An INSPIRED model of care for patients with advanced COPD

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COPD in Canada

1st
Cause of hospital admissions among chronic illness

4th
Leading cause of death

1 in 4 >35yrs

In Ontario,
12% of population,
24% hospital admissions (Gershon et al 2013)

$750,000,000 annually in healthcare costs
Why focus on COPD?

Only chronic disease where mortality still rising

Figure 12: Trends in age-standardized death rates for the six leading causes in the United States, 1970 to 2020.
1:4 Canadians >35 years will develop COPD

Hospitalization rates are 60% higher in rural areas

Health Indicators. 2008. Canadian Institute for Health Information. Pg. 2
For patients (beyond the physical symptoms due to lung damage)...

The burden can be high:

- Fatigue
- Anxiety (shortness of breath - anxiety cycle)
- Depression
- Poor or disrupted sleep
- Panic/Fear
- Muscle wasting – weakness
- Weight loss/cachexia
Canada’s COPD Care Report Card
Why COPD? It Kills
Life Expectancy Reduction In Years For Men at Age 65

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>Stage 2</th>
<th>Stage 3,4</th>
</tr>
</thead>
<tbody>
<tr>
<td>FEV₁ &gt;80%</td>
<td>FEV₁ 50-80%</td>
<td>FEV₁ &lt;50 % &lt;30%</td>
</tr>
<tr>
<td>0.3</td>
<td>2.2</td>
<td>5.8</td>
</tr>
<tr>
<td>1.4</td>
<td>5.6</td>
<td></td>
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Paculdo et al. Int J COPD 2012
Canada: COPD Prevalence, Aged 65+, 2010

Source: Statistics Canada, Canadian Community Health Survey, 2010
In Nova Scotia...

946,759 population
6.3% prevalence

Dollars well spent?

$360,000,000,000 annually
$6342 per person
At QEII Health Science Centre

$3,000,000 annually

300 admissions per year

10 days average length of stay

$1000 cost per day

Improving Patient Experience

• Increasing recognition of the psychosocial burdens of COPD
• Many patients with advanced COPD are housebound with limited interface with primary care and specialist medical teams
• Prognostic uncertainty of COPD and fears of crushing patients’ hope limits clinicians’ willingness to initiate discussions around advance care planning
• Patients have limited access to teams with expertise in treating “refractory dyspnea” and “dyspnea crises”
Patient Experience: Comparing COPD and Lung Cancer

Graph showing the comparison of mean scores for various items between COPD and NSCLC:
- Item 1
- Gen health
- Vitality
- Mental
- Pain
- Role emotional
- Role physical
- Social functioning
- Physical functioning

Legend:
- NSCLC
- COPD

- Lack of priority for COPD by healthcare professionals
- Poor access to End of Life Care services
- No clear care pathways for acute and long term care

Gore Thorax 2000
Calverley, Canadian Respiratory Conference
Halifax, NS, May 2010
## Listening to Patients

**Advanced COPD: Most important elements of end of life care**

<table>
<thead>
<tr>
<th>Patients n=118</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not being kept alive on a ventilator when there’s no meaningful hope of recovery</td>
<td>55%</td>
</tr>
<tr>
<td>Relief of physical symptoms</td>
<td>47%</td>
</tr>
<tr>
<td>An adequate plan of care &amp; health services after discharge</td>
<td>40%</td>
</tr>
</tbody>
</table>

# Listening to Patients

## Advanced COPD Care: Top 3 opportunities for Improvement

<table>
<thead>
<tr>
<th>Caregivers n=37</th>
<th>Patients n=37</th>
</tr>
</thead>
<tbody>
<tr>
<td>Know which doctor is the main doctor in charge of your family member’s care</td>
<td>Need to fix</td>
</tr>
<tr>
<td>Family member has relief of physical symptoms</td>
<td>That you not be a physical or emotional burden on your family</td>
</tr>
<tr>
<td>An adequate plan of care &amp; health services available to look after him/her at home after discharge</td>
<td>An adequate plan of care &amp; health services available to look after me at home after discharge</td>
</tr>
<tr>
<td>To have trust &amp; confidence in the doctors looking after you</td>
<td></td>
</tr>
</tbody>
</table>

Source: Young J, Allan DE, Simpson AC, Heyland DK, Rocker GM. What matters to family carers of patients with advanced COPD. Am J Respir Crit Care Med 2008:A665
The road to acute care...

