

6-1-2019

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Jens R Chapman
Swedish Neuroscience Institute

Jeffrey C Wang

Karsten Wiechert

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Recommended Citation

Chapman, Jens R; Wang, Jeffrey C; and Wiechert, Karsten, "How Should We Deal With "Black Swan" Surgeons in Spine Surgery?" (2019). *Articles, Abstracts, and Reports*. 1784.
<https://digitalcommons.psjhealth.org/publications/1784>

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How Should We Deal With “Black Swan” Surgeons in Spine Surgery?

Global Spine Journal
2019, Vol. 9(4) 365-367
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DOI: 10.1177/2192568219847207
journals.sagepub.com/home/gsj



The term *Black Swan* was popularized by Nassim Nicholas Taleb in his eponymous 2007 bestseller and refers to the occurrence of highly improbable events in everyday life that were previously felt to be impossible to happen, and create havoc when they do arise.¹ The metaphor arose out of the historic belief that all swans featured a mandatorily white plume until Dutch explorers under command of William de Vlamingh encountered the previous unthinkable—black swans—in Australia in 1697.²

In medicine, the thought that a person would enter the profession not motivated by the inspiration to be allowed to help fellow humans seems simply inconceivable. Outliers in the field of patient care who are primarily guided by profit or research motives are fortunately relatively rare and usually identifiable, albeit usually with some delay. Beyond that, the thought that a practitioner could intentionally or recklessly harm patients, either through continued wanton careless or even more perturbing, malicious intent, seems simply unthinkable—a classic “Black Swan” scenario. The historic safeguards put in place to select medical practitioners anywhere are substantial and formidable—only top candidates are selected from recognized institutions of higher learning, followed by a lengthy and vigorous testing and advancement process throughout medical school, followed by supervised incrementally increased practical patient care exposures through internship, residency and finally fellowship and eventual practice selection. Constant in-depth interactions with patients, peers, professors, and the medical community and societies at large over 10 to 15 years of a typical surgeon’s training would seem to provide a strong protection against psychosocial outcasts becoming accredited practitioners. Moreover, a near suffocative incessant bureaucracy with its strict credentialing and professional review stipulations, as well as the constant threat of medicolegal scrutiny, would seem to provide ultimate failsafe reassurance for the safety of the public to be able to trust their doctor.

Sadly, the recent story of Dr Christopher Duntsch, a practicing neurosurgical spine surgeon from Dallas, Texas, tells us otherwise and constitutes a true “Black Swan” event in our specialty. This surgeon, who has been nicknamed “Dr Death”

or “Dr D” in many of the media stories that have emerged since then, has shown us vividly that all of these selection processes and regulatory checks may fail to protect patients from a reckless, incompetent, disabled, and/or psychiatrically deranged practitioner. Many questions of how the administrative system and the medical community could have allowed this to happen have been raised since this horrific story has become a hit podcast by the journalist Laura Beil,³ and has also been featured in numerous print periodicals.⁴⁻⁶ To date, our spine community has yet to deal with some of the professional questions raised.

From an educational perspective, the incredible claim has been made in courts and media that Dr Duntsch seems to have been part of less than 100 documented cases throughout his entire neurosurgical residency and spine fellowship, both done at a premier US institutions staffed by highly respected senior faculty.³⁻⁶ Questions have been raised that by being enrolled in a combined MD/PhD program this practitioner was too distracted to concentrate sufficiently on his clinical work due to the reported success of his basic research projects. The purported low number of cases seems to be implausible since most North American residencies in Orthopaedics and Neurological Surgery usually report several hundred cases per trainee *annually* throughout their 5 to 8 years of training.

From a practitioner standpoint, questions have been raised how potential substance abuse was handled during training and later as practitioner. These are very complex questions with many implications that exceed the space for this editorial by far, but on a pragmatic basis the fair question is how a trainee absent for medical reasons can be expected to “make up” for missed training time in the highly structured format of residency programs in most countries and how return to work is monitored for a surgeon beyond testing for substance abuse and some counseling.

