Robots are Coming: A Discussion of Choice-of-Law Issues and Outcomes in Telesurgical Malpractice

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ROBOTS ARE COMING: A DISCUSSION OF CHOICE-OF-LAW ISSUES AND OUTCOMES IN TELESURGICAL MALPRACTICE

by: Megan Cloud

ABSTRACT

New technology frequently emerges that challenges the legal status quo. Early adopters must then grapple with uncertainty over how the law will apply to novel legal quandaries. There is no better example of this than in medicine; however, the health care field is notoriously risk averse. Despite this, the practice of medicine stands to gain tremendously from these technological advancements. One such advancement is the relatively new ability to perform robotic surgery in which the surgeon is remote from the patient. Widespread use of this technology would improve rural access to surgical care, as well as improve access to more advanced surgical techniques. But problems may arise concerning choice-of-law when the laws of jurisdictions that the patient and surgeon are located in conflict. This Comment will explore the choice-of-law dilemma using Texas as a point of reference to discuss the likely choice-of-law analysis that would take place in a telesurgical malpractice case.

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I. INTRODUCTION

Access to health care is among the most basic of necessities. As health care costs continue to rise, access to quality health care remains far from uniform in the United States. Those living in rural America have diminished access to health care, especially highly specialized care. And even those with physical proximity to health care are often not able to take advantage of it because physician shortages make urgent care difficult to obtain. Telemedicine and telesurgery present an area of great promise in the future of medicine by removing the barrier of time and space—time spent travelling to remote locations and time spent training those physicians who serve a rural population—to increase the availability of highly skilled practitioners where there were previously none. As the United States sits under the strain of massive health care costs, there exists a solution in exchanging a several thousand-dollar emergency room visit for a minimally expensive telemedicine consult or implementing a remote surgical protocol that does not force patients to travel and convalesce hundreds of miles away from home. But even setting aside the issue of licensing and reimbursement, this solution comes with its own set of problems, namely the malpractice liability that accompanies it.

Medical malpractice liability is always a concern for health care practitioners. Prior to the advent of telemedicine, health care providers (or at least their attorneys) could be fairly certain of what laws governed in a malpractice tort suit. However, in the event of a malpractice claim, when state laws are at odds, courts must decide which law should govern the dispute. Historically, surgical malpractice claims have involved a doctor providing (or failing to provide) care at the same location as the patient. With the advent of technology that separates the patient and physician, the method by which courts should determine the governing law remains unclear. This Comment will first describe telemedicine, telesurgery, and their potential benefits to patients and physicians. The Comment will then discuss various choice-of-law schema as background to the dilemma posed by remote surgical technology, as well as specific touchpoints of conflict between state laws. Finally, using the state of Texas as a point of reference, this Comment will discuss how various choice-of-law schema may determine which state’s law should govern in a telesurgical malpractice dispute and posit that the location of the patient should govern in jurisdictions following both the First and Second Restatements of Conflict of Laws and that contractual choice-of-law provisions may be a more predictable solution for surgical providers.
II. Telemedicine

The World Health Organization defines telemedicine as “the delivery of health care services, where distance is a critical factor, by all health care professionals using information and communication technologies for the exchange of valid information for diagnosis, treatment and prevention of disease and injuries ...”

Essentially, telemedicine is the practice of medicine that occurs via telecommunication when the doctor and patient are physically separated. Although advances in technology have pushed the promise of telemedicine to the forefront, the idea of using communication devices to administer medical care is nothing new. In fact, medical professionals have implemented telemedicine for over 100 years and in nearly every medical specialty and subspecialty. The most frequent users of telemedicine technology tend to be providers in the fields of radiology, dermatology, and psychiatry.

Increased telemedicine use likely occurs in these fields because they do not require the same level of physical examinations as others. Without these examination requirements, radiology, dermatology, and psychiatry providers can utilize a “store and forward” method of reviewing data and diagnosing patients rather than a “real time” interface between patient and provider.

Cases that require only that physicians perform a physical examination are more in line with previously established technology. Video conferencing applications, like Skype, provide high-quality images that allow those examinations to proceed in a substantially similar way as a live examination. In this sense, decisions that help or harm the patient occur within the mind of the physician in conjunction with the natural progression of the patient’s ailment. The physician performs no manipulations of the patient; thus, it is less likely to be thought of as a physician reaching into the jurisdiction of the patient if malpractice harms him or her.

A. Telesurgery

Although telemedicine is not new, the application of surgical techniques from a distance is still in its infancy. Telesurgery employs the use of robotics, many of which have already been used in regular op-

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3. Id. at 146–47.
4. Id.
5. “Store and Forward” refers to the practice of saving patient images for examination by a remote physician at a later time.
6. Thrall & Boland, supra note 2, at 147.
erating room settings, to perform surgery at a distance. The robot docked at the bedside of the patient performs all the cutting, suturing, and cautery maneuvers that a surgeon standing in the operating room would complete. Rather than being positioned in the operating room, the physician instead controls robotic arms to position endoscopes and complete physical tasks otherwise done by hand. Thinking forward, the advent of such medical advances could make life-saving and life-improving care available in places where physicians are not or cannot be, such as in rural or hostile areas, war zones, or even underwater or in space.

1. Evolution of Telesurgical Technology

Robotic surgery was not a use of technology developed specifically for surgery performed at a distance but was instead developed because of how the use of a robot can improve upon a surgeon’s abilities. Robotic surgery alleviates some of the physical limitations that exist in surgical performance, by improving range of motion, increasing precision, and filtering tremor. These improvements allow physicians to practice beyond the limits of physical human capability. Robotic surgery is an attractive option for patients that are candidates for laparoscopic or “minimally-invasive” surgery because the recovery is usually easier, and smaller incisions can result in diminished blood loss, lowered risk of infection, shorter hospital stays, and less scarring. Many surgical subspecialties, including urology, gynecology, and cardiac surgery, now routinely use robotic surgery to perform what would otherwise be “open” operations that involve a large incision.

