ACS 2025 Surgeons and Engineers: A Dialogue on Surgical Simulation Meeting

P-B-08

Challenges in Surgical Education

When are Artificial Intelligence Technologies for Surgery Worth It?

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Background: Advancements in artificial intelligence (AI) are revolutionizing various fields, with healthcare being a significant beneficiary. In particular, AI platforms like Circlage are transforming surgical training by offering surgeon specific video-based feedback and personalized learning regimens. This innovation is crucial as the demand for skilled surgeons surges due to an aging population. Cataract surgery, the most common surgical procedure in the US, can be used to illustrate the impact of AI. Annually, over 3.5 million cataract surgeries are performed, with costs estimated to range from $1,906 to $2,943, contributing significantly to Medicare expenditures. Traditional training methods lead to lengthy learning curves and variable outcomes. While AI could streamline training and improve results, its cost-effectiveness is an area of study.

Current Challenges: Integrating AI into surgical training requires analysis. High development costs and variable outcomes hinder widespread adoption. Traditional training methods involve extensive practice and supervision, which can be time-consuming and inconsistent. Additionally, economic evaluation of AI technologies like Circlage is complex, with concerns about the return on investment and generalizability across different training environments.

Need of Innovation: To address these challenges, there is a critical need for innovative solutions in surgical training. AI-powered platforms like Circlage could reduce training times, lower costs, and improve surgical outcomes by providing real-time feedback and standardized training protocols. Enhancing economic evaluations and refining AI algorithms will be essential in demonstrating the cost-effectiveness and efficiency of these technologies, thereby supporting their broader adoption and integration into surgical education.