COPD in Ontario: Health, Care and Costs
Fact sheet prepared for the INSPIRED Approaches to COPD Collaborative Regional Roundtable Series

The INSPIRED COPD Outreach Program™ (Implementing a Novel and Supportive Program of Individualized care for patients and families living with Respiratory Disease) was developed to improve care transitions from hospital-to-home for patients living with chronic obstructive pulmonary disease (COPD) and their families. INSPIRED supports patients and families to manage their symptoms of advanced COPD at home through individualized, coordinated, proactive care that includes in-home self-management education, psychosocial/spiritual support, individualized action plans and, for those whom it is appropriate, advance care planning.

Key Messages

- **Triple Aim** is the simultaneous pursuit of improved population health, care experience and cost of care.
- The INSPIRED COPD Outreach Program™ improves symptom management and care experience for patients living with advanced COPD and their families, while relieving the hospital-based cost burden on the health system.
- In Ontario, there’s rationale from a health, care and cost perspective to pursue programs like INSPIRED within and across the province. For example:
  - **I. On population health:**
    - It’s estimated that anywhere from 4.3% to 12% of Ontarians currently live with COPD; and one in four Canadians over 35-years-of-age will develop the disease.
  - **II. On care experience:**
    - In a Canadian Lung Association/Canadian Thoracic Society report card on quality of COPD care, Ontario received a B-grade.
  - **III. On cost of care:**
    - Hospital admission rates for a primary diagnosis of COPD vary widely across Ontario; however, all told, the Ontarians living with COPD account for 24% of hospital admissions and 24% of emergency department (ED) visits; and COPD is responsible for the highest percentage (18.8%) of 30-day readmissions to ED in the province.

I. Population Health

I.i Health Outcomes

- In terms of morbidity:
  - Anywhere from 4.3% to 12% of Ontarians currently live with COPD. The more conservative Statistics Canada (2014) estimate (4.3%, 326,439) is on par with Canadian estimates (4.3%, 832,114) and indicates that COPD affects more women than men. The inconsistency in estimates may be attributable to under-diagnosis (e.g., COPD symptoms and the disease are well-known to be underdiagnosed) as well as discrepancy between self-reported vs clinical
diagnosis (e.g., the prevalence of measured airflow obstruction was 2-6X higher in the Canadian population than self-reports of COPD)\(^7\)
  o Many Canadians live with multiple chronic diseases; for example, 56% of Canadian adults over 65-years-old have two or more chronic conditions\(^8\)

- **In terms of mortality:**
  o Chronic respiratory diseases account for 4.6% of all deaths in Canada;\(^9\) in Ontario, respiratory diseases account for 151 potential years of life lost (PYLL) as compared to Canada (174 PYLL)\(^10\)
  o According to Statistics Canada, COPD is the 5\(^{th}\) leading cause of death in Ontario (2011);\(^9\) however, WHO predicts that COPD will be the 3\(^{rd}\) leading cause of death worldwide by 2030\(^11\)

**I.ii Behavioural and Physiological Factors**

- **Most cases (80-90%)** of COPD are associated with cigarette smoking as the underlying cause,\(^12\) currently, 2,085,113 Ontarians (18.9%) are smokers\(^13\)
- **Compared with many chronic illnesses,** patients living with COPD tend to report poorer psychological functioning,\(^14\) for example:
  o Fatigue and anxiety are more commonly cited in COPD than in advanced cancer, heart disease or renal disease\(^15,16\)
  o Severe depressive symptoms or clinical depression are/is seen in as many as 40% of patients living with COPD; that’s 2-4X higher than rates in the general population\(^17\)
  o One-third (32%) of people living with COPD and depression also report having panic disorders, which is – in and of itself – a leading cause of ED visits\(^18\)

- **In a nationally representative sample of 1,133 Canadians living with COPD:**\(^17\)
  o 45% reported their overall health as "fair or poor";
  o 33% reported their health as "somewhat worse or much worse" than a year ago;
  o 21% reported that breathing problems affect their life "quite a bit or extremely";
  o 28% reported most days are "quite a bit or extremely stressful"; and
  o 14% reported being "dissatisfied or very dissatisfied" with their life

