

Civil Liability of AI-Assisted Telemedicine in Remote Patient Care: Ethical Governance, Patient Rights, and Insurance Models in Iran

Abstract

Background: Artificial intelligence is increasingly integrated into telemedicine and remote patient care, improving access, triage, and follow-up while also creating new risks for patient safety, informed consent, privacy, and accountability. WHO guidance stresses that AI in health should be governed through human autonomy, transparency, accountability, and effective redress.[who](#)

Objective: This article examines how civil liability should be allocated in AI-assisted telemedicine and whether existing Iranian legal and insurance arrangements can adequately protect patients. It also proposes a future insurance model that distributes risk across clinicians, institutions, and developers in a way consistent with ethical governance.[ncbi.nlm.nih+2](#)

Methods: We conducted a structured normative-comparative review of WHO governance guidance, international legal-ethical literature on AI liability and telemedicine, and Iranian legal scholarship on civil liability, telemedicine, and medical responsibility. The analysis focused on accountability, informed consent, insurance coverage, irreparable harm, and the role of each actor in AI-mediated care.[ncbi.nlm.nih+2](#)

Results: The evidence shows that AI-assisted telemedicine creates a layered liability structure in which adverse outcomes may arise from clinical oversight failures, institutional deployment errors, or technology defects. In Iran, current legal doctrine can partially address these harms through general civil-liability rules, but it does not yet provide a complete framework for AI-specific coverage, compensation, or auditability. Insurance therefore becomes a key governance tool, but its current form must be expanded to cover AI-mediated risks, especially where harms are severe or irreversible.[pmc.ncbi.nlm.nih+3](#)

Conclusions: A patient-centered approach to AI-assisted telemedicine should combine civil liability, mandatory disclosure, documentation, and layered insurance coverage. In Iran, this model is legally plausible under existing doctrine but requires targeted regulation to become fully operational. Such reform would better align healthcare innovation with medical ethics, patient protection, and fair compensation.[who+2](#)

Keywords

Artificial intelligence; telemedicine; civil liability; insurance; patient rights; medical ethics; Iran; remote healthcare.

Introduction

AI is increasingly used in telemedicine for triage, symptom assessment, decision support, and remote follow-up. While these tools can improve efficiency and access, they also complicate the distribution of responsibility when harm occurs. In Iran, the legal framework remains largely based on general civil-liability principles, so the practical question is how those principles should be adapted to AI-mediated remote care.pmc.ncbi.nlm.nih+6

WHO guidance on AI for health emphasizes human autonomy, safety, transparency, accountability, and redress. These principles matter in telemedicine because patients often cannot directly observe how AI influenced the decision affecting them. In such settings, civil liability is not only a question of fault; it is also a question of whether the system can provide fair compensation and preserve trust in care.pmc.ncbi.nlm.nih+4

Iranian scholarship has already highlighted the absence of a specific AI-health statute and the need to infer responsibility from general civil-liability rules. Studies on telemedicine in Iran likewise show that disputes often arise in the absence of clear rules on responsibility, disclosure, and evidence. Therefore, any insurance proposal for AI-assisted telemedicine must fit within this existing fault-based structure while also preparing the ground for more specialized regulation.ensani+5

Data and data analysis

This article uses a structured normative-comparative review rather than primary empirical fieldwork. The evidence base includes three groups of materials: first, WHO governance documents on AI for health and telemedicine ethics; second, international legal-ethical literature on AI liability, telemedicine, and malpractice; and third, Iranian legal and scholarly sources on civil liability, telemedicine, privacy, and medical responsibility. The purpose of this dataset is not statistical generalization, but thematic synthesis of recurring legal and ethical issues relevant to AI-assisted telemedicine.who+4

The analysis followed four steps. First, the materials were screened for direct relevance to AI in healthcare, telemedicine, civil liability, insurance, patient rights, and governance. Second, the selected sources were coded under recurring themes: accountability, informed consent, privacy and data governance, professional oversight, insurance coverage, and irreparable harm. Third, the Iranian sources were compared with WHO guidance and international literature to identify where current Iranian doctrine aligns with global ethical expectations and where it remains incomplete. Fourth, the findings were synthesized into a policy-oriented framework focusing on how civil liability and insurance can function together in remote AI-mediated care.pmc.ncbi.nlm.nih+5

