The Impact of Chronic Illness

- 133 million Americans – almost 1 out of every 2 adults – have at least one chronic illness.

- 50 million Americans --1 in 5 people -- have a disability

- Associated costs of chronic illness and disability preventing gainful employment exceed $260 BILLION annually.
The Additive Effect...

- Chronic illnesses can lead to *additional secondary disability*, and *death*.

- We are currently *unable* to effectively manage or prevent chronic conditions in a cost-effective manner.

PREVENTABLE COSTS of secondary conditions per person per year = $148,100

- Inpatient $122,500.00
- Outpatient $25,600.00
Overview of Lecture

- Spina Bifida as an example disability
- Pilot data from successful face to face program
- Telemedicine as new opportunity in marketplace
- Smartphones as low cost alternative

Spina Bifida: ideal cohort

- >100,000 Americans, 700 in Western PA
- Most common congenital disability
- Over 85% living well into adulthood
- Permanent cognitive and physical disabilities
- Cognitive impairment results in lack of initiative for self care activity
- Outliving caregivers
Secondary Conditions in people with Spinal Cord Conditions

- Preventable
  - 1/3 of hospitalizations due to preventable conditions
  - Skin and Bladder infections most prominent
  - 1% of these hospitalizations lead to death
  - 30 day readmission rates high

- Expensive
  - Nationally
    - Expenditures 3-6x higher than general population
    - Each hospitalization $30K
    - ~4 hospitalizations/yr/person
    - Total cost is > $360M/yr
  - Locally
    - UPMC >$2M for all preventable conditions in '09

Face-to-Face Wellness Pilot Program

<table>
<thead>
<tr>
<th>Outcomes of Wellness Program</th>
<th>SBAWP Survey</th>
<th>UPMC Adult SB Clinic population</th>
<th>Wellness Pilot Program</th>
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<tbody>
<tr>
<td># of subjects</td>
<td>142 %</td>
<td>31 %</td>
<td>31 %</td>
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<tr>
<td>Skin breakdown episodes</td>
<td>41 28.9</td>
<td>11 35.5</td>
<td>3 9.7</td>
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<tr>
<td>Urinary tract infections</td>
<td>50 35.2</td>
<td>5 16.1</td>
<td>5 16.1</td>
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<tr>
<td>Hospitalizations</td>
<td>29 20.4</td>
<td>7 22.6</td>
<td>4 12.9</td>
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<tr>
<td>Mean # days per hospital admission</td>
<td>11.4</td>
<td>5.7</td>
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UPMC Center for Wellness

- Full time nurse practitioner
- Triple Aim
  - Medical outcomes, cost, quality of care
- Care modules:
  - Skin integrity
  - Medication/supplies management
  - Behavioral health
  - Bladder management
  - Bowel management
  - Nutrition and Exercise
  - Health care appointments

Telerehab Approach

- Dynamic two way communication

- Patient
  - Reminders
  - Educational Tools
  - Reporting Tools
Telerehab Approach

- Dynamic two way communication

- Wellness Coordinator
  - Quick triage/monitoring
  - Interventions

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Potential Cost Savings per Patient per Year

- Face to Face and Telerehab Programs
- Traditional Approach

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Timeline

- Phase 1: Usability Testing
- Phase 2: Controlled Clinical Trial
- Phase 3: Diversify App Portfolio
- Phase 4: Expand to other Populations

Contact information / Partners

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