These robots, such as the da Vinci model, are normally connected to an operating console via a hardwire due to concerns about signal latency and integrity. Signal latency refers to the amount of time that it takes for an input from the physician’s console to reach the robot or, conversely, the speed at which the signal travels from the cameras to the physician, allowing him or her to see the structures. Latency is an important issue, especially when dealing with fragile tissue because a lag in signal could mean the difference between appropriate surgical

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7. Sajeesh Kumar, Introduction to Telesurgery, in TELESURGERY 1, 1 (Sajeesh Kumar & Jacques Marescaux eds., 2008).
8. See infra fig.1; Kumar, supra note 7.
10. See A. Tsirbas et al., Robotic Surgery in Ophthalmology, in TELESURGERY 125, 125 (Sajeesh Kumar & Jacques Marescaux eds., 2008).
11. Kumar, supra note 7, at 2.
14. Id.
technique and harm to the patient. The speed at which technology could compress, transmit, and then decompress data was once a threshold issue that prevented the remote use of robotic consoles. Since the advent of robotic consoles, however, communications technology has improved dramatically. As such, telesurgery has become a technological reality that could have tremendously positive effects on health care costs and availability.

**Figure 1**

*da Vinci Surgical Robot in the Operating Room*

The first long-distance telesurgical operation, called “Operation Lindbergh,” took place in 2001 when Dr. Jacques Marescaux removed the gallbladder of a patient located in Strasbourg, France from a surgical console roughly 4,300 miles away in New York. For that surgery,

15. Id.
Dr. Marescaux’s team used a dedicated connection via terrestrial fiber optic line to ensure that data transfer had adequate speed and accuracy. While practicing for the operation, the physicians determined that a latency of less than 330 milliseconds was necessary to complete a safe operation. Dr. Marescaux’s team successfully completed the operation with only 155 milliseconds of delay between robotic motion and visualization of that motion on a screen in New York. Following this operation, some physicians were skeptical that the technology could improve enough to usefully implement telesurgery. However, a fully operational surgical service was tested in Canada less than two years later when Dr. Mehran Anvari operated on twenty-one patients located in North Bay, Ontario from a surgical console located in Hamilton, Ontario. As part of this surgical service, Dr. Anvari provided an array of surgical procedures, including fundoplications, sigmoid resections, and hernia repairs. Since that time, communications technology has rapidly improved, thereby making telesurgery a reality from a technological standpoint.

When considering liability stemming from a telesurgical procedure, many sources of liability are introduced beyond just that of the surgeon and his or her team. One aspect of telesurgery that has been of interest recently is the use of haptic feedback intraoperatively. When a surgeon is performing an operation with his own hands, he can feel the give of tissues and the force with which he is retracting them. However, a surgeon loses this sensation when he operates through a robotic medium. Currently, surgeons must visualize the tissue for clues, such as tissue blanching, to determine appropriate application of force to different tissues during an operation. Although this method has not prevented surgeons from completing thousands of successful surgeries, there is a greater learning curve when surgeons must learn how to operate the technology while also learning to rely on another sense to give them the information that they would otherwise rely on while operating.

18. Id. at 379.
19. Id.
20. Id.
23. All of these procedures refer to operations on the abdomen that are frequently conducted laparoscopically. Id.
24. Marescaux et al., supra note 17, at 379.
26. Tissue blanching is present when tissue loses its normal color because of obstruction of blood flow. It can be seen, for example, when a person presses down firmly on their finger nail.
To alleviate this problem, there have been many attempts to engineer and program devices that provide visual, tactile, and auditory feedback to the surgeon. Although these technologies are still in their infancy, it is likely that studies will bear out the most effective methods for determining force applied to tissues. Future studies may also reveal the best methods for collecting other pieces of valuable information, such as tissue oxygenation. Technological advances may also provide surgical support via programmed “no go” barriers to protect delicate structures during operations. All of these improvements will undoubtedly improve the surgeon’s ability to perform more quickly and accurately; however, all may introduce additional sources of malpractice and products liability.

Finally, many of the over 600 patents that Intuitive Surgical, Inc. holds for the da Vinci model are set to expire soon. Several companies, such as Cambridge Medical Robotics, Medical Microinstruments, and Auris, have emerged that will provide more competition in the field. Established companies, like Medtronic and Johnson & Johnson, are attempting to break into the market as well. Even Google, through Verily (its life-sciences component), is entering the fray. While this competition is likely to drive the cost of robotic surgery down from the millions of dollars that the robot itself costs, it is also likely to improve and expand on what surgical robots are able to do. Current scientific and engineering advances include freeing the surgical arms from one central cart and allowing surgeons to place them wherever needs dictate. Advances further include microsurgical instruments that scale the surgeon’s movements and even robots that treat lung tumors via the trachea, bypassing the need for any incision at all.

2. Importance of Emerging Technology

Telesurgery is an important breakthrough that deserves the attention of the medical and legal communities for many reasons. The foremost of which is that health care in the United States is not available in all places. Although the cost-effectiveness of telesurgical operations is yet to be proven, it is generally the case that as time goes on, the cost of technology will drop and robotic consoles will become more affordable and, thus, more widely available. Laparoscopic and robotic

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29. Id.

