

# The Use of Technology to Improve Patient Outcomes – A Smartphone Survey

Michelle Aubin<sup>1</sup>, MD; Jacob Modest<sup>2</sup>, BS, BA; Marci Jones<sup>1</sup>, MD

<sup>1</sup>Orthopaedics Surgery, University of Massachusetts; <sup>2</sup>University of Massachusetts - Worcester, MA

## Introduction

In 2014, a survey by Endgadget demonstrated that 2/3 of Americans have smartphones. This represents a large opportunity to utilize this technology to improve patient outcomes.

Distal radius fractures are an extremely common fracture (Chung KC 2001) and recent literature has suggested that formal therapy may not be necessary (Souer JS 2011). However, there remains concern over identifying those patients that are not appropriately progressing in range of motion.

Therefore, we would like to utilize technology to assist patients in their independent range of motion exercises while also utilizing a smart phone app to measure their ROM and monitor their progress. The first step in this process is to provide proof of concept.

## Methods

- ❖ After obtaining IRB approval, all patients presenting at the hand center with a unilateral distal radius fracture who were over 18 yrs. and were capable of giving consent were provided with a survey.
- ❖ This assessed demographics, smartphone ownership (including type of smartphone), ability to text, and interest in using apps to track exercises and measure motion.

## Results

- ◆ All patients given a survey completed it for a total of 31 responses.
- ◆ Age ranged from 24-79, with an average age of 52.5.
- ◆ 43% were male, 26/31 owned smartphones with iPhone representing 46%.
- ◆ The average age of those with a smartphone was 51.7, and the oldest participant at 79 did have a smartphone.
- ◆ 96% of those with smartphones expressed an interest in an app to assist in and monitor their progress.



## CONCLUSIONS

We provide proof of concept that the majority of patients with distal radius fractures do own smartphones and are interested in an app to assist them with their exercises and monitor their progress.

iPhone was the most common smartphone owned.

Younger age was correlated with smartphone ownership although this was not a linear relationship.

This preliminary work will guide development and use of smartphone technology to assist in rehabilitation of distal radius fractures.