

Harmonized steps

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Impact Statement

This research highlights the transformative potential of Natural Language Processing (NLP) in healthcare, particularly in enhancing data structuring and improving the standardization of critical classification systems like TNM (Tumor, Node, Metastasis) and ICD (International Classification of Diseases). By converting unstructured medical notes into organized formats, this study addresses the urgent need to make medical data more accessible and effective for patient care, demonstrating that even complex tasks like TNM classification in radiology reports can be successfully performed by AI.

In the fields of oncology, radiology, and medical coding, this research marks a significant advancement, signalling a shift towards semi-autonomous systems. It encourages the development of NLP methods that emphasize explainability, building trust among medical professionals. The integration of these advanced systems into existing workflows is poised to substantially improve data quality and efficiency, enhancing the capabilities of medical professionals and positively impacting clinical outcomes.

The practical implications of this study include the adoption of AI-powered reporting tools in radiology, the potential extension of semi-autonomous systems for ICD coding, and their application in TNM staging. These tools provide real-time support to medical staff, serving as essential resources for quality assurance and data verification. This support helps healthcare professionals deliver better patient care while managing administrative tasks more efficiently. The research demonstrates the potential of these tools to be scaled up for wider clinical use, signifying not just invaluable support for healthcare providers but also a significant reshaping of patient care narratives through more accurate and effective data management.