30. Id.

31. Id.

32. Id.
surgical techniques are skills that must be learned by surgeons beyond
the open techniques that were, until the mid-1980s the only way to
perform operations. Because of this, many older surgeons who were
not trained in laparoscopic surgical techniques or surgeons that, by
virtue of their location, must retain a more generalized practice are
not able to perform laparoscopic or robotic surgeries, even when the
patient is present with them in the operating room.

Widespread use and acceptance of telesurgery could allow highly
specialized surgeons located in major cities to perform operations in
lieu of an open procedure by a local surgeon or the expense and diffi-
culty of travel to a place where that type of medical care is available.
How could this work? Current technology provides for a one-to-one
robot to console ratio. However, with increased demand, it is feasible
that one console may have the ability to operate interchangeably with
other robots. If not, perhaps a dedicated theatre of consoles could ex-
ist that maintain static connections to their respective robots. If the
surgeon has the ability to operate in more than one surgical theatre
from one console, she could increase productivity dramatically by
moving directly to the next surgery rather than waiting for the room
and staff to turn over.

The health care community has been researching the regionaliza-
tion of medical care for decades. The theory of regionalization rec-
ognizes that hospitals that treat more patients have better diagnostic
and surgical outcomes. Studies regarding improvements on morbid-
ity in patients on ventilators indicate that thousands of lives may be
saved by regionalizing care for mechanically ventilated Intensive Care
patients. It is unknown whether that is due to increased practice
from the increased volume for the treating physicians or from in-
creased referrals to physicians who are inherently more skilled.
However, if the medical field implemented regionalization as a policy,
it would necessarily mean that some patients might be forced to travel
to access care. Rural patients would continue to be at a disadvan-
tage. Robotic surgical care addresses possible sources of improved
outcomes as well as concerns. A surgeon who performs robotic
tele surgery will gain more experience by increased access to patient

33. Kiyokazu Nakajima et al., History of Laparoscopic Surgery, in LAPAROSCOPIC
COLORECTAL SURGERY 7 (Jeffrey W. Milsom et al. eds., 2006).
34. See Harold S. Luft, Regionalization of Medical Care, 75 AM. J. PUB. HEALTH,
125, 125 (1985).
35. See id.
36. This study prospectively simulated outcomes for mechanically ventilated pa-
tients based on admission, mortality, and adverse event data from eight states. Jeremy
M. Kahn et. al., Potential Value of Regionalized Intensive Care for Mechanically Venti-
lated Medical Patients, 177 AM. J. RESPIRATORY CRITICAL CARE MED. 285, 287
(2008).
37. See Luft, supra note 34.
38. Id.
39. Id.
volume, and hospitals will seek to work with highly-regarded surgeons. Geographic limitations would not constrain physicians, and low volume at any one hospital would not dissuade a physician from agreeing to provide services. Smaller hospitals in rural areas could reap similar benefits related to the operation itself as larger centers in urban areas because of access to the same surgeons. Therefore, rural patients would be at less of a disadvantage in obtaining certain types of surgical care.

3. Impediments to Implementation

Advancing technology frequently has capabilities beyond what generations before could have ever imagined. But those new capabilities may not fit squarely into the existing legal framework, which leads to a lag in implementation. In the case of telemedicine and telesurgery, there are multiple issues that temper the adoption of new technology, despite its promise.

a. Licensure

Although physicians could practice telemedicine and telesurgery to a limited extent within the state that he or she holds a license, the cost of implementing the technology is too great unless it can reach a broader audience. While licensing is beyond the scope of this Comment, it exists as a threshold issue that impedes the broad implementation of telemedicine and telesurgical care and therefore requires a brief exploration.

Because the United States Constitution does not grant the power of health and safety regulation to the federal government, health care regulation has historically belonged to the states, along with other police powers. Without federal regulation, states must regulate criteria that determines who can perform medical services. State medical boards currently create such regulations via licensing.

Each state medical board provides licensing based on the passage of the United States Medical Licensing Exam (“USMLE”) or the Comprehensive Medical Licensing Examination (“COMLEX”), as well as varying amounts of post-graduate training. However, most states do not allow for reciprocity and require physicians to apply for licensure within the state as though he or she were obtaining a license for the first time. Although physicians do not generally have to retake the USMLE or COMLEX to obtain licensure in a new state if they have already passed the exam, the procedures for obtaining a license are different from state to state despite similar substantive require-

For example, some states will allow a medical student, or M.D., to sit for an unlimited number of times before passing the licensing exam, while others will only allow three attempts. This is a problem because it requires large amounts of time and money to become licensed in any state. Furthermore, each state has its own requirements for maintaining that license, which includes continuing medical education hours that vary between fifteen and fifty hours per year. These two components create a large burden for physicians who wish to work in multiple states. Some regulations will preclude physicians from practicing in certain states altogether if they did not pass the USMLE or COMLEX within a certain number of attempts. Because of physician shortages—or at least a lopsided distribution of either location, specialization, or both—this system is not viable long-term.

In recognition of the benefits of telemedicine, there have been several attempts and suggestions of plans that would allow physicians to obtain licensure to practice across state lines. A minority, such as Texas and New Mexico, have special licensing specifically for the practice of telemedicine by physicians who do not have a license to practice medicine within that state, so long as they meet certain criteria. Others have suggested the implementation of tandem federal and state licenses.

Still, more have suggested a mutual recognition scheme. Because the substance and requirements of the licensing is substantially similar, such legislation could be similar to the Driver License Compact that all fifty state legislatures have passed. Under this compact, each driver is licensed by a home state and then may drive in any of the fifty states but must obey the laws of that state while driving within its

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43. See generally id.


