lung health starts now

lung health foundation

Primary Care Asthma Program (PCAP)

Program Manual

Version 2018

Ontario Lung Association is a registered charity operating as the Lung Health Foundation

Ontario

Primary Care Asthma Program

Table of Contents

Primary Care Asthma Program

Table of Contents

Section 1: Introduction

Primary Care Asthma Program

Introduction

Thank you for your expressed interest in the Primary Care Asthma Program (PCAP).

PCAP is an evidence-based program that provides a model of care to primary care health practices in Ontario. PCAP is a part of the Ministry of Health and Long-term Care's Asthma Program (AP) mandate to reduce the utilization of health care through an integrated plan including prevention, health promotion, education, management (including treatment), surveillance and research.

This program is designed to equip primary care sites to provide evidence-based respiratory care to their patients through implementation processes, program standards and respiratory resources and tools.

We hope that this program serves you well in providing the best lung health outcomes for your patient.

Primary Care Asthma Program

Letter to organization interested in the implementation of PCAP

Thank you for your expressed interest in implementing the Primary Care Asthma Program.

Enclosed is a package of information on PCAP and the Ministry of Health and Long-Term Care Asthma Program (AP). We recognize that each organization is at various stages of implementation of different programs in addressing chronic disease management at their facility. We are pleased to have developed evidence-based tools and approaches that will significantly improve your patients' health outcomes.

If you are interested, it would be helpful to have a brief discussion either via email or teleconference to understand your organization's priorities, and resources that you might have on board or requested in terms of spirometer(s) and staff (Certified Asthma Educator, Certified Respiratory Educator, respiratory therapists, FP, NP, RN, pharmacist or other health-care professionals with respiratory/chronic disease expertise/interest) who might champion or lead the PCAP implementation if you decide to move forward.

If you could email some dates/times that might be best to meet, I would be happy to give you a call to discuss any questions you might have and come up with next steps in the implementation process.

Looking forward to hearing from you.

Kindest Regards,

PCAP Provincial Coordinator
Lung Health Foundation
401-18 Wynford Dr.
Toronto, ON M3C 0K8
Email: PCAP@lunghealth.ca or info@lunghealth.ca
P (416)-864-9911 ext 258
F (416)-922-9430

Please complete contact information below and FAX or email back to:
Email: PCAP@lunghealth.ca **or Fax (416)-922-9430**

Name of organization:
Location:
Name of contact person:
Phone (contact person):
Email (contact person):

Primary Care Asthma Program

Background Summary

The Primary Care Asthma Program (PCAP) is an evidence-based asthma program intended to provide primary care providers with decision aids to support best practice regarding asthma assessment, diagnosis and management. Its development, implementation and evaluation as a pilot program were funded through the Ontario Ministry of Health and Long-Term Care, as one of the initiatives of the Asthma Plan of Action (APA), now called the Asthma Program (AP). The pilot for this program was evaluated through a research study led by Drs. Teresa To and Lisa Cicutto in 8 primary care sites across the province from 2002-2006.

Results of the pilot were very positive for asthma management, patient outcomes and acute care use and were sustained at 6 and 12 month intervals. There were statistically significant improvements in:

- the amount of spirometry completed almost doubled to 67.4% from 38.4% ($p<0.0001$)
- relative reduction of 33.7% in daytime asthma symptoms ($p=0.0432$)
- relative reduction of 45.2% in night time awakening symptoms ($p<0.0001$)
- relative reduction of 29.9% in asthma attacks ($p<0.0001$)
- relative reduction of 48.8 % in missed school days ($p=0.0004$)
- relative reduction of 50.0% in emergency department visits ($p<0.0001$).[1]

The PCAP tools are intended for use by a multi-disciplinary team and include:

- Care Maps (Asthma and COPD)
- Action Plans (Asthma and COPD)
- Decision and Management Algorithms (Asthma and COPD)
- Generic program standards

In partnership with the Lung Health Foundation, PCAP also provides COPD program resources and tools to deliver a lung health program. The PCAP tools are based on the latest Canadian Asthma and COPD Consensus Guidelines. The care map and action plan are being adapted for integration into electronic medical records (EMRs) in primary care.

The eight sites that participated in the Primary Care Asthma Pilot Project (PCAPP) include:

- Gizhewaadiziwin Health Access Centre (Fort Frances)
- Group Health Centre (Sault Ste. Marie)
- Rural Kingston Primary Care Network (Kingston and area),
- South Riverdale Community Health Centre (CHC) (Toronto East)
- Stonegate CHC (Toronto West),
- North Lanark CHC (Lanark and Renfrew counties)
- North Hamilton CHC (Hamilton)
- Somerset West CHC (Ottawa)

[1] T. To, L. Cicutto, N. Degani, S. McLimont, J. Beyene, Can a Community Evidence-based Asthma Care Program Improve Clinical Outcomes? A Longitudinal Study. *Med Care* 2008;46: 1257-1266

Primary Care Asthma Program

Background Summary

After the pilot, PCAP was implemented in four additional locations through the following coordinating centres:

- Asthma Research Group Inc. (Windsor – various locations)
- St. Joseph's Health Care (London)
- Royal Victoria Hospital (Barrie)
- Thunder Bay Regional Health Sciences Centre* (Thunder Bay)
  *now St. Joseph's Care Group in Thunder Bay

In addition, Kingston General Hospital, Firestone Institute for Respiratory Health and Sunset Country FHT have taken on coordination of PCAP programs in the Kingston, Hamilton and Kenora areas respectively. **There are now 13 PCAP sites funded by the MOHLTC AP in Ontario.**

PCAP is part of Ontario's Asthma Program (AP), an integrated strategy of thirteen initiatives based on the Canadian Asthma Consensus Guidelines[2,3] and the Canadian Thoracic Society Guidelines for occupational asthma.[4] The goal of the AP is to reduce mortality, morbidity and health care costs for children and adults with asthma through an integrated plan focused on health promotion and prevention, management and treatment and research and surveillance.

PCAP is delivered within a multi-disciplinary team of primary care providers with the leadership of a Site Coordinator and/or a Certified Respiratory Educator (CRE) who is also trained in doing Spirometry (is certified through SpiroTrec™ or is a RRT or RCPT). The Site Coordinator and/or a CRE assist with program implementation, mentoring, and education of patients and staff. The key to the success of this program is the expertise of the educator who provides current evidence-based knowledge and assists with on-site objective measurements via spirometry to facilitate accurate diagnosis and management of asthma. The program is modeled on fostering patient and family self-management.

A Provincial PCAP Coordinator was added in 2007 to maintain and enhance current AP and non-AP funded PCAP sites to address ongoing program integration challenges (identified through annual needs assessments) and to assist new primary care sites with implementation and integration of PCAP into their clinics. A strategic planning session was held in the fall of 2007, with key strategies including definition of the governance structure, development of a generic business case and marketing plan, and standardization of the program including the program manuals (site and spirometry). Project groups work to implement recommendations and suggestions identified by the PCAP Advisory.

---

[2] Boulet, L.-P., A. Becker, D. Bérubé, R. Beveridge, and P. Ernst, on behalf of the Canadian Asthma Consensus Group. 1999. Canadian asthma consensus report. *CMAJ* 161 (11 Suppl.): S1-61.

[3] Boulet L.-P., T. R. Bai, A. Becker, D. Bérubé, R. Beveridge, D. M. Bowie, K. R. Chapman, et. al. 2001. What is new since the last (1999) Canadian Asthma Consensus Guidelines? *Can Respir J* 8 (Suppl A): 5A-27A.

[4] · Tarlo, S. M., L.-P. Boulet, A. Cartier, D. Cockcroft, J. Côté, F. E. Hargreave, L. Holness, G. Liss, J. L. Malo, and M. Chan-Yeung. Canadian Thoracic Society Guidelines for occupational asthma. 1998. *Can Respir J* 5 (4): 289-300.

Primary Care Asthma Program

Background Summary

Since 2007 and the addition of the PCAP provincial coordinator, PCAP has expanded..
Expansion:

- Over 190 sites across Ontario
  (36 co-ordinating AP-funded sites: includes branches, satellites, First Nation communities, orphaned clinics, group and single physician clinics)
- Comprehensive PCAP Training Schedule for program implementation

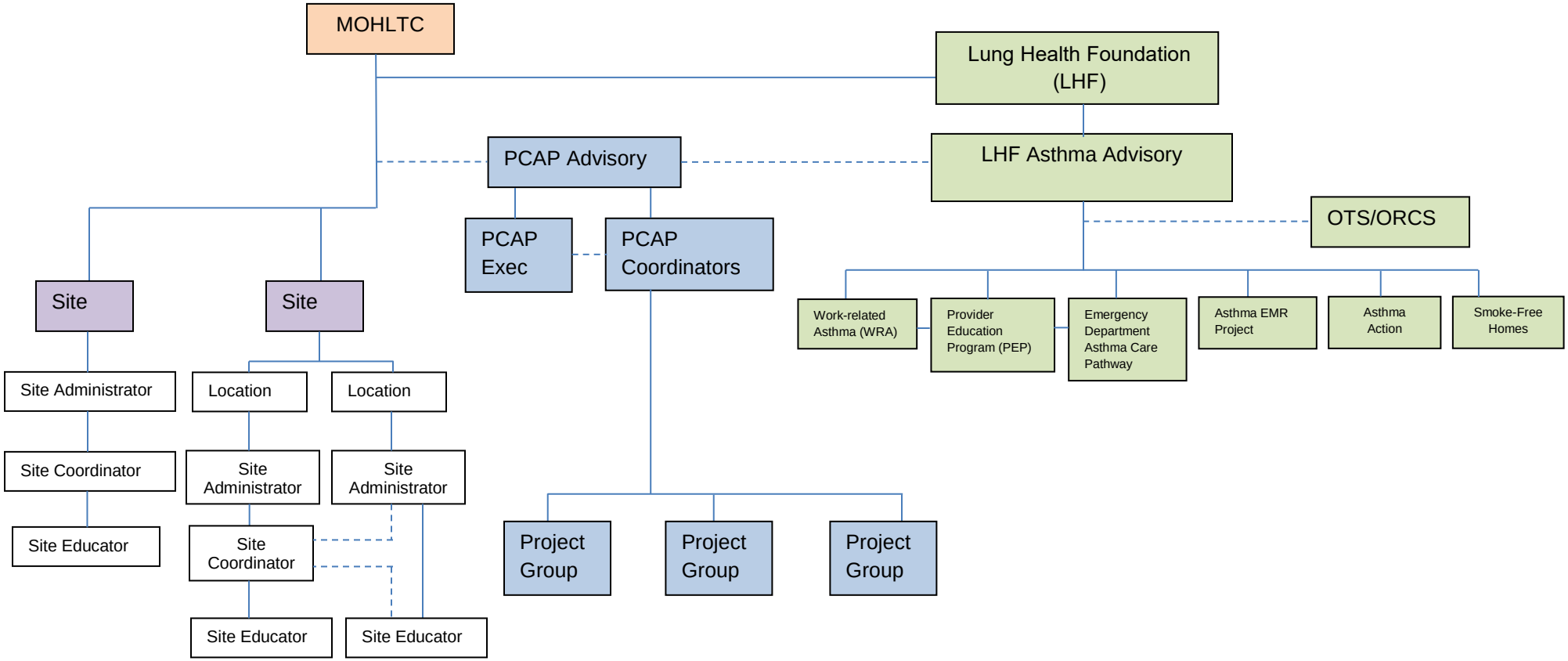
Other AP initiatives related to PCAP:

- Provider Education Program (PEP)
- Asthma Action (providing patient tools and resources)
- School-Based Initiatives (Asthma Friendly Schools and Ryan's Law implementation)
- Smoke Free Homes & Asthma
- EMR Project including: data standards and specifications, Asthma Quality of Life Questionnaire (AQLQ) and Work-Related Asthma Screening Questionnaire (WRASQ)
- Work-Related Asthma
- Emergency Department Asthma Care Pathway (EDACP) for adult and pediatric population
- Asthma Surveillance and Asthma Performance Indicators (PC-API)
- Collaborative Care Pilot Project (CCPP)

Primary Care Asthma Program

Governance Framework

PCAP Governance Structure and Asthma Program Reporting Relationship



Note:

- PCAP Site Coordinators are a part of the PCAP Coordinator group
- PCAP Advisory (Terms of Reference): 1. Recommend guidelines and standards for program implementation based on the results of the PCAPP research, and current CTS guidelines. The Advisory helps promote and support an asthma +/- a COPD program delivered by primary care sites that is clinically rigorous and feasible within site resources; 2. Guide the ongoing development, implementation and evaluation of the Primary Care Asthma Program; 3. Identify the need for project groups and provide direction regarding participants; 4. Provide guidance related to integration with other AP initiatives.
- The PCAP executive is an extension of the PCAP Advisory Group. Since the Advisory meets twice/year, the PCAP executive makes decisions for the advisory in between meetings when required.
- The PCAP executive membership is as follows: PCAP Advisory chair/co-chairs, PCAP Provincial Coordinator, PCAP Coordinator chair/co-chairs, and PCAP coordinator past-chair
- Each Project group will have a Project Lead with supporting members
- Project groups will be ongoing (Once a project finishes, that project group will dissolve and another one will form for a new project – there may be multiple projects working simultaneously).
- The Newsletter Team will be one project group. Since there are two newsletter publications per year, this project group will be ongoing. However, membership may change.

Primary Care Asthma Program

Governance Framework

Ministry of Health and Long-Term Care role:

The Senior Program Consultant for the Asthma Progrm, MOHLTC, will participate as an Ex-Officio member in the context of the ministry's stewardship role, providing guidance to align the program with ministry direction and priorities.

Strategic priorities include:

- Chronic Disease Prevention and Management Framework
- e-Health Strategy
- Primary Care Renewal
- Accountability Structure/Performance Measures
- Other priorities as identified by the MOHLTC

Also, the ministry maintains formal relationships with individual AP-funded PCAP sites per contractual agreements. As such, the

- Host organization is accountable to MOHLTC
- Site Coordinator is accountable to Host Organization
- Site is responsible for annual proposal submissions as well as quarterly reports to the Ministry.

PCAP Provincial Coordinator (PPC) role:

- Continue to give support to PCAP sites in the implementation and integration of PCAP tools and resources and redirect any other lung health questions/concerns to appropriate experts for resources and materials on other lung health initiatives.
- Conduct a needs assessment for all PCAP sites annually to help identify challenges/gaps.
- To assist primary care sites interested in the implementation and integration of PCAP. The Provincial Coordinator will continue to provide support and coordination of resources/materials and training for PCAP at their sites. This is in accordance to the PCAP Implementation process.
- Provincial Coordinator Job/Role Description (Appendix I:see PCAP Intranet site) Strong Matrix Relationship

  - With the Lung Health Foundation (LHF): employer;
  - Input to MOHLTC reports/proposals
  - Support PCAP site implementation
  - Produce/revise materials with site coordinators input/medical review/PCAP Advisory approval as per PCAP process.
  - With sites/site coordinators: Supportive role including coaching/mentoring
  - Needs assessments to support various sites (e.g., issues/barriers in implementation of PCAP).
  - Collaborative Relationship with sites/site coordinators/PCAP partners
  - Facilitation of the implementation of the “PCAP Generic Program Standards” at PCAP sites.

- Involvement in project groups to support continuous development and refinement of processes for PCAP

- Expectations: PPC part of coordinators group; professional educational requirements include the following: 1) TEACH program, Motivational Interviewing, Educator Course, Program Management, Continuous Quality Improvement, Facilitator program, and other related workshops/seminars/training to enhance work efficiency.

Lung Health Foudnation (LHF) role:

Through the MOHLTC funding for the AP, the LHF provides a supportive and collaborative partnership with PCAP in the following roles:

- The full–time position of the PCAP Provincial Coordinator and the part-time position of the PCAP Administrative Assistant are employees of the LHF. Both of these position report to the LHF Director of Respiratory Health Programs. The Provincial Coordinator will work independently and will receive ongoing direction from the PCAP Advisory.
- Review and revision of PCAP tools in collaboration as requested by the PCAP Advisory and as per PCAP process of approval (Partnership Agreement).
- The printing and dissemination of PCAP resources for primary care sites
- The development and maintenance of the PCAP website
- All Travel expenses for the PCAP Provincial Coordinator

The LHF role is also:

1. Collaborative relationship/partnership with PCAP – LHF/PCAP Partnership terms of Reference available upon request
2. Host organization for other AP projects and programs linked to PCAP
3. Benefits:
    - Links to a larger network (National and Provincial Lung Health Strategy)
    - Research opportunities
    - Awareness of new initiatives as they arise

PCAP Advisory Group Chair/Co-Chair role

- Conduct and convene PCAP advisory meetings
- Lead the PCAP executive
- Facilitate communication between PCAP Advisory and other groups/organizations
- Facilitate clarification of issues and articulation of recommendations/issues
- Facilitate team function of group

PCAP Medical Director role

- Interact with other organizations relevant to PCAP

Governance Framework

- Participation in committee/meetings as a representative for PCAP as appropriate
- Facilitate communication between PCAP Advisory and other groups/organizations

PCAP Coordinator Group Chair role

- Chair and facilitate coordinator group meetings
- Represent PCAP Site Coordinators, presenting issues and recommendations to the PCAP Advisory
- Communicate issues and recommendations identified and/or endorsed by the PCAP Advisory to the Coordinators' Group

- **Coordinator Group**
  - Expectation: Meet as a group to address PCAP issues and report to the PCAP Advisory. Support one another in addressing local/individual issues related to PCAP implementation and ongoing provision

- **Site Coordinators**
  - Accountable to host organization (site accountable to site administrator). Involvement in coordinator project groups to contribute to the ongoing quality improvement, innovation and function of PCAP

Primary Care Asthma Program

Site Coordinator and Site Certified Asthma/Respiratory Educator

Generic Primary Care Asthma Program (PCAP) Job Descriptions

The following job descriptions have been developed to help guide PCAP sites with the recruitment of a PCAP Site Coordinator and or Certified Asthma/Respiratory Educator.

Background

The Primary Care Asthma Program (PCAP) is an evidence-based program intended to provide primary care providers with decision aids to support best practice regarding asthma assessment, diagnosis, management, patient education, monitoring, and the primary and secondary prevention of asthma and occupational asthma. The program tools include:

- Generic program standards
- Care Map (asthma and COPD)
- Action Plan (asthma and COPD) and
- Decision and Management Algorithm (asthma and COPD)

These tools, based on the Canadian Respiratory Guidelines, are intended for use by a multi-disciplinary team. A PCAP site coordinator and or a certified asthma/respiratory educator support the implementation and ongoing sustainability of the asthma program in collaboration with the primary care providers at each location.

