

AN ANALYTICAL STUDY OF CRIMINAL LIABILITY IN THE MEDICAL PROFESSION: DOCTORS AND HOSPITALS

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ABSTRACT

Most of the AI systems rely on historical large datasets for predicting future trends and outcomes at a pace which humans would not be able to match. The development of AI in India is in the initial stages and there is no regulatory body focused solely on AI. Some of India's state governments have also taken few initiatives, such as establishment of Centre of Excellence for Data Science and Artificial Intelligence by Karnataka, Safe and Ethical Artificial Intelligence Policy 2020 and Face Recognition Attendance System by Tamil Nadu, AI-Powered System for monitoring driving behaviour by West Bengal, AI System to fight agricultural risks by Maharashtra etc. As with any other technology, AI brings with it a span of opportunities and challenges. In healthcare, AI could be beneficial in mining medical records; designing treatment plans; forecasting health events; assisting repetitive jobs; doing online consultations; assisting in clinical decision making; medication management; drug creation; making healthier choices and decisions; and solving public health problems etc.

AI could be very helpful in areas where there is scarcity of human resources, such as rural and remote areas. AI technology has been helpful in dealing with COVID-19 in India. It has helped in preliminary screening of COVID-19 cases, containment of coronavirus, contact tracing, enforcing quarantine and social distancing, tracking of suspects, tracking the pandemic, treatment and remote monitoring of COVID-19 patients, vaccine and drug development etc. The path for adoption of AI driven healthcare in India is filled with a lot of challenges. The unstructured data sets, interoperability issues, lack of open sets of medical data, inadequate analytics solutions which could work with big data, limited funds, inadequate infrastructure, lack of manpower skilled in AI, regulatory weaknesses, inadequate framework and issues related to data protection are some of the key challenges for AI-driven healthcare. To adopt AI-based healthcare, it is important to train workforce in AI so that they can carefully handle sensitive health information, protect data against theft and use AI systems effectively. It is also crucial that healthcare decisions based on AI solutions should have a rationale and are explainable.

CHAPTER 1
Understanding AI in Medical Diagnostics
Concepts and Legal Context
1.1 Introduction
Nowhere is technology changing things faster

than inside hospitals, where smart software helps doctors see clearer. Machines that learn over time now support real choices in patient care, shifting how illnesses are found and

handled.⁴⁹¹ Instead of waiting, teams get insights quicker, adjusting treatments with better timing. What once lived in labs now works quietly in the background of clinics everywhere.⁴⁹²

Patterns once hard to spot now stand out clearly when machines help doctors study X-rays. Instead of guessing, treatments get shaped by forecasts that learn from past cases in cancer care. With shortages common, sorting patients by danger level helps hospitals stretch supplies further. When the world shut down during lockdowns, digital tools jumped ahead fast – especially those spotting diseases early.⁴⁹³

Even with progress, depending more on artificial intelligence brings up serious questions about laws and right versus wrong. When doctors can't see how an AI reaches its conclusions – the so-called "black box" issue – it becomes hard to know who is responsible if something goes wrong and a person gets hurt.⁴⁹⁴

1.2 Jurisprudence of Artificial Intelligence
Out here, tossing AI into medical diagnoses shakes up old legal ideas – rights suddenly wobble, duties shift ground. Responsibility gets fuzzy when machines join in. Justice stumbles on new terrain nobody mapped before. Legal personhood? Now that's a question without clear edges. Ownership blurs like ink left in rain. Sovereignty feels the ripple, quiet but deep.

1.2.1 Rights and Legal Identity
Because laws usually tie rights to traits like awareness and choice, machines fall short. Thinkers such as Hart and Pound say wanting something matters before you get a right. Without inner experience or ethical intent, artificial systems can't claim those same entitlements. They serve more like instruments shaped by people's goals. Ownership stays with users, not code.

1.2.2 Liability and Responsibility

When machines make decisions, blame gets blurry fast. Software creators, hospitals, doctors – each might share some part of the fallout when something goes wrong. Blame used to rest on clear mistakes people made. Now it spreads out more like spilled ink across paper. Unexpected outcomes weigh heavier than intent these days. Old legal ideas about dangerous things escaping control still echo here. Fault matters less. Exposure to danger shapes who answers for what breaks.

