Cost Savings in Patient Navigation

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Acknowledgments & Disclaimer

Deep South Cancer Navigation Network (PCCP)
- Edward Partridge MD (PI)

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Triple Aim
- Better health
- Better healthcare
- Lower costs of care

The contents of this presentation are solely the responsibility of the authors and do not necessarily represent the official views of the U.S. Department of Health and Human Services or any of its agencies.
The Patient Care Connect Program (PCCP) is a lay navigation program integrated into the care system

- Older adults ≥65 years with cancer
- Cancer treatment or follow up care
- 12 cancer centers in 5 southern states
- Mix of academic HSC, hospital-based
- Affiliated and private practices

- 12 nurse site managers
- ~40 lay navigators
Focus of the PCCP

- Prevention
- Early Detection
- Active treatment
- Survivors
- End of Life

Navigator roles
- Coordinate and address barriers to care
- Empower and support patients and survivors

Navigator activities were guided by frequent distress assessments

Community health advisors

PCCP lay navigators

Lower cost of care
Essentials of the PCCP

PCCP offered as service starting March 2013
- Considered standard of care; thus no random assignment to PCCP

Enrollment by
- Referral from providers and self-referrals
- Census reports on hospitalizations and ER visits

Priority given to high acuity cancers and patients
- High acuity cancers such as lung, ovarian, brain, hematologic, head and neck
- Stage 4 cancers and metastatic disease
- High risk co-morbidity (diabetes, heart failure, COPD, history ED visit in prior month

Nurse site manager assigned patients to navigators to initiate contact
## Distress Assessment

### PRACTICAL PROBLEMS:
- Ability to use Phone
- Getting Groceries/Shopping
- Insurance/Financial
- Work
- Child Care
- Housekeeping
- Housing
- Manage Finances
- Transportation

### FAMILY PROBLEMS:
- Dealing with: Children
- Family Support
- Friends
- Partner

### INFORMATION CONCERNS:
- Lack of Info About (my):
  - Alternative Therapy Choices
  - Diet/Nutrition
  - Home Health
  - Maintaining Fitness/Exercise
  - Prognosis
  - Side-Effects/Treatment(s)
  - Supportive Care
  - Diagnosis/Disease
  - End of Life Issues
  - Legal Issues
  - Performing Medical Procedures
  - Scheduling
  - Side-Effects/Medication(s)
  - Treatment(s)
  - Treatment Decisions

### PHYSICAL PROBLEMS:
- Body Soreness
- Changes in Urination
- Controlling Bowel Movement
- Diarrhea
- Fatigue
- Getting Around
- Hearing
- Indigestion
- Loss of Appetite
- Mouth Sores
- Nausea/Vomiting
- Opening Medication Bottles
- Skin Dry/Itchy
- Swallowing
- Tingling Hands/Feet
- Weight Change
- Breathing
- Constipation
- Controlling Urination
- Dizziness
- Eating
- Feeding Self
- Fever
- Getting Around
- Getting Around
- Indigestion
- Moving In/Out of Chair or Bed
- Nose Dry/Congested
- Pain
- Sleep/Insomnia
- Substance Abuse
- Talking
- Toileting
- Vision
- Writing

### EMOTIONAL PROBLEMS:
- Adjusting to Changes in Appearance
- Adjusting to my Illness
- Boredom
- Concentration
- Coping with Grief & Loss
- Emotional Control
- Fear(s)
- Feeling Depressed or "Blue"
- Feeling Hopeless
- Guilt
- Intrusions (thoughts that appear suddenly and repeatedly that are not welcome)
- Isolation/Feeling Alone
- Loss of Interest in Usual Activities
- Managing Stress
- Nervous/Anxiety
- Role Changes ("Caring for Family")
- Sadness
- Self-esteem
- Worry