47. La Couture, supra note 44.

borders.\textsuperscript{49} If a driver sustains a violation while driving within a state that he or she is not licensed in, he must pay the fine to that state, and the violation will be reported to the driver’s home state.\textsuperscript{50} Therefore, not only does the compact remove the logistical burden of driving interstate, but it also provides for only one driving record, thereby increasing accountability.\textsuperscript{51} Finally, this scheme provides certainty that all drivers will know and follow the laws, regardless of where they are licensed.

To date, the most successful attempt at removing the licensing barrier for interstate medical practice has been the Interstate Medical Licensure Compact (the “Compact”). This Compact is similar to a mutual recognition compact because it relies on collective state legislative action rather than federal regulation. The Federation of State Medical Boards created the Compact in 2013 and 2014; it took effect after the seventh state adopted the model bill.\textsuperscript{52} Under the Compact, a physician obtains licensure as he or she would in any circumstance. Then, so long as certain qualifications related to discipline, practice location, and USMLE or COMLEX testing are met, the physician may obtain a letter of qualification in his or her “home” state called the “state of principal licensure.”\textsuperscript{53} Upon receipt of the letter, the physician can then request licensure from any state that has adopted the compact.\textsuperscript{54} The other states will then issue an unrestricted license to practice medicine, just as though the physician had applied via the normal process.\textsuperscript{55} However, the license does not expand any rights that do not exist as part of the license to practice medicine within any state that a physician holds a license.\textsuperscript{56} Therefore, if a state has laws or regulations that prevent the practice of medicine where the physician is physically separated from the patient, a license obtained to practice medicine in that state via the Compact will not circumvent that rule.

To date, eighteen states have adopted the language of the Interstate Medical Licensure Compact.\textsuperscript{57}

While legislation regarding the interstate practice of medicine is moving in a decidedly positive direction, more work is needed to cre-

\begin{flushleft}49. Id.\
50. Id.\
51. \textit{See id.}\
54. Id.\
55. Id.\
56. Id.\
57. \textit{State Telehealth Laws and Reimbursement Policies, supra note 46.}
\end{flushleft}
ate a legislative scheme that will allow physicians to become licensed expediently and able to practice in locations separate from the patient.

b. Physician Reimbursement

Physician reimbursement for services rendered also accounts for some of the sluggishness in telemedicine’s widespread acceptance. Not all states or private payers will reimburse the physician for care that he or she provides via telemedicine because of security and quality concerns and the potential disruption in continuity of patient care.\footnote{58} Twenty-eight states plus the District of Columbia now have “parity legislation” that requires both Medicaid and private payers to reimburse for care provided via telemedicine, while eighteen states require reimbursement from Medicaid only.\footnote{59} One state only requires private payers to reimburse for care provided via telemedicine.\footnote{60} However, many states limit the types of telemedicine services that physicians can provide.\footnote{61} Without methods in place for providers to be compensated for providing care, none will do so. However, as telemedicine becomes more mainstream, the prices will likely decrease, and insurer reimbursements will likely improve. Furthermore, as patients are better able to access preventative care via telemedicine, it is likely that they will require fewer expensive visits that occur when patients do not maintain their health, thus incentivizing reimbursement for care in this format.

c. Malpractice Insurance

Another issue that will play a role in the implementation of telesurgery is the ability of a physician to obtain professional liability insurance that covers remote care. If a physician provides care outside his or her coverage area, insurance will not indemnify the physician if he or she is liable for a malpractice claim. Furthermore, a physician that wants to extend his or her practice into other jurisdictions should ensure that the coverage is sufficient. Some states have implemented tort reform that caps non-economic damages, such as pain and suffering.\footnote{62} If a physician has professional liability insurance in a state that caps damages, that physician may find that he or she is underinsured if practicing in another state.


\footnote{60} Id.

\footnote{61} Id.

d. Uncertainty Regarding Liability

Whether a physician can be held liable for medical malpractice depends on whether the plaintiff’s attorney can prove the following: (1) a duty of care existed; (2) the physician breached that duty; (3) the breach was the actual and proximate cause of the injury; and (4) there are damages for that injury.\footnote{Pinckley v. Gallegos, 740 S.W.2d 529, 531 (Tex. App—San Antonio 1987, writ denied).} Tort law is state law. Most states rely on a standard of care that looks to what any reasonable physician would do to establish the physician’s duty of care.\footnote{See id.} Although nearly all states have moved away from the Locality Rule—which states the standard of care for a physician is what a reasonable physician in that place would do—in recognition of the increasing uniformity of medical education and physician training, a few states still subscribe to it.\footnote{See Michelle Huckaby Lewis et al., The Locality Rule and the Physician's Dilemma: Local Medical Practices vs the National Standard of Care, 297 JAMA 2633, 2635 (2007).} Despite the fact that standards for the actual practice of medicine is likely to be the same from state to state, other issues such as the statute of limitations for suits against health care providers and damage caps are likely to vary considerably. Uncertainty as to which law will apply may be a disincentive to providing health care across state lines, despite the obvious advantages to both doctors and patients.