The PCAP Site Coordinator leads program implementation including staff and patient education and participation in research as appropriate. Key to the success of this program is the expertise of the certified asthma/respiratory educator whose focus is patient and family guided self-management while providing current evidence-based asthma information and assistance with on-site objective measurements to facilitate accurate diagnosis and management of asthma and COPD.

Position: **PCAP Site Coordinator**

Reporting to: **Site Administrator**

Position Description:

The PCAP Site Coordinator participates in the planning, development, implementation and ongoing evaluation of the Primary Care Asthma Program, in collaboration with primary care providers, community/provincial agencies and the general public.

Primary Care Asthma Program

Site Coordinator and Site Certified Asthma/Respiratory Educator

Key Responsibilities

- Establishes (in consultation with the Site Administrator) goals, objectives and plans for effective implementation of the Primary Care Asthma Program for the site and associated locations.
- Develops (in consultation with the Site Administrator) PCAP site specific budget; implements the budget, monitors expenses and provides rationale for variances.
- Identifies and reports opportunities for program improvements, sustainability and possible expansion.
- Develops and maintains collaborative internal and external partnerships.
- Attends relevant events, meetings and participates as a member of committees and/or working groups.
- Utilizes the best available evidence to support decisions.
- Participates in research initiatives, as appropriate.
- Serves as a resource person for respiratory health education for the site and community.
- Responsible for staffing of PCAP
- Supervises and mentors other respiratory educators
- Facilitates training and continuing education for PCAP and site staff
- Works with educators and individual sites to ensure adherence to PCAP standards and protocols.
- Conduct individual and family assessments to identify strengths, resources, psychological factors, socioeconomic impact, knowledge, and potential barriers to learning and improved asthma management
- Provide spirometry testing as indicated in accordance with the Canadian Thoracic Society/American Thoracic Society/European Respiratory Society guidelines
- Provide asthma and COPD education to patients, families and care providers utilizing best practice strategies and standardized PCAP tools, in accordance with PCAP Advisory Group recommendations
- Work with patients/families and primary care provider to develop, implement and revise customized self-management plans (Action Plans)
- Complete documentation in accordance with PCAP standards and site specific policies and practice
- Identify community resources and help patients to understand how and when to best access those resources appropriately
- Monitor asthma education program outcomes and performance indicators, recommending changes to improve quality and effectiveness of program
- Serve as a resource to the community by providing information about asthma; liaise with local health care providers, hospitals and community organizations to increase awareness, knowledge and skills
- Performs other duties as assigned.

Primary Care Asthma Program

Site Coordinator and Site Certified Asthma/Respiratory Educator

Essential Qualifications:

- Licensed Ontario Regulated Healthcare professional (for example registered respiratory therapist, registered nurse or pharmacist).
- Certified Asthma Educator or Certified Respiratory Educator
- Demonstrated leadership, team development and facilitation skills
- Experience in and/or training in project management.
- Demonstrated ability to incorporate evidence into practice
- Demonstrated competency in spirometry testing, (in accordance with the American Thoracic Society/European Respiratory Society Standards) preferred.
- Other, as required by individual sites.

Preferred Qualifications:

- Previous experience with program development and evaluation
- Demonstrated ability to establish and meet goals/ objectives
- Demonstrated ability to develop and work within a budget
- Previous experience with participation and support of research
- Demonstrated ability to build relationships and work collaboratively with internal and external stakeholders
- Demonstrated ability to function independently and as a professional team member and/or team leader
- Demonstrated excellent organizational and time management skills
- Demonstrated excellent interpersonal and communication skills
- Previous experience in delivery and evaluation of asthma education programs
- Excellent facilitation and teaching skills
- Self-directed practitioner
- Ability to work as a member of an interdisciplinary care team
- Excellent interpersonal and communication skills
- Strong organizational skills
- Demonstrated commitment to professional development
- Demonstrated ability to incorporate evidence into practice
- Experience and comfort with computer applications
- Excellent assessment and independent decision making skills
- Demonstrated flexibility, adaptability and ability to manage change
- Demonstrated competency in spirometry testing in accordance to the CTS/ATS/ERS Standards

Primary Care Asthma Program

Site Coordinator and Site Certified Asthma/Respiratory Educator

Primary Care Asthma Program

Position: **Asthma/Respiratory Educator**

Reporting to: **PCAP Site Coordinator**

Position Description:

The Certified Asthma/Respiratory Educator (CAE/CRE) works along with primary care providers to assess diagnose and educate patients and their families or caregivers about asthma. The CAE/CRE fosters a collaborative approach to asthma management in the community; promotes and utilizes opportunities to increase awareness, skill and knowledge within the community, through their expertise; identifies and participates in continuing education and research opportunities as appropriate to the goals of PCAP and in accordance with host site guidelines.

Key Responsibilities

The following responsibilities are standards for a Certified Asthma/Respiratory Educator assigned to the Site and are not intended to address responsibilities that the incumbent might have elsewhere

- Conduct individual and family assessments to identify strengths, resources, psychological factors, socioeconomic impact, knowledge, and potential barriers to learning and improved asthma management
- Provide spirometry testing as indicated in accordance with the American Thoracic Society guidelines
- Provide asthma education to patients, families and care providers utilizing best practice strategies and standardized PCAP tools, in accordance with PCAP Advisory Group recommendations
- Work with patients/families and primary care provider to develop, implement and revise customized self-management plans (Action Plans)
- Complete documentation in accordance with PCAP standards and site specific policies and practice
- Identify community resources and help patients to understand how and when to best access those resources appropriately
- Monitor asthma education program outcomes and performance indicators, recommending changes to improve quality and effectiveness of program
- Serve as a resource to the community by providing information about asthma; liaise with local health care providers, hospitals and community organizations to increase awareness, knowledge and skills

Primary Care Asthma Program

Site Coordinator and Site Certified Asthma/Respiratory Educator

Essential Qualifications:

- Licensed Ontario Regulated Healthcare professional (for example registered respiratory therapist, registered nurse or pharmacist)
- Certified Asthma Educator or Certified Respiratory Educator

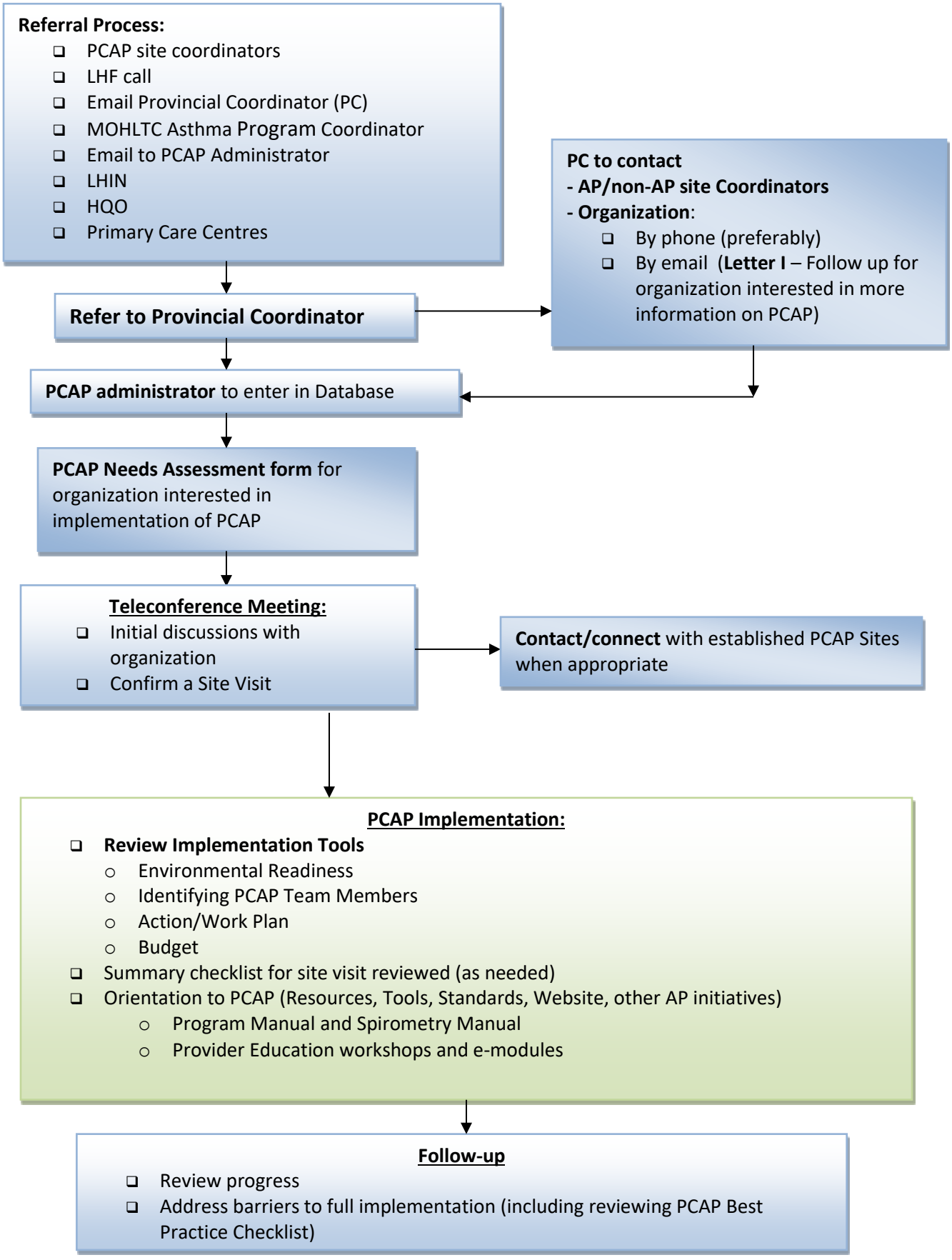
Preferred Qualifications

- Previous experience in delivery and evaluation of asthma education programs
- Excellent facilitation and teaching skills
- Self-directed practitioner
- Ability to work as a member of an interdisciplinary care team
- Excellent interpersonal and communication skills
- Strong organizational skills
- Demonstrated commitment to professional development
- Demonstrated ability to incorporate evidence into practice
- Experience and comfort with computer applications
- Excellent assessment and independent decision making skills
- Demonstrated flexibility, adaptability and ability to manage change
- Demonstrated competency in spirometry testing in accordance to the CTS/ATS/ERS Standards

Section 2: Getting Started

Primary Care Asthma Program

Flow Chart: Implementation Process for PCAP – New Sites



Primary Care Asthma Program

Implementation Activities - Recommendations

Establish contact with the PCAP Provincial Coordinator (LHF) to plan site visits and training.

Develop a training and communication plan that ensures all staff has a level of understanding of the Primary Asthma Care Program consistent with their roles and responsibilities.

Establish procedures, training, and education to ensure spirometry is performed in accordance with CTS/ATS/ERS standards. Spirometry is used as the objective measure for confirmation of the diagnosis of asthma and/or COPD and as the objective measure for monitoring control

Establish procedures and referral agreements to ensure that if spirometry or peak flow measurements are inconclusive in making a diagnosis, the client will be tested using challenge testing (methacholine or exercise challenge test)

Identify and obtain respiratory education materials which are evidence-based, age and culturally appropriate and provided in a language and format understood by clients and ensured that they are always available.

Identify and form relationships with community partners to reinforce the lung health program and ensure sustainability of the program.

Work with site administrators, managers and directors to ensure that the site(s) resources, policies and practices are developed to accommodate the program curriculum and ensure that the program is effective

Ensure that staff has the resources (e.g. materials, forms, space, etc.) necessary to carry out the program.

Meet regularly with the senior administration of the site(s) to report on the program.

Conduct needs assessments for the program as appropriate to ensure the program remains effective and relevant to clients

Primary Care Asthma Program INTRODUCTION/ORIENTATION

Agenda: Day 1 (6 hours) – Program introduction/orientation

Timeline	Items	Comments/Recommendations
0900-1000	Site Tour and introductions to Staff	
1000-1100	Site Profile created (includes information from needs assessment, environmental readiness, identifying team members and action/work plan	
1100-1200	Introduction to AP and PCAP	
	PCAP Communication/Marketing Tools -Website -eNewsletter	
	PCAP Governance Framework	
	Site Coordinator Job Description	
	Workplan and Quarterly Report	Only for MOH AP-PCAP sites
1200-1230	LUNCH	
1230-1330	PCAP Process Map	
	PCAP Generic Program Standards	
	PCAP Best Practice Checklist	
	PCAP Training Schedule-PEP/LHF	
1330-1500	PCAP Tools: - Spirometry manual* - Care Map - Action Plan - Algorithm	PCAP PC will go through case studies with site to demonstrate the use of these tools for patient management *Spirometry orientation applies only to the sites who are incorporating spirometry in their plan of care (e.g., some sites may refer spirometry testing outside of their site)
1500-1600	Site Specific Issues/Concerns - EMR - Process of care including referral and follow-up process	

Primary Care Asthma Program INTRODUCTION/ORIENTATION

Agenda: Day 2 (5-8 hours)

PCAP Orientation on Spirometry in Primary Care (5-8hours)

Timeline	Items	Comments/Recommendations	Date completed
1hour	Technical training of equipment* • Daily calibration • Infection Control • Quality assurance (CTS/ATS/ERS Standards)		
1hours	Clinical training- spirometry performance*		
3-6hours	Spirometry practical • Observation by orientee • Orientee performs spirometry (observed by trainer)		

*applies only to sites who have in-house spirometry testing (e.g., some sites may refer their spirometry testing outside of their site and will not need this orientation). This PCAP spirometry orientation is to go through the PCAP spirometry manual and is not a formal training program. It is the expectation that if the site is doing spirometry testing, that the person conducting the testing be a professional qualified in doing spirometry – please see PCAP spirometry policy and procedures in PCAP spirometry manual for who can conduct spirometry).

Generic Program Standards and Best Practice Checklist & Educator Practice Assessment (approx 5-8 hours - Follow up visit)

Timeline	Items	Comments/Recommendations	Date completed
1-2hours	Generic Program Standards and Best Practice Checklist		
2-3hours	Observation by orientee with either patient or test patient on Educational Session		
2-3hours	Educator Practice Assessment Tool (as appropriate)		

Primary Care Asthma Program

Needs Assessment Form

Site: _____

Date: _____

Each site interested in the implementation of Primary Care Asthma Program will have an **Initial Needs Assessment Questionnaire**.

Service Area And Service Provided:

Service area	
Cultural or ethnic needs of patient population (presence of industry in community)	
Prevalence of Asthma and/or COPD in Region	
Staffing for Asthma and/or COPD Education (Identifying Program Team Members)	❑ Family Physician ❑ Specialist ○ _____ ❑ Respiratory Educator ○ CAE/CRE ○ RN, RRT, NP ○ Other_____ ❑ Others _____
Asthma and/or COPD education provided:	❑ In clinic ❑ During medical visit ❑ Referred out ❑ Not at all
Spirometry Testing:	❑ On-site ❑ PFT lab
Smoking cessation counseling:	❑ In clinic: ❑ During medical visit ❑ Referred out ❑ Not at all

Site Location: _____

Date: _____

Staffing:

Please list the number and type of health care professionals and administrative staff working at this site:

#	Type (FP, RN, clerical, etc.)	Part time	Full time

Issues And/Or Concerns Regarding Implementation:

List accordingly (may also be identified in staff meeting/focus group):

Site Location: _____

Date: _____

Site Specific Activity Community Programs:

Example: Health Fair, School presentation or program (RAP), Outreach Programs (Summer Camps)

Process of Care:

Please describe, on a step-by-step basis, the process patients go through to receive care at your site. Include reference to referral out for tests and any policies re: follow-up or regularly scheduled visits (information may be attached).

Site Location: _____

Date: _____

Overview of the Primary Care Site:

Please Describe:	***Discussions***
Stage of development	
Demographics	
# of Asthma Patients *# of COPD Patients*	
Human Resource/Budget	
LHIN Collaboration	
Community Collaboration	
EMR/CMS	
OTN available	
Diagnostic Tool(s): *Spirometry/Spirometry needs*	
Size of practice (roster size)	
Location of Practice	
Other Comments	

Primary Care Asthma Program

Implementation: Environmental Readiness

It is essential to assess the environment and develop your implementation plan based on your practice settings.

There are 8 elements believed to support the implementation process

Structure - Those aspects of the organizational infrastructure having to do with how decisions are made, staff practices, workload patterns, physical facilities, and resource availability.

Workplace Culture – The overall nature of the organization: a) how we think things should be done, b) what is seen as important to focus on, allocate resources, c) what we aspire to base the philosophy, values, vision, and mission on day to day activities.

Communication Systems- All the formal and informal processes that are in place to enable information exchange.

Leadership Support – The extent to which management at all levels and others with influence in the organization are prepared to enable changes in the system related to clinical practice and quality of care issues.

Knowledge, skills and attitudes of the team- The knowledge, skills, general views and belief systems of the team that relate to change, evidence-based practice and clinical excellence. This will affect motivation toward adoption of new ideas and practices.

Commitment to CQI- is there an evaluation process for your program to be used, provisions of resources to implement an evaluation process

Resources – Financial, human or in-kind requirements necessary to achieve the objectives that are outlined in your action plan. Interdisciplinary Relationships – The behaviours, types of interactions and ways of making decisions demonstrated among and between disciplines that will be involved in or affected by, the program.

Interdisciplinary relationships- The behaviours, types of interactions and ways of making decisions demonstrated among and between disciplines that will be involved in or affected by the program.

