

# A Cloud-Based Secure Data Sharing and Delegation Framework for E-Healthcare

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**Abstract:** *In the evolving landscape of e-healthcare, the secure and efficient sharing of encrypted personal healthcare records (PHRs) remains a critical challenge due to privacy concerns and limited searchability. To address this, we propose DSAS, a novel Secure and Authorized Searchable Framework that integrates proxy re-encryption to enable privacy-preserving data sharing while ensuring efficient search capabilities. DSAS allows patients to encrypt their PHRs before uploading them to the cloud, ensuring confidentiality while granting access only to authorized medical professionals or research institutions. Additionally, the framework enables a doctor-in-charge to delegate access and research permissions to an authorized agent or institution without exposing sensitive information to the cloud service provider. By incorporating proxy searchable re-encryption, DSAS supports remote monitoring, enhances data utilization, and reduces the dependency on doctors being online at all times. We formalize the security definitions and prove the robustness of our scheme against potential threats. Performance evaluations demonstrate that DSAS achieves high efficiency and security, making it a practical solution for secure and scalable medical data sharing in cloud-based e-healthcare systems.*

**Keywords:** Secure Data Sharing, Proxy Re-Encryption, Searchable Encryption, Privacy-Preserving, E-Healthcare