B. Potential Sources of Liability

There are multiple varieties of malpractice claims that may arise in a surgical context. Malpractice claims encompass treatment, failure to treat, and any other deviation from the standard of care that causes an injury or death.\footnote{Tex. Civ. Prac. & Rem. Code § 74.001(13) (2003).} When a statute governs some type of medical care, failure to adhere to that statute may result in negligence per se.\footnote{Garcia v. Columbia Med. Ctr., 996 F. Supp. 605, 611–12 (E.D. Tex. 1998) (holding that the patient was taken off life support in contravention of Texas law, and therefore, the defendant was liable for negligence per se).} Of particular concern to a physician performing telesurgery, he or she may also incur liability if a patient is injured as a result of the physician’s failure to consult with another specialist.\footnote{King v. Flamm, 442 S.W.2d 679, 681 (TEx. 1969) (holding that the defendant physician did not exercise proper care when he failed to consult with a specialist).} Increased utilization of telemedicine and telesurgery may lead to more claims simply because of the increased number of encounters that patients have with physicians. Furthermore, in the case of telesurgery, the risk of malpractice will likely rise because the physician no longer interfaces directly with the patient and operating room staff but rather through other mediums which may introduce risk. Thus, it is important to consider various sources of liability in the event of a patient injury.
III. CHOICE-OF-LAW

Choice-of-law issues arise when there is a discrepancy as to which state’s law should govern a particular suit. This includes a state court or federal court deciding whether the law of the forum’s jurisdiction or the law of another jurisdiction should apply. This Comment, using Texas as a point of reference, will focus on situations in which a litigant or the court itself raises a choice-of-law concern and discuss the likely outcome though a hypothetical dispute.

A. Background

Prior to the advent of the telephone, there was no way that a choice-of-law question could arise from physician-patient encounter. The technology of the time limited physician-patient relationships to in-person contact, thereby precluding any diversity of jurisdiction. Once technology began to allow people to communicate and act in places where they were not physically present, Congress began to consider these choice-of-law questions.

A question regarding which jurisdiction’s law should apply arises when the litigants are from different jurisdictions or the harmful act took place outside the forum jurisdiction. There are three situations in which a choice-of-law issue arises: “(1) a prior choice of law agreement by litigants; (2) a pleading for the application of foreign law; or (3) on the court’s own discretionary motion.” There are also three methods for determining which jurisdiction’s law governs: common law, choice-of-law statutes, and contractual choice-of-law clauses.

B. Choice-of-Law Issues in Telesurgery

Many industries have introduced disruptive technology that has required a long and thoughtful process for the legal community to resolve. The introduction of the automobile and e-commerce are two that allowed people to interact with each other in ways that the law had not previously accounted for. Merely two decades ago, there was concern about whether electronic contracts would be upheld and what to do about it. There are a few areas in which a choice-of-law determination will be very important because it will control whether certain affirmative defenses exist, as well as whether damages will be capped.

70. Id. at 836–37.
71. Id. at 841.
1. Statutes of Limitation

One concern regarding medical malpractice is which statute of limitation will apply as a potential bar to bringing a suit against the physician. It is particularly important to resolve this issue, as the policy behind a statute of limitation is to relieve a would-be defendant from fear of suit and to prevent would-be plaintiffs from sleeping on their cause of action. There is a wide variation among states as to the timeframe a plaintiff has to bring a claim, ranging from one year to four years from the date the cause of action accrued.\footnote{73} However, a majority of states have a two-year statute of limitations.\footnote{74} States measure their limitations with different metrics as well, some states use only time from the injury, others will toll until reasonable discovery, and some will provide a hard limit from the date of injury, even if the injury is not discovered until after that date.\footnote{75} Finally, a state may have a borrowing statute that allows it to apply the statute of limitations of the jurisdiction whose law it is applying or the statute of limitations of the forum, whichever is shorter.\footnote{76}

2. Damage Caps

A second concern for both parties involved is whether damage caps exist for non-economic damages, such as pain and suffering, or punitive damages. Some states, such as Illinois and Oregon, bar punitive damages altogether and/or restrict the amount of compensatory damages that are available.\footnote{77} There are currently nineteen states with no caps on damages for medical malpractice, twenty-six that have non-economic damages caps, and six with caps that encompass both economic and non-economic damages.\footnote{78}

3. Contributory & Comparative Negligence

Finally, in cases of negligence, some states bar recovery for plaintiffs under a theory of contributory negligence.\footnote{79} For example, if the patient bears any responsibility for his or her injury, recovery is

\footnotesize{\begin{itemize}
\item 74. \textit{Id.}
\item 75. \textit{Id.}
\item 76. See George, \textit{supra} note 69, at 854.
barred.\textsuperscript{80} Currently, only Alabama, the District of Columbia, Maryland, North Carolina, and Virginia allow contributory negligence as an affirmative defense.\textsuperscript{81} Other states employ comparative negligence where a defendant is responsible only for his or her proportion of the injury, even if the plaintiff is 99\% at fault for the injury.\textsuperscript{82} Lastly, some states employ one of two forms of modified comparative negligence, in which a plaintiff is barred from recovery if he or she is either 50\% or more at fault or greater than 50\% at fault for the injury.\textsuperscript{83}

C. Policy Considerations

1. State Concerns

Medical malpractice tort law in each state involves the interplay between three different areas that states want to control: (1) the regulation of physician activity; (2) how health care costs are distributed to citizens; and (3) to what extent patients are compensated for their injuries.\textsuperscript{84} The policy of states that do not cap damages is to make victims of negligent care whole by allowing them to recover as fully as possible from injuries inflicted on them. This can be accomplished via unrestricted damage awards, a longer statute of limitations to file a malpractice claim, or both. In others, state legislatures attempt to lower health care costs across the board for its citizens by capping damages on the theory that lower potential liability will encourage physicians to refrain from practicing defensive medicine, and the costs saved are ultimately passed on to citizens in the form of lower insurance premiums.\textsuperscript{85} Yet others attempt to entice physicians to practice in their state by limiting liability through damage caps.\textsuperscript{86} Other state policies, such as those that disfavor stale claims, are also relevant.

