NP-Led Medical House Call in Transition of Care Reduces Polypharmacy

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Disclosures

• This project was a Doctor of Nursing Practice (DNP) project with Boise State University, Boise, Idaho, USA

• Dr. Ron Billano Ordoná, DNP is a clinical faculty at Boise State University.

• The project was supported/hosted by Senior Care Clinic House Calls, a private medical practice based in Lincoln, California, USA

• Dr. Ordoná, DNP is a medical provider at Senior Care Clinic House Calls.

• No commercial relationships relevant to the subject matter of the presentation.
Background

• Vulnerable, homebound older adults are highly susceptible to unplanned 30-day hospital readmission and health care expenditures for this population continue to increase.

• Stressful: physical and mental
  – patients, families, caregivers
  – dissatisfaction with care (incl. provider)

• Functional decline, delirium, worsening dementia, polypharmacy

Background

• Older adults (> 65 years) projected increase nearly 20% of population by 2030
  – 1M are homebound due to age and health status
• Placer County (Northern California, USA) >65 years, 17.8% of its estimated population of 371,694

US National Census (2014)
Background

• Increasing healthcare expense $6.2B in 1997 to $2.8T in 2012
  – 12M Medicare hospital discharges, 20% resulted in readmission within 30 days of discharge

• Medicare payment reduction for excessive readmission
  – Hospital Readmission Reduction Program
  – 2,200 hospitals cumulative penalties of $280M

Background

• Sacramento (2015 data) Medicare fee-for-service, 30-day, all-cause hospital readmission rate was 17%
  – Patients with no PCP visit
    • 41.2% were readmitted
      – 58.8% were readmitted did not have a 30-day follow-up visit
        » 36.2% returned within a week of discharge

HSAG (2016)
Literature Review

• 4 randomized controlled trials (RCTs)
  – home-based primary care lowers unplanned readmissions to EDs and hospitals

Coleman et al. (2006)
Goldman et al. (2014)
Levine et al. (2012)
Naylor et al. (2004).
Literature Review

• Hospital discharge processes varies, needs innovative alternatives to prevent readmission
• Home-based primary care + Transitional Care Management (TCM) medical house call visits: effectively complement the process
• Gap that the American Academy of Home Care Medicine (AAHCM) believes could be filled by medical house call practices

AAHCM (n.d.)
Goldman et al., (2014)
Literature Review

• TCM models reduce unplanned, 30-day, hospital readmissions by 30%;
  • Efficient, affordable, and more accessible for both families and the health care system
  • Patients who receive TCM usually have complex chronic conditions and are homebound, which makes them more vulnerable

DeJonge & Taler (2002)
Goldman et al. (2014)
Naylor, et al. (2011)
Naylor & Sochalski (2010)
Literature Review

• Transitional care: movement of patients (acute or chronic)
  - between levels of care, health care practitioners, and/or between health care settings

• TCM services include: medication reconciliation, medication refills, pain management, prevention/early treatment of infection, chronic care management, and coordination of care.

Center for Improving Value in Health Care (2012)
Geary & Schumacher (2012)
CMS (2016)
Literature Review

• APRNs/nurse practitioners (NPs): significant role in transitional care models
  – Option to reduce health care costs, positive effects in quality, outcomes
  – NP-led primary care comparable to generalist physician

Coleman et al. (2006)
Naylor & Sochalski (2010); Ornstein et al. (2011)
Kutzleb et al. (2015); Smith et al. (2016)
Ornstein et al. (2011); Kuo et al. (2015)
Literature Review

• Cost savings for Medicare
  – Readmission cost $9,000 - $15,000
  • NP $180 per visit

Smith, et al. (2016)
Hamar, et al. (2016)
Purpose

• Quality improvement project (Translation of Evidence into Practice)
• Implement medical house call as a component of Transitional Care Management (TCM)
• Measure patient outcomes: unplanned 30-day readmission rates, polypharmacy before and after the visit, and correlate predictors of readmission.
• Secondary outcome explore point of care concerns encountered during the medical house call
• Visits conducted by an APRN: prescriptive authority
Theoretical/Contextual Framework

MELEIS THEORY

Nature of transitions
Types
- Developmental
- Situational
- Health/illness
- Organizational

Patterns
- Single
- Multiple
- Sequential
- Simultaneous
- Related
- Unrelated

Properties
- Awareness
- Engagement
- Change and difference
- Transition time span
- Critical points and events

Transition conditions
- Personal
- Meanings
- Cultural beliefs and attitudes
- Socioeconomic status
- Preparation and knowledge

Patterns of response
- Process indicators
  - Feeling connected
  - Interacting
  - Located and being situated
  - Developing confidence and coping
- Outcome indicators
  - Mastery
  - Fluid integrative identities

Community

Society

Nursing therapeutics

Meleis (2010)
TCMHC* Workflow

ASSESSMENT:
LACE Index Score

Patient Discharge:
HHA Assigned

PLANNING
48h Contact

IMPLEMENTATION:
Visit by NP

IMPLEMENTATION:
Care Coordination
Polypharmacy
Refills

EVALUATION:
Measure Outcomes

EVALUATION:
End of Episode vs Readmission

*TCMHC – Transitional Care Medical House Call
### LACE Index Score Tool

#### Step 1. Length of Stay

<table>
<thead>
<tr>
<th>Length of stay (days)</th>
<th>Score (circle as appropriate)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>4-13</td>
<td>4</td>
</tr>
<tr>
<td>14 or more</td>
<td>7</td>
</tr>
</tbody>
</table>

#### Step 2. Acuteness of Admission

- Was the patient admitted to hospital via the emergency department?
  - If yes, enter “3” in Box A, otherwise enter “0” in Box A.