Adapted from: RNAO (2002). Toolkit: Implementation of clinical practice guidelines. Toronto, Canada: Registered Nurses of Ontario.
Version: December 2011

Primary Care Asthma Program

Implementation: Environmental Readiness

Environmental Assessment Worksheet

Elements	Questions	Facilitators	Challenges/Issues/Comments
Structure	☐ To what extent does decision making occur in a decentralized manner?	○ Multidisciplinary clinical educators	
Workplace Culture	☐ To what extent is the CPG consistent with the values, attitudes and beliefs of the practice environment? ☐ To what degree does the culture support change and value evidence	○ Patient Education is valued ○ Quality improvement activities are valued ○ Presence of clinical pathway algorithm positive ○ Affiliation with community organization	
Communication	☐ Are there adequate (formal and informal) communication systems to support information exchange relative to the CPG and CPG implementation processes?	○ Vehicles for communication to staff include: monthly email updates from adm ○ Healthy grape vine ○ Multidisciplinary practice leaders have formal communication process	
Leadership	☐ To what extent do the leaders within the practice environment support	○ Administration and director are actively supportive	
Knowledge, skills, and attitudes	☐ Does the staff have the necessary knowledge and skills? Which	○ Ongoing assessment of educational needs for the clinic ○ Continuing Education for clinic staff	

Adapted from: RNAO (2002). Toolkit: Implementation of clinical practice guidelines. Toronto, Canada: Registered Nurses of Ontario.
Version: December 2011

Primary Care Asthma Program

Implementation: Environmental Readiness

Elements	Questions	Facilitators	Challenges/Issues/Comments
	potential target group is open to change and new ideas? To what extent are they motivated to implement the guidelines		
Commitment to quality management	☐ Do quality improvement processes and systems exist to measure results of implementation?	○ Established quality management program ○ Computerized workload measurement system for clinic staff	
Availability of resources	☐ Are the necessary human, physical and financial resources available to support implementation?	○ Team members able to participate ○ Link to community organization ○ Link to local university ○ Network with other groups or other site members	
Interdisciplinary relationships	☐ Are there positive relationships and trust between the disciplines that will be involved or affected by the CPG?	○ Good personal relationships between the committee members. ○ Established collaborative relationship with community members and other organizations.	

Adapted from: RNAO (2002). Toolkit: Implementation of clinical practice guidelines. Toronto, Canada: Registered Nurses of Ontario.
Version: December 2011

Primary Care Asthma Program

Implementation: Identifying Team Members

Making it happen for your practice setting

Step 1: Be very clear on your program, what your target area is (i.e. the entire organization, one site, your program, your area) and just what you are attempting to accomplish. Outline how care is delivered now, and who is involved. Outline how care will be delivered using PCAP, and who will be involved. Use your entire team to clearly outline this in chart form. All those involved in the before and after situations will be the team members. This work will also serve as the beginning of your action plan.

Step 2: Work again with your entire team and continue identifying your key members in the implementation project. Remember to use categories such as internal participants, external participants and interface participants. Remember to consider physicians, clinical educators, other health care providers, quality assurance staff, administrators, researchers, and patients and their families.

Step 3: On going evaluation of the team members and their participation in the program. Revise your strategies of team member engagement as necessary to increase congruence between teams' needs and your program goals. This will reduce the risk to the organization and your program, and enable your organization to make the best use of its resources.

Adapted from: RNAO (2002). Toolkit : Implementation of clinical practice guidelines. Toronto, Canada: Registered Nurses of Ontario.
Version: December 2011

Primary Care Asthma Program

Implementation: Identifying Team Members

PCAP Team Members Worksheet

Team Members	Nature of the vested interest	Roles and Duties	Comments
Facility's Administration	Improving the quality of clinical services Improving professional practice Cost-effectiveness and efficiency of services	○ Obtain approval for key program activities ○ Prepare for and include in change management	
Medical Director	Maintaining the quality of asthma management treatment services for patients	○ Involve in key program activities ○ Stress why guidelines where chosen	
Site Coordinator	Improving the quality of clinical services Improving professional practice Being the "Best Provider to the Community"	○ Collaborate on key program activities in site location ○ Participate in provincial committees for policy/procedure recommendations	
Clinical Educator	Improving the quality of clinical services Improving professional practice	○ Collaborate on key program activities in site location	
Administrative Staff	Improving the quality of clinical services Supportive of administrative activities	○ Collaborate on key program activities in site location	

Adapted from: RNAO (2002). Toolkit : Implementation of clinical practice guidelines. Toronto, Canada: Registered Nurses of Ontario.
Version: December 2011

Primary Care Asthma Program

Implementation: Action / Work Plan

Use this template to develop your implementation action plan.

	Activity	Target date	Most Responsible Person	Outcome/Deliverables	Comments Progress
1	**Identification of site-coordinator who will lead the implementation of PCAP** ○ Identify skill and role requirements ○ Communicate/recruit interested individual or group ○ Secure participation of site-coordinator ○ Ensure site-coordinator has clear mandate and resources to start the planning process				
2	**Approval and support to implement PCAP** ○ Identify team members and catchment area ○ Agree on implementation ○ Communicate decision to relevant stakeholders				
3	**Identification, analysis and engagement of team members** ○ Define scope of implementation – extent implementation ○ Identify team members- group discussion required ○ Determine strategies that will be used to influence, support and engage stakeholders in different capacities. ○ Update action plan based on strategies identified				
4	**Insert strategies and actions once identified**				
5	**Completion of Environmental Assessment**				
6	**Identification of specific implementation strategies**				

Adapted from: RNAO (2002). Toolkit: Implementation of clinical practice guidelines. Toronto, Canada: Registered Nurses of Ontario. Version: December 2011

Primary Care Asthma Program

Implementation: Action / Work Plan

	Activity	Target date	Most Responsible Person	Outcome/Deliverables	Comments Progress
	○ Identify the challenges and facilitators from the environmental assessment ○ Involve your team members; choose intervention strategies available from strategies. Choose interventions based on available information, effectiveness, and fit with the organization and its members.				
7	**Update on action plan, based on implementation strategies identified.**				
8	**Development of plan for Evaluation** ○ Identify available sources of evaluation support expertise, data collection ○ Develop evaluation plan ○ Operationalize the plan				
9	**Update of action plan based on results of the evaluation plan**				
10	**Identification of resources required for implementation** ○ Use budget worksheets ○ Involve the whole team for consensus ○ Develop strong argument for the budget ○ Identify ways to obtain funding ○ Present budget and sources of revenue to the responsible organizational management level				
11	**Identification of monitoring/evaluation processes**				
12	**Plan for celebration, marking milestones**				

Adapted from: RNAO (2002). Toolkit: Implementation of clinical practice guidelines. Toronto, Canada: Registered Nurses of Ontario. Version: December 2011

Primary Care Asthma Program (PCAP) Annual Best Practice Checklist

PCAP Best Practice Standard	Meets Standard	Site Comments
1. Health Care Providers (HCPs) have an understanding of the PCAP generic program standards consistent with their distinct roles and responsibilities b. There will be an identified plan for training and communication to all HCPs involved in PCAP.		
2. The PCAP site follows the current Lung Association (LHF) Asthma Care Map for patient assessment and follow-up		
3. The PCAP site follows the current LHF COPD Care Map for patient assessment and follow-up		
4. PCAP educator and/or lead is in good standing with their college or governing body		
5. PCAP educator and/or lead to provide college registration # _____		
6. PCAP educator and/or lead is a Certified Respiratory Educator (CRE) or Certified Asthma Educator (CAE)		
7. Each PCAP site must adhere to the PCAP Spirometry Policy and Procedure in the Spirometry Manual*		
8. PCAP site has a medical directive in place for conducting pre and post bronchodilator spirometry, including Salbutamol administration*		
9. The PCAP site uses the PCAP Operators Checklist when conducting spirometry*		
10. For children < 6 years of age who are unable to perform spirometry for diagnosis, Canadian Thoracic Society (CTS) Preschool Asthma Guidelines are followed		
11. If spirometry is inconclusive for diagnosis, alternative methods should be considered		

(e.g., methacholine challenge, Peak Expiratory Flows (PEF), exercise testing**, etc.) **exercise testing: to evaluate exercise-induced bronchospasm (EIB). This is not a cardiac stress test.		
12. Identification of Physician and/or Nurse Practitioner (NP) responsible for the interpretation of spirometry and the communication of the diagnosis to the client		
13. Spirometry is conducted by a Registered Respiratory Therapist (RRT), Registered Cardiopulmonary Technologist or another regulated health professional who has successfully completed an accredited spirometry course such as SpiroTrec™		
14. Spirometry is interpreted by qualified individuals within their scope of practice according to ATS/ERS/CTS standards		
15. The assessment for both asthma and COPD should include the explicit ruling out of alternative diagnosis		
16. All asthma and COPD clients, together with their families/caregivers (if desired) are active partners in the management of their disease		
17. All clients have a written or electronic action plan to be reviewed/revised at each appointment.		
18. There is an established plan and pathway for follow-up with every client		
19. The HCP explores barriers to adherence at every visit		
20. Asthma and COPD teaching resources and tools provided to the client and family will be evidence-based and consistent with the current CTS guidelines		

Primary Care Asthma Program (PCAP) Annual Best Practice Checklist

21. List all PCAP resources you currently use to aid in your clinical decision making		
22. The type/model of Spirometer used: Predicted values used:		
23. EMR used:		

*If spirometry is not performed on site, this may not apply. However, the spirometry that is conducted off site should adhere to ATS/ERS/CTS guidelines.

Please visit www.lungontario.ca/PCAP for all PCAP resources

☐ PCAP needs assessment survey completed
☐ The PCAP site lead keeps the team engaged and celebrates success (regular updates to ED, physician lead, program manager)

PCAP team members:
☐ Physician lead: _____
☐ Executive Director/Program Manager/site lead:_____
☐ PCAP educator lead:_____
☐ IT specialist:_____
☐ Other: _____

Reviewed by:

1. PCAP site lead:_____
2. PCAP educator lead: _____
3. PCAP physician lead:_____

Date signed: _____

Primary Care Asthma and COPD Program

Generic Program Standards

The following Asthma guideline-based and COPD guideline-based program standards are recommended in primary care sites implementing a Primary Care Asthma (12,13) and/or a COPD Program.

Program Standards:

1. **Asthma:** Paediatric and adults suspected of having asthma should be assessed, diagnosed, and managed using the Asthma Care Map (ACM) for Primary Care which is based on the recommendations in the Canadian Thoracic Society (CTS) Asthma Management Continuum Respiratory Guidelines (1). The ACM will be updated to reflect changes in the CTS guidelines.

   COPD: Adults who are suspected to have COPD should be assessed and diagnosed. Once diagnosed, clients with COPD should be managed using the COPD Care Map (CCM) for Primary Care which is based on the Canadian Thoracic Society (CTS) recommendations for the diagnosis and management of COPD (8). The CCM will be updated to reflect changes in the CTS guidelines.

2. There will be a plan for training and communication of the Health Care Professional (HCP) involved in PCAP to ensure that the site staff has a level of understanding of the generic program standards consistent with their roles and responsibilities.

3. The HCP will provide PCAP within their scope of practice as regulated in Ontario by the Regulated Health Professions Act.

4. All clients will be provided with a written action plan for Asthma or COPD as appropriate

Spirometry/Diagnosis

5. Spirometry*, pre- and post-bronchodilator, in accordance with American Thoracic Society/European Respiratory Society standards (4), will be used as the primary objective measure for the diagnosis, monitoring and management of Asthma and/or COPD.

6. **Asthma:** If spirometry is not used for diagnosis and monitoring, a notation as to the reason why the use of an alternative method of diagnosis/monitoring should be made in the client's chart (e.g. "client cannot perform spirometry"). In the absence of objective testing (such as for children < 6 years of age, whom it is not possible to routinely assess lung function) a careful history and physical examination are used to differentiate Asthma from other causes of episodic respiratory symptoms (1,2,3).

Alternative testing consistent with CTS guidelines will be initiated at the discretion of the client's primary care provider and where resources are available. Measurements of airway hyperresponsiveness to Methacholine challenge, Peak Expiratory Flow (PEF) for clients > 6 years of age, or exercise challenge testing may be useful in diagnostic dilemmas, such as individuals with persistent asthma symptoms despite normal spirometry, and to evaluate work-related asthma (1).

COPD: Diligent screening for the detection of early signs of COPD is recommended to identify the early diagnosis. Who should be screened? Please refer to the Canadian Lung Health Test (8).

According to CTS guidelines, spirometry must be used to confirm the diagnosis of COPD. Post-bronchodilator, airflow obstruction must be noted - FEV1/FVC ratio < Lower Limit of Normal (LLN)** (or < 0.70 if LLN is not available) (8).

7. The assessment for asthma or COPD should include the explicit ruling out of other possible diagnoses responsible for asthma or COPD-like symptoms (1,8)

Asthma and COPD Management/PCAP Tools and other resources

8. All asthma and COPD clients, together with their family/caregivers, will be active partners in the management of their disease and in the creation of an individual action plan. (1,8)

9. Asthma and COPD education materials provided to the client to take home will be evidence-based, consistent with the CTS guidelines, and will strive to be age, culturally appropriate and provided in a language and format understood by the client as available.

10. The PCAP site will use a variety of site and community resources to reinforce the program standards.

11. A successful asthma or COPD education program consists of a partnership between the client and the HCP regarding the goals of treatment and ongoing follow-up to achieve and maintain optimal control of the client's lung health. Follow-up should be determined by the HCP on an individual basis. The content of the education session should refer to the CTS guidelines reflected in the care maps and algorithms.

12. Both Asthma and COPD clients will receive smoking cessation counseling when appropriate. It is recommended that the HCP involved with PCAP be trained in smoking cessation counseling.

13. The PCAP resources will aid in clinical decision-making and guide the patient towards self-management of their disease. Client assessment may occur over an average of 1-4 visits. However, some clients who have severe disease or other issues that impact on

achieving control of their asthma and/or COPD may require additional visits. The PCAP resource catalogue includes:

Asthma: Asthma Care Map (ACM) for Primary Care, Asthma Action Plan, and the Asthma Diagnosis and Treatment Algorithm
COPD: COPD Care Map (CCM) for Primary Care, COPD Action Plan, and the COPD Diagnosis and Treatment Algorithm

Note: a variety of resources will be available in addition to the stated above. Refer to http://hcp.lunghealth.ca

14. The HCP should explore barriers to adherence at each visit. These may include cost of drugs, timing of administration, beliefs of non-effectiveness, concerns regarding side effects, and forgetfulness. The HCP should ensure that clients comprehend the name, purpose, duration of treatment, dosing schedule and possible adverse effects of each asthma or COPD medication prescribed (1,8)

    If a client is unable to purchase asthma or COPD medications and devices as prescribed by site staff due to financial burden, the staff of the site will try to assist the client to access these medications and devices through available programs (e.g. Trillium Drug Program, compassionate access programs).

*Spirometric values = the performance of flow-volume curves

** Lower Limit of Normal: A statistically derived level below which a value is considered to be abnormal (10). For most biological measurements, the standard assumption is that for data with a normal distribution, values within 2 SDs of the mean value represent 95% of the population and are considered to be normal. The LLN is defined as the 5th percentile (the value that marks the lower 5% of the normal population) (11).

Please note:

Permission & Proper acknowledgement is required in any modification of the PCAP Tools as per PCAP process.

Approvals:

Approved by Design Task Force: July 11 2002

Last Amended by the Primary Care Asthma Program Advisory: June 2013

References:

1. Lougheed MD, Lemiere C, Ducharme F, et al. Canadian Thoracic Society 2012 Guideline Update: Diagnosis and Management of Asthma in Preschoolers, Children and Adults. Can Respir J 2012;19(2):127-64

2. Kovesi T. Achieving Control of Asthma in Preschoolers. CMAJ 2010; 182(4): E172-183

3. Global Initiative for Asthma (GINA). Global Strategy for the Diagnosis and Management of Asthma in Children 5 Years and Younger, 2009 **http://www.ginasthma.org/uploads/users/files/GINA_Under5_2009_CorxAug11.pdf**

4. Miller MR, Hankinson J, Brusasco V, et al. Standardisation of spirometry. Eur Respir J 2005;26:319-38.

5. Reddel HK, Taylor DR, Bateman ED, et al. An official American Thoracic Society/European Respiratory Society statement: Asthma control and exacerbations: Standardizing endpoints for clinical asthma trials and clinical practice. Am J Respir Crit Care Med 2009; 180:59-99.

6. Aaron SD, Vandemheen KL, Boulet LP, et al. Overdiagnosis of asthma in obese and nonobese adults. CMAJ 200818; 179:1121-31.

7. Becker A, Berube D, Chad Z, et al. Canadian Pediatric Asthma Consensus guidelines, 2003 (updated to December 2004): Introduction. CMAJ 2005; 173(6 Suppl):S12-S14.

8. O'Donnell DE, et al. Canadian Thoracic Society Recommendations for Management of COPD – 2008 Update Highlights for Primary Care; Can Respir J 2008; 15(Suppl A): 1A-8A.

