

# Studying the Intricacies Artificial Intelligence and Legal Liability of Doctors and Medical Institutions- A Critical Analysis

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**ABSTRACT.** In the past, identifying the liability for a patient who may have suffered damage or harm as a result of medical negligence was simple because by this we can easily conclude the point to the medical practitioner or the institution which provided the medical care facility. Today, however, when we use artificial intelligence tools, it's much more difficult to identify the liability because it was done by another entity that could have caused harm, namely the algorithm's output. In this study, we are aiming to decipher the nuances of Artificial Intelligence and its usage in medical science, especially deciding the diagnosis and treatment for the patient. But the issue which we have addressed is the question of accountability. This study will show how we can solve the dilemma and the study is backed by a literature survey taken from renowned journals.

**Keywords-** *Medical Negligence, Artificial Intelligence, Liability, Diagnosis*

## INTRODUCTION

One of the most widespread tools in the hands of doctors is artificial intelligence in the 21st century. it's prevalent all around the world for medical diagnosis and therapy selection. Machines like (IBM Watson deep mind or Watson for Oncology) add the new assistance for the doctors that examine the electronic health record of the patient along with the clinical data that are based on medical history to which the algorithm was supplied, as a result of which we can expect a more accurate diagnosis and better treatment options. we can't deny the advantages of using these technologies, it is equally undeniable that the present eHealth systems have resulted in a paradigm shift from the traditional interaction between the patients and the health care services.<sup>1</sup> In the past it was easy to mark the liability regarding a patient who might have suffered

damage on harm as a result of medical negligence because we could easily point out the medical institutions where the health professionals provided healthcare. But today when we leverage many artificial intelligence applications, it's very difficult to identify the liability because it has been done by another entity which could have caused harm, namely the output of the algorithm which of the doctors have used in the first place.<sup>2</sup> The situation stated racist various problems about liability distribution. it will be debated whether traditional conceptions of medical negligence and standard of care or appropriate in light of this newborn reality.<sup>3</sup> With regard, we could determine whether the rules regarding malpractice should be given a shape and adopted accordingly or whether it affects the relationship between the practitioners and the patients or a doctor that the rules regarding malpractice are should be ignored and any kind of disputes between the patient and the institution or a doctor which will arise in this scope must fall exclusively under the head known as product liability regimes.

### **Liability In a Nutshell**

Before analyzing liability under malpractice standards concerning E-health, first it is essential to understand that application of liability differs as per different kinds of realities. That means that patients who have suffered damages or got harmed can claim compensation from the practitioner directly on the basis of the doctrine of vicarious liability from the health care institution example clinics hospitals within which the doctors have provided health care facilities to the patient.<sup>1</sup>

Now we have to address the main distinction between fault-based liability, where “the party harmed as a result of the failure to comply with a duty of obligation will need to show that a duty existed, that a harm resulted from the failed or poor execution of that duty, and that the party with the duty acted negligently in failing to execute the duty properly” and the concept of no-fault liability “the party suffering harm may obtain a compensation without having to show any negligence on the part of the manufacturer or service provider, he or she will only have to show a causal link between the product or service and the harm”.<sup>1</sup> We have heard about the concept of no-fault liability which is also known as strict liability from the case of *Rylands vs Fletcher*.<sup>4</sup> Strict liability is meant to encourage and raise compensation in Product Safety while also making it easier for the consumer to file claims against businesses such as private hospitals clinics. medical responsibilities are based on fault/negligence and have two goals (1) to pay the injured patients and (2) to prevent or discourage excessively harmful behaviors.<sup>3 5</sup> Keeping such functions in mind, any response to the upcoming future regulatory difficulties must adhere to the same standards of rules. The institution who have developed that algorithm in the event when the patient will suffer any kind of damages or harm due to faulty algorithm as a result of bugs,<sup>6</sup> software failures or system glitches. In these cases, the rules of medical malpractice will be applied a priori when a malpractice behavior will arise as a result of a DSS that includes artificial intelligence.

