Innovations in Complex Chronic Disease Management

Ann-Marie Rosland, MD MS
Associate Professor of Medicine, University of Pittsburgh
Core Scientist, VA Pittsburgh CHERP Research Center
May 23, 2019
Why Do We Need Innovations in Chronic Disease Management?

We have not fixed this problem:
About 50% of patients with chronic disease still have not achieved ‘control’

The patients who are not under control are not responding to the easy fixes

Care of chronic disease is getting more complex:
Multiple chronic diseases, aging population, diagnosed earlier/living longer with chronic disease

The 60/30/10 Population Challenge

Uncontrolled chronic disease has big impacts:
Health Outcomes, Quality of Care, Utilization, Provider Burnout
Leveraging Family and Community Support

‘Smart’ High Risk Panel Management Tools
Family Support is a Powerful Untapped Resource in Chronic Disease Management

50-75% of Functionally Able Adults with Chronic Disease Have a Family Member Involved in Their Care

Family Support Has Powerful Effects on Chronic Disease outcomes

Family Supporters Play a Big Role in Health Care Visits and Health System Navigation

Family Are Able to Help From A Distance
Impact of Pre-Existing Social Support on Diabetes Self-Management Intervention Success

Predicted Intervention Change in HbA1C by Diabetes Support Level*

*N=108

Change in HbA1C from Pre to Postintervention

0 0.2 0.4 0.6 0.8 1 1.2 1.4

0 1 2 3 4

Diabetes-Specific Support Level (Pre-Intervention)

*Based on Multivariate Model adjusted for sociodemographics, diabetes medication regimen, baseline A1C

Rosland et al, Patient Education and Counseling, 2015
Social Support and Lifestyle vs. Medical Self-Management (N 13,366)

Models adjusted for sociodemographics, SF-8, comorbidities, diabetes duration, depressive symptoms, hospitalization, number of meds, number of appointments.  *95% Confidence Interval does not cross 1  †Among insulin users only

(S) = Self-reported  (A) = Derived from administrative data

Rosland et al, Annals of Behavioral Medicine 2014
How can we leverage the power of family support?

**VA CO-IMPACT Trial**

- **One-time Initial Session**
  - Patient, Supporter, Dyad Coach
  - (in-person/phone)

- **Biweekly Automated Interactive Calls**
  - I.D. of issues, feedback for patient, and action planning
  - (Patient completed call and summary of call sent to supporter via email message)

- **Primary Care Visit Preparation**
  - ongoing throughout the 12 months when patient has an appointment
  - (via phone with patient or both)

- **Visit Summaries**
  - (mailed to both)

**NIH FAM-ACT Trial**

- **Family-Focused DSME**
  - Patient Interim Survey / Labs / Weight
  - Brief Care Management & Activation Training Contacts
  - With Patient and Support Person
  - PATIENT HbA1c, UKPDS Cardiac Risk Score

- **Individual-Focused, Standard DSME**
  - Patient Interim Survey / Labs / Weight
  - Brief Care Management & Activation Training Contacts
  - With Patient
  - PATIENT HbA1c, UKPDS Cardiac Risk Score
Expected Outcomes

Well-honed materials and tools

Does it help patients to put extra effort into engaging family?
- If so, would clinics put more resources into it?
- Could we allow clinics to bill for family education?
- Could we help make it easier for patients to share their medical information if they want to?

What patients does it help the most?
Management of Complex, High Risk Patients

We can identify who is at high risk......but what care do they need?

Which health conditions to prioritize?
Who should be responsible for managing the care?

Lead, National VA High Risk Investigator Network
Project Lead, VA Primary Care Analytic Team
Funded by VA Office of Primary Care
What natural clusters of chronic conditions exist among Veterans at high risk of hospitalization?