9. Kaplan A. The COPD Action Plan; Canadian Family Physician 2009; 55: 158-59

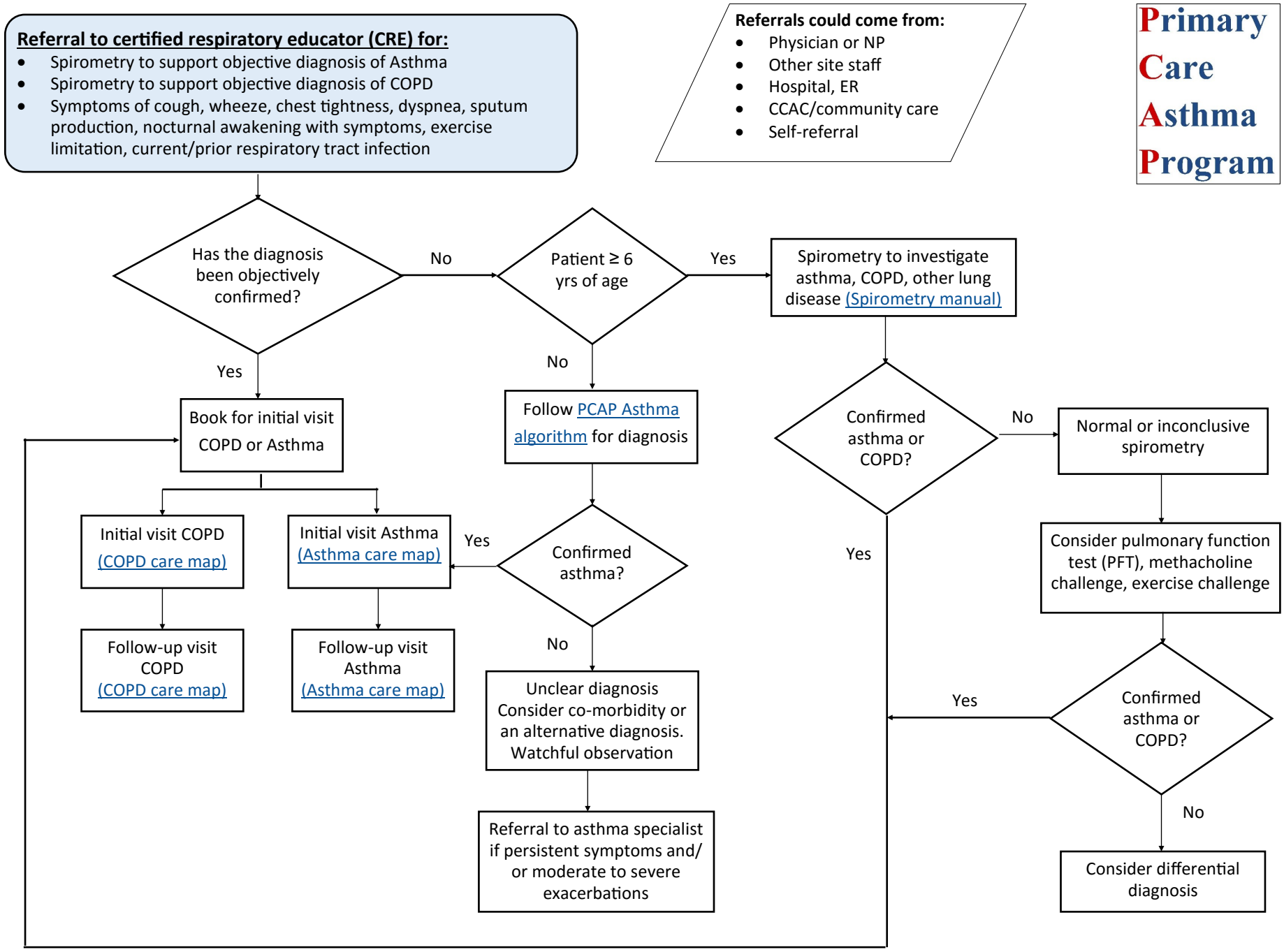
10. Roberts, SD et al. FEV1/FVC ratio of 70% Misclassifies Patients with Obstruction at the Extremes of Age. CHEST 2006; 130 (1): 200-6

11. Coates AL et al. Spirometry in Primary Care. Can Respir J 2013; 20(1): 13-20

12. To T et al. Can a Community Evidence-based Asthma Care Program Improve Clinical Outcomes? A Longitudinal Study. Med Care 2008; 46(12): 1257-126

13. To et al. How Much Do Health Care Providers Value a Community-based Asthma Care Program? – A Survey to Collect Their Opinions on the Utilities of and Barriers to its Uptake. BMC Health Services Research 2009; 9:77

PCAP Patient Process Map—A Guide For Educators



PCAP Patient Process Map—A Guide For Educators

These are elements of best practice that should be followed as much as possible over time in follow-up visits.

Primary Care Asthma Program

COPD Initial (90 minutes) - use the COPD care map and algorithm to guide you	**Asthma Initial (90 minutes) -** use the asthma care map and algorithm to guide you
• Pre and Post Spirometry • Determining patient goals • Baseline assessment (symptom assessment, MRC, CAT score, depression score, health care utilization) • Smoking history—smoking cessation if applicable • Pathophysiology • Medications (what they are, proper inhaler technique, adherence, medication access) • Importance of alleviating dyspnea (exercise, energy conservation, breathing exercise) • Triggers and occupational exposures • Importance of immunizations (Influenza, pneumococcal) • Social determinants of health (other addictions, access to care, cultural considerations, literacy) • Address co-morbidities and referrals to other team staff or community programs as necessary (pulmonary rehabilitation) • Develop a COPD action plan • Consider referral to specialists if necessary • Determine next follow-up appointment (frequency depends on client needs)	• Pre and Post Spirometry • Determine patient goals • Personal history (smoking, healthcare utilization, triggers including work-related, co-morbidities) • Smoking cessation - if applicable (assess first, second and third-hand exposure) • Family history of allergies and asthma • Pathophysiology • Environmental control • Medications (what they are, proper inhaler technique, adherence, medication access) • Importance of immunizations (influenza and pneumococcal) • Social determinants of health (other addictions, access to care, cultural considerations, literacy) • Address co-morbidities and referrals to other team staff or community programs as necessary) • Consider referral to specialists if necessary • Develop a written asthma action plan • Determine next follow-up appointment (frequency depends on client needs but follow-up recommended every 3-4 months for preschoolers)
COPD follow-up (60 minutes) - use the COPD care map and algorithm to guide you	**Asthma follow-up (60 minutes)-** use the asthma care map and algorithm to guide you
• Pre and Post Spirometry (if clinically indicated) • Reviewing patient goals • Follow-up assessment (symptom assessment, MRC, CAT score, health care utilization and exacerbations) • Smoking cessation (if applicable) • Medication and guideline review (CTS, GOLD) • Education components: nutrition, travel, sleep and sex, breathing techniques chest clearance techniques, relaxation techniques, energy conservation, exercise, medication and inhaler technique, flare-ups/exacerbations • Activities of daily living skills, coping skills • Address co-morbidities and referrals to other team staff or community programs as necessary (pulmonary rehabilitation) • If applicable: oxygen therapies, advanced directives/end-of-life care, invasive and non-invasive ventilation • Importance of immunizations (Influenza, pneumococcal) • Review or revise COPD action plan • Consider referral to specialists if necessary • Determine next follow-up appointment (frequency depends on client needs)	• Pre Spirometry (Post if indicated) - follow-up to assess relation to baseline (level of control) • Review patient goals • Follow-up assessment (review control, health care utilization and exacerbations) • Smoking cessation - if applicable (assess first, second and third-hand exposure) • Medication and guideline review (CTS) • Education components: symptom control, trigger and environmental management, medication and inhaler technique, importance of activity and exercise, coping skills, flare-ups/exacerbations • Adherence to medications (social determinants of health) • Address co-morbidities and referrals to other team staff or community programs as necessary • Importance of immunizations (Influenza, pneumococcal) • Review written action plan and revise as necessary • Consider referral to specialists if necessary • Determine next follow-up appointment (frequency depends on client needs but follow-up recommended every 3-4 months for preschoolers)

Section 3: Educator Tools

PRIMARY CARE ASTHMA PROGRAM – EDUCATOR PRACTICE SELF-ASSESSMENT (ASTHMA)

The following tool is intended to be used by the Certified Respiratory Educator (CRE) as a self-reflective practice assessment or by a peer educator for the purpose of peer assessment for inclusion in the educator's professional portfolio. There are three components of this tool: 1. Educator's knowledge of asthma, 2. Educator's knowledge of COPD and 3. Educator's skills. This tool is not intended for rapid assessment and may require more than one session. This tool should be used to evaluate the educator's skills and abilities and be used for quality improvement. Please continue to refer to the latest CNRC learning objectives (www.cnrchome.net)

Educator Principles	Competencies	Needs Improvement	Meets competency	Comments
Educator's Knowledge and ability to teach asthma	Application of the latest CTS guidelines to supplement history with spirometry for diagnosis	○	○	
	Asthma pathophysiology (hyper-responsiveness, inflammation, obstruction)	○	○	
	Asthma control/signs and symptoms	○	○	
	Triggers (allergens and irritants)	○	○	
	Asthma exacerbation/flare-up	○	○	
	Special considerations (Adherence to medications and strategies, pregnancy, premenstrual period, certain medications [e.g., NSAID and beta-blocker interaction])	○	○	
	Asthma action plan knowledge (knowing how to complete the actions for the green and yellow-zones)	○	○	
	Asthma action plan teaching (indications, components, peak flows)	○	○	
	Recognition of comorbidities as it relates to asthma (e.g., GERD, sinusitis, rhinitis, obesity)	○	○	

Educator Principles	Competencies	Needs Improvement	Meets competency	Comments
Educator's Knowledge and ability to teach asthma	Asthma diary (indications, tracking symptoms/peak flows, triggers)	○	○	
	Medications (controller/reliever, indication (CTS), mechanism of action, side effects, dosages, inhaler device technique and financial coverage options)	○	○	
	Asthma considerations in school	○	○	
	Work-related asthma (Differentiate between Work-exacerbated asthma and Occupation asthma) – definitions, risk factors, recognition, triggers, diagnosis, treatment	○	○	
	Air quality and asthma (Air quality health index – AQHI)	○	○	
	Smoking cessation minimal intervention/counselling/knowledge of Nicotine Replacement Therapies (NRT) and other smoking cessation options	○	○	
	Availability of asthma resources that align with the patient's learning style (e.g., technology) and is evidence-based, current and accessible	○	○	
	Indication for when to refer to a specialist	○	○	

Learning Objectives:

PRIMARY CARE ASTHMA PROGRAM – EDUCATOR PRACTICE SELF-ASSESSMENT (COPD)

The following tool is intended to be used by the Certified Respiratory Educator (CRE) as a self-reflective practice assessment or by a peer educator for the purpose of peer assessment for inclusion in the educator's professional portfolio. There are three components of this tool: 1. Educator's knowledge of asthma, 2. Educator's knowledge of COPD and 3. Educator's skills. This tool is not intended for rapid assessment and may require more than one session. This tool should be used to evaluate the educator's skills and abilities and be used for quality improvement. Please continue to refer to the latest CNRC learning objectives (www.cnrchome.net)

Educator Principles	Competencies	Needs Improvement	Meets competency	Comments
Educator's Knowledge and ability to teach COPD	Application of the latest CTS guidelines to supplement history with spirometry for diagnosis	○	○	
	Awareness of the Canadian Lung Health test	○	○	
	COPD pathophysiology (chronic bronchitis, emphysema)	○	○	
	COPD signs and symptoms	○	○	
	COPD exacerbation/flare-up (purulent vs. non-purulent)	○	○	
	Severity assessment (using spirometry values and MRC scale)	○	○	
	COPD action plan knowledge (knowing how to complete the actions for the green and yellow-zones)	○	○	
	COPD action plan teaching (indications, components, signs and symptoms to look for an exacerbation)	○	○	
	Knowledge of other tests (e.g., CBC to rule out polycythemia, ABG, AAT blood test, etc.)	○	○	
	Medications (controller/reliever, indication (CTS), mechanism of action, side effects, dosages, inhaler device technique and financial coverage options)	○	○	

Educator Principles	Competencies	Needs Improvement	Meets competency	Comments
Educator's Knowledge and ability to teach COPD	Identification of risk factors	◯	◯	
	Client education on management strategies of dyspnea (e.g., energy conservation, various breathing techniques, etc.)	◯	◯	
	Air quality and COPD (Air quality health index – AQHI)	◯	◯	
	Smoking cessation minimal intervention/counselling/knowledge of Nicotine Replacement Therapies (NRT)	◯	◯	
	Awareness of patient resources on advanced care directives and end-of-life care when appropriate	◯	◯	
	Recommendation of pulmonary rehabilitation program when appropriate	◯	◯	
	Education on vaccinations (influenza and pneumococcal)	◯	◯	
	Recognition of patient's co-morbidities as it relates to COPD	◯	◯	
	Addresses sexuality and relevance to managing dyspnea (appropriate referral to other staff when necessary)	◯	◯	
	Understanding of the various delivery forms of long term oxygen	◯	◯	
	Awareness of the role of non-invasive and invasive mechanical ventilation	◯	◯	
	Knowledge of the surgical options for COPD	◯	◯	
	Indications for when to refer to a specialist	◯	◯	
	Availability of COPD resources that align with the patient's learning style (e.g., technology) and is evidence-based, current and accessible	◯	◯	

Learning Objectives:

PRIMARY CARE ASTHMA PROGRAM EDUCATOR PRACTICE SELF-ASSESSMENT (EDUCATION)

The following tool is intended to be used by the Certified Respiratory Educator (CRE) as a self-reflective practice assessment or by a peer educator for the purpose of peer assessment for inclusion in the educator's professional portfolio. There are three components of this tool: 1. Educator's knowledge of asthma, 2. Educator's knowledge of COPD and 3. Educator's skills. This tool is not intended for rapid assessment and may require more than one session. This tool should be used to evaluate the educator's skills and abilities and be used for quality improvement. Please continue to refer to the latest CNRC learning objectives (www.cnrchome.net)

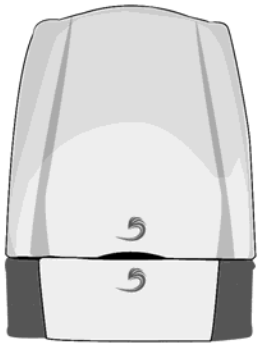
Educator Principles	Competencies	Needs Improvement	Meets competency	Comments
Educator's skills in teaching	Interaction with patients in an ethical manner (beneficence, non-maleficence, autonomy, justice, confidentiality, and respect for value of others)	○	○	
	Interpersonal skills – greets, active listening, provide empathy and support	○	○	
	Information gathering skills – open vs. close-ended questions, uses silence, clarifies patient expectations, sequencing events, and summarizes information	○	○	
	Information giving skills – puts important things first, clear and simple information, repetition, problem solving skills, categorizes information	○	○	
	Conflict resolution and negotiation – reflects internally, organizes the meeting, starts on a positive note, and facilitates the heart of the meeting	○	○	
	Skills for motivating patient adherence – provides rationale for change, sets realistic and short term objectives, seeks mutual agreement, allows opportunity for rehearsal of plan, feedback, tailors the plan to the patient's lifestyle	○	○	
	Appropriate eye contact, facial expressions, proximity, handshake, posture, gesture, silence and personal mannerisms	○	○	
	Assessment patient's stage of change: pre-contemplation-contemplation-preparation-action-maintenance	○	○	

Educator Principles	Competencies	Needs Improvement	Meets competency	Comments
Educator's skills in teaching	Integration of Motivation Interviewing (MI) skills in practice	◯	◯	
	Identification predisposing, enabling and reinforcing factors	◯	◯	
	Ability to maintain objectivity	◯	◯	
	Provision of appropriate learning environment	◯	◯	
	Collaboration with the patient to assess characteristics and needs relevant to learning (health literacy, determinants of health, motivation and readiness to learn, etc.)	◯	◯	
	Engagement of the patient to practice mastery and promote self-efficacy	◯	◯	
	Linkage of the patient's new learning to existing knowledge	◯	◯	
	Collaboration with the client to determine health goals that are SMART (specific, measurable, achievable, relevant and time-bound)	◯	◯	
	Integration theoretical frameworks of health promotion and care into practice (expanded chronic care model, PRECEDE/PROCEED model, social support)	◯	◯	
	Selection of an instructional method (e.g., questioning, role play, gaming) based on assessment results	◯	◯	
	Application of technology to benefit patient's learning	◯	◯	
	Inter-professional and inter-sectoral collaboration	◯	◯	
	Consideration and application of social determinants of health when teaching (cultural issues, financial barriers, lack of support, language barrier, etc.)	◯	◯	

Learning Objectives:

Medications available:

- **Onbrez**® (indacaterol maleate)
- **Seebri**® (glycopyrronium bromide)
- **Ultibro**® (glycopyrronium bromide/ (indacaterol maleate)



BREEZHALER®

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Pull cap off				
2. Tilt mouthpiece to open inhaler				
3. Place capsule in chamber				
4. Close inhaler until you hear a “click”				
5. Press both buttons ONCE & release				
6. Breathe out away from mouthpiece				
7. Place mouthpiece between lips				
8. Breathe in **rapidly** but **steadily**				
9. Hold breath for 5-10 seconds				
10. Breathe out				
11. Open to see clear capsule. If not all clear, repeat steps 6-10				
12. Discard empty capsule				
13. Wash hands				
14. Rinse mouth (if using an inhaled steroid)				

Breezhaler®

Pull cap off

Open. Place capsule in chamber. Close (click).

Press buttons once and release

Breathe out

Breathe in rapidly and steadily. Hold. Breathe out.

6

Open to see clear capsule.

If not all clear repeat steps 4-5

Discard capsule and close. Wash hands.

How do I use my Breezhaler®?

1. Pull cap off.
2. Hold base of inhaler and tilt mouthpiece to open inhaler. Place capsule in centre chamber. Close inhaler until you hear a “click”.
3. Hold Breezhaler® upright and press both buttons ONCE and release.
4. Breathe out fully away from the mouthpiece
5. Place mouthpiece between lips and breathe in **rapidly** but **steadily** (whirring sound should be heard). Hold breath for 5-10 seconds. Breathe out.
6. Open to see clear capsule. If not all clear, repeat steps 4-5.
7. Discard empty capsule. Close Breezhaler®. Wash hands.

Care of my Breezhaler®

1. Wipe the mouthpiece with a dry cloth or tissue.
2. Never wash the Breezhaler®.

For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

Medications available:

- **Advair®** (fluticasone/salmeterol)
- **Flovent®** (fluticasone propionate)
- **Serevent®** (salmeterol xinafoate**)**
- **Ventolin®** (salbutamol sulphate**)**

DISKUS®

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date & Initial**	**Date & Initial**	**Date & Initial**	**Date & Initial**	**Date & Initial**
1. Check the dose counter					
2. Push the thumb grip open					
3. Slide the lever until a “click” is heard					
4. Breathe out away from mouthpiece					
5. Place mouthpiece between lips					
6. Breathe in **quickly** and **deeply**					
7. Hold breath for 5 - 10 seconds					
8. Breathe out					
9. Push thumb grip to close the Diskus					

Diskus®

Closed

Push thumb grip to open

Slide until a click is heard

Breathe out

Breathe in quickly and deeply. Hold. Breathe out.

Push thumb grip to close

How do I use my Diskus®?

1. Closed.
2. To open: hold the outer case in one hand and put the thumb of the other hand on the thumb grip. Push the thumb as far as it will go until a click is heard.
3. Slide the lever as far as it will go until a click is heard.
4. Hold the Diskus® inhaler away from the mouth in a horizontal position and breathe out.
5. With the mouthpiece to the lips, breathe in **quickly** and **deeply**. Remove the Diskus® inhaler. Hold your breath for up to 10 seconds, then breathe out slowly.
6. Close: push the thumb grip as far as it will go until it snaps shut.

Care of a Diskus®

1. Wipe mouth piece with a dry tissue or cloth.
2. Store the device in a dry place, not in a damp environment i.e. bathroom.
3. Diskus®is to be closed when not in use; only slide open when ready to take dose.
4. Diskus® is to be kept away from direct frost, heat or sunlight and from high temperatures (above 30°C).
5. Check the number in the dose window counter to see how many doses are left. The indicator in the window will turn red when there are 5 doses left in the inhaler.