The author goes on to say that there are two specific instances where employing software for therapeutic purposes is considered malpractice.<sup>7</sup> First would be the example of using outdated

systems or software and second, would be a failure to give caution to the patient and patient party. In this paper the main focus of the author is in order to avoid such kind of vulnerable situations regarding security, the medical institutions or the medical practitioners who use this software on a daily basis are required to upgrade them regularly and maintain them as well, failing to do so will result in malpractice responsibility.<sup>7</sup> Secondly, if a doctor makes a bad medical choice and fails to advise the patient that the diagnosis or the treatment they choose is based on software, the law of the land will be held that practitioner accountable under the rules related to preventing malpractice.<sup>8</sup>

The limit of responsibility of the practitioners or the medical institutions will be only to fulfill the doubts of the patients regarding the systems the software.<sup>8</sup> This will help the patient to fetch information and make a wise decision. When artificial intelligence tools are used such a duty to information becomes especially important in the context of treatment course selection, because not only the patient will get awareness regarding the system that has been used by the practitioner based on the algorithmic outcome, but the practitioner with also is given a feasible explanation of basic algorithmic operation. As previously stated, such an understanding raises several issues, as it is debatable whether doctors who use this kind of artificial intelligence tools, it is essential for them to understand the working of these tools.<sup>8</sup> And that's on the basis of this particular information the law of the land should decide whether these practitioners should be held liable in any event of a dispute between patient and them caused due to lack of understanding of the artificial intelligence tools.

Regardless of the scenarios which we have discussed earlier, determining whether a medical choice made with the assistance of artificial intelligence tools, and which end up harming the patient makes the health professionals requires a thorough analysis. the concept of medical negligence which will be described in the next paragraph is a significant concept in such an assessment.<sup>9</sup> Finally, before proceeding with any study of the issue based on the liability in the context of DSS, we should note that the emphasis of this study will be based on civil liability. it certainly implies that the ambit of criminal responsibility or liability will be excluded from consideration.

### **Medical Negligence**

As previously stated, the concept of medical malpractice is critical when we consider liability which arises from the use of tools based on artificial intelligence, determination of which is necessary whether this kind of medical errors in terms of choice of treatments or diagnosis or prognosis taken by the health professional should be considered as “malpractice” or not. According to Jason Chang defined medical malpractice as a negligence in maintaining professional standard In that sense, the injured patient must show

1. There was the duty of care of the practitioner
2. That the professionals failed to maintain best standards to which the practitioner is obliged.
3. That due to such negligent behavior from the defendant damages have resulted

4. and that there is a causal link between the act of damage and the act of failure.

After giving a brief explanation regarding malpractice, it will be determined whether the concept is useful to include all kinds of damages caused by the doctor's decision to follow the output of the algorithm rather than by the failure to choose the feasible treatment choice or diagnosis by the doctor when he was following his own judgment based on his medical knowledge.<sup>10</sup> It is reasonable to presume that a positive answer to such a question should be given which means that the patient who has suffered damage has the ability to meet the proof standards mentioned, the doctor good could be held accountable under the rules to prevent malpractice regardless of the fact that the machine has intervened between the patient and the doctor.<sup>11</sup> However, such a remark is made by being fully aware of the fact that how difficult it would be to apply traditional concepts of malpractice when artificial intelligence is used in the medical field being evaluated.

We have to note that it's quite difficult for the plaintiff to show the causal link between the harm of their health and the behavior which caused that particular harm. We have to consider the repercussions that under these circumstances the consequence will be that it will unprotect the patient severely. Therefore, the party who has disclosed such a link should be granted more protection by giving him all kinds of legal facilities for completing diabolical probation. It is important to note that the claimant has adequate proofs about medical malpractice, which means that in addition to demonstrating the injury, the claimant must also show that the damage has occurred due to the negligence of medical practice.<sup>9</sup> As a result, the patient has to show that the use of artificially intelligent tools based on which a particular medical choice has been made fell below the required medical standards of care.<sup>9</sup>

We can bifurcate the idea of medical error into two heads. First is the mistake of execution which can be described as failure by the practitioner to apply a planned activity and accomplish it as intended and the second is the error of planning which can be described as the application of incorrect planning to attain the desired objective which becomes relevant in this context. Medical errors in this regard could take several forms, including errors in diagnosis or prognosis induced by artificial intelligence tools in the field of medication, radiology oncology by medical management software failures, treatment interruptions owing to software problems, and so on. However, we will concentrate on errors in diagnosis and treatment planning which is caused by the use of DSS in this particular study. When this study will conclude once again that during the events of medical error which affect the health of the patient as a result of a failed medical course of action based on artificial intelligence algorithmic output, medical errors can be relevant.

