ACS 2024 Surgeons and Engineers: A Dialogue on Surgical Simulation Meeting

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Research-In-Progress

Quantitative Analysis of Wounds to Aid in At-Home Chronic Wound Care: A Web Application

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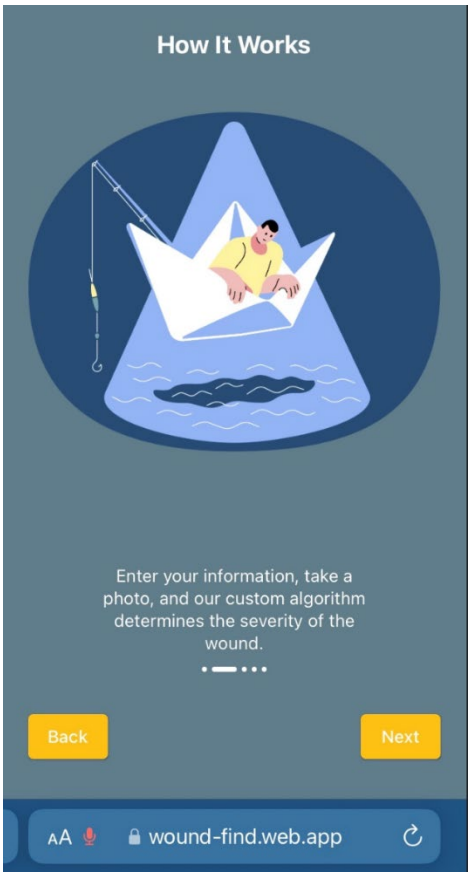
Introduction: Chronic wounds not progressed through the normal course of wound healing, making treatment a complicated process. They are associated with an increase in mortality and morbidity and negatively affect physical and mental health. Our solution is a web application that will have an interactive checklist that assists patients in the assessment of their skin for wounds based on predisposing factors. Once this information is gathered, an algorithm will create an at-home regimen for patients to follow to manage their wounds.



Methods: The application being created has two components: the first will be an interactive checklist that assists users in the assessment of their skin for wounds. This checklist has different tabs for varying predisposing factors (i.e., diabetes, sleep apnea, etc) and prompts users to answer questions about the wound being assessed. Once this information is gathered/complete, the algorithm will create an at-home regimen for patients to follow to manage their wound(s).

Preliminary Results: A web app written in the Flutter Software Development Kit is available at wound-find.web.app. Users enter demographic information and answer multiple choice and drop-down menus describing the wound state. Users are prompted to take a picture of their wound before seeing a final screen recommending an appropriate course of treatment.

Next Steps: Our proposed solution can save patients unnecessary trips to the hospital for chronic wound care. The next iteration of the application can incorporate AI to allow users to perform a digital scan of the wound to extract quantitative information regarding wound width, length, and depth, which can be shared with the patient's provider to allow for more streamlined care.