Texas, for example, passed tort reform laws in 2003 that only allowed non-economic damages up to $250,000 for individual health care providers.\textsuperscript{87} This change predictably shrank the number of medi-

\textsuperscript{80} Id.
\textsuperscript{81} Id. at 2.
\textsuperscript{82} Id.
\textsuperscript{83} Id. at 3–4.
\textsuperscript{85} Defensive medical practice consists of tests or procedures undertaken at least partially to reduce the possibility of a malpractice claim rather than out of medical necessity. Leonard J. Nelson III et al., Damage Caps in Medical Malpractice Cases, 85 MILBANK QUARTERLY 259, 270 (2007).
\textsuperscript{86} Geraldine Szott Mooehr & Roger Sherman, Medical Malpractice Tort Reform in Texas: Treating Symptoms Rather than Seeking a Cure, 12 J. CONSUMER & COM. L., 142, 145 (2009).
\textsuperscript{87} Steve Jacob, Studies: Texas Tort Reform Has Had No Effect on Physician Supply, Lowering Costs, D CEO: HEALTHCARE (Aug. 28, 2012), http://healthcare.dmaga
Robots Are Coming

cal malpractice claims considerably and slashed the amount of money that patients were recovering by settlement or award. Insurance rates declined in response as well.

The purpose of tort reform in Texas was to slow a perceived exodus of doctors leaving the state for jurisdictions with more favorable tort laws. However, the doctors’ exodus was not at the speed claimed by the Texas Legislature. In fact, during the years following tort reform, Texas actually lost physicians. Furthermore, of the physicians who may consider providing interstate telesurgical care, some will benefit from the laws of the state where the surgery occurs because that state may impose liability caps while the state that they are operating from does not. Conversely, others will experience no conflict at all.

Even among those who may be adversely affected by increased liability, telesurgical technology provides an opportunity to substantially increase productivity because the doctor could be operating at multiple locations during a given day. Normally, a surgeon would be restricted to the physical constraints of the amount of time that it takes for operating room staff to turn over a finite number of rooms, as well as staff changes at any one particular hospital. If that surgeon could move seamlessly, without those lags, he or she may increase productivity and billing enough to justify increased liability and concomitant increased insurance rates. Another solution may be for hospitals benefiting from that type of relationship to offset the cost of increased malpractice insurance rates. If the hospital is one that cannot, for whatever reason, attract a physical surgeon, it would make sense for that hospital to assist the telesurgeon because the hospital would also benefit from the billing generated.

2. National Concerns

Although the federal government traditionally leaves health care regulation to the states, there are issues that are pervasive to health care concerns nationally. One of those concerns is the increasingly high cost of medical treatment. Another is the availability of treatment to those in rural or underserved areas. To the extent that telemedicine and telesurgery can address those concerns, it is of national interest to increase the availability and the desirability to both obtain and perform medicine remotely.
D. Methods of Determining Which State’s Law Governs

There is a hierarchy in terms of what informs a court about how it should decide which state’s law will govern. First, a statute will receive primary consideration. A federal court sitting in diversity must also apply the choice-of-law statute of the state in which it is situated, and the court will determine which law to apply after analyzing the statute. One example of this is a borrowing statute that tells the court which statute of limitations to apply without completing a choice-of-law analysis. Absent a statute, a court will look to any contractual choice-of-law provision. Finally, a court will use common-law methods of determining which law to use, the most prevalent of which is the most significant relationship method from the Second Restatement of Conflict of Laws. A small minority of states continue to use the lex loci delicti rule of the First Restatement, where the law looks to the place of the injury to determine which law should govern. It also deserves mentioning that a minority of states use other methods. Arkansas, New Hampshire, Minnesota, Rhode Island, and Wisconsin employ—at least to some extent—the “better law” method. California and Louisiana apply a “comparative impairment” approach.

1. Second Restatement Method—Most Significant Relationship

Following the Second Restatement of Conflict of Laws, a plurality of states, including Texas, have adopted the most significant relationship test for determining which state’s law should govern a dispute. It is important to note that the meaning of “dispute” in this case does not mean the overarching dispute in the case at hand. Rather, the court must decide which state has the most significant relationship based on policies that “underlie the particular substantive issue in dispute.” In tort, this method employs four factors to discern which jurisdiction has the primary concern over the outcome of the litigation and therefore should be the applicable law. Those factors are: “(1) the injury situs; (2) the conduct situs; (3) the parties’ domicile residence, nationality, place of incorporation, and place of business; and (4) the situs of the parties’ relationship, if any.” The Restatement

92. George, supra note 69, at 841.
94. George, supra note 69, at 842.
95. RESTATEMENT (SECOND) CONFLICT OF LAWS § 145 (1971).
96. PETER HAY ET AL., CONFLICT OF LAWS 794–95 (5th ed. 2010).
97. Id. at 836–37.
98. Id. at 823.
goes on to say in § 146 that the local law of the state where the personal injury occurred will govern, “unless . . . some other state has a more significant relationship” based on the factors above.103 However, the court should look at these factors in light of the factors in § 6, which are:

1. the needs of the interstate and international legal systems;
2. the forum’s policies;
3. the policies of other states and those states’ interest in the application of their law to the issue;
4. protection of party expectations;
5. the policy underlying the particular field of law;
6. certainty, predictability, and uniformity of result;
7. the relative ease of determining and applying a law.104

