

Health Fact Sheets

Chronic obstructive pulmonary disease in adults, 2012 to 2013



How to obtain more information

For information about this product or the wide range of services and data available from Statistics Canada, visit our website, www.statcan.gc.ca.

You can also contact us by

email at STATCAN.infostats-infostats.STATCAN@canada.ca

telephone, from Monday to Friday, 8:30 a.m. to 4:30 p.m., at the following numbers:

- | | |
|---|----------------|
| • Statistical Information Service | 1-800-263-1136 |
| • National telecommunications device for the hearing impaired | 1-800-363-7629 |
| • Fax line | 1-514-283-9350 |

Depository Services Program

- | | |
|------------------|----------------|
| • Inquiries line | 1-800-635-7943 |
| • Fax line | 1-800-565-7757 |

Standards of service to the public

Statistics Canada is committed to serving its clients in a prompt, reliable and courteous manner. To this end, Statistics Canada has developed standards of service that its employees observe. To obtain a copy of these service standards, please contact Statistics Canada toll-free at 1-800-263-1136. The service standards are also published on www.statcan.gc.ca under “Contact us” > “Standards of service to the public.”

Note of appreciation

Canada owes the success of its statistical system to a long-standing partnership between Statistics Canada, the citizens of Canada, its businesses, governments and other institutions. Accurate and timely statistical information could not be produced without their continued co-operation and goodwill.

Standard table symbols

The following symbols are used in Statistics Canada publications:

- . not available for any reference period
- .. not available for a specific reference period
- ... not applicable
- 0 true zero or a value rounded to zero
- 0^s value rounded to 0 (zero) where there is a meaningful distinction between true zero and the value that was rounded
- ^P preliminary
- ^r revised
- X suppressed to meet the confidentiality requirements of the *Statistics Act*
- ^E use with caution
- F too unreliable to be published
- * significantly different from reference category ($p < 0.05$)

Published by authority of the Minister responsible for Statistics Canada

© Minister of Industry, 2014

All rights reserved. Use of this publication is governed by the Statistics Canada [Open Licence Agreement](#).

An HTML version is also available.

Cette publication est aussi disponible en français.



Chronic obstructive pulmonary disease in adults, 2012 to 2013

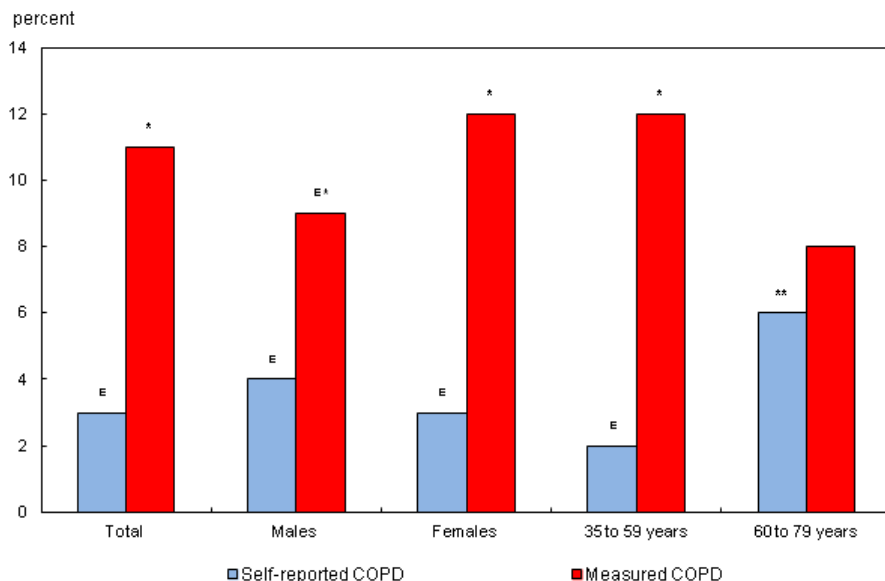
Chronic obstructive pulmonary disease (COPD) is a condition characterized by a progressive and chronic airflow obstruction, shortness of breath, persistent wheezing and coughing, and sputum production that occurs primarily in adults over the age of 35. Chronic bronchitis and emphysema are the two most common forms of COPD (Chronic obstructive pulmonary disease) and cigarette smoking is responsible for 80% to 90% of cases,¹ suggesting that the majority of COPD (Chronic obstructive pulmonary disease) cases can be prevented. Other contributing factors may include outdoor, indoor and occupational air pollution.² Although airflow obstruction is not fully reversible, COPD (Chronic obstructive pulmonary disease) can be treated and the symptoms controlled with proper medication and exercise programs.^{3, 4}