**II. Care Experience**

- **In a 2005 Lung Health report card by the Canadian Lung Association and Canadian Thoracic Society,** Ontario received a B- grade for experience of COPD care.\(^4\) Based on other sources, this is congruent with the lack of access and coordination that Ontarians living with COPD often experience, for example:
  o In general, with increasing symptom burden, people with advanced COPD often experience physical restrictions (e.g., they are often housebound) and report a high degree of social isolation\(^19\) and abandonment by healthcare providers\(^20\)
  o In general, due to limited mobility, primary care services are less accessible for people living with advanced COPD; and end-stage COPD care is often “fragmented, episodic and reactive”\(^21\)
In Canada, rates of hospital admissions for a primary diagnosis of COPD were 3X higher for individuals with low socioeconomic status (SES) as compared to those in higher SES brackets. In Ontario, only 1.2% of those living with COPD received access to pulmonary rehabilitation. In Ontario, 13% of physicians admit to discriminating against smokers in terms of quality of healthcare; while 14% of patients report that their quality of healthcare was diminished because they were, or had been, smokers.

On overall quality of care, Canada ranks as the poorest performer of 11 Commonwealth countries, as it relates to access and timeliness of care; and 3rd to last as it relates to effectiveness, safety, coordination and patient-centredness. In Ontario:

- 50% of the population over 55-years-of-age waited >2 days to see a doctor or nurse.
- 39% of the population went to an ED for a condition that could have been treated by their primary healthcare provider.
- 10% of the population said that specialists did not have basic information or test results from their family doctor and 18% reported that their family doctor did not seem to be informed and up-to-date about the specialist care they had received.

### III. Cost of care

When it comes to healthcare utilization:

- Hospital admission rates for COPD vary across the province from lower rates in urban areas (e.g., 37.97 per 100,000 residents in Central LHIN) to higher rates in rural areas (e.g., 180.36 per 100,000 residents in the North West LHIN).
- The 12% of Ontarians living with COPD account for as much as 24% of all hospital admissions and 24% of all ED visits (while the primary reason for visit/admission may not be COPD, this data indicates that a high majority of patients presenting have COPD as a co-morbid factor).
- COPD constitutes the 3rd leading cause of hospital admissions next to childbirth and heart attacks in Ontario. COPD directly results in 24,297 total admissions, which account for 2.3% of all admissions in the province.
- COPD patients’ average length of stay is 6.5 days in acute care organizations in Ontario.
- COPD has the highest rate (18.8%) of 30-day readmissions to ED in Ontario.

When it comes to costs of care:

- In Canada, acute COPD exacerbations (AECOPDs) account from $646-million to 736-million a year in hospital-based costs – a conservative estimate that does not include the costs of routine care.
- According to Mittmann et al., (2008) the average overall cost of a moderate acute exacerbation of COPD (AECOPD) is $641 ($126/outpatient + $515/ED), while the average overall cost of a severe AECOPD is $9,557 ($114/outpatient +$774/ED + $8,669/hospitalization).
- Another estimate from the Canadian Institute for Health Information (2014) estimated that average cost per patient for hospital care (in general, excluding physician fees) in Ontario is $6,803 vs. Canada $7,192.
In Ontario, the total estimated acute inpatient cost for COPD is $191.4 million a year, or 1.36% of hospital global budgets.

For just 17 of the INSPIRED collaborative teams, it is estimated that they spend a combined $212-million a year treating COPD exacerbations in hospital.

From an employment/work productivity standpoint:

- 17% of COPD patients changed the number of hours worked or type of work due to breathing problems, and 14% reported stopping working permanently.

5 CIHI (2012). All-Cause Readmission to Acute Care and Return to the Emergency Department. Available at: https://secure.cihi.ca/free_products/Readmission_to_acutecare_en.pdf
7 Statistics Canada (2011). Table 102-0563 - Leading causes of death, total population, by sex, Canada, provinces and territories, annual, CANSIM (database). Available at: http://www5.statcan.gc.ca/cansim/a05?lang=eng&searchTypeByValue=1&id=1020563
8 Statistics Canada (2011). Table 102-4309. Mortality and potential years of life lost, by selected causes of death and sex, three-year average, Canada, provinces, territories, health regions and peer groups, occasional (number unless otherwise noted), CANSIM (database). Available at: http://www5.statcan.gc.ca/cansim/a05?lang=eng&searchTypeByValue=1&id=10204309
22 CIHI (2012). All-cause readmission to acute care and return to the emergency department. Ottawa, ON. Available at: https://secure.cihi.ca/free_products/Readmission_to_acutecare_en.pdf