Interestingly, the Second Restatement offers no guidance as to the relative weight of these factors, leaving courts to determine its effect on the facts of the case at hand. What is clear, however, is that the number of contacts with a particular state alone is not dispositive when determining which state’s law should govern.105 In cases in which a party challenges the forum’s application of its own law, the challenger bears the burden of sufficiently proving that another state’s law should apply.106 *Washington v. Trinity Industries, Inc.* provides an excellent analysis of both the Second Restatement § 146 and § 6 factors.107

In *Trinity Industries*, the North Carolina plaintiff filed suit in Texas alleging negligence, among other claims, after she crashed into a guardrail after falling asleep while driving.108 The defendants, who manufactured the guardrail, were incorporated in Delaware and had their principal place of business in Dallas.109 The case was then transferred to North Carolina where the court had to decide, using Texas’s choice-of-law rules, whether the laws of North Carolina or Texas would apply.110

The court first turned to § 146. Because the injury occurred in North Carolina, that factor weighed in favor of applying North Carolina law.111 However, an analysis regarding the location of the conduct causing the injury was more difficult. While the defendant manufactured and sold in Texas, the plaintiff’s actions of driving the car into

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108. Id. at *1.
109. Id.
110. Id.
111. Id. at *3.
the guardrail took place in North Carolina.\textsuperscript{112} Therefore, because each substantive issue may be considered separately, the law regarding negligence favored Texas law because that is where the company was negligent in designing and selling a product that it knew was unsafe.\textsuperscript{113} However, because of the conduct of the driver in falling asleep while driving, the law regarding contributory/comparative fault weighed in favor of North Carolina law.\textsuperscript{114} The court easily disposed the domicile issue as well.\textsuperscript{115} Finally, the court looked at where the relationship was centered. In this case, the plaintiff and defendant had no relationship at all outside of the crash that happened in North Carolina.\textsuperscript{116} Therefore, that factor also weighed in favor of North Carolina law.

After considering the factors that were applicable to choice-of-law in tort, the court turned to the “policy factors” in § 6.\textsuperscript{117} Although the court considered all of the factors in § 6, only factors “(b) the relevant policies of the forum; (c) the relevant policies of other interested states in the determination of the particular issue; and (e) the policies underlying the particular field of law” were meaningful to the analysis.\textsuperscript{118} The court in \textit{Trinity Industries} concluded that the thrust of Texas tort policy was to allow for plaintiff recovery and thereby induce businesses to undertake safer practices by way of strict liability and comparative negligence.\textsuperscript{119} Because Texas law would allow for punitive damages, Texas also had an interest in punishing bad acts by a “company headquartered in Texas that allegedly placed a defective product into the stream of commerce . . . .”\textsuperscript{120} On the other hand, North Carolina’s laws were against strict liability and recognized contributory negligence as a defense to the claim.\textsuperscript{121} However, the court noted that North Carolina’s stance on contributory negligence stemmed from its fear of upsetting insurance prices if it moved away from the rule.\textsuperscript{122} In this case, the application of Texas law would further Texas policies while “in no way offend[ing] North Carolina’s policy interests.”\textsuperscript{123} Furthermore, if North Carolina had concerns about driving behavior and car crashes, its criminal law scheme could address them.\textsuperscript{124} Therefore, the court concluded that Texas law would govern the suit.\textsuperscript{125}

\textsuperscript{112} \textit{Id.} at *3–4.
\textsuperscript{113} \textit{Id.} at *4.
\textsuperscript{114} \textit{Id.}
\textsuperscript{115} \textit{Id.}
\textsuperscript{116} \textit{Id.} at *5.
\textsuperscript{117} \textit{Id.}
\textsuperscript{118} \textit{Id.} at *6, *9.
\textsuperscript{119} \textit{Id.} at *6.
\textsuperscript{120} \textit{Id.}
\textsuperscript{121} \textit{Id.} at *7.
\textsuperscript{122} \textit{Id.}
\textsuperscript{123} \textit{Id.} at *8.
\textsuperscript{124} \textit{Id.} at *9.
\textsuperscript{125} \textit{Id.}
E. A Hypothetical: A Kentucky Surgeon operating on a Texas Patient

In order to better understand how a telesurgical malpractice event may unfold, a hypothetical is useful. Imagine a patient domiciled in west Texas who needs her gallbladder removed. Rather than travelling to the nearest large city, her regional hospital offers the operation robotically via a remote telesurgeon. The patient accepts this option and a surgeon who is located and domiciled in Lexington, Kentucky removes her gallbladder. During the surgery, the surgeon injures the patient’s intestine which requires additional surgery to repair. The patient then sues the doctor in Texas court eighteen months after the injury. The defendant surgeon responds with a motion to use Kentucky law.126 The application of Kentucky law would allow the surgeon to assert a statute of limitations defense, which would cause the court to dismiss the case.

A Texas court or federal court therein would apply the Texas choice-of-law rule which tracks the Second Restatement. First, the court would look to the factors to consider in tort under § 146. As in Trinity Industries, the place of injury analysis is simple. The injury undoubtedly occurred in Texas, favoring the application of Texas law. The domiciles of the plaintiff and defendant are also neutral to the analysis because they are from Texas and Kentucky, respectively. The place of the conduct causing the injury is more difficult. On the one hand, the actions that caused the injury originated in Kentucky by virtue of the surgeon manipulating the controls of the robot. On the other hand, the actions of the robot itself “caused” the injury. Ultimately, the robotic arms are in effect an extension of the surgeon’s because no injury would have occurred “but for” the actions of the surgeon in Kentucky. Therefore, the place of the conduct causing the injury would likely weigh in favor of applying Kentucky law. Finally, when the patient sought to have her gallbladder removed, the relationship between her and the surgeon was centered around the hospital located in Texas. Even though the surgeon was always located in Kentucky, he offered an operation to a Texas patient in a Texas hospital. The only place where the patient and surgeon carried on that relationship was in Texas. Therefore, this factor would likely weigh in favor of applying Texas law.