<table>
<thead>
<tr>
<th>Substance Abuse</th>
<th>Mental Health</th>
<th>Liver</th>
<th>Cancer</th>
<th>Pain/ Arthritis</th>
<th>Cardio metabolic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol Abuse</td>
<td>82%</td>
<td>3%</td>
<td>26%</td>
<td>5%</td>
<td>2%</td>
</tr>
<tr>
<td>Drug Abuse</td>
<td>87%</td>
<td>5%</td>
<td>27%</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Nicotine Abuse</td>
<td>56%</td>
<td>20%</td>
<td>33%</td>
<td>16%</td>
<td>14%</td>
</tr>
<tr>
<td>PTSD</td>
<td>39%</td>
<td>46%</td>
<td>17%</td>
<td>12%</td>
<td>9%</td>
</tr>
<tr>
<td>Depression</td>
<td>63%</td>
<td>85%</td>
<td>33%</td>
<td>20%</td>
<td>12%</td>
</tr>
<tr>
<td>Anxiety Disorder</td>
<td>27%</td>
<td>34%</td>
<td>8%</td>
<td>9%</td>
<td>5%</td>
</tr>
<tr>
<td>Bipolar Disorder</td>
<td>46%</td>
<td>11%</td>
<td>15%</td>
<td>9%</td>
<td>1%</td>
</tr>
<tr>
<td>Psychosis</td>
<td>15%</td>
<td>71%</td>
<td>3%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>CAD</td>
<td>5%</td>
<td>9%</td>
<td>7%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Arrhythmia</td>
<td>4%</td>
<td>12%</td>
<td>16%</td>
<td>23%</td>
<td>33%</td>
</tr>
<tr>
<td>CHF</td>
<td>2%</td>
<td>6%</td>
<td>12%</td>
<td>18%</td>
<td>25%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>15%</td>
<td>35%</td>
<td>11%</td>
<td>11%</td>
<td>19%</td>
</tr>
<tr>
<td>Renal Failure</td>
<td>1%</td>
<td>4%</td>
<td>49%</td>
<td>45%</td>
<td>58%</td>
</tr>
<tr>
<td>Liver Disease</td>
<td>11%</td>
<td>1%</td>
<td>13%</td>
<td>15%</td>
<td>18%</td>
</tr>
<tr>
<td>Chrn Pulmonary</td>
<td>16%</td>
<td>18%</td>
<td>100%</td>
<td>2%</td>
<td>1%</td>
</tr>
<tr>
<td>Arthritis</td>
<td>33%</td>
<td>45%</td>
<td>2%</td>
<td>23%</td>
<td>27%</td>
</tr>
<tr>
<td>Pain</td>
<td>64%</td>
<td>82%</td>
<td>31%</td>
<td>29%</td>
<td>100%</td>
</tr>
<tr>
<td>Cerebrovascular</td>
<td>2%</td>
<td>5%</td>
<td>64%</td>
<td>59%</td>
<td>0%</td>
</tr>
<tr>
<td>Cancer</td>
<td>1%</td>
<td>0%</td>
<td>6%</td>
<td>8%</td>
<td>0%</td>
</tr>
</tbody>
</table>

Prenovost, Rosland; PLOS; 2018
High Risk Panel Management Tool
High Risk Comorbidity Group

DIAGNOSIS PROFILE OF Chronic Liver Group

- Alcohol Abuse: 25%
- Drug Abuse: 12%
- Nicotine Abuse: 33%
- PTSD: 12%
- Depression: 33%
- Anxiety Disorder: 1%
- Bipolar Disorder: 1%
- Psychosis: 1%
- CAD: 15%
- Arrhythmia: 2%
- CHF: 3%
- Diabetes: 48%
- Renal Failure: 2%
- Liver Disease: 100%
- Chrnl Pulmonary: 95%
- Arthritis: 55%
- Pain: 65%
- Cerebrovascular: 31%
- Cancer: 5%

Chronic Liver Comorbidity Group Care Evaluation
Consider whether these services are appropriate for this patient. If so, add a PCAS Task as a reminder for the services, or go directly to the health record and create an order or referral for the care needed.

CARE STEP TO CONSIDER        RECEIVED IN THE LAST 12 MONTHS
1. Hepatitis V Vaccination     NO (Add a Task)
2. EGD for variceal screen if cirrhosis 04/01/2018
3. Goals of Care Conversation documented in standard template 09/01/2018

About the Chronic Liver Comorbidity Group

Patients in this group have:
1) VA Care Assessment Needs (CAN) hospitalization score >= 90th percentile.
2) Match the Chronic Liver profile at 80% likelihood or higher.

This patient's pattern of diagnoses over the last year best aligns with the Chronic Liver group.

Patients in the Chronic Liver group often have Liver Disease, Diabetes, Depression. Reference the figure to the left to identify which diagnoses this patient has that align them with this group.

Everyone in this group is at high risk of being hospitalized over the next 12 months (CAN score >= 90).

Patients in the Complex Chronic Liver group with diagnoses of Renal Failure tend to have particularly high numbers of comorbid diagnoses and high clinical complexity compared to others in this group.

Patients in the Complex Chronic Liver group have these characteristics:
- 2nd highest VA ED/urgent care visit rate among groups
- Most frequent hospitalizations among groups
- Low rate of Home Based Primary Care program use
- 2nd highest rate of dialysis among groups
- High rate of mortality compared to other groups
Expected Outcomes

- Methods to accurately apply clustering models to real-time high risk patient populations
- Develop and test provider facing High Risk Panel Management Tool
- VA HSR&D Merit Grant Proposal to strengthen the informatics and clinical base for the tool
- Apply methodological approach to other HCS
- Intervention trial in VA Primary Care
Thank You