As to the concerns about the quality of care rendered by Dr Duntsch, the reported morbidity and mortality rates seem to have been extraordinarily high given the relatively routine sounding cases in a community-based practice.^{3,5} Eventually, complications and poor outcomes caught up with Dr Duntsch, as he was driven out of several hospitals in the relatively short



time period of 4 years due to care concerns. Interestingly, it were not peer spine surgeons who recognized and reported concerns his care, but it was due to the determination and persistence of 2 General Surgeons, Drs Randall Kirby and Robert Henderson, who frequently perform exposures for spine surgeons, that the ongoing misconduct of care was called out and finally halted. It is difficult to estimate what would have happened had these 2 surgeons not personally persisted after all official organizational structures, including the hospitals and Texas State Board failed to respond to concerns. In the end, Dr Duntsch now holds the dubious distinction of being the first US surgeon who was criminally prosecuted and convicted for his poor clinical care to a sentence of life in prison, pending another appeal.^{3,7}

We all hope that a case like that of Dr Duntsch will remain a singular exception. Of course, our patients and society at large deserve to know that there is a sound accreditation and supervision system in place to protect vulnerable patients from potentially dangerous practitioners. What are the lessons that we as spine surgeons and practitioners can glean from this highly unfortunate story and the patients affected by this?

On the *educational side*, there is the reassurance that both Orthopaedic and Neurological Surgery training programs in North America have implemented more sophisticated reporting structures in terms of case numbers and types performed and moreover documenting progress in surgical decision making and actual technical proficiency of trainees through their respective recently introduced *milestones* programs. By tracking progression of trainees in a far more detailed and differentiated fashion, underperforming outliers can be identified much more readily and corrective actions would hopefully be taken in the future. Needless to say, this type of monitoring program will be all the more important as the undeniable ill-effects of work hour restrictions on surgeons' training remains a major unresolved issue for surgical trainees around the world. In the context of this case and the potentially negative of lack of training exposure, the thought of artificially restricting operative training exposure might be worth reconsidering.

A direct question also pertains to the selection process for medical schools and residencies, which has heavily favored scholastic and research accomplishments over personality, technical skills, or humanistic qualities of candidates. In the business world and many other realms such as the military, validated personality inventory tests and psychometric testing of candidates have become the norm, rather than the exception. Interestingly, the dimension of the psychological make-up of candidates has yet to find a formal role in the selection procedures of the vast majority if not all medical training programs. It is unclear how such insights may support specific qualities that various subspecialties prefer for their respective missions, but it stands to reason that borderline personality disorders, personalities prone to addiction, and outright psychopathic behaviors could be identified better and acted upon earlier through routine application of psychometric testing. Improved and continual performance reporting will hopefully allow training programs in the future to separate swiftly from

underachieving trainees without the undeniably painful threat of litigation.

From a *performance perspective*, the use of health care quality data in adjudicating surgeons is challenging, as high variability of patient disease severity, subspecialty idiosyncrasies, surgeon experience, and complex multifactorial care environments amount to significant variables. A very problematic issue is the attempt at drawing conclusions from low number case counts. Small number variability is a known statistical phenomenon and uneducated observers can be prone toward overreacting to such events. Especially spine, with its substantial variability of care preferences, surgeon training and resources as well as complexities of the patient pathologies is very daunting field to adjudicate in a fair and above-board fashion. Complications in *complex* spine surgery have been reported to be common and in a well-performed prospective study amounted to around 88%.⁸ These kinds of numbers may make poor performance tracking very difficult. Unfortunately, current common patient safety indicators are not sufficiently specific to spine and can be heavily delayed in their outcomes reporting. That said, simple indicators like mortality, procedure-based length of stay, unplanned return to operating room within 90 days, blood loss for routine procedures as well as intensive care unit stays and sentinel events like infection, paralysis and other easily identifiable major complications can provide a helpful foundation for internal comparisons and external benchmarking. To be effective, however, this data needs to be gathered longitudinally and be regularly used by the internal stakeholders. In case of questionable performance such data should be openly shared with the concerned surgeon and provide the foundation for an interactive performance improvement opportunity and not be abused to suit nefarious administrative or legal interests. Such "weaponization" of objectively interpreted quality data has been a long-standing concern of practitioners over the decades and has restricted the desirable evolution of learning from complications as an essential element to benefit the overall progress of medicine. Hence the value of the closed door "peer review" process has remained a desirable tenant of medical quality review but is based on the premise of a functioning internal peer review process that is properly being utilized.

