

Virtual Reality for Proton Therapy - Child-Life Guided Interactive Tour for Adolescents

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Introduction: Proof-of-concept study to determine feasibility of incorporating a virtual reality (VR) facilities tour for children scheduled to receive radiation therapy without anesthesia. Secondary objective will consist of qualitative description of the VR experience.

Methods: Children ages 13 or older scheduled to receive proton radiation therapy were included in the study. The study used a VR headset, the Oculus Rift Software Development Kit 2. Subjects watched the VR tour with a child life therapist experienced in coaching children receiving radiation therapy and completed a survey after the tour.

Results: Eight subjects were consented for participation and 6 completed the post-VR tour survey. All of the patients that started the tour completed it successfully.

Two subjects took advantage of pausing the tour to spend more time exploring individual scenes. Five subjects said the VR tour was helpful preparation to undergo proton radiation therapy. Subjects stated that the tour was helpful because “it showed me what’s to come” and “it was helpful to see what it’s like to lay in the machine”. One subject said “it made me feel less nervous.” Six subjects stated that they would like to see this type of tour available for other areas of the hospital, such as diagnostic imaging rooms. None of the subjects experienced nausea or vomiting.

Conclusion/Discussion: The VR video tour allowed patients to explore the treatment facility in a comfortable environment without interrupting the proton therapy treatment schedule. Participants expressed that the tour was beneficial and would appreciate seeing other parts of the hospital in this way.



Figure. The virtual reality (VR) tour is demonstrated by a child life therapist. The video is displayed on the laptop. The VR headset allows the user to experience the tour in an immersive environment. The user can look around the room as the VR tour progresses. The VR tour can be paused from the laptop to allow the user to spend more time in any given scene. The elastic headstraps were adjusted to the front

of the device to minimize contact with the subject’s head. Subjects were instructed to hold the device and to remove it if they became uncomfortable.