### SPIRITUAL/RELIGIOUS CONCERNS:
- Lack of Comfort, Strength or Hope from Spiritual Beliefs
- Facing my Mortality
- Lack of Social Support from Spiritual/Religious Group
- Loss of Faith
- Trust in God
- Loss of Sense of Purpose
- Meaning of Life
- Relating to God

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Adapted with permission from the NCCN Clinical Practice Guidelines in Oncology for Distress Management v.2.2013 © 2013 National Comprehensive Cancer Network, Inc. All rights reserved. The NCCN Guidelines® and illustrations herein may not be reproduced in any form for any purpose without the express written permission of the NCCN.
PCCP navigator administers Distress Assessment (DA)

Score ≥ 4 or unrelieved symptoms

Score < 4

PCCP navigator evaluates cause of distress

PCCP navigator offers or survivors request assistance with distress item

PCCP navigator addresses distress item with appropriate resource

PCCP navigator refers to provider

Provider addresses distress item

SM addresses distress item

PCCP navigator refers to Site Manager (SM)

PCCP navigator refers to Site Manager (SM)

SM addresses distress item

PCCP navigator follows-up with patient

PCCP navigator repeats DA in 5-7 days

PCCP navigator evaluates cause of distress

PCCP navigator follows-up with patient
Request for assistance from navigators

Proportion of patients reporting cause of distress who requested assistance

% of patients

<table>
<thead>
<tr>
<th>Cause of distress domain</th>
<th>Proportion of patients reporting cause of distress who requested assistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall</td>
<td>59.3</td>
</tr>
<tr>
<td>Physical</td>
<td>35.7</td>
</tr>
<tr>
<td>Practical</td>
<td>63.2</td>
</tr>
<tr>
<td>Emotional</td>
<td>32.9</td>
</tr>
<tr>
<td>Cognitive</td>
<td>20.6</td>
</tr>
<tr>
<td>Information</td>
<td>67.3</td>
</tr>
</tbody>
</table>

All with distress items
Cost Evaluation

• Can PCCP navigation result in lower health care costs?
  – Reduction in hospital stays
  – Decreased ED visits
  – Decrease in ICU admissions

• Can PCCP maintain patients on evidence-based clinical pathways?

• Will navigated patients have better satisfaction with care?
Methods

• Design
  – Secondary analysis of Medicare claims data from 1/1/2012 - 12/31/2015
  – Compare costs of health care use for older patients receiving PCCP lay navigation and matched cohort of non-navigated patients

• Sample
  – Patients with cancer >65 yrs
  – Medicare Part A and B insurance
  – At least 1 quarter of observation before
  – 2 quarters of observation after enrollment into PCCP
Analysis

• Repeated measures generalized linear models evaluated trends in total cost based on
  – Group assignment
  – Quarters after enrollment (time)
  – Calendar time

• *Interaction between group and time was primary coefficient of interest*
### Demographics of Unmatched Groups (n=15,251)

<table>
<thead>
<tr>
<th></th>
<th>Non-Navigated (n=9608)</th>
<th>Navigated (n=6304)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean)</td>
<td>74.7 (7)</td>
<td>74.7 (6.7)</td>
<td>.62</td>
</tr>
<tr>
<td>Female</td>
<td>51.0</td>
<td>51.4</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>12.0</td>
<td>12.6</td>
<td></td>
</tr>
<tr>
<td>High cancer acuity (%)</td>
<td>37.5</td>
<td>39.8</td>
<td>.003</td>
</tr>
<tr>
<td>Phase of care - Initial (%)</td>
<td>76.2</td>
<td>71.5</td>
<td></td>
</tr>
<tr>
<td>Comorbidity score (2-3)</td>
<td>26.9</td>
<td>29</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Any chemotherapy</td>
<td>17.1</td>
<td>27</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Pre-enrollment Medicare costs per quarter ($ mean)</td>
<td>6,257</td>
<td>6,697</td>
<td>.01</td>
</tr>
</tbody>
</table>
### Demographics of Navigated Patients and Matched Groups (n=12,428)