1.2.3 Justice and Fairness

Justice means decisions must be open and evenhanded. When artificial intelligence works like a hidden mechanism, people in medical care might lose their right to understand choices made about them – just as seen in the case of Suchita Srivastava against the Chandigarh Administration.⁴⁹⁵

1.2.4 Ownership and Data Rights
Ownership gets tricky when machines learn. People still own their health details, thanks to the 2023 data law.⁴⁹⁶ Creators, though, keep control of the code they build. Control splits down the middle – body versus blueprint.

1.2.5 Sovereignty and Regulation

Out in the real world, rules set by states help keep AI use in medicine under control. When systems follow guidelines like the Medical Device Rules from 2017, risks drop without slowing progress down.⁴⁹⁷

1.3 AI used to help find health problems
Out there, tools like machine learning, deep learning, alongside natural language processing shape how AI supports medical diagnosis. While sifting through massive sets of clinical details – scans, records, lab reports – they offer support to doctors spotting illness. Instead of replacing experts, they add another layer of insight during evaluation. Applications span multiple fields, including:

⁴⁹¹ Eric Topol, *Deep Medicine: How Artificial Intelligence Can Make Healthcare Human Again* (2019).

⁴⁹² World Health Organization, *Ethics and Governance of Artificial Intelligence for Health* (2021).

⁴⁹³ World Health Organization, *Ethics and Governance of Artificial Intelligence for Health* (2021).

⁴⁹⁴ European Commission, *Ethics Guidelines for Trustworthy AI* (2019).

⁴⁹⁵ *Suchita Srivastava v. Chandigarh Administration*.

⁴⁹⁶ Digital Personal Data Protection Act.

⁴⁹⁷ Central Drugs Standard Control Organization, *Medical Device Rules* (2017).

Radiology (image interpretation),
Pathology (disease classification),
Cardiology (ECG analysis),
Oncology (tumor detection).

Out of vast amounts of data come AI models able to spot subtle trends people might miss. Because of this, spotting illnesses turns quicker and more precise. While humans scan slowly, machines notice what eyes skip. With time, these tools grow sharper at telling differences apart. Efficiency climbs when hidden clues rise into view. Diagnoses shift under quiet pressure from silent analysis.⁴⁹⁸

Still, they usually run by themselves – or nearly so – working without much clarity. That brings up questions about: Accountability for errors, Data bias, Lack of explainability. Funny thing is, AI could change everything – yet without strong rules on ethics and law, patients might face real risks.⁴⁹⁹

1.4 How Artificial Intelligence Is Used in Healthcare

Out here, machines learn to spot illness faster than old methods ever did. Not just speed – mistakes happen less when software reads scans instead of humans alone. Access jumps up where doctors are scarce, thanks to remote tools running on smart code. From spotting tumors to tracking heartbeats, tasks once done by hand now unfold without touch. One step at a time, care reaches further into corners long left behind.⁵⁰⁰

1.4.1 Diagnostics
From X-rays to blood reports, machines spot illness patterns fast. These tools study many types of health info without slowing down. Spotting issues early becomes possible through careful pattern tracking. Precision grows when software learns from varied patient histories.

Clearer diagnoses follow where human eyes might miss clues.

1.4.2 Laboratory Automation

Machines handle tasks like blood checks and gene analysis, cutting delays while boosting precision. Efficiency climbs when routine work runs on its own, freeing up time. Faster outcomes emerge as systems manage steps once done by hand. Precision rises because fewer errors slip through automated workflows.

1.4.3 Clinical Imaging

Spotting illnesses like cancer or eye damage from diabetes happens sooner when machines help doctors see what might be missed.⁵⁰¹

1.4.4 Clinical Decision Support

Sometimes it guesses what might happen next in patient care. Mistakes in identifying illnesses? Those slip less often now. Tools like these quietly help doctors stay on track.

