GTA Rehab Network Best Practices Day 2017
June 2nd, 2017

From Emergency to Restorative Care: How direct admission to a rehab bed improves Elderly patients’ health outcomes and provides a new approach to geriatric rehabilitation and restoration

Karen Truter RN(EC), MN, CHPCN(C)
OVERVIEW

• Understanding our Population
• Background
• Key Guiding Principles
• Model of Care
• Key Lessons Learned
• System Impact / System Transformation
• Literature
UNDERSTANDING OUR POPULATION

SENIORES 65+

- 26.5% of the Cobourg, and 20.7% of the NHH catchment is 65+ compared to the provincial rate of 14.6%

- It is anticipated that Ontario will have a 25% rate of 65+ by **2050**

- Northumberland Hills Hospital is considered a community acute care hospital with a family physician and hospitalist medical model.

- NHH is situated in Northumberland County, serving both urban and rural communities.

- As such NHH is significantly ahead of the curve in realizing the impact of serving such a high number of seniors.

Source: Statistics Canada 2011 Census
BACKGROUND

2013/14
ASSESS AND RESTORE INTERVENTION (A&R)
PILOT # 1

Central East LHIN releases a call for interest with regard to a one year (stub year) Assess and Restore Intervention Pilot

– February 13, 2014 to March 31, 2014 (Stub Year)

2015 – 2017
ASSESS AND RESTORE INTERVENTION (A&R)
PILOT #2

Central East LHIN releases a call for interest with regard to a three year Assess and Restore Intervention Pilot

– January 2015 to March 31, 2015 (Year I – Stub Year)

– April 2015 to March 31, 2016 (Year II)

– April 2016 to March 31, 2017 (Year III)
BACKGROUND

2015-2016
A&R PATIENT VOLUMES

- The 2015-2016 A&R pilot enrolled 323 patients
- Of these 323 patients, 167 patients were admitted to A&R and 156 were referred to community resources (specialized geriatric services - GAIN etc.) by the GEM nurse
- Of the 167 patients admitted to A&R, 83 or 50% were direct admissions from ED to A&R
KEY GUIDING PRINCIPLES

– Person-Centred Care
– Gerontological Best Practices
– Gerontological Practice Foundation
– Inter-Professional Collaboration
– Patient and Caregiver Engagement
– Coordination and Continuity of Care
– Innovation and Development of New Evidence
2015-2016
ASSESS AND RESTORE INTERVENTION PILOT

MODEL OF CARE

EXPANDED CONTINUUM OF CARE

EVOLVING ROLES

GERIATRIC SYNDROMES
ASSESS AND RESTORE
INTervention MODEL OF CARE

• Nurse Practitioner led
• Provides **Comprehensive Gerontological Assessment** (CGA)
• Identifies **Geriatric Syndromes** (GS)
• Provides **GS interventions** to mitigate or stabilize the GS
• Focused CGA in ED by Geriatric Emergency Management nurse – significant role in early identification of GS and admission diversion in the ED
• Direct admission from Emergency Department or referral to community Specialized Geriatric Services (GAIN, Health Links etc.)

**Prevents cascading effects of health decline**
**Returns patients to their homes**
**Decreased ALC rate**
APPENDIX I - ASSESS AND RESTORE INTERVENTION MODEL OF CARE

GERONTOLOGICAL AND END OF LIFE PRACTICE FOUNDATION / INFRASTRUCTURE
Gerontological Norms of Practice ~ World of Gerontology ~ Gerontology Community of Practice ~ Symptom management ~ End of Life

NURSE PRACTITIONER LEAD A & R INTERVENTION INTERPROFESSIONAL HEALTH CARE TEAM

FRAIL SENIORS IN COMMUNITY
(Primary Care, GAIN etc.)
High number of needs
Higher frequency, intensity and complexity

SCREENING
Standardized Screening Tool

ASSESSMENT
Standardized Assessment Tool

PLACEMENT AND NAVIGATION
FACILITY-BASED A & R INTERVENTIONS

DIRECT ADMISSION

EMERGENCY DEPARTMENT
GEM and A & R Intervention Team

LONG TERM CARE

HOME
Community support and collaboration

ACUTE MEDICAL EVENT
‘AT-RISK SENIOR’
ACUTE CARE

STABLE MEDICALLY COMPLEX
‘AT-RISK SENIOR’

