

## **Constantinescu, G. A collaborative approach to designing a mobile health solution for patients with chronic dysphagia: Mobili-T (Oral presentation)**

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With the continued increase in technological advances, there is a widespread impetus to develop mobile health devices and applications that encourage healthy behaviours and self-management for patients with chronic illness. However, current healthcare equipment lags behind existing progress in technology and design. Clinicians must then become the knowledge translators for engineers and designers to develop innovative solutions to unmet clinical problems. This presentation describes an example of how such collaboration was used to design a mobile health device for swallowing therapy: the Mobili-T.

Swallowing impairment can lead to serious health and psychosocial concerns and while effective treatment exists, access to quality services are limited due to low clinical capacity, expensive equipment with poor user interfaces, and the need for patients to commute to rehabilitation centers. Mobili-T uses adjuvant biofeedback with surface electromyography (sEMG) to monitor muscle movement during swallowing exercises and translates this information into a more engaging interface for the patient. The small, portable device will interface with mobile devices via a downloadable application and will upload home practice data to a central server for the clinician to monitor progress.

This presentation will outline the steps in the design, including practical and clinical considerations, and provide an update on the status of the project. We propose an iterative process to continued improvements of the prototype by including periodic evaluation with end-users. By using an interdisciplinary collaborative approach and engaging end-users in the early design stages, a mobile health solution can be developed that can provide more consistent, motivating and accessible therapy for patients with chronic swallowing impairments.

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