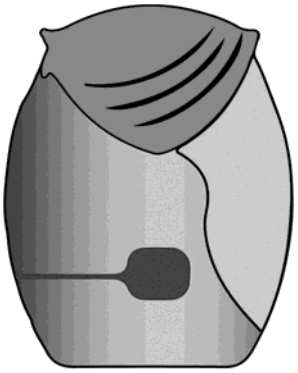
For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

Medications available:

- **Anoro™** (umeclidinium bromide/vilanterol trifenatate)
- **Arnuity™** (fluticasone furoate)
- **Breo™** (fluticasone furoate/vilanterol trifenatate)
- **Incruse™** (umeclidinium bromide)



ELLIPTA®

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date & Initial**	**Date & Initial**	**Date & Initial**	**Date & Initial**	**Date & Initial**
1. Check the dose counter					
2. Open cover of inhaler					
3. Breathe out away from the mouthpiece					
4. Place mouthpiece between lips					
5. Breathe in a **long, steady** and **deep** breath					
6. Remove inhaler and hold breath for 5-10 seconds					
7. Breathe out					
8. Close the inhaler					
9. Rinse mouth (if using an inhaled steroid)					

Ellipta™

Closed

Open the cover

Breathe out away from the mouthpiece

Breathe in long, steady, and deep

Hold breath. Breathe out.

Close the inhaler

How do I use my Ellipta™?

1. Closed.
2. Open the cover of the inhaler. Slide the cover down to expose the mouthpiece. You should hear a “click”.
3. Breathe out away from the mouthpiece.
4. Put the mouthpiece between lips, and close lips firmly around it. Breathe in a **long**, **steady**, and **deep** breath (do not block air vent on inhaler with hands).
5. Remove inhaler from mouth and hold breath 5-10 seconds or as long as comfortable. Breathe out.
6. Close the inhaler (slide cover up and over the mouthpiece). Rinse mouth.

Care of an Ellipta™

1. The Ellipta™ comes in a foil tray. When ready to use, peel back the lid to open the tray.
2. The tray contains a desicant to reduce moisture. Throw it away.
3. WRITE the “Tray Opened” and “Discard” dates ON the inhaler. The “Discard” date is 6 WEEKS from the date the tray is opened.
4. The mouthpiece may be cleaned after use, if needed, using a dry tissue before the cover is closed. Routine cleaning is not required.
5. When there are less than 10 doses remaining in the inhaler, the left half of the counter shows RED. This is a reminder to get a refill. After the last dose has been inhaled, the counter will show “0” and be empty. Discard the empty inhaler.

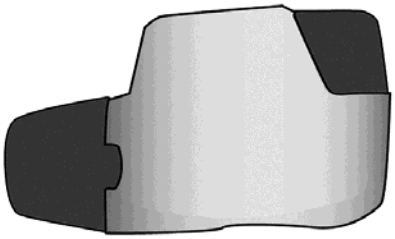
For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

Medications available:

- **Duaklir**™ (formoterol fumarate dehydrate/ aclidinium bromide)
- **Tudorza**™ (aclidinium bromide)



GENUAIR®

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Check the dose counter				
2. Remove cap				
3. Press green button ONCE and release				
4. Check color control window is green				
5. Breathe out away from mouthpiece				
6. Place mouthpiece between lips				
7. Breathe in **strongly** and **deeply** (keep breathing even after "click" is heard)				
8. Hold breath for 5 - 10 seconds				
9. Breathe out				
10. Check color control window is red (if not red, repeat steps 5-7).				
11. Replace cap				

Genuair®

Remove cap

Press ONCE and release green button

Check button for green color

Breathe out away from the mouthpiece

Breathe in strongly and deeply. Hold. Breathe out.

Check window for red color

7 **If the window has not turned red**

Repeat steps 4-6

Replace cap

How do I use my Genuair®?

1. Remove the cap (lightly squeeze the arrows).
2. Press the green button all the way down ONCE and release.
3. Check that the color control window is green. Green means ready.
4. Breathe out away from the mouthpiece.
5. Place your lips around the mouthpiece. Breathe in **strongly** and **deeply** through the mouthpiece. Keep breathing in even after you hear the inhaler “click”. Hold breath for 5-10 seconds. Breathe out.
6. Check that the color control window has turned to red.
7. If the window has not turned red repeat steps 4-6.
8. Replace cap.

Note: When a red band begins to appear in the dose counter this means you are nearing your last dose. The Genuair® locks after the last dose.

Care of a Genuair®

1. Wipe the mouthpiece with a dry tissue or cloth.

For video instruction:
www.sk.lung.ca/devices

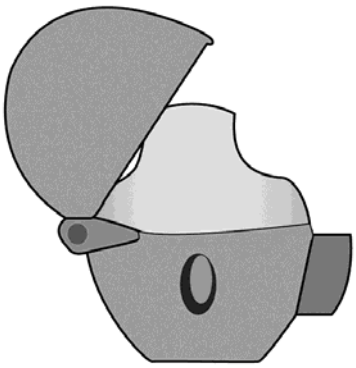
BREATHE
the lung association

RESPTREC®

Medications available:

Medications available:

- **Spiriva**® (tiotropium bromide)



HANDIHALER®

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Open lid				
2. Open mouthpiece				
3. Place capsule in centre chamber				
4. Close mouthpiece until you hear it click				
5. Hold Handihaler® upright and press green button ONCE and release				
6. Breathe out away from mouthpiece				
7. Close lips around mouthpiece				
8. Breathe in **slowly** and **deeply**				
9. Hold breath for 5 – 10 seconds or as long as possible				
10. Breathe out				
11. Repeat: steps 6-10				
12. Open mouthpiece and empty the used capsule				
13. Close mouthpiece and lid				
14. Wash hands				

Handihaler®

Open lid

Open mouth piece

Place capsule in centre chamber

Close mouthpiece (click)

Press button ONCE and release

Breathe out

Breathe in slowly and deeply. Hold. Breathe out.

8 **Repeat steps 6-7**

For second breath in

Open mouthpiece. Discard capsule. Close HandiHaler®

10 **Wash Hands**

For video instruction:
www.sk.lung.ca/devices

How do I use my HandiHaler®?

Fold and separate the two blister strips. Tear down the middle. Peel back foil on flat side, exposing only one capsule. Flip the blister strip over and let the capsule drop out. Remember: the capsules are sensitive to light and moisture.

1. Open lid by pulling upwards.
2. Open mouthpiece by pulling upwards.
3. Place one capsule in the capsule chamber right before use.
4. Close the mouthpiece firmly until you hear a click, leaving the lid open.
5. Hold the HandiHaler® with the mouthpiece upright and press the piercing button ONCE and release.
6. Breathe out away from the mouthpiece.
7. Close lips around mouthpiece. Breathe in **slowly** and **deeply** until lungs are full. Remove the HandiHaler® from your mouth while still holding your breath for a count of up to 10.
8. Repeat steps 6-7 for a second breath in.
9. Open the mouthpiece and tip the used capsule into the garbage. Close the mouthpiece and lid.
10. Wash Hands.

Care of a HandiHaler®

The HandiHaler needs to be cleaned once a month or as needed.

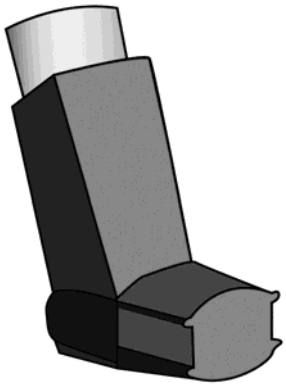
1. Open the lid and lift up the mouthpiece. Then lift up the piercing button to open the base.
2. Rinse the HandiHaler® with warm water to remove any powder. Do not use soap.
3. Dry the HandiHaler® completely by leaving the lid, mouthpiece & base open to air-dry.

BREATHE
the lung association

RESPTREC®

Medications available (not inclusive):

- **Advair®** (fluticasone propionate/ salmeterol xinafoate)
- **Airomir™** (salbutamol sulphate)
- **Alvesco®** (ciclesonide)
- **Atrovent®** (ipratropium bromide)
- **Flovent®** (fluticasone propionate)
- **Qvar™** (beclomethasone dipropionate)
- **Ventolin®** (salbutamol sulphate)
- **Zenhale™** (mometasone furoate/formoterol)



METERED-DOSE INHALER (MDI)

(Whenever possible use a holding chamber with the MDI)

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Check dose counter (if available)				
2. Remove cap				
3. Shake inhaler				
4. Breathe normally and slowly				
5. Breathe out				
6. Place mouthpiece between lips				
7. Breathe in and depress canister ONCE				
8. Breathe in **slowly** and **deeply** breath				
9. Hold breath for 5-10 seconds or as long as possible				
10. Breathe out slowly				
11. Wait for 30 seconds if second dose is required. Repeat steps 2-9.				
12. Replace cap.				
13. Rinse mouth (if using an inhaled steroid)				

Metered-Dose Inhaler

Remove cap

Shake inhaler

Breathe out

Breathe in, press down ONCE, complete slow deep breath

Hold breath. Breathe out slowly.

6

If another dose is prescribed

Wait 30 seconds repeat steps 2-5

Close cap and rinse mouth

How do I use my Metered-Dose Inhaler (MDI)?

1. Remove the cap from the inhaler.
2. Shake the inhaler.
3. Breathe out away from the inhaler.
4. Place the mouthpiece in your mouth between your teeth and close your mouth around it. Begin to breathe in slowly and press the top of the inhaler ONCE. Continue to breathe in slowly and deeply through the mouth until the breath is complete.
5. Hold your breath for 5-10 seconds and breathe out slowly.
6. If an additional inhalation is prescribed, wait 30 seconds before taking it, then repeat steps 2-5 for the prescribed number of inhalations.
7. Close the cap and rinse your mouth.

Note: using an inhaler without a spacer is not recommended.

Note: Always check the instructions included with your MDI for directions on priming and proper use

Care of an MDI

1. Once a week, remove the medication canister from the plastic casing and wash the casing in warm, soapy water. Let the parts dry in the air. When the casing is dry, replace the medication canister in the casing and put the cap on the mouthpiece.
2. Ensure the hole is clear.

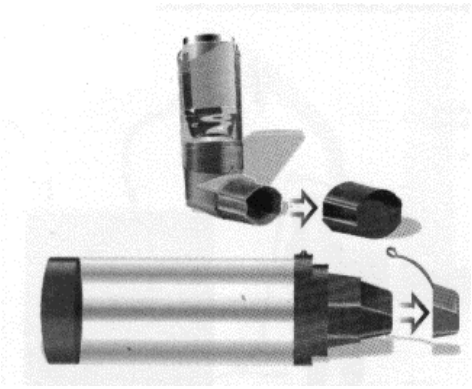
For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

Medications available in an MDI (not inclusive):

- **Advair®** (fluticasone propionate/salmeterol xinafoate)
- **Airomir™** (salbutamol sulphate)
- **Alvesco®** (ciclesonide)
- **Atrovent®** (ipratropium bromide)
- **Flovent®** (fluticasone propionate)
- **Qvar™** (beclomethasone dipropionate)
- **Ventolin®** (salbutamol sulphate)
- **Zenhale™** (mometasone furoate/formoterol)



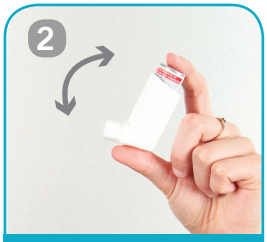
METERED-DOSE INHALER – MDI WITH SPACER

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Check dose counter on the inhaler (if available)				
2. Remove the caps				
3. Shake the inhaler				
4. Assemble the inhaler mouthpiece in the spacer				
5. Seal lips around the spacer device mouthpiece				
6. Breathe out				
7. Depress inhaler into spacer ONCE				
8. Breathe in **slowly** and **deeply**				
9. Hold breath for 5-10 seconds or as long as possible				
10. Breathe out				
11. Wait 30 seconds if second dose is required; repeat steps 3-10.				
12. Replace caps				
13. Rinse mouth (if using an inhaled steroid)				

Metered-Dose Inhaler with a Spacer Device

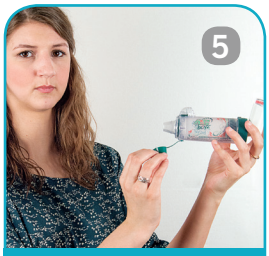
Remove cap



Shake inhaler

Remove spacer cap. Insert inhaler into spacer

Breathe out, press down ONCE and complete slow deep breath in.



Hold breath. Breathe out.

6

If another dose is prescribed

Wait 30 seconds repeat steps 2-5

Close cap and rinse mouth

For video instruction:
www.sk.lung.ca/devices

How do I use my Metered-Dose Inhaler (MDI) with a spacer device?

1. Remove the cap from the inhaler.
2. Shake the inhaler.
3. Remove the cap on the spacer and insert the mouthpiece of the inhaler into the opening at the end of the spacer.
4. Place the spacer mouthpiece in mouth between your teeth and close your lips around the mouthpiece, making sure there are no air leaks. Breathe out. Press down on the MDI canister ONCE to allow the medication to enter the spacer. Breathe in **slowly** and **deeply** for about 3-5 seconds.
5. After the inhalation, hold your breath for as long as possible, up to a count of ten and breathe out. Note: If you hear a whistle, you are breathing in too fast. Note: If you have trouble breathing deeply and holding your breath, breathe in and out more normally into the spacer 3 or 4 times.
6. If you need more than one dose, repeat steps 2-5 each time, waiting 30 seconds between inhalations.
7. Close the cap on the spacer and on the inhaler. Rinse your mouth.

Note: using an inhaler without a spacer is not recommended.

Note: Always check the instructions included with your inhaler for directions on priming and proper use.

Care of a Spacer

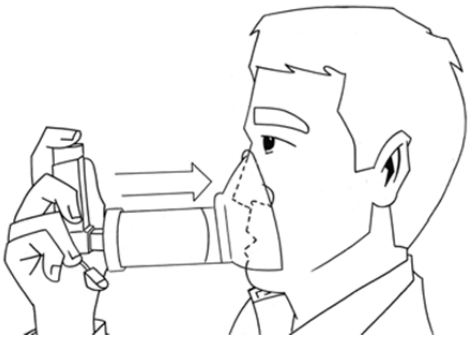
1. Clean the spacer about once a week. Immerse the spacer in warm, mildly soapy water and agitate.
2. Shake off excess water and leave to dry overnight.

BREATHE
the lung association

RESPTREC®

Medications available in an MDI (not inclusive):

- **Advair®** (fluticasone propionate/salmeterol xinafoate)
- **Airomir™** (salbutamol sulphate)
- **Alvesco®** (ciclesonide)
- **Atrovent®** (ipratropium bromide)
- **Flovent®** (fluticasone propionate)
- **Qvar™** (beclomethasone dipropionate)
- **Ventolin®** (salbutamol sulphate)
- **Zenhale™** (mometasone furoate/formoterol)



METERED-DOSE INHALER – MDI WITH SPACER AND MASK

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Check dose counter on the inhaler (if available)				
2. Remove the inhaler cap				
3. Shake the inhaler				
4. Assemble the inhaler mouthpiece in the spacer				
5. Apply the mask to the face.				
6. Breathe out				
7. Depress inhaler ONCE				
8. Breathe in **slowly** and **deeply**				
9. Hold breath for 5-10 seconds or as long as possible; or if not possible breathe in and out ~5 times.				
10. Breathe out				
11. Wait 30 seconds if second dose is required; repeat steps 3-10.				
12. Replace inhaler cap				
13. Rinse mouth (if using an inhaled steroid)				
14. Wash face (if using an inhaled steroid)				

Metered-Dose Inhaler with Spacer and Mask

Remove cap

Shake inhaler

Insert into spacer

Press inhaler down ONCE

Breathe in. Hold breath or breathe in and out 5 times.

6

If another dose is prescribed

Wait 30 seconds repeat steps 2-5

Close caps and Drink/brush teeth

How do I use my Metered-Dose Inhaler (MDI) with a spacer and mask?

1. Remove the cap from the inhaler.
2. Shake the inhaler.
3. Insert the mouthpiece of the inhaler into the opening at the end of the spacer.
4. Apply the mask to face so there are no leaks between face and mask. The valve should open with breathing. Depress the canister ONCE to allow medication to enter the spacer.
5. Encourage a slow deep breath and hold for up to 10 seconds. If not possible (infants and young children) have them breathe normally into the device 5-6 times.
6. If you need more than one dose, repeat steps 2-5, waiting 30 seconds between inhalations.
7. Close caps and rinse your mouth/drink/or brush your teeth.

Note: using an inhaler without a spacer is not recommended.

Note: Always check the instructions included with your inhaler for directions on priming and proper use.

Care of a Spacer

1. Clean the spacer about once a week. Immerse the spacer in warm, mildly soapy water and agitate.
2. Shake off excess water and leave to dry in the air overnight.

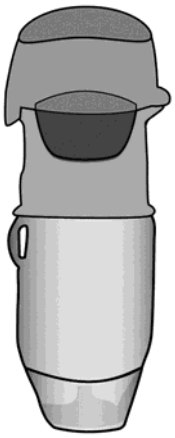
For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

Medications available:

- **Combivent®** (salbutamol sulphate and ipratropium bromide)
- **Inspiolto™** (tiotropium bromide monohydrate/ olodaterol hydrochloride)
- **Spiriva®** (tiotropium bromide monohydrate)



RESPIMAT®

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

Goal: Mastery of skills	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Check dose indicator				
2. Hold the inhaler upright with cap closed				
3. Turn the base a half turn in the direction of black arrows until it “clicks”				
4. Open the cap until it snaps				
5. Breathe out slowly and fully				
6. Close lips around the mouthpiece				
7. Start breathing in and press the dose release button ONCE				
8. Breathe in **slowly** for as long as you can				
9. Hold breath for 5-10 seconds or as long as possible				
10. Breathe out				
11. Close the cap				

Can use acronym **TOP** to teach skill: **T**urn **O**pen and **P**ress

Respimat®

Hold inhaler upright

TURN base until it “clicks”

OPEN cap until it snaps fully open

Breathe out slowly and fully

While breathing slow and deep PRESS dose release button

Hold breath. Breathe out.

Close cap

How do I use my Respimat®?