RESTORATIVE CARE

HOME
Community support and collaboration

POST DISCHARGE TRANSITION PLAN

OUTCOMES

NP LEAD ASSESS AND RESTORE INTERVENTION MODEL OF CARE

- Focus ~ Self-identified needs (person centred care)
- Comprehensive gerontological assessment
- Assessment of geriatric syndromes / interventions
- Intense monitoring
- Geriatric norms of practice
- Introduction of supportive care and end of life

- GAIN
- PATH / Transition Coach
- CCAC / CCAC Palliative Care
- Northumberland FHT
- Other

- Prevention of iatrogenesis
- Maximized cognitive and functional abilities
- Increased engagement in own healthcare
- Increased quality of health / life
- More days at home
- Decreased use of health care resources
EXPANDED CONTINUUM OF CARE

EASING FUTILE CARE

• NHH A&R Model of Care - best practices related to supportive care, symptom management, advanced care planning and end of life have been woven into the care provided to this at-risk senior population.

• In response to key learning from the 2014 pilot, now a congruency between gerontological symptom management and end of life.

• Without this duel approach it was noted that there was an all too easy shift into futile care.

EVOLVING ROLES

A&R NURSE PRACTITIONER (NP) LEAD

- Critical resource for primary care providers, hospitalists, front line and broader health care team
- Provides gerontological knowledge and research data
- Removes the burden for a deeper CGA from primary care providers.
- Provides a wrap around service to the GEM nurse
- Supports assessment of the potential at-risk seniors in Emergency Department
- Supports early identification and appropriate admission or discharge planning for at risk seniors

GERIATRIC EMERGENCY MANAGEMENT NURSE (GEM)

- Mitigates the missed opportunities where patients are consistently seeking emergency services
- Patients screened and assessed from a gerontological perspective
- Referred for Assess and Restore interventions either in the community (GAIN) or, to facility based Assess and Restore interventions
- The GEM nurse plays a significant role in early identification of Geriatric Syndromes (GS) in the ED and admission diversion.
GERIATRIC SYNDROMES

Why Geriatric Syndromes (GS)?

Number of Geriatric Syndromes?

How do GSs affect admission processes, LOS and discharge destinations?

GS ANALYSIS: Type and Clustering of Geriatric Syndromes?
Essential for drilling down to core issues

- A focus on Geriatric Syndromes provides a method to identify what can be done to achieve the best health outcomes for the frail older persons.

- Early uptake from the interprofessional staff because of ease of identification.

- Geriatric Syndromes are synonymous with reduced quality of health.

- If not addressed, then a cascading effect can occur on physical function, medical and emotional stability, and cognition.

- Medical co-morbidities and geriatric syndromes cannot be separated from each other. They are intertwined and affect each other. In addition, knowledge of normal aging processes influences the approach to care.
WHY GERIATRIC SYNDROMES

WHY GERIATRIC SYNDROMES (GS)?

- A common health care response is to attend to a medical diagnosis, whereas the senior’s health is also directly influenced by GSs.
- GSs capture those clinical conditions in seniors that do not fit into discrete disease categories.
- Provides a method to identify what can be done to achieve the best health outcomes for frail seniors.
- Key lessons related to GSs (types, clusters and intensity) provide opportunities for health system transformation.
- Use of GS and related GS interventions positively influences LOS, re-admission rates, patient flow and ALC rates.

INNOVATION

GSs offers mainstream healthcare the vehicle to move into a deeper assessment based on best practice in gerontology.

Opportunity for standardized practice across system.