1.4.5 Precision Medicine

Outcomes get better when treatment fits the person – thanks to AI using genes, habits, life around them. Hidden patterns in daily choices show up clearly through smart number crunching. What you eat, where you live, even your DNA – all shape how care works now. Decisions shift slowly, quietly guided by quiet signals machines notice first.⁵⁰²

1.4.6 Predictive Modelling

Predicting illness patterns comes naturally to artificial intelligence, shaping how prevention plans unfold. Healthcare shifts subtly when machines spot warning signs before symptoms arrive.

1.4.7 Robotic Surgery

Robotic surgery involves the use of advanced machines, often supported by artificial intelligence, to assist doctors in performing operations with high precision. These systems help reduce the chances of human error and

⁴⁹⁸ Artificial Intelligence in Healthcare, overview studies on AI-assisted diagnostics (e.g., Nature Medicine, 2019).

⁴⁹⁹ World Health Organization, Ethics and Governance of Artificial Intelligence for Health (2021).

⁵⁰⁰ National Academy of Medicine, Artificial Intelligence in Health Care: The Hope, the Hype, the Promise, the Peril (2019).

⁵⁰¹ Medical Imaging research summarized in McKinney et al., Nature (2020).

⁵⁰² Precision Medicine, discussed in Collins & Varmus, “A New Initiative on Precision Medicine,” New England Journal of Medicine (2015).

allow surgeons to make smaller, more controlled incisions. As a result, surgeries become safer and more efficient, especially in complex procedures where steady and accurate movements are essential.⁵⁰³

1.4.8 Virtual Health Assistants
From smart helpers come health tips, alerts, maybe a check-in when you're far from care.

1.4.9 Electronic Health Records
From within vast medical records, patterns begin to emerge when machines examine patient details closely. One step beyond simple charts, algorithms detect subtle signs that hint at future health concerns. Through layers of information, connections form between past treatments and possible outcomes. Instead of guessing, professionals gain clearer views shaped by repeated observations across thousands of cases.

1.4.10 Remote Monitoring
Out here, gadgets that sync with artificial intelligence keep tabs on your body as you move through the day. Sometimes a small alert pops up before trouble shows symptoms. These tools catch changes fast – quietly, without drama. From wristbands to patches, they track shifts moment by moment. Not magic, just math spotting patterns people might miss. When something feels off, the system already knows. It watches. Learns. Responds when needed.⁵⁰⁴

1.4.11 Mental Healthcare
Besides aiding diagnosis, artificial intelligence shapes mental health care via tailored sessions plus online resources. Therapy adapts to individuals because smart systems track progress over time. Digital aids appear in apps that guide daily coping strategies instead of waiting for appointments. Custom feedback emerges from patterns machines learn through repeated use. Treatment becomes less generic when technology responds to personal

behavior shifts.⁵⁰⁵

1.4.12 Research and Development

Faster progress in medicine now comes from machines reading vast amounts of data, spotting patterns people might miss. Hidden clues emerge when algorithms sift through information, revealing paths once invisible.

1.4.13 Drug Discovery
Molecules behave in ways machines can now forecast, speeding up medicine creation. Trials change shape when data guides each step forward.⁵⁰⁶

1.5 India's Current Laws on Climate Litigation
Right now, India does not have a specific law for artificial intelligence in medicine. However, some existing rules touch on parts of it here and there. These cover areas that connect indirectly to how AI might be used. Though they do not name AI outright, their guidelines can still apply. Different laws handle data, privacy, medical practice, and digital systems. Together, they form a patchwork rather than a clear path. No single rule brings everything together under one roof⁵⁰⁷

1.5.1 Information Technology Act 2000
Backed by the Information Technology Act of 2000, rules around data safety rest on basic protections when personal details get mishandled. Still, nothing in that law covers how artificial intelligence makes decisions – like who answers for biased outcomes.

1.5.2 Consumer Protection Act, 2019

consumers can seek remedies if they receive defective goods or deficient services. In cases involving medical devices or AI-assisted diagnosis, fixing faulty products or addressing harm is possible. However, assigning liability becomes difficult because errors are usually attributed to human professionals rather than the technology itself.⁵⁰⁸

1.5.3 Digital Personal Data Protection Act, 2023

⁵⁰³ Robotic Surgery overview in Intuitive Surgical systems and related clinical studies.