1. Hold the inhaler upright with cap closed.
2. **TURN** the clear base in the direction of arrows on the label until it “clicks” (half turn).
3. Flip the cap **OPEN** until it snaps fully open.
4. Breathe out slowly and fully.
5. Put the mouthpiece between lips. Close lips around the mouthpiece without covering the air vents. Point the inhaler towards the back of throat. While taking a **slow**, **deep** breath, **PRESS** the dose release button and continue to breathe in slowly.
6. Remove inhaler from mouth and hold breath for 10 seconds or as long as you can. Breathe out.
7. Close the cap.

Note: The acronym **TOP** – **T**urn **O**pen **P**ress is a quick reference for device instruction.

Care of a Respimat®

1. All that is required to keep the inhaler clean is to wipe the mouthpiece inside and out once a week with a damp cloth. Any slight discoloration of the mouthpiece will not affect the performance of the inhaler.
2. Once assembled, the inhaler must NOT be taken apart.
3. Check the dose indicator to see approximately how many doses are left. When the pointer enters the red area of the scale a new prescription is needed. When the arrow reaches the end of the scale the inhaler locks automatically.

For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

Respimat®

Two pieces

Remove clear base

Push cartridge into inhaler

Push firmly down on the inhaler

Put clear base back into place

How do I use my Respimat®?

Assembly:

1. The Respimat® comes in two pieces. An inhaler, and a medication cartridge.
2. With cap closed, press safety catch to remove clear base of the inhaler.
3. Push the narrow end of the cartridge into the inhaler as far as it will go.
4. Place inhaler upright on a firm surface and push firmly down on inhaler to ensure cartridge has gone all the way in.
5. Put the clear base back into place.

Note: Once assembled, the inhaler must NOT be taken apart.

Hold upright. TURN base until it “clicks”.

OPEN cap until it snaps fully open

Point down. PRESS dose release button.

4

Repeat steps 1-3

3 more times

Priming:

1. Hold the inhaler upright with cap closed. **TURN** the base in the direction of the arrows on label until it “clicks” (half turn).
2. Flip the cap **OPEN** until it snaps fully open.
3. Point the inhaler towards the ground. **PRESS** the dose release button. A soft mist will appear. Close the cap.
4. Repeat steps 1-3, 3 more times to ensure inhaler is prepared for use.

BREATHE
the lung association

RESPTREC®

- **Bricanyl**® (terbutaline sulphate)
- **Oxeze**® (formoterol fumarate)
- **Pulmicort**® (budesonide)
- **Symbicort**® (budesonide/formoterol fumarate)

TURBUHALER®

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

Goal: Mastery of skills	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Check dose counter				
2. Hold inhaler upright				
3. Twist and remove cap				
4. Turn the base until a click is heard				
5. Breathe out away from the mouthpiece				
6. Place mouthpiece between lips				
7. Breathe in **quickly** and **deeply**				
8. Breath hold for 5 - 10 seconds or as long as possible				
9. Breathe out				
10. Repeat steps 3-10 if second dose is required				
11. Twist to close cap.				
12. Rinse mouth (if using an inhaled steroid)				

- **Asmanex**® (mometasone furoate)
  (remember to gargle and spit following use of an inhaled steroid)

Turbuhaler®

Hold upright

Twist open.
Remove cap.

Turn base until a click is heard

Breathe out

Breathe in quickly. Hold. Breath out.

6

If another dose is prescribed

Repeat steps 3-5.

Close and rinse mouth

How do I use my Turbuhaler®?

1. Hold upright.
2. Hold the colored base and twist the cap counter-clockwise to remove cap.
3. Hold the colored base and turn as far as possible in one direction, then turn back until a “click” is heard. Note: Do not shake or blow into the device.
4. Breathe out away from the mouthpiece.
5. Bring the inhaler up to your mouth in a horizontal position. Place the mouthpiece between your teeth and close your lips around it. Breathe in **quickly** and **deeply** through the mouthpiece. Remove Turbuhaler® from mouth and hold breath for 5-10 seconds. Breathe out.
6. Repeat steps 3-5 for the prescribed number of inhalations.
7. Twist cap to close and rinse mouth.

Care of a Turbuhaler®

1. Clean mouthpiece using a dry tissue or cloth, gently wiping away any particles which have collected inside the mouthpiece.

   Never wash the Turbuhaler®.
2. Check the number in the dose window to see how many doses are left.
3. Some Turbuhalers® may not have a window counter. When a red mark appears in the window underneath the mouthpiece, the Turbuhaler® has approximately 20 doses left. When the red mark reaches the bottom edge of the window the Turbuhaler® is empty.

For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

TWISTHALER®

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

Goal: Mastery of skills	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Check dose counter				
2. Hold inhaler upright.				
3. Twist and remove cap				
4. Breathe out				
5. Place mouthpiece between lips				
6. Breathe in **fast** and **deep**				
7. Hold breath for 5 – 10 seconds				
8. Breathe out				
9. Twist to close cap				
10. Rinse mouth (if using an inhaled steroid)				

Medications available (not inclusive):

- **Atrovent®** (ipratropium bromide)
- **Combivent®** (salbutamol sulphate/ipratropium bromide)
- **Pulmicort®** (budesonide)
- **Ventolin®** (salbutamol sulphate)

Twisthaler®

Closed.
Hold upright

Twist cap off
and remove

Breathe out

Breathe in fast
and deep. Hold.
Breathe out.

Twist cap on
to close

6

Rinse Mouth

How do I use my Twisthaler®?

1. Hold the inhaler upright with the colored portion (or base) down.
2. Hold the colored base and twist the cap counter clockwise to remove it. As you lift off the cap, the dose counter on the base will count down by one.
3. Breathe out fully away from the mouthpiece.
4. Bring the inhaler up to your mouth in a horizontal position, close your lips around the mouthpiece and take in a **fast**, **deep** breath. Remove the inhaler from your mouth and hold your breath for up to 10 seconds, or for as long as is comfortable. Breathe out.
5. Replace the cap by twisting it clockwise while gently pressing the cap down until a click sound is heard. Firmly closing the inhaler right away after use loads the dose for your next inhalation.
6. Rinse your mouth.

Care of a Twisthaler®

1. Wipe the mouthpiece with a dry cloth or tissue.
2. Never wash the Twisthaler®.
3. When the dose counter reads “01”, this indicates the last remaining dose. After “01”, the counter will read “00” and the cap will lock. Discard the unit.

For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

NEBULIZER

Please date and initial after you have directly observed the patient demonstrate the skill and if the patient has mastered each step. Instructions with diagrams are included on the back of this sheet.

GOAL: Mastery of skill	**Date and Initial**	**Date and Initial**	**Date and Initial**	**Date and Initial**
1. Attach tubing to air outlet.				
2. Unscrew the top of the medicine cup.				
3. Fill the cup with the medication dose.				
4. Screw on the top.				
5. Turn on the compressor				
6. Place either mask on face *or* mouthpiece in mouth.				
7. Attach nebulizer tubing to compressor				
8. Turn the compressor on				
9. **Breathe in and out slowly** through mouth.				
10. Complete treatment.				
11. Turn the compressor off.				
12. Rinse mouth (if using an inhaled steroid)				
13. Wash face (if using a mask with a steroid inhaler)				

Nebulizer®

How do I use my Nebulizer®?

1. Ensure nebulizer is plugged in & functioning.
2. Attach tubing to compressor air outlet.
3. Unscrew the top of the medicine cup.
4. Add the medication dose to the cup.
5. Screw on the top.
6. Turn on the compressor; ensure medication is misting.
7. Place either a mask on face or mouthpiece in mouth.
8. Complete the treatment.
9. Turn off the compressor.

Care of a Nebulizer®

1. Wash mask and nebulizer medication chamber in warm, soapy water.
2. Rinse well and allow them to air-dry before reuse.

For video instruction:
www.sk.lung.ca/devices

BREATHE
the lung association

RESPTREC®

Primary Care Asthma Program

Space and Design Checklist

The following section has been developed for this Manual by the Standards Working Group. It outlines the overall design considerations, special requirements for all patients, considerations for the location, and room requirements.

Overall considerations for Delivering a Respiratory Program

The following design features should be considered in the planning of the Respiratory Education Centre in the primary care setting:

- Accessibility/wheelchair access/clinical setting
- Office/room well ventilated (window optional)
- Ergonomically designed environment
- Sufficient space for patient and family/care givers
- Access to Computer/phone/fax and or space to lock up/keep secure patient records
- Access to educational materials
- Efficient patient flow
- Flexibility for different activities
- Multidisciplinary environment (access to referral process)
- Safe learning environment for both staff and client

Section 4: Program Tools

Asthma Care Map for Primary Care
Initial Assessment

Date 01 - Jan - 2001

Referral to Asthma Educator ☐ Y ☐ N

Reason for referral (if applicable)

Patient's Name FAMILY-NAME, Given Name

Date of Birth 01 - Jan - 2001

Medical Record #

Asthma Diagnosis

☐ Objectively confirmed asthma → indicate method below:

Date confirmed 01 - Jan - 2001

	Pulmonary Function Measurement	Children (6 years of age and over)	Adults
	PREFERRED: Spirometry showing reversible airway obstruction		
☐	Reduced FEV_1/FVC **AND** Increase in FEV_1 after a bronchodilator or after course of controller therapy	Less than lower limit of normal* (<0.8-0.9)** **AND** ≥12%	Less than lower limit of normal* (<0.75-0.8)** **AND** ≥12% (and a minimun ≥200ml)
	ALTERNATIVE: Peak Expiratory Flow (PEF) variabilty		
☐	Increase after a bronchodilator or after course of controller therapy **OR** Diurnal variation†	≥20% **OR** Not recommended	60 L/min (minimum ≥20%) **OR** >8% based upon twice daily readings; >20% based upon multiple daily readings
	ALTERNATIVE: Positive Challenge Test		
☐	a) Methacholine Challenge **OR** b) Exercise Challenge	PC_{20} <4 mg/mL (4-16 mg/mL is borderline; >16 mg/mL is negative) **OR** ≥10-15% decrease in FEV_1 post-exercise	

* Based on age, sex, height and ethnicity.
** Approximate lower limits of normal ratios for children and adults.

This information was originally published in *Can Respir J* 2012;19(2):127-164.

☐ Asthma diagnosis for children (below 6 years of age)

Confirmed asthma based on typical symptoms, lack of an alternative diagnosis:

- ☐ and immediate response to bronchodilator confirmed by health care professional;
- ☐ and immediate response to brochodilator by parental history;
- ☐ and gradual but clear response to anti-inflammatory therapy.

This information was originally published in *CMAJ.* 2010 Mar 9;182(4):E172-83.

☐ Suspected (suggestive symptoms but not yet confirmed by spirometry and/or clinical response to therapy)

History of Exacerbations ☐ N/A

- ☐ Prednisone use ever
- ☐ ED visits ever
- ☐ Hospitalized ever
- ☐ Near fatal episode (Coma / Intubated / ICU / ↑CO_2)

Notes (include dates)

Family History of Asthma / Allergies ☐ N/A

Indicate parents, siblings, close relatives with:

- ☐ Asthma
- ☐ Eczema
- ☐ Environmental allergies
- ☐ Food allergies

Notes

Smoking History

- ☐ Never smoked
- ☐ Ex-smoker
- ☐ Second hand smoke exposure (past or present / significant)
- ☐ Prenatal smoke exposure

Age started # Age quit #

☐ Smoker ☐ Ask ☐ Advise ☐ Arrange

Pack years

Cigarettes/day # x Years smoked # ÷ 20 = #

Fagerström Test for Nicotine Dependence

Score #

http://knowledgex.camh.net/Pages/default.aspx

Notes

Respiratory Medication History ☐ N/A

	Drug name / Dose	Number of puffs	Prescribed frequency	Actual usage
Reliever				
Controller (ICS) or ICS & LABA Combo				
Long acting broncho-dilator (LABA)				
Reliever / Controller				
Leukotriene receptor antagonist				
Prednisone				
Anti-IgE				

Number of ICS prescriptions filled in the last 12 months

Notes / Other medications

Check for:

- ☐ Beta-blocker ⇒ may exacerbate asthma
- ☐ NSAIDS / ASA (non-steroidal anti-inflammatory) ⇒ potential trigger
- ☐ Medic Alert bracelet
- ☐ Epinephrine auto injector
- ☐ Has drug plan

Signature | Professional designation | 01 - Jan - 2001

Lung Health Information Line 1-888-344-LUNG (5864)
lunghealth.ca

Patient's Name FAMILY-NAME, Given Name

Medical Record #

Allergy History & Triggers ☐ N/A

Skin prick test ☐ Y ☐ N When? 01-JAN-2001

Season(s) when asthma worse

	Allergic To	Asthma Trigger	Currently Exposed
Cats	☐	☐	☐
Dogs	☐	☐	☐
Dust / Dust mites	☐	☐	☐
Mould	☐	☐	☐
Pollens / Trees	☐	☐	☐
Grasses / Ragweed	☐	☐	☐
Cockroaches	☐	☐	☐
Other	☐	☐	☐

Notes and other allergies (food, medication, etc.)

Irritant Triggers ☐ N/A

- ☐ Changes in weather
- ☐ Cold air
- ☐ Outdoor pollution
- ☐ Colds / Chest infections
- ☐ Exercise
- ☐ Emotions
- ☐ Stress
- ☐ Fumes / Chemicals
- ☐ Perfumes / Air fresheners
- ☐ Second hand smoke
- ☐ Smoke (fireplace/wood stove)
- ☐ School related exposure

Notes / Other

Relevant Co-Morbidities ☐ N/A

- ☐ Sinusitis
- ☐ Rhinitis
- ☐ GERD
- ☐ Obesity
- ☐ Anaphylaxis
- ☐ Conjunctivitis
- ☐ Eczema
- ☐ Depression / Anxiety
- ☐ Nasal Polyps

Notes

Additional History / Proposed Actions ☐ N/A

Include follow-up details here

Work-Related Triggers ☐ N/A

Occupation

Occupation work exposures

Relation between asthma symptoms and occupation

- ☐ None
- ☐ Started at work
- ☐ Started within days of an accidental spill or fire
- ☐ Worse at work
- ☐ Symptoms lessen on days off or holidays

Environmental Controls ☐ N/A

	In Place	Suggested
Air conditioning	☐	☐
Maintain relative humidity (< 50%)	☐	☐
Regular furnace filter change	☐	☐
Vacuum: Central or HEPA filter	☐	☐
Mattress / Pillow covers	☐	☐
Wash linens weekly (≥ 55°C water)	☐	☐
No pets in the home	☐	☐
Hardwood / Tile floors	☐	☐
Mask / Respirator (as needed)	☐	☐
Other	☐	☐

Notes

Special Considerations ☐ N/A

- ☐ Adherence
- ☐ Cultural issues
- ☐ Financial issues
- ☐ Lack of support
- ☐ Language
- ☐ Nutritional assessment
- ☐ Pregnancy
- ☐ Premenstrual period

Notes

Referral(s): Past and Present ☐ N/A

- ☐ CAE / CRE
- ☐ Respirologist
- ☐ Pediatrician
- ☐ Allergist

Other

Notes

Signature

Professional designation

01 - Jan - 2001

lung health starts now lung health foundation

Lung Health Information Line 1-888-344-LUNG (5864)
lunghealth.ca

Asthma Care Map for Primary Care
Flowsheet

Patient's Name: FAMILY-NAME, Given Name
Medical Record #:

	Initial Visit (01 - Jan - 2001)	Follow-up Visit (01 - Jan - 2001)	Follow-up Visit (01 - Jan - 2001)
Asthma Control			
Unplanned patient encounter?	Yes / No — Notes	Yes / No — Notes	Yes / No — Notes
Uncontrolled if:			
Daytime symptoms ≥ 4 days/week (short of breath, cough, wheeze, tight chest) on average in the last 4 weeks	Yes / No — # of Days	Yes / No — # of Days	Yes / No — # of Days
Night-time symptoms ≥ 1/week on average in the last 4 weeks	Yes / No — # of Nights	Yes / No — # of Nights	Yes / No — # of Nights
Physical activity limited due to asthma on average in the last 4 weeks	Yes / No — Frequency per week	Yes / No — Frequency per week	Yes / No — Frequency per week
Exacerbations within the last 12 months	Yes / No — # ED visit; # Walk-in Clinic / Urgent Care; # Hospitalized	Yes / No — # ED visit; # Walk-in Clinic / Urgent Care; # Hospitalized	Yes / No — # ED visit; # Walk-in Clinic / Urgent Care; # Hospitalized
School / work / social absence due to asthma within the last 12 months	Yes / No — # of Days	Yes / No — # of Days	Yes / No — # of Days
Needs reliever ≥ 4 doses/week (incl. pre-exercise) on average in the last 4 weeks	Yes / No — # of Doses	Yes / No — # of Doses	Yes / No — # of Doses
FEV1 or PEFR (< 90% personal best)	Yes / No — Notes	Yes / No — Notes	Yes / No — Notes
PEF diurnal variation (> 15%) over a 2 week period	Yes / No — Notes	Yes / No — Notes	Yes / No — Notes
Spirometry			
Pre / post bronchodilator spirometry or peak flow results	Pre: Actual, % Pred. — Post: Actual, % Pred. — LLN	Pre: Actual, % Pred. — Post: Actual, % Pred. — LLN	Pre: Actual, % Pred. — Post: Actual, % Pred. — LLN
Children (6 years and over) and Adults (Lower Limit of Normal = LLN)	FEV_1	FEV_1	FEV_1
	FVC	FVC	FVC
	FEV_1/FVC	FEV_1/FVC	FEV_1/FVC
	PEF	PEF	PEF
Action Plan			
Action plan provided	☐ Written ☐ Revised ☐ Reviewed	☐ Written ☐ Revised ☐ Reviewed	☐ Written ☐ Revised ☐ Reviewed
Medications — Green zone			
Yellow zone			
Self-Management			
Patient's technique on inhaler device	☐ Reviewed ☐ Corrected ☐ Optimal	☐ Reviewed ☐ Corrected ☐ Optimal	☐ Reviewed ☐ Corrected ☐ Optimal
Definition/nature of asthma reviewed with patient	Y / N	Y / N	Y / N
Triggers & environmental controls reviewed	Y / N	Y / N	Y / N
Other education (e.g. smoking cessation)			
Influenza vaccine	Y / N — Notes	Y / N — Notes	Y / N — Notes
Notes			
Height / Weight / BMI (plot results on growth charts for children)	Ht ___ cm Wt ___ kg BMI ___	Ht ___ cm Wt ___ kg BMI ___	Ht ___ cm Wt ___ kg BMI ___
Issues, plans, and follow-up			
Signature and designation			