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### TYPE AND OCCURRENCE OF GERIATRIC SYNDROMES

<table>
<thead>
<tr>
<th>% of Assess and Restore Patient Population</th>
<th>Type of Geriatric Syndrome</th>
</tr>
</thead>
<tbody>
<tr>
<td>*97% mobility and/or falls</td>
<td></td>
</tr>
<tr>
<td>*70% pain</td>
<td></td>
</tr>
<tr>
<td>*68% mental health *</td>
<td></td>
</tr>
<tr>
<td>*57% functional decline</td>
<td></td>
</tr>
<tr>
<td>*47% incontinence</td>
<td></td>
</tr>
<tr>
<td>44% depression</td>
<td></td>
</tr>
<tr>
<td>39% constipation</td>
<td></td>
</tr>
<tr>
<td>35% delirium</td>
<td></td>
</tr>
<tr>
<td>33% psychosocial issues</td>
<td></td>
</tr>
<tr>
<td>33% malnutrition/nutritional issues</td>
<td></td>
</tr>
<tr>
<td>32% polypharmacy</td>
<td></td>
</tr>
<tr>
<td>30% caregiver stress</td>
<td></td>
</tr>
<tr>
<td>24% anxiety</td>
<td></td>
</tr>
<tr>
<td>23% dementia</td>
<td></td>
</tr>
<tr>
<td>13% altered decision-making</td>
<td></td>
</tr>
<tr>
<td>5% responsive behaviours</td>
<td></td>
</tr>
</tbody>
</table>

* Denotes combined Geriatric Syndrome

*Some GS presented with very high incidence. This specifies the needs of the frail population which require effective /efficient responses / measures from health care providers.
NUMBER OF GERIATRIC SYNDROMES

VOLUME AND SIGNIFICANCE OF GERIATRIC SYNDROMES

<table>
<thead>
<tr>
<th>RANGE OF NUMBER OF GERIATRIC SYNDROMES</th>
<th>PERCENTAGE OF PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-3</td>
<td>9.3%</td>
</tr>
<tr>
<td>4-10</td>
<td>87.7% **</td>
</tr>
<tr>
<td>11-12</td>
<td>3%</td>
</tr>
</tbody>
</table>

**This data represents a very vulnerable population with significant complexity.

Of the patients enrolled in the 2015/16 A&R pilot 87.7% had between 4-10 Geriatric Syndromes (GS)

- Due to the type and intensity of GS (or frailty), these individuals are in need of **CGA in a setting with 24 hour care provision with various interventions** that could be trialed and the most appropriate interventions monitored and reinforced.

- Furthermore, it is often necessary to assess GSs over a 24-hour period or several days for appropriate assessment necessitating service provision in a hospital setting with **adequate staffing 24/7**

- It is well understood within gerontological evidence that **not addressing one or more GSs will create health deterioration, increase health care resource consumption, and when hospitalized increased length of stay and increased readmission rates.**
CLUSTER OF GSs IDENTIFIES SENIORS AT HIGH RISK OF INCREASED FRAILTY

ARTICULATION OF GERIATRIC SYNDROMES FOR FRAIL POPULATION

- **Frailty** involves unmet needs of GSs.
- The quantity and type of GS identified are consistent with definitions of frailty in the older population.
- **High risk for increased frailty** was identified through the data. The geriatric syndromes of constipation, polypharmacy, psychosocial issues, and malnutrition are known in gerontology to all be key contributors affecting the future medical ‘stability’ for a frail older person.
- **A new definition of high risk population for increased frailty** is occurring through GS data.
- Management of a cluster of geriatric syndromes will prevent increased health care costs and maintain people living in their communities.

<table>
<thead>
<tr>
<th>GERIATRIC SYNDROME</th>
<th>INCIDENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constipation</td>
<td>39%</td>
</tr>
<tr>
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<td>32%</td>
</tr>
<tr>
<td>Psychosocial issues</td>
<td>33%</td>
</tr>
<tr>
<td>Malnutrition</td>
<td>33%</td>
</tr>
</tbody>
</table>

Management of this cluster of geriatric syndromes directly affects:

- Medical stability
- Ability to function
- Management at home
A&R PATIENTS WITH 6+ GSs HAD A DISCHARGE DESTINATION OF LTC

The highest percentage of discharge destinations resulting in LTC consisted of those A&R patients with six or more GSs. An analysis of the type and combination of GS was conducted and revealed the following clustering of GSs:

<table>
<thead>
<tr>
<th>MOST SIGNIFICANT</th>
<th>SIGNIFICANT RELATIONSHIP</th>
<th>SIGNIFICANT CLUSTERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Polypharmacy*</td>
<td>Caregiver Stress**</td>
<td>Delirium</td>
</tr>
<tr>
<td>Pain</td>
<td>Incontinence**</td>
<td>Constipation</td>
</tr>
<tr>
<td>Mental Health</td>
<td>Falls, Mobility</td>
<td>Malnutrition</td>
</tr>
</tbody>
</table>

*Polypharmacy was directly identified in 32% of the patient population and in addition polypharmacy has a relationship to 11 other GSs resulting in 95% of the population being affected.

