Tele HEART Trial:
Outcomes of a Telehealth intervention for homebound older adults with HF or COPD

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Penn Geriatrics Grand Rounds  July 27, 2012
Learning Objectives

- Understand how Telehealth can be used as an innovative method for home-based chronic care
- Describe advantages/challenges of Tele-health
- Describe why depression care mgmt is vital with HF and COPD older patients
The vast majority of older people are self-sufficient

1. True
2. False
Sexual urges and activity normally cease around age 60

1. True
2. False
Personality changes with age, just like hair color and skin texture

1. True
2. False
Depressive disorders are serious in older adults?

1. True
2. False
In the U.S. the suicide rate is higher in Younger vs Older Adults

1. Yes
2. No
HF & COPD

*Frequently co-exist
*share similar clinical presentations in older pts.

HF
- 5.8 m
- 37 b in annual tx $
- Leading cause of hospitalization in 65 yrs and older
- $4800/day and X = 5 days in hospital
- ~30% rehospitalized
- Prevalence depression: 10-60%

COPD
- 13.1 m
- 29.5 b in annual tx $
- third leading cause of death in US
- Prevalence depression: 8-80%
Home Health Sector

- Diverse medically frail pt. population (8 m)
- Frequently isolated & limited care access
- High medical cost group (1.3 b/yr)

- Strategy to reduce costs & access barriers
  - Tele Health Technology
Depression in Older Adults

![Bar chart showing depression rates in older adults for different factors such as community (Com), personal care (PC), health (Hhealth), asthma (Ast), and home living (NHome). The chart indicates the percentage of individuals with low and high depression levels.](chart.png)
Depression in Older Adults
Impact on Prognosis & Outcomes

• Adverse Events & Disease Outcomes
  – Fall, Injury, Hospitalization
  – MI
• Increased Mortality Rates
  – MI
  – Suicide
What is Telehealthcare?

- Health and social services delivered to older patients in their homes by using telecommunication-ready health monitors, telephone, internet-video or mobile device

- e.g. blood pressure cuff, heart monitor, temperature, weight, counseling
Telehealth Devices
Benefits of Telehealth?

• Targets homebound who need frequent contact

• Targets those with costly chronic conditions

• Provides in-home medical & social services

• addresses the shortage of healthcare specialists

• Cost-effective
Telehealth Benefits

- Increased access to professionals
- Increased communication with older clients
- Continuously assess changes
- Provide counseling & supports tx adherence
Challenges

• Upfront equipment costs
• Staff adoption
• Training time
• Patient acceptance
• Reimbursement
The Tele-HEART Trial

- Tele-Heart-Education Activation Rehabilitation & Treatment

What is this study about?

• Improving Patient Outcomes

• Improving Process of Care

• Health Economics
Study Design & Aims

- Randomized Controlled Trial
- Tele-HEART vs UC + heart health education
  - Baseline, 3, 6, 12 months

- Aim 1: to test Tele-health protocol in Home Health
- Aim 2: to reduce depressive symptoms
- Aim 3: to reduce # of days in hospital
- Aim 4: to reduce ER visits & pt episodes of care
Tele-HEART Intervention Activities

(1) **Depression screening** (1\textsuperscript{st} and last visit - 90 days)

(2) **Telehealth remote monitoring** (daily)
   - Set-up within 48 hrs, pts receive instruction
   - Daily data collected
   - blood pressure, heart rate, oxygen saturation, weight, +5 questions related to CHF symptoms
Tele-HEART Intervention Activities

(3) *Psychoeducation* (weekly)
- Use of current AHA guidelines
- Depression sx

(4) *Problem Solving Therapy & Behavioral Activation* (weekly)
- 30-60 min/wk, identify problems related to managing chronic conditions & associated daily stressors
Tele-HEART Process of Care Components