☐ Additional pages

lung health starts now — lung health foundation

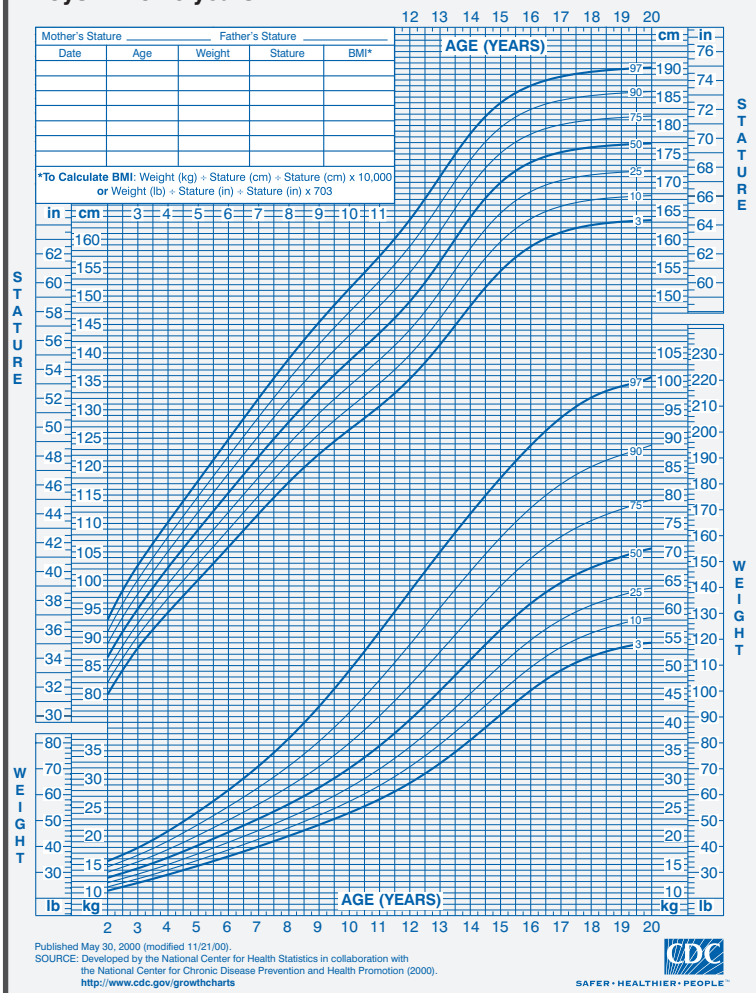
Lung Health Information Line 1-888-344-LUNG (5864)
lunghealth.ca

Patient's Name FAMILY-NAME, Given Name

Medical Record #

Stature-for-Age & Weight-for-Age Percentiles

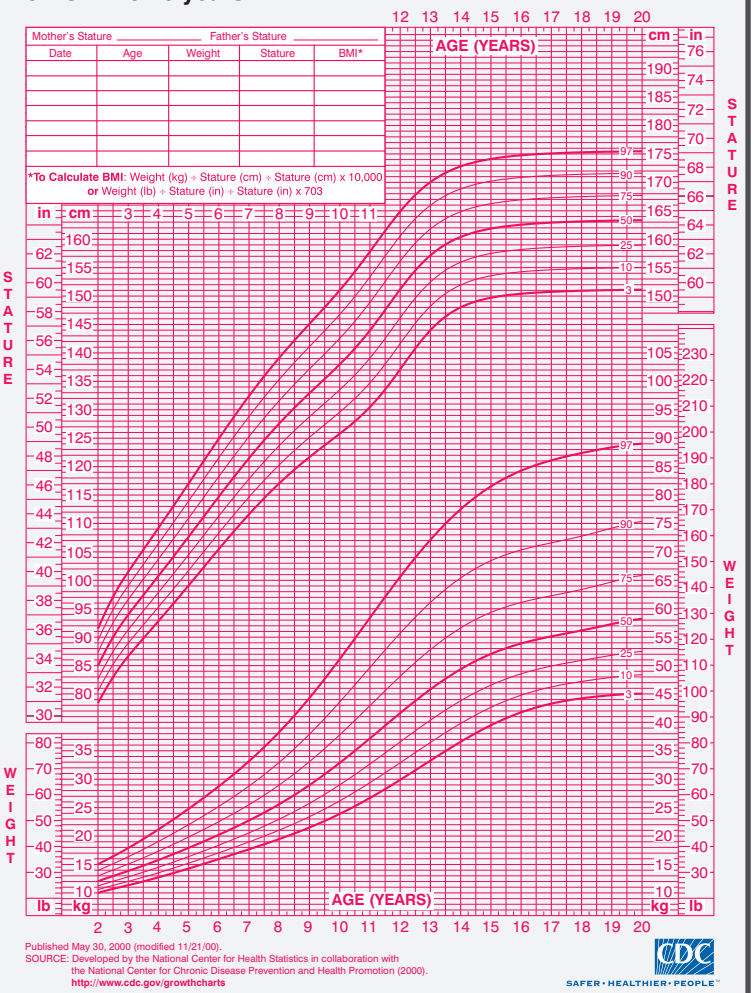
Boys - 2 to 20 years



Published May 30, 2000 (modified 11/21/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts

SAFER · HEALTHIER · PEOPLE™

Girls - 2 to 20 years



Published May 30, 2000 (modified 11/21/00).
SOURCE: Developed by the National Center for Health Statistics in collaboration with the National Center for Chronic Disease Prevention and Health Promotion (2000).
http://www.cdc.gov/growthcharts

SAFER · HEALTHIER · PEOPLE™

Peak Expiratory Flow (PEF) in Normal Adults (L/min)

MALES

Height cm	142	147	152	157	163	168	173	178	183	188	193	198
Inches	56	58	60	62	64	66	68	70	72	74	76	78
MALES												
Age	**Mean PEF**											
ADULTS > 16 YEARS OF AGE												
20	535	545	554	563	571	579	587	594	601	608	614	621
25	560	570	580	589	598	607	615	622	630	637	643	650
30	574	584	594	604	613	621	629	637	645	652	659	665
35	579	589	599	609	618	626	635	643	650	657	664	671
40	577	587	597	607	616	625	633	641	648	655	642	669
45	570	581	591	600	609	618	626	633	641	648	655	661
50	560	570	580	589	598	606	614	622	629	636	643	649
55	547	557	566	575	584	592	600	608	615	621	628	634
60	532	541	551	559	568	576	583	591	598	604	611	617
65	515	524	533	542	550	558	565	572	579	585	591	597
70	497	506	515	523	531	538	545	552	559	565	571	577
75	479	478	496	504	511	518	425	532	538	544	550	555

*Adult Normal Range (2 SD) = mean + 80 L/min
Values calculated from Nunn and Gregg: BMJ 1989; 298: 1068-70 Issues, plans, and follow-up
The above table is meant to be used only as a guide. Normal standards will vary between racial and ethnic groups.

FEMALES

Height cm	142	147	152	157	163	168	173	178	183	188	193	198
Inches	56	58	60	62	64	66	68	70	72	74	76	78
FEMALES												
Age	**Mean PEF**											
ADULTS > 16 YEARS OF AGE												
20	535	545	554	563	571	579	587	594	601	608	614	621
25	560	570	580	589	598	607	615	622	630	637	643	650
30	574	584	594	604	613	621	629	637	645	652	659	665
35	579	589	599	609	618	626	635	643	650	657	664	671
40	577	587	597	607	616	625	633	641	648	655	642	669
45	570	581	591	600	609	618	626	633	641	648	655	661
50	560	570	580	589	598	606	614	622	629	636	643	649
55	547	557	566	575	584	592	600	608	615	621	628	634
60	532	541	551	559	568	576	583	591	598	604	611	617
65	515	524	533	542	550	558	565	572	579	585	591	597
70	497	506	515	523	531	538	545	552	559	565	571	577
75	479	478	496	504	511	518	425	532	538	544	550	555

*Adult Normal Range (2 SD) = mean + 80 L/min
Values calculated from Nunn and Gregg: BMJ 1989; 298: 1068-70 Issues, plans, and follow-up
The above table is meant to be used only as a guide. Normal standards will vary between racial and ethnic groups.

Signature

Professional designation

01 - Jan - 2001

lung health starts now

lung health foundation

Lung Health Information Line 1-888-344-LUNG (5864)
lunghealth.ca

Please see appendix for abbreviations listed in this algorithm

Asthma Diagnosis and Management Algorithm for Primary Care

Patient Presents with Asthma Symptoms

(cough, dyspnea, chest tightness, wheezing, sputum production, nocturnal symptoms/awakenings)

Objectively Confirm Diagnosis: 2012 Asthma Guidelines and 2015 Preschool asthma guidelines: http://www.respiratoryguidelines.ca/

Preschoolers - Children 1-5 yrs of age (Spirometry not possible) (2)*
Diagnosis of asthma considered in children one to five years with frequent (≥8 days/month) asthma-like symptoms or recurrent (≥2) exacerbations showing all of the following:

1. Airflow Obstruction:
A) Wheezing documented by a trained HCP using stethoscope (preferred)
B) Parents report 'wheezing' (alternative)

2. Reversibility of airflow obstruction
A) documented response to SABA (+/- oral steroids) by a trained physician or HCP during acute exacerbation (preferred)
B) Parental report of symptomatic response to a 3 month therapeutic trial of medium dose ICS with SABA as needed (alternative)

3. No clinical suspicion of alternate diagnosis

Children ≥ 6 yrs to 11yrs:
1. Preferred: Spirometry showing reversible airway obstruction:
- FEV_1/FVC ratio < LLN (approx. < 0.80-0.90) based on age, sex, height and ethnicity
- And ≥12% change in FEV_1 post bronchodilator or after course of controller therapy

2. Alternative: Improvement in PEF:** ≥20% post bronchodilator or after course of controller therapy (diurnal variation not recommended)
3. Alternative: Positive Challenge Test (if spirometry inconclusive): Methacholine challenge testing or Exercise challenge

Adults (≥ 12 yrs):

1. Preferred: Spirometry showing reversible airway obstruction:
- FEV_1/FVC ratio < LLN (approx. < 0.75-0.80) based on age, sex, height and ethnicity
- And ≥12% and min ≥200 mL change in FEV_1 post bronchodilator or after course of controller therapy

2. Alternative: Improvement in PEF:** 60L/min (min ≥20%) (post bronchodilator or after course of controller therapy) or diurnal variation >8% (based on 2 times/day reading), >20% (based on multiple daily readings)

3. Alternative: Positive Challenge Test (if spirometry inconclusive): Methacholine challenge testing or Exercise challenge

Asthma Not Confirmed

Consider

- Was testing done when patient was not exposed to any triggers or asymptomatic? (If yes, consider repeat testing when patient exposed/symptomatic or consider methacholine and/or exercise challenge test) or allergy testing
- Differential diagnosis: examples include COPD, CF, IPF, VCD, GERD, CHF, primary ciliary dyskinesia, infectious/allergic rhinosinusitis, upper airway narrowing, bronchiectasis, pertussis, foreign-body inhalation, aspiration, pneumonia, atelectasis, tuberculosis, eosinophilic esophagitis, immune dysfunction, swallowing problem, pulmonary edema (2)

Asthma Confirmed

Patient Assessment

Discuss:
- History of exacerbations
- Family history of asthma/allergies
- Smoking history (and exposure to smoke)
- Respiratory medication history (check for β-blocker, NSAID/ASA use, medic alert bracelet, epinephrine auto injector) and client's drug plan
- History of triggers (skin testing may be indicated)
- irritant triggers (especially colds in children)
- Relevant co-morbidities (i.e., sinusitis, rhinitis, GERD, obesity)
- Work-related triggers
- Special considerations (i.e., adherence, cultural issues, financial issues, lack of support)

Management

Pharmacological (Baseline Maintenance Therapy):

Based on the CTS 2012 Asthma Management continuum (3) and the CTS 2015 Asthma guideline for pre-schoolers (2), to determine medication needed to achieve control (baseline maintenance therapy)

Adjust therapy to achieve and maintain control and prevent future risk:

1. All should be on a reliever on demand: SABA***
2. **Still Uncontrolled (refer to "Review Control" table):** Add regular controller therapy (ICSs are the first-line controller therapy for all ages)
3. **Still Uncontrolled:**
   Children (1-5 yrs and 6-11yrs): increase low dose ICS to medium dose ICS
   Adults and children ≥12 yrs : add LABA if on ICS (ideally in the same inhaler device)
4. **Still Uncontrolled:**
   Children (1-5 yrs): referral to asthma specialist
   Children (6-11yrs): add LABA or LTRA
   Adults and children ≥12 yrs : Add LTRA
5. **Still Uncontrolled:**
   Refer to specialist, consider adding prednisone

Pharmacological (Asthma Exacerbation):

CTS 2012 recommended controller step-up therapy when patient has acute loss of control on their baseline maintenance therapy (yellow zone of ASTHMA ACTION PLAN)

Children (1-5 yrs and 6-11yrs) Step-up
If the patient has no baseline maintenance medication: consider starting regular controller therapy
If baseline maintenance medication is ICS: add prednisone 1mg/kg x 3-5 days

Adults (≥12 years) Step-up
If the patient has no baseline maintenance medication: consider starting regular controller therapy
If baseline maintenance medication is ICS: 1st choice: Trial ≥ 4-fold ↑ in ICS (dosing should not exceed manufacturer's recommended maximum daily dose) for 7-14 days. 2nd choice: Add prednisone 30-50mg for for at least 5 days
If baseline maintenance medication is ICS/LABA (BUD/FORM): 1st choice: ↑ to max 4 puffs BID for 7-14 days (Max 8 puffs/day). 2nd choice: Add prednisone 30-50mg for at least 5 days
If baseline maintenance medication is ICS/LABA (FP/SALM or MOM/FORM):
1st choice: Trial ≥ 4-fold ↑ in ICS for 7-14 days. 2nd choice: Add prednisone 30-50mg for at least 5 days

Note: Post-exacerbation, diligent follow-up should be done to consider stepping down add-on therapy

Non-Pharmacological (Education)

- Refer to Certified Asthma/Respiratory Educator, if available
- Discuss asthma pathophysiology, triggers, comorbidities, inhaler technique, reliever vs. controller, medication safety and side effects, adherence, asthma control
- Smoking cessation counselling when appropriate
- Create and review written ASTHMA ACTION PLAN (instruction for when there is loss of control) Note: If, after reviewing control, it is determined that the patient is uncontrolled on their baseline maintenance therapy, they are in the yellow zone and the CTS 2012 recommended controller step-up therapy should be started
- Prevention of exacerbations: environmental control (i.e. work, home and school environment), tobacco smoke exposure, environmental triggers, irritant triggers, vaccination (influenza), immunotherapy

Review Control

(Reassess at each visit)ϕ

Resources: Asthma Action Plan (hcp.lunghealth.ca/clinical-tools)

Control indicates all of the following criteria are met

Daytime symptoms (dyspnea, cough, wheeze, chest tightness): < 4 days/week	Need for a reliever: < 4 doses/week (pre-exercise doses should be included in weekly limit)
Night time symptoms: < 1 night/week	FEV_1 or PEF: ≥ 90% of personal best
Physical activity: normal	Diurnal variability in PEF < 10%-15% over a 2 week period (readings morning and night)
Asthma exacerbations within the last 12 months: mild, infrequent	**Formula =** $\frac{\text{Highest PEF - Lowest PEF}}{\text{Highest PEF}} \times 100$
No absence from school/work due to asthma	Sputum eosinophils† < 2-3%

† Consider as an additional measure of asthma control in individuals ≥ 18 years with moderate to severe asthma who are assessed in specialized centres. ϕpreschoolers with ≥8 days/month of asthma symptoms or ≥2 severe exacerbations should be considered poorly controlled and should have ICS therapy initiated

Consider Referral to a Specialist:

- Not certain of diagnosis
- Sputum eosinophil monitoring
- Difficulty in determining baseline medication regimen
- Severe asthma requiring alternate therapy
- Recent ER/hospital admission or recurring exacerbations (≥2 for preschoolers [2])

Follow-Up

- Regularly reassess control (every 3-4 months for preschoolers[2]), inhaler technique, adherence, triggers, comorbidities, spirometry or PEF****
- Review medication regime and consider modifying maintenance therapy (consider stepping down add-on therapy or de-crease ICS dose if asthma is well-controlled between visits)
- Review/Revise written ASTHMA ACTION PLAN

***CTS guidelines for Preschoolers (2):** Please refer to latest CTS guidelines for detailed diagnosis algorithm for preschoolers
**Spirometry is the preferred method of documenting airflow limitation (12)
***ICS/LABA, in a formulation approved for use as a reliever for 12 years of age and older (BUD/FORM), may be considered as a reliever in individuals with mod. asthma and poor control despite fixed-dose maintenance ICS/LABA combination or for exacerbation prone individuals with uncontrolled asthma despite high maintenance dose of ICS or ICS/LABA
**** Spirometry is the preferred objective measure to help objectively assess asthma control (9).

Appendix:
Acronym:
BUD: Budesonide
COPD: Chronic Obstructive Pulmonary Disease
CF: Cystic Fibrosis
CHF: Congestive Heart Failure
ER: Emergency room
FORM: Formoterol
GERD: Gastroesophageal Reflux Disorder
HCP: Health care professional
ICS: Inhaled Corticosteroid
IPF: Idiopathic Pulmonary Fibrosis
LABA: Long-Acting $Beta_2$-Agonist
LTRA: Leukotriene-Receptor Antagonist
MOM: Mometasone
PEF: Peak Expiratory Flow
SABA: Short Acting $Beta_2$-Agonist
SALM: Salmeterol
VCD: Vocal Cord Dysfunction

Definitions:
FEV_1: volume of air expired in the first second of the FVC (used to assess flow resistive properties of airway)
FVC: Maximum volume of air that can be expired forcefully and completely after complete inspiration
FEV_1/FVC: used for the assessment of airflow obstruction
LLN (Lower Limit of Normal): the value below the 5th percentile for the normal population (8)

This document has been modified with permission by the Ontario Lung Association from the original version developed by Dr Itamar Tamari, Primary Care Asthma Program (PCAP)

Endorsed by: lung health foundation — ONTARIO THORACIC SOCIETY; lung health foundation — ONTARIO RESPIRATORY CARE SOCIETY

hcp.lunghealth.ca
1-888-344-LUNG (5864)

Algorithm and reference available at: hcp.lunghealth.ca/clinical-tools

Name: _____ Date: _____

Review with your healthcare provider at every visit.

