Prehab Pal: A Digital, Interdisciplinary Geriatric Surgery Wellness Program

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Background

- The United States population is rapidly aging\(^1,2,3\)
- Older individuals are estimated to account for more than half of the procedures performed in the United States
  - Of those aged 70 and older who undergo major surgery, more than half are considered frail\(^4,5\)
- Frailty puts patients at increased risk for adverse outcomes
- Multimodal rehabilitation has been shown to mitigate frailty-associated surgical risk\(^6,7\)
- The Surgery Wellness Program (SWP) at UCSF demonstrated the feasibility and effectiveness of a pre-operative rehabilitation program
  - Despite positive patient response, 30% of referred patients were unable to participate due to transportation burdens and conflicting preoperative appointments.
- The goal of our project was to make surgery preparation available to all seniors through a remote digitally-based program
To develop a usable, satisfactory digital tool to engage older patients in pre-operative multimodal prehabilitation that targets mediators of adverse outcomes

Overcome barriers encountered with Surgical Wellness Program (SWP) in UCSF clinics
- SWP model relies on additional in-person visits before surgery
- Time and cost intensity resulted in SWP maximum capacity of 8 patients
- With this novel digital health tool for surgical prehabilitation, we aimed to create satisfactory, scalable tool such that:
  - Average patient engagement of those who complete the program is at least 2 weeks (14 days)
  - Ability to accommodate at least 16 patients at a time (200% SWP capacity) in the pilot phase

**Project Goals**

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<tr>
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<th>SWP</th>
<th>Prehab Pal</th>
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<tbody>
<tr>
<td>Comprehensive in-person evaluation</td>
<td>Yes</td>
<td>No</td>
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<tr>
<td>Can be performed at home</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Geographically Unlimited</td>
<td>No</td>
<td>Yes</td>
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<tr>
<td>Inexpensive</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Patient Self-Initiated</td>
<td>Less So</td>
<td>More So</td>
</tr>
<tr>
<td>Non-English Language</td>
<td>Yes</td>
<td>No</td>
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The pilot program, The Surgical Wellness Program (SWP), allowed our team to explore the various complexities and limiting factors to patients enrolling and completing a pre-operative surgical prehabilitation program, as illustrated in our diagram below.
Project Plan & Interventions

- The multidisciplinary nature of the prehabilitation program makes it complex
- The ways in which seniors use technology are still being understood
- We employed a patient centered design, optimizing our interface for older populations based on patient feedback and preferences,
  - Ordered, labeled activities whose progression is triggered, simplifying the workflow
  - Multiple modules that patient can revisit anytime
  - One-click access to directly message their personal health coach
- As this is a new, remote-based program, enrollment is outside of the existing clinic workflow
  - Direct coach enrollment first through telephone, and then through MyChart to validate program legitimacy and UCSF connection
  - Have standardized onboarding outreach language and consistent coaching messaging to maximize patient enrollment, engagement, and satisfaction
    - Satisfaction Surveys administered following patient enrollment to gain real-time feedback
    - Have an app partner to mediate and trouble shoot non-app clinical concerns

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Enrolled Patient Characteristics

- **Participants** (n=93)
  - Mean Age (Years): 71.1
  - % Female: 36.6
  - Race (%):
    - White: 74.2
    - African American: 2.2
    - Asian: 7.5
    - Latinx: 2.2
    - Declined to State or Missing: 14.0
  - Median Distance from UCSF (Miles): 49.4 (21.4 – 119.0)
  - Median Days Enrolled in Prehab Pal: 15

Enrollment By Surgical Specialty

- **Example of Patient Feedback:**
  - "I was a little skeptical of how the exercises would help. After surgery there were things which were more difficult to do than I expected. The exercises helped."
  - "I really liked the multi level approach of physical & mental preparation."

Satisfaction with PrehabPal Website

- **Navigate**
  - Yes, definitely: 69
  - Yes, somewhat: 24
  - No: 7
- **Email reminders**
  - Yes, definitely: 79
  - Yes, somewhat: 14
  - No: 7
- **Content**
  - Yes, definitely: 59
  - Yes, somewhat: 31
  - No: 10
- **Video content**
  - Yes, definitely: 93
  - Yes, somewhat: 43
  - No: 10
- **Prepare physically**
  - Yes, definitely: 48
  - Yes, somewhat: 41
  - No: 10
- **Prepare emotionally**
  - Yes, definitely: 48
  - Yes, somewhat: 41
  - No: 10
- **Prepare home**
  - Yes, definitely: 55
  - Yes, somewhat: 28
  - No: 17
- **Overall satisfaction**
  - Yes, definitely: 59
  - Yes, somewhat: 31
  - No: 10
- **Recommend to friends**
  - Yes, definitely: 59
  - Yes, somewhat: 28
  - No: 14

Examples of Patient Feedback:
Next Steps & Lessons Learned

**Next Steps:**
- Increase access to surgical prehab care by expanding to other languages (Spanish and Cantonese) with a culturally informed expansion of the app
- Plan to expand to include more surgical services
- Perform a surgical outcomes analysis

**Lessons Learned:**
- While a small portion of patients (7.5%, High Coach Utilization, HCU) relied heavily on the health coaches with continued interactions and questions, most older adults engage with the web app without coaching support (Low Coach Utilization, LCU)
  - The average age of both groups was approximately 71 years old
  - Of those who utilized the coaches, majority of interactions were via telephone
- Challenging to embed new technology in existing clinic workflow, and using some of existing technology helps
- Strategies of digital engagement in older patients widely applicable to other digital health projects targeted at geriatric patients

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<tr>
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<th>High Coach Utilization (n=7)</th>
<th>Low Coach Utilization (n=86)</th>
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<tbody>
<tr>
<td>Total # of Interactions</td>
<td>33</td>
<td>100</td>
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<tr>
<td>Mean # of Interactions/Participant</td>
<td>4.7</td>
<td>1.2</td>
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**Interaction Type**

- Telephone Calls
- MyChart
- In-App Messages

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