- Screen (1)
- Asmt (3)
- CMgr (4)
- 1st visit (5)
- Health Main

Compliance %
Tele-HEART Process of Care Components

![Graph showing compliance percentages for various care components: MedM, PsyEd, Dep Care, Prob S, Beh Act. The graph displays compliance percentages with bars indicating the percentage for each component.]
# Tele-HEART Study Participants

| Variable                     | tele-HEART  
|------------------------------|-------------  
|                              | \( n = 57 \) | UC + education  
|                              | \( n = 58 \) |
| Mean age (years)             | 80.1        | 78.3         |
| Years of education           | 11.20       | 11.34       |
| Gender (% female)            | 63          | 69          |
| White (%)                    | 88          | 86          |
| Marital Status (%)           |             |             |
| Married                      | 37          | 31          |
| other                        | 63          | 69          |
| Mean # med cond              | 3.8         | 3.9         |
| Lives alone (%)              | 45          | 39          |

Note. \( N = 102 \). Percentages are within group
## Tele-HEART Study Participants

<table>
<thead>
<tr>
<th>Variable</th>
<th>tele-HEART $(n = 57)$</th>
<th>UC + education $(n = 58)$</th>
</tr>
</thead>
<tbody>
<tr>
<td>HF (%)</td>
<td>81</td>
<td>74</td>
</tr>
<tr>
<td>COPD (%)</td>
<td>19</td>
<td>26</td>
</tr>
<tr>
<td>Hypertension (%)</td>
<td>46</td>
<td>47</td>
</tr>
<tr>
<td>MMSE (X)</td>
<td>25.1</td>
<td>25.8</td>
</tr>
<tr>
<td>Hosp Days (past 12 months)</td>
<td>13.9</td>
<td>14.3</td>
</tr>
<tr>
<td>Pt Episodes of Homecare</td>
<td>1.9</td>
<td>2.0</td>
</tr>
</tbody>
</table>
## Means (SD) for Outcome Measures

<table>
<thead>
<tr>
<th>Measure</th>
<th>Tele-HEART $(n = 51)$</th>
<th>UC + Education $(n = 51)$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Depression</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PHQ-9 baseline</td>
<td>14.9 (6.4) $^A, , ^a$</td>
<td>15.2 (5.8) $^A, , ^a$</td>
</tr>
<tr>
<td>PHQ-9 posttx</td>
<td><strong>7.4</strong> (5.7) $^A, , ^b$</td>
<td><strong>13.6</strong> (5.6) $^B, , ^a$</td>
</tr>
<tr>
<td>CES-D baseline</td>
<td>19.9 (5.1) $^A, , ^b$</td>
<td>20.5 (8.8) $^B, , ^a$</td>
</tr>
<tr>
<td>CES-D posttx</td>
<td><strong>10.4</strong> (5.8) $^A, , ^b$</td>
<td><strong>18.7</strong> (9.4) $^B, , ^a$</td>
</tr>
<tr>
<td><strong>QoL (SF-36)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gen Health base</td>
<td>41.5 (21.1)</td>
<td>40.6 (21.7)</td>
</tr>
<tr>
<td>Gen Health posttx</td>
<td>48.4 (31.2)$^A, , ^b$</td>
<td>41.1 (32.4)</td>
</tr>
<tr>
<td>Soc Func base</td>
<td>46.4 (29.2)</td>
<td>45.1 (29.6)</td>
</tr>
<tr>
<td>Soc Func posttx</td>
<td><strong>56.3</strong> (31.9)$^A, , ^b$</td>
<td><strong>46.7</strong> (32.3)</td>
</tr>
</tbody>
</table>
Effect of Treatment on ER & Home Care Usage (Past 12 months)

- # ER Visits
  - Tele-HEART: $p < .03$
  - UC+ EDU: $p < .03$

- # Episodes
  - HC: $p < .10$
Effect of Treatment on Hospital Days (Past 12 months)

- tele-HEART: 10.5 days
- UC+: 7.51 days

$p < .06$
Summary Telehealth Research

- Improves diagnostic skills
- Provides EB treatment interventions
- Timely telehealth services can increase quantity and quality of patient contacts
- Educating older adults for better self-care management
- Achieve improved outcomes (Cost-related, clinically-related)
Tele-HEART Onsite Study Team

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“The TeleHomecare Wellness Program”
University of Pennsylvania

• Penn Gerontology Graduate Students
Thank you

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Questions