⁵⁰⁴ Remote Patient Monitoring research on AI-enabled wearables and monitoring systems (The Lancet Digital Health, 2020).

⁵⁰⁵ Digital Mental Health studies on AI-driven therapy tools and mental health apps (The Lancet Psychiatry, 2020).

⁵⁰⁶ Drug Discovery applications of AI in drug development (e.g., Nature Reviews Drug Discovery, 2019).

⁵⁰⁷ NITI Aayog, National Strategy for Artificial Intelligence (2018).

⁵⁰⁸ Consumer Protection Act.

the processing of digital personal data is regulated. The law emphasizes obtaining consent from individuals and ensuring that their personal data is handled securely and responsibly.⁵⁰⁹

1.5.4 medical device rules 2017
Out of nowhere, the 2017 rules started treating AI-driven diagnosis tools like regular medical gear - safety checks? Required. Quality standards? Enforced. Yet somehow skipped anything about systems that adapt on their own. While fixed models fit right in, those able to learn post-deployment slip through.

1.5.5 Medical Ethics Rules 2002
When it comes to using artificial intelligence in choices about care, though, exactly who does what remains fuzzy.⁵¹⁰

1.6 Conclusion
Out of nowhere, machines now spot illnesses faster than before. Because they learn patterns, doctors get support when making tough choices. Not only do these tools speed things up, but mistakes happen less often too. In labs and clinics alike, results come quicker thanks to smart software. Even remote areas gain better access through digital help. As time passes, care becomes more precise for everyone involved.

Still, putting AI into health care brings tricky legal and moral puzzles. In India, current laws zoom mostly on guarding personal information plus what happens when doctors make mistakes - yet they miss big pieces like who answers for flawed algorithms, how blame gets shared, or whether systems explain their choices clearly.

CHAPTER 2

Legal and Conceptual Basis of Criminal Liability

2.1 Introduction

Figuring out if someone is criminally responsible usually comes down to two things: what they did and what they were thinking at the time. Not

every case follows that rule though - sometimes it's enough just to have been careless. What matters most? The action itself, or failing to act when there was a duty. Alongside that, the law looks at whether intent or awareness played a role. Guilty mind, guilty act - the pair often go hand in hand. Yet rules shift slightly when dealing with situations where blame sticks even without bad intentions. Strict liability cases toss aside the need to prove state of mind entirely.⁵¹¹ These ideas shape how courts judge wrongdoing across countless charges. Thinking plus doing - that combo typically seals responsibility. Still, some offences remove part of the puzzle altogether.

When machines start thinking, old rules begin to crack. Not humans deciding everything anymore - actions now mix intent with code. Once programs run on their own, it gets messy figuring out who answers for damage. Thinking through crime and blame means reworking how we see fault when bots make choices. The lines shift. Ideas once clear grow fuzzy around edges. Holding someone responsible needs fresh angles, especially when circuits pull triggers.

2.2 Linking Crime Responsibility to AI

Who carries blame when an AI breaks rules? It depends on how independent the system acts. Three main ideas shape this, each tied to the machine's freedom to decide. Freedom changes everything - less control means shared responsibility fades. Machines that learn alone push against old legal lines. The framework shifts once a program chooses its own path.

2.2.1 AI as an innocent agent

When humans steer the process, AI acts like a tool without intent. It follows orders step by step, never choosing its own path. When someone who builds software chooses to make it break laws, that builder answers for it. Much like when a person uses smart machines wrong, they take the fall. Machines here play no role beyond

⁵⁰⁹ Digital Personal Data Protection Act.

⁵¹⁰ Medical Council of India, Indian Medical Council (Professional Conduct, Etiquette and Ethics) Regulations (2002).

⁵¹¹ Strict Liability in criminal law jurisprudence.

what hammers or cars do – just equipment shaped by choices made earlier.⁵¹²

Control and purpose matter under classic legal rules, so responsibility often follows whoever directs an action. That idea shapes how blame gets assigned in this framework.

