons with symptoms of burnout. Institutions should develop programs to promote health and well-being, reward desirable attributes beyond generating clinical revenue, and provide necessary resources to reduce non-clinical activities and redundancy. Colleagues, partners, and co-workers should respect physician time off and accept responsibility for patient care. Individuals must strive to cultivate resilience through personal renewal, maintaining strong relationships, and developing healthy habits. Physician wellness programs emphasize that self-care is as important as patient care; burned out doctors are suboptimal to care for patients. To be at our best, we need to remain healthy, fit, and energized.

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Table 1. Burnout Spectrum: Estimated Prevalence for Surgeons in Practice

Symptom	**Estimated prevalence**
Burnout	40-50%
Depressive symptoms	30%
Clinical depression	10-15%
Severe depression	unknown
Suicidal ideation	unknown
Suicide, all physicians	approx. 400/year

Data abstracted from references 9, 16-19.

Table 2. Reported Risk Factors Contributing to Burnout in Surgeons

Personal variables
Female sex
Younger age
Having children < age 21 years
Heavy debt load
Inability to cope with patient suffering
Practice variables
Choice of specialty
Nights on call per week*
Hours worked per week†
Compensation dependent on billing
Private practice
Work environment
Lack of administrative support
Legal issues
Spouse works as other health care professional

*each additional night associated with odds ratio of 1.05

†each additional hour associated with odds ratio of 1.02

Table 3. Strategies to Prevent or Treat Burnout

Institutional
Educate stakeholders
Provide resources for well-being
Onsite exercise facilities
Onsite child care
Confidential counseling services
Monitor and intervene for burnout
Falling patient satisfaction scores
Staff and patient complaints
Absenteeism
Consider changing the compensation model
Ensure adequate resources for practice
Physician extenders
Adequate support staff
Reasonable call schedule
Eliminate barriers to self-reporting
Ensure confidentiality
Ease stigma
Mitigate shame
Health care team
Effective hand-offs
Trust colleagues to cover patients
Treat cross-cover patients as your own
Monitor team members for fatigue
Individual
Cultivate resilience
Find meaning in work
Avoid negative thinking
Redirect personal interests
Set personal limits
Nurture relationships
Strive for balance in work and home life
Use time off to recharge
Take planned vacations
Take brief protected moments during the day
Routine physician and dentist visits
Exercise/leisure activities
At least 150 minutes a week of moderate-intensity, or
75 minutes a week of vigorous-intensity aerobic physical activity

Figure Legends

Figure 1. Employment trends for surgeons 2001-2009. Data abstracted from Charles and colleagues.[4]

Figure 2. Results of burnout survey completed by 655 general surgery residents from ACGME-accredited programs. Burnout scores reflect results on three criteria (subscales) from the Maslach Burnout Inventory including emotional exhaustion, depersonalization, and personal accomplishment. Reprinted from Elmore and colleagues[17] with permission from Elsevier.

Figure 3. 2015 Medscape Physician Lifestyle Report showing the prevalence of burnout based on 20,000 survey responses from physicians in all specialties. Reprinted from Medscape[18], with permission.