After analyzing the § 146 factors, the court would turn to the factors in § 6. As in Trinity Industries, some factors would not weigh heavily in the analysis, such as the needs of the interstate and international systems.127 Others, such as the ease in determination and application

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126. Kentucky law provides for a one-year statute of limitations and does not have a cap on damages. KY. REV. STAT. ANN. § 413.140 (LexisNexis 2005 & Supp. 2008); KY. REV. STAT. ANN. § 411.186 (LexisNexis 2005).
of the law to be applied, would weigh more or less heavily depending on whether the case was being heard in federal or state court. Federal courts routinely apply the law of different jurisdictions, but a state court may have less experience doing so.

An analysis in a case like this could also collapse the factors regarding the state’s policies, other interested states’ policies, and policies that are relevant to the law at issue, as the court did in Trinity Industries. First, in Texas, the statute of limitations for medical malpractice is in line with the majority of other states, seeking neither to give plaintiffs a particularly long time to file claims, nor to swiftly cut off the possibility of litigation.128 Kentucky’s statute of limitations, however, is relatively short, indicating a policy to protect defendants from stale litigation.129 On the damages issue, Texas has stringent damage caps, whereas Kentucky allows unlimited damages.130 Texas policies, however, aim at the larger goal of lowering insurance rates and attracting physicians.131 On the other hand, because Kentucky has not implemented damage caps, its policy is to fully compensate injured plaintiffs, which may even include punitive damages.132 The only damages that are not allowed in Kentucky are excessive ones that fail the “blush test” in which “if the judge does not blush, the award is not excessive.”133 Here, because Texas law restricts damages to influence the market, its policies are only partially promoted when a physician located elsewhere has a decreased judgment. The cap will not influence Texas insurance rates at all because a party in Kentucky will reap the benefit while the Texas market will remain unaffected. On the other hand, capped damages may influence more surgeons with the capability to perform remote surgeries in Texas to do so. Although this is undoubtedly beneficial for patients in Texas, it may not be the type of encouragement that Texas was attempting by capping damages. Kentucky’s policy is quite clearly pro-plaintiff and seeks to make an injured plaintiff whole. The increased amount of damages that a physician may have to pay is merely incidental to meeting that policy goal. Therefore, the policy goals of neither state are met; although, perhaps the tie leans slightly toward Texas if the number of available surgeons increases.

Next, the court would consider party expectations. This factor would weigh heavily toward the application of Texas law. The patient entered the relationship with the physician as a one-time interaction.

128. See Morton, supra note 73.
129. See id. (one year after discovery but not more than five years after the act); see also KY. REV. STAT. ANN. § 413.140(e) (LexisNexis 2005 & 2018 Supp.) (one-year statute of limitations for medical malpractice).
130. See supra Section III.C.1.
131. Jacob, supra note 87.
133. Id.
The physician, however, likely has had or will have repeated interactions with Texas patients. An unsophisticated patient has no reason to think that any law other than that of Texas would apply, nor is it reasonable to expect that a patient would explore the medical malpractice laws of the surgeon’s state. The surgeon, on the other hand, has “entered” the state to conduct business in a sophisticated way; therefore, it is reasonable to expect that he or she would have explored the potential liability for doing so.

Finally, the court would analyze the certainty and uniformity factor. It is unfair that a plaintiff injured by a surgeon from one state may face a shorter statute of limitations or decreased recovery than a similarly situated plaintiff whose surgeon happens to be in a different state. Therefore, this factor would weigh in favor of applying Texas law. Otherwise, courts may be subject to applying the laws of various states, and plaintiffs would never have certainty about their ability to recover if they undergo a telesurgical operation.

After accounting for all of the factors in both § 146 and § 6, it appears that the factors would weigh in favor of applying Texas law. Therefore, the statute of limitations would not bar the plaintiff’s recovery, but it would limit that recovery to the ceilings that the Texas Legislature set. However, one could envision a situation in which the law may lean the other direction, such as when the patient is located in a state that does not cap damages, but the physician is located in one that does. Therefore, states should take clarifying steps to resolve these issues for efficiency’s sake.

F. Recommendations

Based on the foregoing analysis, it appears that only plaintiffs in states that use the most significant relationship method and do not have damage caps will be at risk of not having the law of their home state apply. For the sake of uniformity, those states may consider passing legislation that is similar to a borrowing statute but relates to damage caps. A statute like this may say that the state will apply the higher damage ceiling of the two states in dispute. If this were the case, all states using the most significant relationship method would apply the law of the plaintiff’s state. This would lead to increased certainty and uniformity about how the law would apply. However, this could also lead to physician reticence to provide telesurgical services in these states. Although beyond the scope of this paper, choice-of-law clauses in a contract between the physician and patient may mitigate those concerns and prove beneficial for those physicians who find the increased risk of liability intolerable.
IV. Conclusion

Although telemedicine and telesurgery have yet to take hold in a widespread manner, its use is likely to increase as patients become more comfortable with virtual care, logistical barriers to treatment are removed, and technology advances. The community at large stands to reap the benefit as technological advances lead to increased quality of health care at lower and lower cost.

States would be wise to consider the likely outcomes of medical malpractice litigation when parties are diverse to ensure that they are desirable for the state and its policies. Providing stability and certainty to this new frontier of medicine may represent one step toward the rapid adoption of improved quality and quantity of surgical care that is available to rural patients via telesurgery while decreasing health care costs overall.