

Research landscape of applications of 3D printing technology in healthcare within southeast Asian countries: A systematic scoping review spanning a 10-year period from 2011 to 2021

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ABSTRACT

Introduction: The 3-dimensional printing (3DP) technology is widely deployed in healthcare for various purposes such as generating patient-specific models and facilitating surgical planning. The aim of this scoping review is to explore how 3DP technology is being implemented for healthcare applications within Southeast Asian (SEA) countries. **Methods:** This scoping review was conducted in accordance with Arksey and O'Malley's seminal framework utilising various electronic databases such as PubMed/MEDLINE, CINAHL, Scopus, ProQuest and Web of Science from 2011 to 2021. **Results:** A systematic and comprehensive searching process yielded 7558 articles for preliminary review. Upon the removal of duplicates and other irrelevant publications, 865 articles were included for final analysis and interpretation with 610 of them comprising original research. Regenerative medicine is found to be the most studied medical discipline (28.21%), which is almost double that of orthopaedics (14.68%). Furthermore, implant customization is the most-studied research scope (36.23%), followed by fabrication of prostheses and surgical planning & the use of 3D printed models as teaching materials (11.64% respectively). The research ecosystems in SEA and their influence on the growth of 3DP technology are discussed in conjunction with a detailed description of the review findings. **Conclusion:** The use of 3DP in healthcare in SEA is both versatile and encompassing a broad spectrum of clinical applications. The prospects of 3DP in the healthcare sector in SEA are undeniably promising, due to continued dedication and collaboration among relevant stakeholders and government entities.