2.2.2 AI operating with partial independence

Mistakes tied to poor judgment or oversight shape who takes responsibility. Decisions rest on what was known, not just what happened. When damage comes from bad code or poor design, blame might fall on the builder or maker. Yet if trouble follows predictable actions guided by user choices, then that person could answer for it. Here though, responsibility spreads across several players tied to how artificial intelligence works over time. Instead of one party taking fault, many share it based on their role. Risk that could've been expected now links to each step in the process.⁵¹³

2.2.3 AI operating independently

Now picture this: artificial intelligence running entirely on its own, picking up new skills just by doing. These machines learn from what happens around them, shaping how they act over time. Without someone guiding every move, they adjust themselves, moment to moment. Imagine software that changes its approach simply because it has seen something before. This kind of setup stands far apart from simpler versions we see today. It works through problems alone, building responses from past encounters.

Right now, courts cannot treat artificial intelligence like a person who means to do harm. When machines make decisions, the law still looks to humans behind them. Though some debate if AIs should face consequences on their own, reality is they lack legal standing today.⁵¹⁴ So pointing fingers at code alone stays an idea without real effect.

Now think about how we understand blame when machines make choices. Ideas like purpose or consequence start shifting under new pressures. Responsibility becomes harder to pin down once decisions happen without human hands. Punishment feels less clear where there is no mind behind an outcome. These shifts press against old legal habits in quiet but deep ways.

2.3 General Defences Amid Artificial Intelligence

Imagine defenses borrowed from familiar ideas, now applied to artificial intelligence. Picture a virus slipping into software – like drunk thinking clouds human choices. When machines stumble due to hacks or crashes, blame might shift. These disruptions shape who holds responsibility. Judgment changes if outside forces twist the outcome.⁵¹⁵

Still, using such defences for AI means adjusting them closely – machines do not possess awareness or ethical judgment. Because of that, the focus shifts toward people who design or manage the system.

2.4 AI Risks in Healthcare and Legal Consequences

Out there, where hospitals run on data, artificial intelligence slips into routines without clear rules tagging along. Efficiency jumps up when machines assist doctors – yet mistakes slip in too, quietly. Misreads happen, even with smart software double-checking results. Errors creep through glitches nobody saw coming. On top of that, hackers find fresh openings whenever automated tools connect to networks. Safety fades a little each time a system trusts code more than human checks.⁵¹⁶

Because these dangers exist, laws must grow to cover old problems along with new ones. Without rules stepping in, damage could happen – yet stopping future issues matters just as much when machines start working inside medical systems.

⁵¹² Actus Reus and Mens Rea principles.

⁵¹³ Negligence and shared liability principles in tort and criminal law.

⁵¹⁴ Legal Personhood in contemporary AI law debates.

⁵¹⁵ General Defences in Criminal Law (e.g., mistake, accident, external interference).

⁵¹⁶ Cybersecurity risks in healthcare AI systems (The Lancet Digital Health, 2020).

2.4.1 Criminal Law Perspective

When someone breaks a written rule and causes damage, they can face legal consequences. With artificial intelligence, mistakes usually do not come from intent but from carelessness, poor design, or parts failing unexpectedly.

When things go wrong, rules about careless or reckless behavior start to matter a lot. Not keeping close watch on AI systems, ignoring upkeep, yet still letting them run can bring legal trouble. Say protections are weak – hackers might break in, errors could pop up without warning, even medical advice might turn out wrong, putting people at risk.⁵¹⁷

It's up to investigators and courts to weigh what counts as proof – like expert opinions or system analyses – when assigning responsibility. Still, holding anyone accountable in incidents involving artificial intelligence often stumbles on how tangled and hard to follow those technologies can be.

2.4.2 Civil Liability Perspective

When someone gets hurt by an AI, courts can order payments through civil rules, not just punishment under criminal laws. One path opens if a promise was broken in a deal; another appears when careless actions cause damage, even without a contract. Rules shift depending on whether people agreed to something first or were simply harmed out of nowhere.

A single person or group might steer an AI setup, making them answerable if harm happens. Responsibility can land on creators, builders, those running it day to day, even people simply pressing buttons. Though the idea sounds narrow, it stretches across roles tied to how the tech moves and acts.