Arrive to the ER in crisis
Long length of stay

Discharged back to a broken system; Off the radar

Poor knowledge of disease; Little to no support
Don’t want to burden others
Symptoms worsen (denial, panic); No plan in place
Implementing a Novel and Supportive Program of Individualized care (for people with) Respiratory Disease

An Outreach Program for Patients and Families living with Advanced Chronic Obstructive Pulmonary Disease
Objectives & Measures

Improve self-management & care planning
- via education, provision of action plans, facilitation of ACP, psychosocial/ spiritual support, and liaison with supportive health and community services/professionals

Improve patients’ health-related Quality of Life
- Chronic Respiratory Questionnaire (CRQ), Hospital Anxiety and Depressions Scale (HADS), and the Herth Hope Index (HHI)

Reduce ER visits & admissions for AECOPD
- Record use of acute care services (LOS) both pre- and post-program enrollment

Improve care & outcomes during care transitions/EHS transfers/ER
- Reduce incidence of oxygen-related hypercarbia, care transitions measure
Evidence-based interventions

- Hospital/home-based support early discharge support
- Education based on need (patient and family focus)
- Written action plans (per CTS) for COPD exacerbations - self care
- Written action plans for “Dyspnea Crises” – video
- Advance Care Planning/Written advance directive/DNR orders
Early funding & support

- QEII Foundation $10,000
- CDHA Innovation Fund $25,000
- ACCP 2009 Roger Bone Award $10,000
- Rocker matched funding $10,000
- Industry partnership (GSK) $60,000 over 2 yrs
- Support from DOH, Exec, Medicine, managers

Enabled Medical Director (GR) to fund an RT “Team Lead” to pilot INSPIRED from July 2010 – July 2011.
<table>
<thead>
<tr>
<th>Phase 1</th>
<th>Phase 2</th>
<th>Phase 3</th>
<th>Phases 4-5</th>
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<tbody>
<tr>
<td>Approve concept</td>
<td>Continue to identify stakeholders/create linkages to Family Medicine Respirology 8.2, 8.4, ER, Pulm Rehab (charge RNs, key clinicians NS Continuing Care LANS Lung Health Strategy CDHA exec</td>
<td>Launch pilot Sept 2010 Enroll eligible patients Monitor efficacy including satisfaction and resource utilization Launch revised pilot Feb 2011</td>
<td>Expand at QEII (to ER) &amp; beyond QEII (DGH) Tackle patients w/ multiple ER visits (Have data) Oxygen policies Rapid response team for patients who presents to ER <em>NEW</em> Assessing the feasibility of implementing an integrated CDPM strategy at Capital Health</td>
</tr>
<tr>
<td>Secure funding for pilot</td>
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<td></td>
<td></td>
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<tr>
<td>Secure RRT coordinator</td>
<td></td>
<td></td>
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<tr>
<td>Set up documentation (clinical &amp; research)</td>
<td></td>
<td></td>
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<tr>
<td>Order equipment</td>
<td>Dept. Health</td>
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</table>
The Program (the mechanics of it all)

In hospital: consent, optimize treatments, link with staff, action plan(s) written

Pre-evaluation
Phone interview/questionnaires

Home visits (≈4) every 2 weeks: assessment, education, review action plan(s), support, ACP

Post-evaluation
Repeat measures
Follow admin data

Follow up call monthly for 3 months

Advantages:
- Cross-sector communication
- Expertise
- Focused (lean)
- Evaluation (QA)
New Patient and Caregiver Journey

Admitted to QEII HSC

Contacted by INSPIRED coordinator early

Discharged (if possible a ↓ LOS) early post-discharge f/u

Clinical f/u from INSPIRED (home visits/calls)

Existing primary care services & programs (coordinate)

Success ↓ ED visits, admissions, LOS
Outcomes

Qualitative interviews suggest participants felt:

• more confident in managing symptoms
• less anxious/stressed
• willing to discuss goals of care, including those related to end-of-life

Quantitative: Health related Quality of Life (CRQ), Hospital Anxiety and Depression Scale, Herth Hope Index Care Transition Measure
I used to feel so alone with my illness, now people check on me and I know there’s someone I can call if I’m having a problem. I would feel so much more isolated, frustrated and apprehensive without this support.

INSPIRED Patient
INSPIRED interviews (n=18)

Top 5 Reasons cited in reference to "helpfulness" of INSPIRED (in order of frequency):

- action plan/prescriptions and prednisone on hand or on order
- accessible education/information/resources - patient booklet, hand-held fan, inspirometer, action plan
- improved clinical outcomes relevant to the patient/family, i.e., breathlessness, stamina, recognition and management of AECOPD, use of COPD medications (puffer technique, timing, oxygen use, etc)
- someone to call/support/not feeling so alone to manage symptoms
- feeling cared for/caring, reliable, knowledgeable staff using good communication
# ER, admission data, length of stay