The Canadian Health Measures Survey (CHMS) used a health questionnaire to determine whether or not respondents were previously diagnosed with COPD (Chronic obstructive pulmonary disease) by a health care professional (self-reported COPD (Chronic obstructive pulmonary disease)). Among Canadians aged 35 to 79 years, 3% reported a diagnosis of COPD (Chronic obstructive pulmonary disease) (Chart 1). Self-reported COPD (Chronic obstructive pulmonary disease) diagnosis was not significantly different for men (4%) and women (3%). Older adults aged 60 to 79 years were significantly more likely to self-report a diagnosis of COPD (Chronic obstructive pulmonary disease) (6%) compared to younger adults aged 35 to 59 years (2%) (Chart 1).

The CHMS (Canadian Health Measures Survey) also conducted a spirometry test to measure lung function (see About spirometry and COPD (Chronic obstructive pulmonary disease)). The results indicate that 11% of Canadians aged 35 to 79 had a measured airflow obstruction consistent with COPD (Chronic obstructive pulmonary disease) (Chart 1).⁵ This is significantly different from the 3% who self-reported a diagnosis of COPD (Chronic obstructive pulmonary disease). There was also a significant difference between self-reported and measured COPD (Chronic obstructive pulmonary disease) for men (4% compared to 9%), women (3% compared to 12%), and in the 35 to 59 age group (2% compared to 12%)(Chart 1).

Chart 1
Self-reported versus measured chronic obstructive pulmonary disease (COPD) in adults aged 35 to 79, by sex and age group, household population, Canada, 2012 to 2013



COPD chronic obstructive pulmonary disease

E use with caution (data with a coefficient of variation (CV) from 16.6% to 33.3%)

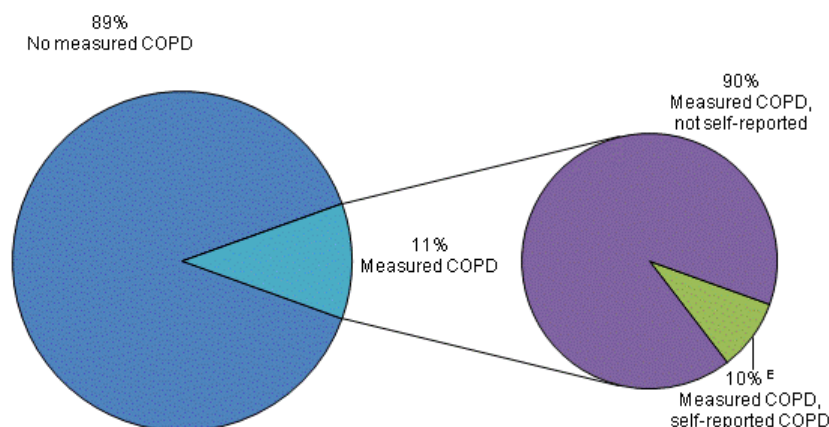
* significantly different from self-reported COPD ($p < 0.0001$)

** significantly different from estimate for age group 35 to 59 ($p < 0.05$)

Source: Canadian Health Measures Survey, 2012 to 2013

The disparity of results between reported and measured COPD (Chronic obstructive pulmonary disease) suggest that COPD (Chronic obstructive pulmonary disease) is under-diagnosed in Canadian adults. Among the 11% of Canadians with measured airflow obstruction consistent with COPD (Chronic obstructive pulmonary disease), 90% did not report being previously diagnosed by a health care professional (Chart 2). This represents approximately 10% of the total population of Canadian adults aged 35 to 79. A small percentage of the population (3%) without measured COPD (Chronic obstructive pulmonary disease) did self-report having been diagnosed by a health-care professional (data not shown). However, it could not be determined whether this was due to an over-diagnosis of COPD (Chronic obstructive pulmonary disease) in the Canadian adult population, or due to the use of medication to control airflow obstruction.