#### Step 3. Comorbidities

- **Conditions**
  - Previous myocardial infarction: +1
  - Congestive heart failure: +1
  - Peripheral vascular disease: +1
  - Diabetes without complications: +1
  - Diabetes with end organ damage: +2
  - Chronic pulmonary disease: +2
  - Malignant neoplasm of breast: +2
  - Liver or renal disease: +2
  - Any tumor (including lymphoma or leukemia): +2
  - Arthritis: +3
  - Connective tissue disease: +3
  - AIDS: +4
  - Moderate or severe liver or renal disease: +4
  - Metastatic solid tumor: +6

  **TOTAL**

- **Score** (circle as appropriate)

#### Step 4. Emergency Department Visits

- How many times has the patient visited an emergency department in the six months prior to admission (not including the emergency department visit immediately preceding the current admission)?
  - Enter this number or 4 (whichever is smaller) in Box E.

- Add numbers in Box E, Box A, Box C, Box D to generate LACE score and enter into box below. If the patient has a LACE score greater than or equal to 10 the patient can be referred to the virtual ward.

#### LACE Score Risk of Readmission:

- 0 - 4: Low
- 5 - 9: Moderate
- 10 or more: High Risk
Transitional Care Medical House Call

A medical house call visit during your transition from hospital or skilled nursing facility to home.

Ron Ordona, NP
Medical House Call Provider
Senior Care Clinic Medical House Calls
89 Lincoln Blvd., Ste 100, Lincoln, CA 95648
(916) 543-1593
About this visit

Transitional Care Management (TCM) is a Medicare-covered benefit. The goal is to assist your transition from hospital or skilled nursing facility to home. This is a one-time visit. During our visit, we want to make sure you have what you need such as medication refills, durable medical equipment, appointments with your primary care provider (PCP) or specialists (Ortho, Cardiology, and the like), and other needs. We do not replace your PCP but we will be supporting you for the next 30 days. We collaborate with the home health agency that may be co-managing your nursing care.
Setting and Sample

• Convenience sampling
• Sacramento/Placer counties (Northern California, USA)
• Older adult 65 years or older
• Discharges from Skilled Nursing Facilities (SNFs)
• Followed by home health
• Visit within 7-14 days (CPT 99496/99495)
Results

- 145 patients were seen by the NP.
- LACE scores ranged from 11-15 (M= 12.6; SD = 2.9).
- Readmission rates were 19.2% (higher than 18.5% benchmark)
- Patients’ LACE scores indicated high acuity.

*Figure 1. Histogram of LACE Index Scores. The mean is 12.58 with a standard deviation of 2.884. This figure points to a patient sample that is high risk for readmission based on LACE Index Scores.*
Results

- Statistically significant medications reduction from 17 to 11 which \((z = -7.497, p < .001)\).

*Figure 2. Histogram of Polypharmacy.* The medication burden was significantly reduced from 17 medications before the visit to 11 medications after the visit.
Results

- Majority of patients experienced two (2) co-morbidities with hypertension being the most common.

*Figure 3. Histogram of number of co-morbidities.* A quarter (N=37; 25.5%) reported having at least two co-morbidities.
Results

• Heart failure (HF): significant predictor for unplanned 30-day hospital readmission.

• HF patients 5x more likely to be readmitted.

Figure 4. Histogram of number of co-morbidities. A quarter (N=37; 25.5%) reported having at least two co-morbidities.
Results

- Almost half of patients required prescriptions during the visit.

*Figure 5. Histogram of visits requiring prescription.*
Half of sample required at least 1 prescription during the visit.
Results

- More than half were unable to see their PCP for 14 days or more.

<table>
<thead>
<tr>
<th>Days to see</th>
<th>Frequency</th>
<th>Percent</th>
<th>Valid Percent</th>
<th>Cumulative Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>&lt;7d</td>
<td>7</td>
<td>4.8</td>
<td>4.8</td>
<td>4.8</td>
</tr>
<tr>
<td>within 7d</td>
<td>33</td>
<td>22.8</td>
<td>22.8</td>
<td>27.6</td>
</tr>
<tr>
<td>within 14d</td>
<td>19</td>
<td>13.1</td>
<td>13.1</td>
<td>40.7</td>
</tr>
<tr>
<td>&gt;14d</td>
<td>86</td>
<td>59.3</td>
<td>59.3</td>
<td>100.0</td>
</tr>
<tr>
<td>Total</td>
<td>145</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Limitations

• Limited generalizability
  – Not research
  – No control group
  – Relatively small sample size \((N=145)\)
  – High LACE scores of referred patients
  – Non-statistically significant readmission rate

• Addressed by using statistical analysis to extract significance.
Conclusion

• Older adult patients discharged from a higher level of care can benefit from Transitional Care Management through medical house call by a NP within 14 days after discharge.
  – Target <7 days in future improvements/refinements
Conclusion

• The visit significantly reduced polypharmacy
• Provided a way to get prescriptions that would otherwise unobtainable from the PCP until 14 days or more.
• Managed high readmission risks.
Conclusion

• Further study is highly recommended to support system redesign and policy changes as it relates care delivery by NPs in care transitions.
  – Full practice authority (in some US states)
  – Home health certification by NPs
    • S.445 - Home Health Care Planning Improvement Act of 2017
    • H.R.1825 - Home Health Care Planning Improvement Act of 2017
REFERENCES

(Partial list only. Copies of all references available upon request)


REFERENCES


THANK YOU

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