

University of Colorado Capstone Presentation Abstract

Title:

A Survey of Augmented Reality/Virtual Reality Interest in Medical Settings
Cameron Bean MPH, Landon D. Hamilton PhD, Julie A. Dunn MD, MS, FACS | Medical Center of The Rockies, 2500 Rocky Mountain Ave Loveland, CO 80538

Purpose:

Augmented reality/virtual reality (AR/VR) data visualization software platforms allow users to view, volumize and manipulate patient-specific imaging in three-dimensional space. Conventional technology only allows examining a clinical scan on a 2D screen while VR platforms fully render patient data to accurately depict anatomical systems and measure the volume of structures viewed. The purpose of this study was to identify medical professional interest in adopting AR/VR technology while identifying barriers that prevent wider adoption in clinical practice or education.

Methods:

Study participants were contacted via email or identified in person at UCHHealth, or affiliate, facilities to watch an informational AR/VR technology video (Perspectus VR; Fort Collins, CO, United States) and complete a survey via REDCap. The 25-question survey collected demographic and education information, clinical specialty and years of experience, Likert scale responses using the Technology Acceptance Model, and free text responses.

Demographic data was reported as the mean, standard deviation, and 95% confidence interval for continuous variables (e.g. age, years of medical experience, etc.). Likert scale questions were reported as a percent total response for each scale value with the median and interquartile range used to indicate distribution of the response. Word categories were generated from the free response question to identify common themes in survey response; percent respondent agreement was reported to quantify word category occurrence.

Results:

Fifty-two respondents completed the survey, which included a variety of physicians, nurses, PAs, and more (Figure 1). The median years of practice was 10 years with 55% of respondents reporting interest in integrating AR/VR in the medical field in some way. Additionally, 65% of respondents either agreed, or strongly agreed, that they are confident in their ability to learn how to use AR/VR systems (Table 1). In open-ended response portions of our survey, provider training and simulation was most frequently identified as the use of AR/VR that was most interesting (59%) followed by patient education and pre-operative planning (51% and 24 % respectively) (respondents allowed to pick multiple entries). Participants noted that challenges to implementing AR/VR in practice include costs associated with implementation and time investment vs benefit.

Conclusions:

AR/VR was identified as a potential benefit to practice and/or education by a majority of providers. Additionally, responses concerning various factors that modulate interest/ease of use of the technology indicate a high likelihood that AR/VR would be accepted by the medical community. These results suggest the use of AR/VR be further evaluated as an effective tool in provider and patient education.