Chart 2
Percentage of adults aged 35 to 79, by self-reported¹ and measured² chronic obstructive pulmonary disease (COPD), household population, Canada, 2012 to 2013



COPD chronic obstructive pulmonary disease
 Use with caution (data with a coefficient of variation (CV) from 16.6% to 33.3%)
 1. Self-reported COPD is based on a self-reported diagnosis of COPD by a health-care professional
 2. Measured COPD is defined as having a forced expiratory volume for one second to the forced vital capacity (FEV₁/FVC) ratio less than the lower limit of normal (LLN)
 Source: Canadian Health Measures Survey, 2012 to 2013

About spirometry⁶ and COPD (Chronic obstructive pulmonary disease)^{7, 8}

Spirometry is a functional tool that measures the volume of air an individual inhales and exhales in addition to the speed at which the air is moved in or out of the lungs. In the same manner that blood pressure measurements provide important information about general cardiovascular health, spirometry is invaluable as a screening tool for general respiratory health. Used alongside other respiratory tests, spirometry allows medical practitioners to monitor respiratory health for conditions such as COPD (Chronic obstructive pulmonary disease). Spirometry results are interpreted by comparing measurements to the expected values for a normal healthy individual of the same sex and similar age with the same body dimensions and ethnic characteristics.

The spirometry measurements of primary interest for COPD (Chronic obstructive pulmonary disease) diagnosis are:

- Forced vital capacity (FVC): the total volume of air that can be forcibly exhaled after a maximum inspiration.
- Forced expiratory volume in one second (FEV₁): the volume of air that can be forcibly exhaled in the first second of a FVC (Forced vital capacity) manoeuvre.
- The FEV (Forced expiratory volume)₁ to FVC (Forced vital capacity) ratio (FEV (Forced expiratory volume)₁/FVC (Forced vital capacity)) is used as the value for diagnostic purposes.

Self-reported COPD (Chronic obstructive pulmonary disease) was determined from the health questionnaire administered as part of the CHMS (Canadian Health Measures Survey). Respondents were asked if they had ever been diagnosed with COPD (Chronic obstructive pulmonary disease) by a health-care professional.

A measured COPD (Chronic obstructive pulmonary disease) diagnosis was based on measured spirometry results, where the FEV (Forced expiratory volume)₁/FVC (Forced vital capacity) was below the lower limit of normal (LLN).⁴ The LLN takes into account ethnicity, height, age and sex, and establishes a cut-off value for the FEV (Forced expiratory volume)₁/FVC (Forced vital capacity) below which 5% of healthy subjects fall.⁷ This in turn is considered an abnormal value and is consistent with a diagnosis of COPD (Chronic obstructive pulmonary disease). In other words, 95% of the healthy population falls above this set value and are considered normal and not within the COPD (Chronic obstructive pulmonary disease) guidelines. This approach allows for a more appropriate and accurate measure and diagnosis of COPD (Chronic obstructive pulmonary disease). However, it is important to note that asthma also causes a reduction in spirometry measurements but could not be separated for this report as a post-bronchodilator test was not

administered. Previously released fact sheets on COPD (Chronic obstructive pulmonary disease) by the CHMS (Canadian Health Measures Survey) used the Global Initiative for Chronic Obstructive Lung Disease (GOLD)⁹ criteria to diagnose COPD (Chronic obstructive pulmonary disease). Due to this change, direct comparisons to previous released fact sheets are not possible.