** Two Geriatric syndromes which cause community living individuals to become long-term care residents include incontinence (47%) and caregiver stress (30%).

OPPORTUNITY – SYSTEM WIDE GS INTERVENTIONS CAN DECREASE ALC RATES
The type and volume of the geriatric syndromes is significant to understanding the Assess and Restore population and providing related services.

- To conduct an analysis of the GSs’ identified in the 2015/16 A&R Pilot, of the 323 A&R patients, a sample of **96 A&R inpatients were selected for analysis.**

- Key learning emerged when analysed with gerontological knowledge.

- Geriatric syndrome analysis includes 13 significant findings and related achievements.

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<td>altered decision-making</td>
</tr>
<tr>
<td>5%</td>
<td>responsive behaviours</td>
</tr>
</tbody>
</table>

* Denotes combined Geriatric Syndrome
GERIATRIC SYNDROME ANALYSIS
IMPACT OF DIRECT ADMISSIONS ON LENGTH OF STAY AND DISCHARGE DESTINATION

<table>
<thead>
<tr>
<th>A&amp;R Cohorts</th>
<th>LOS</th>
<th>HOME</th>
<th>Acute Care</th>
<th>LTC</th>
<th>Death</th>
</tr>
</thead>
<tbody>
<tr>
<td>Direct Admission</td>
<td>22.51 days</td>
<td>91.1%</td>
<td>5.9%</td>
<td>3.0%</td>
<td>0%</td>
</tr>
<tr>
<td>Non-direct Admission</td>
<td>22.72 days</td>
<td>81%</td>
<td>5.2%</td>
<td>12%</td>
<td>1.8%</td>
</tr>
<tr>
<td>Total of all Admissions</td>
<td>22.62 days</td>
<td>86.1%</td>
<td>5.6%</td>
<td>7.5%</td>
<td>0.9%</td>
</tr>
</tbody>
</table>

Direct admissions to A&R results in less functional decline compared to those first admitted to acute care resulting in:

50% of A&R admissions were direct admissions from ED; of these:
- The LOS was 0.21% days less than those first admitted to acute care then A&R
- 91.1% were discharged home versus 81% of admissions to acute care then A&R
- 3% were discharged to LTC versus 12% of admissions to acute care then A&R

These findings are consistent with gerontological evidence that a non-acute environment results in less functional decline in comparison to an acute care setting.

Direct admission to A&R from ED provides increased access, flow, and appropriate service options from the ED setting.
2015-2016
ASSESS AND RESTORE INTERVENTION PILOT
KEY LESSONS LEARNED
LESSONS LEARNED

INNOVATIONS TO LEAD REGION

Innovations that are in development as a result of the new knowledge and related practice.

✓ Application of gerontology practice into mainstream care processes (new knowledge)
✓ A&R Admission Screening Tool - content for the formation of a new screening tool based on type, number and intensity of Geriatric Syndromes
✓ Development of gerontological screening in lab investigations
✓ A New Definition of High Risk Population for Frailty is occurring through GS data
✓ Foundation work for definition of ‘restorable’ – need to rethink ‘rehab’ for this cohort’
✓ Gerontological NP led A&R Model of Care – System impact
✓ GEM nurse – early identification of GS and admission diversion in the ED - System impact
✓ A&R Model of Care provides a structure for clinical competencies – building capacity /standardization
✓ Direct admission to ARI in Post Acute Care Unit - State of excellence for older persons
2015-2016
ASSESS AND RESTORE INTERVENTION PILOT

SYSTEM IMPACT

SYSTEM TRANSFORMATION
As noted in Table I, in contrast to the 2014/15 pre-A&R pilot year the 2015/16 A&R pilot demonstrated the following key outcomes:

- **Decreased length of stay**
  - LOS was reduced from 27.81 days to 22.92 days (4.89 day LOS reduction),