Still, pinning blame here gets messy when trying to prove who did what wrong. Because AI setups are so tangled, spotting exactly where things went off track isn't easy.

⁵¹⁷ Criminal Negligence in modern legal systems.

2.4.3 Administrative Control

Out of reach without oversight, AI in medicine depends on clear rules set by agencies. These bodies lay down what tools can do, who gets to run them, when they're allowed – shaping every step through limits tied to training, checks, and real-world impact.⁵¹⁸

Keeping people safe means these rules can't be skipped when using artificial intelligence. Misuse happens without clear boundaries, so oversight steps in where gaps might open.

2.4.4 Legal Awareness

From doctors to coders, knowing the law shapes how people handle artificial intelligence. Because rules guide behavior, everyone involved needs clarity on what they're allowed to do. When patients use tech tools, understanding limits matters just as much as access does. Without clear knowledge, mistakes can happen – sometimes with serious consequences. Since laws evolve alongside technology, staying informed isn't optional. Whether building apps or relying on them, awareness forms a foundation for safer choices.⁵¹⁹

One way to reduce harm is by teaching people what artificial intelligence can do alongside its risks. When rules keep up with new tools, bad choices happen less often. Ethics stay stronger when everyone understands consequences. Patients gain safety through clearer laws around smart systems.

2.5 AI healthcare rules in india

Right now, India handles artificial intelligence in health services using rules already on the books – no special law yet. Some cover how tools are built, others watch over patient details or how doctors behave.

The regulatory approach focuses on ensuring:

Ethical use in healthcare,

⁵¹⁸ Central Drugs Standard Control Organization oversight under medical device regulation.

⁵¹⁹ World Health Organization, guidance on ethical and legal awareness in AI use (2021).

Protection of patient rights.

Still, without laws focused on artificial intelligence, problems like who takes responsibility, how systems are explained, or decisions made alone tend to slip through.⁵²⁰

2.6 Regulatory Bodies

Not just one group handles AI rules in medicine across India – separate teams manage different pieces. One watches tools used in treatment, another looks at how care reaches patients. Research fairness falls under a third umbrella. Digital safety? That's tracked by yet another team altogether.

Together, they shape how rules cover AI from many angles – laws, morals, tech details – all at once.⁵²¹

2.7 How Countries Are Handling Artificial Intelligence Rules

2.7.1 Artificial Intelligence Used in Healthcare Equipment

Out there, tools powered by artificial intelligence that help spot illnesses or guide care get treated like any other medical gadget by the law. Depending on how much harm they might cause if wrong, they land in different safety groups. Before seeing real patients, each one faces tough checks to prove it works right. Only after passing every test do regulators say yes.

Regulatory requirements include:

Clinical validation,

Risk assessment,

Meeting the expected level of quality.⁵²²

Still, problems like ongoing education and unclear processes haven't really been tackled well yet.

2.7.2 Restrictions on Using AI

A license marks the line – doctors alone may treat under India's rules. Machines lack that

right, even when they spot illness or suggest remedies.⁵²³

When rules allow it, artificial intelligence can lend a hand – but only if a qualified expert is overseeing things. In the end, someone trained in medicine must answer for how patients are treated.

Because it holds people responsible, this method makes room for AI in medical care. While keeping track of actions, the system opens doors to smarter tools inside hospitals. Responsibility stays clear when technology moves in alongside doctors. As duties remain defined, machines begin working within clinics. With oversight intact, artificial intelligence finds its place across health networks.

2.8 Conclusion

Out there, artificial intelligence is changing how we think about who's responsible when something goes wrong. Old laws sort of fit, yet fall short when machines make choices on their own. What worked before now bends under new pressures from smart technology running without direct human control.

Most times, how we label artificial intelligence – whether harmless, partly independent, or fully self-directed – affects who gets blamed when something goes wrong.

What really matters is finding space where new ideas can grow without breaking rules meant to protect people. Growth needs room, yet limits keep things fair for everyone involved. Machines learning fast should still respect fairness, not just speed. Progress makes sense only when it helps more than a few. Laws must stretch enough to cover what's next, but never so much that they lose meaning

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