### **Discussing Medical Malpractice and The Required Standard of Care**

Till now the appropriateness of healthcare standards to medical errors which has derived from the application of artificial intelligence based on CDSS has been debated. it will be discussed at this stage how to determine if a doctor using technology based on artificial intelligence must be held accountable. It is necessary to assess whether the doctor's behavior was

responsible in order to answer such a question. in this case, negligence occurs when the patient can show that the practitioner was reckless in using the technology, that is the patient has to show that the practitioner has failed to meet the desired threshold of “reasonably training and experience”.<sup>13</sup> This moment of this weather a particular medical activity has resulted in negligence is however a challenging issue especially when DSS is involved. In classic medical malpractice cases, foreseeability is the most important factor in determining whether the defendant’s action when negligent.<sup>14</sup> This concept of foreseeability of the risk involved while taking a medical decision is utilized as a parameter of the standard of treatment, despite the fact that it is not a condition *sin qua non*. such a necessity is currently being a clear challenge by the use of technologies based on artificial intelligence because when judgments admitted using the concept of black-box algorithms, the machines’ mode of working becomes difficult for the practitioners to comprehend the amount to which or how likely the algorithm will acquire a faulty outcome.<sup>9</sup> in the context of medical technologies based on artificial intelligence, the use of black-box algorithm raises extra problems, as medical choices should not be based on automatic techniques that neither physicians nor software engineers comprehend.<sup>11</sup> It might be claimed that adhering to the standards of care necessitates the doctor's critical application of the machine's output. Many authors suggest that as we know that DSS technology is intended to supplement a practitioner rather than replace his or her current medical knowledge, the practitioner should always have the last say and that claims based on negligence in this particular area should adhere to foreseeability<sup>15</sup> and healthcare standard. regardless of the fact that artificial intelligence tools have a lot of advantages, we have to realize that the use of such advanced AI technologies to feasible treatment action or diagnosis has blurred the line between foreseeability and un-foreseeability off hazards.<sup>15</sup>

On the other hand, we have to realize that the desired standard of care that we expect from the doctors while doing diagnoses and deciding regarding the treatment that has to be given to the patient is strictly limited to the knowledge of medical science that the doctor carries during the treatment. this is a clear indication that if doctors are using technologies based on artificial intelligence that includes algorithmic outputs and means of operation that even the designers and developers of such software are the not comprehend, the formers a priori- and unless it has been shown that this act completely fell under the head of a reasonable doctor, there won't be any liability on the doctor who has taken a decision regarding the diagnosis and treatment action which is based completely on the algorithmic output from an artificial intelligence tool.<sup>16</sup> What has been claimed constitutes a substantial shift in the overall scope of medical malpractice lawsuits, because the DSS’s artificial intelligence algorithm’s opacity and unpredictability call into question the core culpability concept, which states that code scan only re-compensates damages originating from anticipated injuries.

According to Nickolson price,<sup>7</sup> “when artificial intelligence technology is used while making medical decisions, the liability assessment of the doctor based on the desired standard of care in order to determine whether he is liable at different levels which depends on the impact of the artificial intelligence tool on the patient’s health conditions.” If the artificial

intelligence-based CDSS possess a low risk,<sup>7</sup> the practitioners can rely on the output given by the artificial intelligence algorithm without jeopardizing the medical condition of the patient and meeting the standards of care.<sup>17</sup> A classic example of low risk, in this case, would be a situation where the artificial intelligence tool could be used in the course of selecting a proper treatment for example deciding the feasible medical and that particular medicine has a record of being harmless concerning the prescribed dose”.<sup>18</sup> But we have to be careful while using artificial intelligence software for taking more risky decisions for example diagnosing a patient who has a critical medical history which calls for a detailed and deep medical assessment and thus the treatment selection and the diagnosis or prognosis action that could be taken as a possibility to aggravate the patient’s deteriorating health. In these cases, the practitioners who use artificial intelligence technologies are required to assess the suitability of the applied DSS as per the condition and medical records of the patient.<sup>7</sup>