6 month pre/post data

<table>
<thead>
<tr>
<th></th>
<th>Pre-INSPIRED n=89</th>
<th>Post-INSPIRED n=89</th>
<th>Cost savings</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6 /12</td>
<td>6/12</td>
<td>6 /12 (n, % reduction)</td>
</tr>
<tr>
<td>ER visits</td>
<td>173</td>
<td>66</td>
<td>-107 (62%)</td>
</tr>
<tr>
<td>Admissions</td>
<td>107</td>
<td>37</td>
<td>-73 (68%)</td>
</tr>
<tr>
<td>Bed Days</td>
<td>1129</td>
<td>382</td>
<td>-749 (66%)</td>
</tr>
</tbody>
</table>

Cost savings at 6 months ≈ 3x annual program costs
Care Transition Measure (CTM)

15 questions, Scored 1-4, scaled to a percentage, max score 100%

<table>
<thead>
<tr>
<th>Label</th>
<th>Median</th>
<th>Min.</th>
<th>Max.</th>
<th>N</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre INSPIRED CTM</td>
<td>71.00</td>
<td>25.00</td>
<td>96.00</td>
<td>27</td>
</tr>
<tr>
<td>Post INSPIRED CTM</td>
<td>83.00</td>
<td>69.00</td>
<td>100.00</td>
<td>27</td>
</tr>
<tr>
<td>Δ</td>
<td>12.00</td>
<td>-3.00</td>
<td>75.00</td>
<td>27</td>
</tr>
</tbody>
</table>

No change in CRQ, HADS, Herth Hope index \( p < 0.0001 \)
Number of INSPIRED patients 5/25 (20%), who died at home

*p<0.0001 (Fishers exact test)
Critically important that first local COPD initiatives be focused, not too broad in scope & begin with:

- Experienced, committed clinical/evaluation team
- Plan that is feasible to implement
- Goals that are achievable
- Vision to extend services to a broader population (e.g., those at risk of disease & in need with milder COPD), but only after program is well-established.
Unexpected Outcomes:
1) Mentioned in several obits

2) Early fruit and goody basket rate 25%

3) Reaching the third generation
Beyond INSPIRED: Improving care for patients with COPD
Atlantic Healthcare Collaboration

17 RHAs + CFHI
4 provinces
10 Improvement projects

By disease condition:
- Multi-morbidity: 4
- Diabetes: 3
- Mental Health: 2
- COPD: 1

By priority:
- Self-management: 3
- Delivery sys design: 4
- Decision support: 2
- Community action: 1

Newfoundland & Labrador
Prince Edward Island
New Brunswick
Nova Scotia
Local Landscape

Data (2011 & 2012) on Super users

> 2 admissions/year
> 50 days/1 admission

<table>
<thead>
<tr>
<th>Site</th>
<th>No. of patients</th>
<th>No. of admissions</th>
<th>No. of bed days</th>
</tr>
</thead>
<tbody>
<tr>
<td>JPMRHC</td>
<td>14</td>
<td>42</td>
<td>488</td>
</tr>
<tr>
<td>CNRHC</td>
<td>22</td>
<td>54</td>
<td>532</td>
</tr>
<tr>
<td>TOTAL</td>
<td>36</td>
<td>96</td>
<td>1020</td>
</tr>
</tbody>
</table>

Cost annually: $1,020,000 well spent?
Gathering support

• Project Leads
  ➢ Val: Director of Cardiopulmonary Services
  ➢ Sarah: CDPM Consultant
  ➢ Jessica: Regional Self Management Support Coordinator

• Senior Management Team (Dec 2012– with Academic Mentor)
• Medical Advisory Committee (Apr 2013 – with Academic Mentor)

• Pilot site – JPMRHC
  • Existing Adult Asthma Care Centre
  • Temporary Capacity in RRT Staffing
  • Certified Respiratory Educator

• Champions (April 2013 – Present)
  ➢ Internal Medicine/Hospitalist/GP/ ER Physicians
  ➢ RRT
  ➢ Other paraprofessionals (Nursing/PT/SW/Pharmacy/etc.)
Quick Wins

• New improvement plan – Improving processes of care for patients living with COPD
• Create standing orders \textit{(use best available across Canada)}
• Educate clinicians re: underused resources-RRTs, value of \url{www.COPDguidelines.ca}
• Automatic referrals for COPD admissions to RRTs
• Effective discharge plans \textit{(not just plans to discharge)}
• Reorganize existing Adult Asthma Care Centre into Pulmonary Clinic
• Obtain Respirology oversight \textit{(Dr. Nigel Duguid)}
Long-term Goals (2014)

- Home based program targeting admitted patients (*education, emotional support, action plans, ACP*)
- Spread/scale up across Central Health
- Tackle ER super-users
- Evaluation
- Core funding
INSPIRED
Lessons Learned

• Readiness for change
• Know your own data
• Know your processes
• Anticipate barriers
• Focus on the quick wins with big impact
• Seek and share