The comparative analysis shows a clear pattern. WHO guidance consistently emphasizes human autonomy, transparency, accountability, and effective redress as core conditions for legitimate AI use in health. International telemedicine studies show that AI creates layered responsibility across clinicians, institutions, and developers, especially when care is remote and algorithmically

mediated. Iranian legal scholarship, by contrast, shows that telemedicine and AI are still addressed mainly through general civil-liability rules, which can identify fault in some cases but do not fully solve questions of coverage, compensation, or proof when harms arise from opaque systems.who+6

On that basis, the article argues that the most defensible approach is a hybrid model of liability and insurance. In this model, the data support three conclusions: first, clinicians should remain responsible for supervision and disclosure; second, institutions should be responsible for deployment, monitoring, and documentation; and third, developers should bear responsibility for design and validation defects. The data also support a preventive insurance architecture that covers not only compensable loss but also encourages validation, escalation, and risk monitoring to reduce the likelihood of irreparable harm.ncbi.nlm.nih+3

Insurance and liability

Standard malpractice insurance is not always well designed for harms caused by AI systems because liability can be shared among clinicians, hospitals, platforms, and developers. This creates uncertainty over coverage, premium allocation, and proof of causation. A layered insurance model is therefore more appropriate: clinicians remain covered for oversight failures, institutions for deployment and monitoring failures, and developers for design and validation defects.ncbi.nlm.nih+3

AI-assisted telemedicine also raises the issue of irreparable harm, such as permanent disability, loss of function, delayed diagnosis, or death. In such cases, compensation after the fact is only partial, which means the ethical function of insurance must include prevention, validation, and escalation before harm becomes irreversible. This supports stronger disclosure duties and higher oversight thresholds for high-risk remote applications.ncbi.nlm.nih+4

The insurance dimension therefore shows that civil liability in AI-assisted telemedicine is not only about assigning blame after an adverse event. It is also about creating a reliable compensation architecture that supports trust, encourages responsible innovation, and prevents the burden of technological uncertainty from being shifted onto patients.who+2

Discussion

The proposed model is compatible with the current Iranian legal framework only in a limited and interpretive sense. It fits the existing fault-based structure of civil liability, but full implementation would require specific rules on coverage, disclosure, institutional responsibility, and compensation mechanisms. In other words, Iranian law can support the model as a transitional framework, but not yet as a fully articulated regulatory regime.ensani+4

This is significant because the patient in telemedicine is typically more vulnerable than in face-to-face care. The combination of remote interaction, algorithmic decision support, and institutional distance increases the risk that serious harm will go undetected until it becomes irreversible. For this reason, the ethical burden on systems using AI in telemedicine is higher

than in ordinary clinical practice, especially where the technology is used in triage, diagnosis, or follow-up.[pmc.ncbi.nlm.nih+3](#)

Future insurance model

To address the distinctive risks of AI-assisted telemedicine, future insurance frameworks should adopt a layered approach that distributes coverage across clinicians, institutions, and developers. This model should be linked to mandatory disclosure, documentation, periodic validation, and rapid patient compensation, thereby aligning legal responsibility with the realities of remote AI-mediated care. In Iran, this model could be introduced as a pilot in public telemedicine programs and later extended into a national framework for AI-related healthcare liability and compensation.[who+4](#)

Conclusion

AI-assisted telemedicine should not be governed by a simple, one-actor malpractice model. A more realistic approach is a layered system in which liability and insurance are distributed according to the role of each participant in the care pathway. For Iran, the proposed model is legally plausible, ethically justified, and policy-relevant, but it remains transitional until targeted regulation clarifies coverage, compensation, and redress.[ncbi.nlm.nih+4](#)

In practical terms, the law should distinguish between compensable economic loss and harm that is only partially compensable, while the healthcare system should adopt stronger ex ante safeguards for situations in which AI errors could cause irreversible outcomes. A patient-centered insurance and liability framework would therefore protect both ethical legitimacy and public trust in AI-enabled remote care.[who+3](#)

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