#### **TECHNOLOGY USER LIABILITY: SHOULD WE BLAME THE DOCTOR FOR ALL THE MEDICAL INSTITUTIONS?**

The subject of whether or not a doctor whose decision caused a medical error while he or she is using a DSS tool based on artificial intelligence should be held accountable or not is a question based on an ethical dilemma. Ironically the legal world has been grappling with the question of whether practitioners should be held accountable if they ignore the result of artificial intelligence tools in favor of their own personal judgments.<sup>18</sup> In these similar circumstances, the courts have ruled out outdated information usage or system technologies is an example of care, and the professionals or medical institutions should be held liable as a result of any medical error that took place due to the use of such faulty technology.<sup>7</sup> It is quite obvious in this 21st century where technology changes every second the doctor is required to stay up with technical advances in medical science.<sup>9</sup> Despite this, there is yet to be delivered a landmark case study where the relationship between contempt or reliance of DSS base applications in health care services and medical negligence has been thoroughly reviewed.<sup>19</sup>

However, many authors believe that “a significant amount of doctors will realize that the use of artificial intelligence-based algorithm add the meat of the hour which should be based on the threshold of the standard of care they follow while practicing and that as a result”.<sup>10</sup> The rules will exacerbate the practitioners from the negligence claims when decision are made by the AI-based algorithm.<sup>18</sup> In this context it is a known fact the courts will be focused on new technologies” on doctors who commit medical errors as a result of the use of advanced CDSS,<sup>7</sup> because otherwise the medical community's acceptance of these technologies would be jeopardized. This understanding as one might expect implies a second interpretation. To put it another way, once the usage of artificial intelligence-based tools in the medical fraternity is widely acknowledged, the practitioners will be readily held accountable if a medical negligent error occurs due to the application of the artificial intelligence-based tool<sup>10</sup> Adulterers refer to these conditions, stating categorically that if a practitioner fails to consult a computer decision aid, he or she will be held accountable for failing to implement a standard amount of care in the provision of medical service.

Despite the fact, there is no concrete answer to the question of whether the practitioner should get immunity from accountability claims if the AI-based algorithm misleads them.<sup>10</sup> As previously stated, numerous authors say that all AI-based DSS now in use for prognosis treatment selection and diagnosis heavily rely on human intervention and that as a result, the use of technology should not be utilized to replace expert human clinical judgment. According to <sup>3</sup>authors who shared this viewpoint, the user can be held accountable if, “it is essential to be aware of substandard”.<sup>19</sup> In light of this argument, it's worth considering whether technology companies could utilize the skilled user defense to exonerate themselves from culpability in the event of any kind of damage inflicted by the AI-based system's use. “The manufacturer is not liable for supplying a product to a knowledgeable user who has reason to know of any dangerous condition in the product” according to this defense.<sup>20</sup> Best for the context mentioned above and in relation to the technology IBM Watson, IBM has claimed that as per the need which has been mentioned above regarding the human intervention, the institution should be held accountable must be the user of the technology ( standards of user malpractice) and that there are no substantial grounds which can hold the developer the creator of the manufacturer of the AI-based CDSS liable.<sup>10</sup> But there is a group of authors who believed that the extension of liability should include the creator of the AI as well in this case IBM because the creator worked as an advisor as a result of which the task is performed, and thus will be subjected to some extent to be accountable.

### **Consequences Of Holding the Doctors Responsible**

A series of members from the “community believe that the doctors are not responsible for the medical errors that are caused by applying an AI-based algorithm to find a feasible treatment action or diagnosis, yet many authors claimed that the human intervention part should be highlighted while using the AI-based software in the medical decisions and for that doctors does not get any kind of exemption from liability as they are the final user of the technology”.<sup>9</sup> The latter group of authors argues that the doctors who apply the technology should be held accountable for negligence if it can be shown that relying on the technologies output resulted in substandard care of medical practice. However, how much has not been cleared regarding what should be a threshold of the standard of care which a doctor should utilize while applying AI software in such situations. The fact creates danger of liability uncertainty, but it also sparks debate about the standards design as well as the implication of adopting it. Nickolson Price<sup>7</sup> proposes “a classification of the various kinds of risks involved while using AI-based technology to provide efficient standard of care based on the risks associated with it”.<sup>7</sup> Despite this, it is quite obvious that even though the technology is used in a way that poses a severe risk on the medical condition of the patient, overly strict standards create acceptability barriers within the medical fraternity. defensive medicine is one of the challenges that will inevitably occur if the user is given the responsibility of determining the machine's quality and the consequence it produces. When doctors or medical professionals believe that improved technical inputs help them in practicing stronger medicine.<sup>21</sup> they are practicing defensive medicine. When allocating

liability for medical errors caused by AI-based technology, now the most key social element that cannot be overlooked is the defensive medicine phenomenon.<sup>22 23 12</sup>. Thomas bridges the gap between the employment of artificial intelligence-based technologies in healthcare sector, defensive medicine, and accountability or we can say liability, emphasizing that relying on algorithms can reduce pressure. It is quite obvious that, if the doctors or practitioner disagree with the AI-based algorithms indication on which the prognosis diagnosis and the course of action depend<sup>12</sup> because no medical practitioner wants to stand, in front of a jury trying to about algorithm warnings”.<sup>12</sup>