As surgeon recruitment is such a complex multifactorial undertaking, a change in how we select practitioners might also be worth considering. Currently, we frequently have to rely on information gleaned from a set of rather standard menu of candidates' curricula vitae, letters of reference, interviews, and—rarely—personal communications. Actual surgeon performance is much harder to determine from such a system. Instead, wouldn't it be nice to see a surgeon candidate actually operate in their current environment or at their potential future job site? Current administrative burdens and regulatory restrictions make such ideas impractical. In light of the leap of faith it currently takes to hire a new surgeon a practical exposure opportunity would seem to be the most direct way to assess a candidate's actual performance. For medical systems it therefore would seem favorable to create pathways for temporary

licensure and privileging to allow for greater first hand exposure to candidate surgeons' capabilities.

An essential touch point of the case of "Dr Death" was the conflict of 3 large interest spheres surrounding review of patient care. Specifically, where does the time-honored sanctuary of "peer review" in patient care end, how far into this entity should the power of the executive be allowed to reach, and what all is included in the public's "right to know?" The sensationalist and sometimes blatantly politicized aspects of the very successful "Dr Death" podcast underscore the dangers of bringing complex medical and regulatory topics into the public domain with the powers of manipulation inherently available to near omnipresent public media platforms.⁹ It is hard to see how the threat of public exposure and criminal investigations would ever encourage surgeons to share their complications more openly and for the ultimate public benefit. Conversely, there has been a clear trend in most evolved societies toward demanding greater transparency and accountability from any established organizational structure since World War II. The failure of official medical boards to recognize and pull "Black Swan" practitioners out of practice is not uncommonly discussed among subspecialty practitioners. A shocking example of such failure can be seen in the story of Dr Michael Swengo, a convicted serial killer of between 4 and 60 or more patients in 5 US states and several African nations, as retold in chilling detail by James B. Stewart in his nonfictional Edgar Ward winning novel *Blind Eye*.¹⁰ A clear and ongoing problem is the lack of transferability of confidential personnel files, again a complex legal issue for which there is not a simple answer. However, one of the solvable shortcomings of the supervisory bodies as reported was the apparent absence of knowledgeable and clinically active specialty clinicians and patient care representatives on supervisory boards and committees with access to records from previous institutions. Instead, it seems that at every level conflicted individuals without content knowledge put the interests of their respective organizations above that of their ultimate mission (*to do the best for each patient every time*) and did not have access to or demand to see previous concerns and records. Such detachment from the core mission of patient care has created committees and supervisory bodies with very limited content expertise and direct clinical responsibilities. As to the field of spine surgery, with all of its complexities, it can only help us and our patient care mission to strive for better recognition as a subspecialty and to seek representation and input in supervisory and administrative leadership bodies to assure better patient care and adjudication in times of outlier management. For all too long, Spine has been marginalized by their respective Orthopaedic and Neurological Surgery societal motherships and has not been able to provide adequate input in difficult challenges such as defining quality spine education and setting meaningful quality standards while subsequently also addressing poor performers.

A further potential improvement to supervisory committees or regulatory bodies could be the careful, and legally formally framed, addition of a public representative in the form of a

"patient safety officer," with an actual former patient representative serving as a "public eye" representative.

Hopefully concerted systems efforts brought forth from our spine surgeon community, along with honest results and complications reporting and increased emphasis on patient experiences and outcomes, despite increasing adversarial exposure pressures brought on by sensationalist media and trial attorneys, will help us regain the trust of the public and ultimately allow the many benefits of spine care to receive the positive attention it truly deserves.

Jens R. Chapman, MD

Swedish Medical Center, Seattle, WA, USA

Jeffrey C. Wang, MD

USC Spine Center, Los Angeles, CA, USA

Karsten Wiechert, MD

Paracelsus Medical University, Salzburg, Austria

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