<table>
<thead>
<tr>
<th></th>
<th>Matched</th>
<th>Navigated</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age (mean)</td>
<td>74.8 (6.9)</td>
<td>74.7 (6.7)</td>
<td>.34</td>
</tr>
<tr>
<td>Female</td>
<td>52.4</td>
<td>51.4</td>
<td></td>
</tr>
<tr>
<td>African American</td>
<td>12.4</td>
<td>12.4</td>
<td></td>
</tr>
<tr>
<td>High cancer acuity (%)</td>
<td>39.9</td>
<td>40</td>
<td>.94</td>
</tr>
<tr>
<td>Phase of care - Initial (%)</td>
<td>73.2</td>
<td>72.6</td>
<td></td>
</tr>
<tr>
<td>Comorbidity score (&gt;4)</td>
<td>25.4</td>
<td>25.9</td>
<td></td>
</tr>
<tr>
<td>Any chemotherapy</td>
<td>20.1</td>
<td>26.5</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Pre-enrollment Medicare costs per quarter</td>
<td>6629</td>
<td>6612</td>
<td></td>
</tr>
</tbody>
</table>
Model-Estimated Medicare Costs & HealthCare Use

Resource Use: ED Visits and ICU Admission

## Results of Regression Analyses on Medicare Costs and Health Care Use

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Group x Time</th>
<th>Time</th>
<th>Group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total cost in $</td>
<td>-781.29 (44.77)</td>
<td>-561.82 (30.99)</td>
<td>5030.67 (247.87)</td>
</tr>
<tr>
<td>No of ED visits, IRR (95% CI)</td>
<td>0.94 (0.92-0.96)</td>
<td>0.96 (0.94-0.97)</td>
<td>1.56 (1.44 – 1.70)</td>
</tr>
<tr>
<td># Hospitalizations, IRR (95% CI)</td>
<td>0.92 (0.90-0.94)</td>
<td>0.90 (0.88-0.91)</td>
<td>1.66 (1.53-1.81)</td>
</tr>
<tr>
<td>No of ICU admit, IRR (95% CI)</td>
<td>0.90 (0.86-0.94)</td>
<td>0.87 (0.85-0.90)</td>
<td>1.62 (1.38-1.91)</td>
</tr>
</tbody>
</table>

Navigator Workload

Mean n = 152 patients per quarter
- 72 actively navigated
- 83 high acuity
- 30 newly enrolled

Active 57 days per quarter
Contacts: 3.3 face to face or phone
Average one contact every 18 days
Return on Investment

• Costs declined a mean of $781.29 more per patient per quarter compared with non-navigated patients.

• Estimated as a $475,024 reduction in cost annually for a navigator managing 152 patients per year

• Estimated ROI was 1:10 for navigator with annual salary investment of $48,448
PCCP and Patient Satisfaction

90.7% requests for assistance were resolved to the patient satisfaction

- Required 1.1 interventions
- Resolved in ~ 11 days
  - Decline in requests over time
    - 18.6 in Q3 2013
    - ~9 in Q2 2015
Discussion and Limitations

- Reduction in resource use and costs of PCCP
- Patient satisfaction
- PCCP targeted high-risk, high-cost patients & patients with unmet needs
- Estimated potential 1:10 ROI helps make financial case for sustainability of navigation programs
- Navigators not limited by traditional model of clinic-based care
- No random assignment
- Potential confounding factors (e.g., social support and level of engagement) may influence likelihood of navigation
- Institutional sharing of data may have supported cultural shift in cost and resource declines
- ? Long term influence of ACA
- *Without transition to value based payment system, health care systems may not implement or expand navigation*
Conclusion

Lay navigators in the PCCP supported patients with cancer from diagnosis through survivorship and end of life.

PCCP health care costs and health care use showed significant decline for navigated patients compared with matched group comparison.

Lay navigation programs can be expanded as health systems transition to values-based health care.
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