The assessment of whether the physician followed the necessary standard of care gets deeper and more sophisticated in the new and advanced paradigm of the decision-making process in the field of medical science based on AI technology. In short, if liability are transferred from the developer to the medical professional who implemented it or rather applied it, the latter will be forced to justify what was the reason behind the fact that he or she showed blind faith in the machines prognosis, diagnosis or detecting course of action capabilities or on what valid grounds he or she deviated from the AI-based algorithm’s output.<sup>22</sup>

As per the discussion, “some authors believe that while talking about accountability concerning the use of artificial intelligence technology with features like black box technology in health care services must be achieved through<sup>24</sup> The main point to ponder upon is “whether we should blame the Doctor Who use the technology on the<sup>24</sup> Well, to answer this question there is a difference of opinion between a group of authors, some of them believe that the doctors should be blamed because they are the experts who knows better, and they have power to take the final call on behalf of the patient.<sup>24</sup> While some of the other authors believe that the institution such as hospitals should be held liable under the concept of vicarious liability.<sup>19</sup> according to Nicholson price,<sup>7</sup> “facilities are best suited to evaluate algorithms at the point of implementation and should ensure that algorithms - as a whole - are high quality according to measurable characteristics.”. Price believes that “it's quite obvious that the user will play a crucial role in assessing the level of risk involved in using the technology also in detecting wrongful outcomes”.<sup>7</sup>

### **CONCLUSION-DECIPHERING THE LIABILITY OF MEDICAL INSTITUTIONS**

Until now, the duty of care has been treated as a doctor-only requirement; nonetheless, healthcare facilities are also obligated by such a duty. In reality, healthcare businesses owe a duty of care to their patients and, as a result, may be held liable. Liability could occur as a result of the negligence and deployment of low-quality AI systems to be utilized for health care under such a duty. Medical institutions can be held accountable in this way, either directly or indirectly, under vicarious liability.<sup>9</sup> In the same way that there is a standard to be kept in mind when filing a claim against a doctor, there is a standard to be kept in mind when filing a claim against a hospital.<sup>7</sup>

As per the discussion that we had above, one would think if institutions like private hospital under which the treatment has been given to the patient should be held vicariously liable in circumstances where the artificial intelligence based CDSS caused a medical error well actually

the developer and the manufacturer of the technology should be held liable. well answering to this question, we should note institutions are not fit for liability for device usage which turns out to be defective; however, if the patient party can demonstrate that it's the hospital administration who were negligent while evaluating the AI software and that the algorithm used did not meet with the safety standards and asked quality, then the institutions like hospitals could be held responsible in the event of any kind of damage faced by the patient caused by the system failure and which resulted in wrong treatment. Indeed countries like the USA have propounded several doctrines based on liabilities but even after such doctrines the liability on the hospitals have gradually increased for failing to meet safety standards while adopting artificial intelligence based equipment to diagnose and select the right treatment.

The hospital's liability in these circumstances can also be based on the fact, while hospitals cannot guarantee that every decision taken on behalf of the patient regarding his or her health made by their medical body is accurate, they do have a responsibility to provide competent doctors who could decide proper medical care facilities.<sup>7</sup> Two conclusion could be drawn from such a concept of responsibility. To begin, a comparison may be drawn between the medical body's choice and the choice made by DSS to infer those hospitals are indeed answerable for the resources both human and nonhuman employed within their facilities. Second, the existence of a responsibility to involve efficient doctors who could use technology can be compared to the existence of a duty to hire fairly proficient doctors. As our result, this section<sup>3</sup> holds hospital accountable for any kind of medical errors happened because of improper use of artificial intelligence tool for diagnosing the disease and treatment of the same. If we shift liability or we can say accountability from the user to the institutions like private hospital, it would be seen as a way to give liability claims more certainty, and hence more protection to victims. Furthermore, courts will be relieved of the difficult task of determining whether the doctor or the medical institutions bears responsibility.<sup>7</sup>

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