- **Decrease in the number of patients being discharged to LTC**
  - % discharged to LTC fell from 11.9% to 7.0%

- **Increase in the number of patients being discharged home**
  - % discharged to home increased from 69.7% to 82.3%

<table>
<thead>
<tr>
<th></th>
<th>2014/15</th>
<th>2015/16 ARI Pilot</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>RCP</td>
<td>RCP</td>
</tr>
<tr>
<td>Total Cases</td>
<td>185</td>
<td>158</td>
</tr>
<tr>
<td>Total Cases %</td>
<td>100%</td>
<td>69%</td>
</tr>
<tr>
<td>Total ALOS</td>
<td>27.81</td>
<td>22.92</td>
</tr>
<tr>
<td>Discharged Home</td>
<td>129</td>
<td>130</td>
</tr>
<tr>
<td></td>
<td>69.7%</td>
<td>82.3%</td>
</tr>
<tr>
<td>Discharged LTC</td>
<td>23</td>
<td>11</td>
</tr>
<tr>
<td></td>
<td>11.9%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Discharged AC</td>
<td>21</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td>11.4%</td>
<td>7.6%</td>
</tr>
<tr>
<td>Expired</td>
<td>10</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>5.4%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Transferred</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>8.3%</td>
<td>1.3%</td>
</tr>
<tr>
<td>AMA</td>
<td>0</td>
<td>2</td>
</tr>
<tr>
<td></td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
| TOTAL CASES   | 185     | 158  | 230
# System Impact

<table>
<thead>
<tr>
<th>Description</th>
<th>Savings / Cost Avoidance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Decreased LOS – cost savings</td>
<td>363,090</td>
</tr>
<tr>
<td>2. Decreased LOS – cost avoidance</td>
<td>73,292</td>
</tr>
<tr>
<td>3. Decreased discharges to LTC – cost avoidance</td>
<td>349,260</td>
</tr>
<tr>
<td>4. Increased discharges to Home – cost avoidance</td>
<td>955,150</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$1,740,792</strong></td>
</tr>
</tbody>
</table>
With this new understanding of GS there is now an opportunity to work with Primary and Community care to implement strategies to prevent these geriatric syndromes ultimately preventing decline, hospital admissions and ultimate institutionalization of seniors.

Specific GS such as incontinence and caregiver stress are known through evidence to precipitate institutionalization.

Collaborative strategies across the sectors on these type of GS will improve health status of the frail population and minimize resources utilization in the hospital and community.
2015-2016
ASSESS AND RESTORE INTERVENTION PILOT

CONSISTENCY OF NHH FINDINGS WITH LITERATURE
CONSISTENCY OF NHH FINDINGS WITH LITERATURE

EVIDENCED-BASED CARE

COMPREHENSIVE GERONTOLOGICAL ASSESSMENT (CGA)

- “A multidimensional interdisciplinary diagnostic process focused on determining a frail older person’s medical, psychological, and functional capability in order to develop a coordinated and integrated plan for treatment and long-term follow up” (Rubenstein, Stuck, Siu, Weiland (1991))

SEVERAL META-ANALYSES INCLUDING COCHRANE

- CGA provided by consultation teams are not effective in terms of functional status, readmission or length of stay
- To date, geographically-based wards/beds seem to be more effective at implementing the CGA with more effective improvement on functional status and other outcomes. (Cameron and Kurrle, (2013)); (Ellis G, Whitehead MA, O'Neill D, Langhorne P, Robinson D. (2011)).

HOSPITALIZED PATIENT IMPACT

- Hospital patients who received CGA are more likely to be alive and at home at 6 months rather than institutionalized
- For inpatients, CGA results in increased independence and reduced mortality (for inpatients at 6 months) and reduction in functional decline (Welsh, Gordon, and Gladman, 2014)
References


Final thoughts...

- Due to the medical and gerontological complexity of this population, NHH A&R team has proven that successful discharge comes through:
  - NP-led inter-professional team focused on gerontology
  - Nurse:patient ratio equal to acute care to provide time for 24 hour assessment, intervention and re-assessment
  - Focus on both medical complexities and geriatric syndromes combined through CGA
  - Specialized Gerontology Unit based
QUESTIONS?