Notes

- 1 Public Health Agency of Canada. 2012. *Chronic Pulmonary Obstructive Disease (COPD)*. Ottawa. <http://www.phac-aspc.gc.ca/cd-mc/crd-mrc/copd-mpoc-eng.php> (accessed: May 12, 2014).
- 2 Health Canada. 2013. *Respiratory Effects of Air Pollution*. Ottawa. <http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/health-sante/respir-eng.php> (accessed: August 12, 2014).
- 3 The Lung Association. 2013. *COPD (Chronic obstructive pulmonary disease)*. Ottawa. http://www.lung.ca/diseases-maladies/copd-mpoc/treatment-traitement/medications-medicaments_e.php (accessed: May 12, 2014).
- 4 Public Health Agency of Canada. 2008. *I have COPD (Chronic obstructive pulmonary disease). Why is it important for me to exercise?* Ottawa. http://www.phac-aspc.gc.ca/cd-mc/crd-mrc/copd_exercise-mpoc_exercice-eng.php (accessed: May 12, 2014).
- 5 Hankinson, J.L., Odencrantz, J., and K. Fedan. 1999. "Spirometric Reference Values from a Sample of the General U.S. Population." *American Journal of Respiratory and Critical Care Medicine*, vol (volume). 159.
- 6 Miller, M.R., Hankinson, J., Brusasco, V., et al. (and others) 2005. Standardisation of spirometry. *European Respiratory Journal*, vol (volume). 26, no (number). 2.
- 7 Swanney, M.P., Ruppel, G., Enright, P., et al. (and others) 2008. "Using the lower limit of normal for the FEV₁/FVC (Forced expiratory volume)₁/FVC (Forced vital capacity) ratio reduces the misclassification of airway obstruction." *Thorax*, Vol (Volume). 63.
- 8 Aggarwal, A.N. 2008. "How appropriate is the gold standard for diagnosis of airway obstruction?" *Lung India: official organ of Indian Chest Society*, vol (volume). 25.
- 9 Global Initiative for Chronic Obstructive Lung Disease (GOLD). 2010. *Spirometry for Health Care Providers*. www.goldcopd.org/uploads/users/files/GOLD_Spirometry_2010.pdf (accessed: July 3, 2014).

References

- Aggarwal, AN. 2008. "How appropriate is the gold standard for diagnosis of airway obstruction?" *Lung India: official organ of Indian Chest Society*, vol (volume). 25.
- Global Initiative for Chronic Obstructive Lung Disease (GOLD). 2010. *Spirometry for Health Care Providers*. www.goldcopd.org/uploads/users/files/GOLD_Spirometry_2010.pdf (accessed: July 3, 2014).
- Hankinson, J.L., Odencrantz, J., and K. Fedan. 1999. "Spirometric Reference Values from a Sample of the General U.S. Population." *American Journal of Respiratory and Critical Care Medicine*, vol (volume). 159.
- Health Canada. 2013. *Respiratory Effects of Air Pollution*. Ottawa. <http://www.hc-sc.gc.ca/ewh-semt/air/out-ext/health-sante/respir-eng.php> (accessed: August 12, 2014).
- Miller, M.R., Hankinson, J., Brusasco, V., et al. (and others) 2005. Standardisation of spirometry. *European Respiratory Journal*, vol (volume). 26, no (number). 2.
- Public Health Agency of Canada. 2012. *Chronic Pulmonary Obstructive Disease (COPD)*. Ottawa. <http://www.phac-aspc.gc.ca/cd-mc/crd-mrc/copd-mpoc-eng.php> (accessed: May 12, 2014).
- Public Health Agency of Canada. 2008. *I have COPD (Chronic obstructive pulmonary disease). Why is it important for me to exercise?* Ottawa. http://www.phac-aspc.gc.ca/cd-mc/crd-mrc/copd_exercise-mpoc_exercice-eng.php (accessed: May 12, 2014).

Swanney, M.P., Ruppel, G., Enright, P., et al. (and others) 2008. "Using the lower limit of normal for the FEV₁ (Forced expiratory volume)₁/FVC (Forced vital capacity) ratio reduces the misclassification of airway obstruction." *Thorax*, vol (volume). 63.

The Lung Association. 2013. COPD (Chronic obstructive pulmonary disease). Ottawa. http://www.lung.ca/diseases-maladies/copd-mpoc/treatment-traitement/medications-medicaments_e.php (accessed: May 12, 2014).

Data

Additional data from the Canadian Health Measures Survey are available from CANSIM tables 117-0001 to 117-0011.

For more information on the Canadian Health Measures Survey, please contact Statistics Canada's Statistical Information Service (toll-free 1-800-263-1136; 514-283-8300; infostats@statcan.gc.ca).