Adult Asthma Action Plan (16 years and older)

Emergency contact name: _____ Phone: _____

Physician name: _____ Phone: _____

Personal Best Peak Flow _____ L/min

The goal of asthma treatment is to live a healthy, active life.
Remember that it is very important to remain on your maintenance medication, even if you are having no symptoms of asthma.

Go: Maintain Therapy

Description *You have **all** of the following:*

Use your reliever no more than 3 times per week

Cough, wheezing, shortness of breath or chest tightening no more than 3 days per week

Can do normal physical activities and sports without difficulty

Night asthma symptoms less than 1 night per week

No missed regular activities or school or work

Peak Flow: >80% personal best, or > _____

Other:

Instructions:

Medication	Puffer colour	Dose	Puffs	Times per day
Controller				
Reliever				

Other:

Caution: Step Up Therapy

Description *You have **any** of the following:*

Use your reliever more than 3 times per week

Have daytime cough, wheezing, shortness of breath or chest tightening more than 3 days per week

Physical activity is limited

Asthma symptoms at night or in early AM 1 or more nights per week

Peak Flow: 60-80% personal best, or _____ to _____

Other:

Instructions:

- ☐ Increase _____ (colour) controller (_____ (medication)) to: ____ puffs ____ times per day for ____ days
- ☐ Add _____ (colour) controller (_____ (medication)): ____ puffs ____ times per day for ____ days
- ☐ Take _____ (colour) reliever (_____ (medication)) 1 to 2 puffs every 4 to 6 hours as needed
- ☐ If no improvement in your symptoms and/or peak flows in 2-3 days or your reliever only lasts for 2-3 hours, go to red zone

Other:

Stop: Get Help Now

Description *You have **any** of the following:*

Reliever lasts 2-3 hours or less

Continuous asthma symptoms

Continuous cough

Wheezing all the time

Severe shortness of breath

Sudden and severe attack of asthma

Peak Flow: <60% personal best, or < _____

Other:

Instructions:

Take _____ (colour) reliever (_____ (medication)) ____ puffs every 10-30 minutes as needed

Asthma symptoms can get worse quickly. When in doubt, seek medical help.

Asthma can be a life-threatening illness. Do not wait!

If you cannot contact your doctor: call 911 for an ambulance, or go directly to the Emergency Department!

Bring this asthma action plan with you to the emergency room or hospital

Stay calm

Other:

Allergies may be triggering your asthma - avoid the things that you are allergic to and have allergy skin testing if you are unsure.

Controller: has a lasting effect, treats inflammation, prevents asthma attacks, may take time to act
Reliever: rapidly relieves symptoms of cough, wheeze, lasts 4 hours

Adapted from Gupta S, et al. Respiration 2012;84(5):406-15.

lung health starts now lung health foundation
Ontario Lung Association is a registered charity operating as the Lung Health Foundation

COPD Care Map for Primary Care

Patient Name: _____ **DOB:** _____

Year of diagnosis:_____ Co-morbid conditions:_____

Smoking history: _____ Occupational exposure: _____

Ensure diagnosis of COPD was made with post bronchodilator spirometry testing to meet the Canadian Thoracic Society criteria to establish a diagnosis of COPD: *Post bronchodilator FEV_1/ FVC ratio < 0.7 (or compared to the lower limit of normal)*

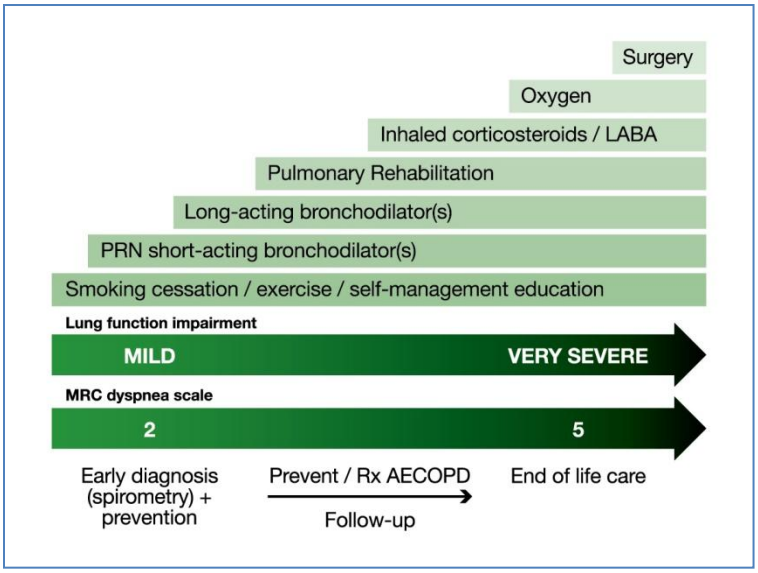
	REVIEW ITEMS	VISIT DATES		
REGULAR OFFICE VISITS FOR COPD — ASSESSMENT / SEVERITY	**Medical Research Council (MRC) Dyspnea Scale** (Recommended by CTS for assessment of disability from COPD)	Date:	Date:	Date:
	Grade 1 (**Very Mild**): SOB only with strenuous exercise			
	Grade 2 (**Mild**): SOB when hurrying on a level surface or walking up slight hill			
	Grade 3 (**Moderate**): Walks slower than people of same age on the level, or stops for breath while walking at own pace on the level			
	Grade 4 (**Moderate**): Stops for breath after walking about 100 yards			
	Grade 5 (**Severe**): Too SOB to leave the house, or SOB when dressing			
	Consider blood gas when $FEV_1 < 40\%$ (if resting $SpO_2 < 90\%$)			
	Signs/symptoms of right heart failure (If yes, COPD is severe) i.e. ankle edema +/- fatigue, SOB on exertion			
	BMI classification (underweight <18.5 kg/m^2; overweight ≥ 25 kg/m^2)			
	Clinical signs of depression / anxiety			
MANAGEMENT	Smoking cessation if smoking - 3 A's model (Ask, Advise, Arrange)			
	Cigarettes/day:			
	Cessation medications (Nicotine replacement, Zyban, Champix)			
	Short-acting bronchodilator:			
	Long-acting beta-agonist (LABA):			
	Long-acting anticholinergic:			
	LABA/Inhaled corticosteroid combination:			
	Other medicines:			
	Vaccinations: • Annual influenza vaccine			
	• Pneumococcal vaccine given at least once and repeated in 5 to 10 years			
	Review proper inhaler technique with patient			
	Encourage regular exercise			
	Revise or review written action plan: www.COPDActionPlan.com			
	Acute Exacerbation COPD (AECOPD): • AECOPD Date(s):			
	• Purulent (P) / Non-Purulent (NP)	☐ P ☐ NP ☐ P ☐ NP	☐ P ☐ NP ☐ P ☐ NP	☐ P ☐ NP ☐ P ☐ NP
AS NEEDED — TESTS	Post bronchodilator spirometry testing – FEV_1% predicted			
	Blood work: • CBC to rule out polycythemia			
	• Alpha-1-Antitrypsin (AAT): If serum blood level ≤ 1.5 g/L (or below the normal mean for the testing laboratory), screen for AAT phenotype (Pi Type) (do not test during acute exacerbation)			
	Sputum gram stain & culture when purulent AECOPD if: very poor lung function, AECOPD > 3/year or has been on antibiotics in last 3 months			
REFERRALS	COPD education program			
	Pulmonary rehabilitation program			
	Smoking cessation			
	Sleep clinic/sleep lab if sleep disordered breathing suspected			
	Refer to specialist if:			
	• Not certain of the diagnosis			
	• Symptoms not proportional to level of airway obstruction			
	• Accelerated decline of lung function (FEV_1 declines 80 ml or more per year over a two year period)			
	• Symptom onset at a young age (< 40 years)			
	• Suspect alpha-1-antitrypsin deficiency (see TESTS section)			
	• Not responding to therapy			
	• Severe or recurring acute exacerbations			
Canadian respiratory guidelines: www.respiratoryguidelines.ca	**Signature:**			

Endorsed by: lung health foundation ONTARIO THORACIC SOCIETY; lung health foundation ONTARIO RESPIRATORY CARE SOCIETY

1-888-344-5864 lunghealth.ca

Ontario Lung Association is a registered charity operating as the Lung Health Foundation

Treatment Options from the 2008 Canadian Thoracic Society Recommendations for Management of COPD



Adapted from: Can Respir J 2008;15(Suppl A):4A.

Short-Acting Bronchodilators

-- For symptomatic or rescue treatment --

Salbutamol (Ventolin, Airomir) *MDI / spacer 100 mcg per dose*
2 inhalations QID prn

Ipratropium (Atrovent) *MDI / spacer 20 mcg per dose*
2 inhalations QID prn

Terbutaline (Bricanyl) *Turbuhaler 0.5 mg per dose*
1 inhalation QID prn

Long-Acting Anti-Cholinergic Bronchodilators

Tiotropium (Spiriva) *Handihaler 18 mcg per dose*
Contents of 1 capsule inhaled QD

(Atrovent is not recommended to be combined with Spiriva)

Long-Acting Beta–Agonist (LABA) Bronchodilators

-- Can be used alone or in a combination product --

Salmeterol (Serevent) *Diskus 50 mcg per dose*
1 inhalation BID

Formoterol (Oxeze) *Turbuhaler 6 or 12 mcg per dose*
1 to 2 inhalations BID of 6 mcg dose
1 inhalation BID of 12 mcg dose

Long-Acting Beta Agonist / Inhaled Corticosteroid (LABA/ICS) Combinations

-- For moderate to severe COPD with SOB despite optimal bronchodilator therapy, replace LABA with LABA/ICS combination --

(If **< 1 Acute Exacerbation** COPD per year use **lower dose** ICS; If **≥ 1 Acute Exacerbation** COPD per year use **higher dose** ICS)

Symbicort *(formoterol 6 mcg / budesonide 100 or 200 mcg per dose)* ***Turbuhaler*** 2 inhalations BID

Advair *(salmeterol 25 mcg / fluticasone 125 or 250 mcg per dose)* ***MDI / spacer*** 2 inhalations BID

Advair *(salmeterol 50 mcg / fluticasone 100, 250 or 500 mcg per dose)* ***Diskus*** 1 inhalation BID

Other Medicines

Theophylline has weak bronchodilator and anti-inflammatory effects; modest potential benefits need to be weighed against the risk of severe side effects and potential drug interactions.

PDE4 inhibitor: Daxas (roflumilast) may inhibit COPD-related inflammation (a role in COPD management has not been clarified in current Canadian COPD guidelines). It is recommended that patients with recurrent exacerbations should be referred to a respirologist.

Home Oxygen Program: www.health.gov.on.ca/english/public/pub/adp/oxyphys.html

Acute Exacerbations of COPD (AECOPD)

Inhaled bronchodilators to treat dyspnea in AECOPD; consider salbutamol and ipratropium bromide initially (24-48hrs), then resume maintenance bronchodilator therapy.

No role for the initiation of theophylline during AECOPD; possible drug interactions with antibiotics.

Oral/parenteral steroids for 7-14 days in most **moderate to severe** patients with COPD; limited data on benefits in patients with mild COPD (FEV_1 > 60% of predicted); dosages of 25 to 50 mg prednisone per day are recommended.

Antibiotic therapy is recommended **only for those patients with AECOPD due to an infectious cause, i.e., purulent exacerbations; (as characterized by increased dyspnea, increased sputum and purulent sputum);** refer to chart below (adapted from 2008 Canadian Thoracic Society Recommendations for Management of COPD):

Antibiotic treatment recommendations for purulent acute exacerbations of chronic obstructive pulmonary disease (COPD)

Group	Basic clinical state	Symptoms and risk factors	Probable pathogens	First choice
Simple exacerbation	COPD without risk factors	Increased sputum purulence and dyspnea	*Haemophilus influenzae, Haemophilus* species, *Moraxella catarrhalis, Streptococcus pneumoniae*	Amoxicillin, second- or third-generation cephalosporins, doxycycline, extended-spectrum macrolides, trimethoprim/sulfamethoxazole *(in alphabetical order)*
Complicated exacerbation	COPD with risk factors	As in simple plus at least one of: • FEV_1 < 50% predicted • ≥ 4 exacerbations per year • Ischemic heart disease • Use of home oxygen • Chronic oral steroid use	As in simple plus: • *Klebsiella* species and other Gram-negatives • Increased probability of beta-lactam resistance • *Pseudomonas* species	Fluoroquinolone (gemifloxacin, levofloxacin, moxifloxacin), beta-lactam/beta-lactamase inhibitor (amoxicillin/clavulanic acid) *(in order of preference)* (antibiotics for simple exacerbation if combined with prednisone)

Repeat prescriptions of the same antibiotic class should be avoided within a three-month interval. FEV_1 Forced expiratory volume in 1 s

Adapted from: Can Respir J 2008;15(Suppl A):7A.

lung health foundation

COPD Diagnosis and Management Algorithm

A. Patient presents with respiratory symptoms or ask patient about the following:

Shortness of breath at rest or on exertion, activity limitation, cough, sputum production, smoker (current or past), regular respiratory tract infections.

OR

B. Screen smokers or ex-smokers over 40 years old who answer "YES" to any question below:

1. Do you cough regularly?
2. Do you cough up phlegm regularly?
3. Do even simple chores make you short of breath?
4. Do you wheeze when you exert yourself or at night?
5. Do you get frequent colds that persist longer than those of other people?

COPD SUSPECTED

Patient Assessment & Monitoring

History/Risk Factors:

- History: smoking, occupational, medical
- Second-hand smoke exposure
- Symptoms: shortness of breath at rest or on exertion, activity limitation, cough, sputum production (amount, colour, consistency), wheezing, chest tightness
- Assess for orthopnea
- Indoor/outdoor air pollution

Physical Examination:

- Auscultation
- Signs of lung hyperinflation, accessory muscle use
- Signs of generalized muscle wasting
- Ankle swelling (right heart failure)
- Cachexia, malnutrition: body mass index [underweight < 18.5 kg/m^2; overweight ≥ 25 kg/m^2; obese ≥ 30 kg/m^2]

Assess Severity:

Medical Research Council (MRC) dyspnea scale:

Grade 1: Not troubled by breathlessness except with strenuous exercise
Grade 2: Troubled by shortness of breath when hurrying on the level or walking up a slight hill
Grade 3: Walks slower than people of the same age on the level because of breathlessness or has to stop for breath when walking at own pace on the level
Grade 4: Stops for breath after walking about 100 yards (90 m) or after a few minutes on the level
Grade 5: Too breathless to leave the house or breathless when dressing or undressing

Classification by impairment of lung function (postbronchodilator spirometry):

Mild: $FEV_1 \geq 80\%$ predicted, $FEV_1/FVC < 0.7$
Moderate: $50\% \leq FEV_1 < 80\%$ predicted, $FEV_1/FVC < 0.7$
Severe: $30\% \leq FEV_1 < 50\%$ predicted, $FEV_1/FVC < 0.7$
Very severe: $FEV_1 < 30\%$ predicted, $FEV_1/FVC < 0.7$
[FEV_1 = forced expiratory volume in 1 second; FVC = forced vital capacity]

COPD Assessment Test (CAT): www.catestonline.org

Tests:

- Pulmonary function testing:
  - ⇒ Spirometry every 1-2 years after initial diagnosis
  - ⇒ Additional pulmonary function and exercise tests PRN
- CBC PRN to rule out polycythemia
- Consider blood gas if FEV_1< 40% predicted (if resting SpO_2 <90%)
- Alpha-1-Antitrypsin (AAT):
  - ⇒ If atypical features (early onset, family history of COPD, disabled in early 40s or 50s), send for AAT testing:
    - If serum blood level ≤ 1.5 g/L or below the normal mean for the testing laboratory, screen for AAT phenotype (Pi Type)
    - Do not test during acute exacerbation

Assess for and Manage Comorbidities: anemia, anxiety/depression, cancer, congestive heart failure, glaucoma/cataracts, ischemic heart disease, metabolic syndrome, osteopenia, osteoporosis, peripheral muscle dysfunction

Acute Exacerbation of COPD (AECOPD):

- Frequency, severity, purulent/non-purulent
- Hospitalizations, emergency department visits, systemic corticosteroid use
- Sputum gram stain & culture when purulent AECOPD if: very poor lung function, AECOPD > 3/year, or has been on antibiotics in last 3 months

Resources: COPD Care Map for Primary Care: www.olapep.ca/resources

Confirm Diagnosis with Spirometry

Air flow limitation:

Post-bronchodilator $FEV_1 / FVC < 0.70$

FEV_1 = forced expiratory volume in 1 second
FVC = forced vital capacity

Spirometry resources: www.olapep.ca/spirometry

COPD NOT CONFIRMED

Differential Diagnosis

- Asthma
- Cardiovascular or pulmonary vascular disease
- Obesity
- Severe deconditioning
- Anemia
- Interstitial lung disease
- Neuromuscular disease

Consider Referral to Specialist

- Not certain of the diagnosis
- Symptoms not proportional to level of airway obstruction
- Accelerated decline of lung function (FEV_1 declines 80 ml or more per year over a two year period)
- Symptom onset at a young age (< 40 years)
- Suspect alpha-1-antitrypsin deficiency
- Not responding to therapy
- Severe or recurring acute exacerbations

Non-Pharmacologic Management

COPD Education - provide or refer to program/Certified Respiratory Educator (CRE):

- Smoking cessation (Resources: www.on.lung.ca/journey)
- Pathophysiology and treatment rationale
- Inhaler technique (Inhaler Device CD: www.olapep.ca/resources)
- Self-management education with written action plan (www.COPDActionPlan.com)
- Identify and reduce/remove risk factors
- Acute exacerbation recognition and treatment
- Managing dyspnea, energy conservation
- Advance care directive, end of life discussions
- Educational resources

Exercise: Encourage all COPD patients to be active.

Pulmonary Rehabilitation:

- Refer clinically stable patients who remain dyspneic and have limited exercise capacity despite optimal pharmacotherapy
- Exercise training and self-management education

Follow-Up Care:

- Schedule regular follow-up care
- Repeat MRC dyspnea scale, COPD Assessment Test: www.catestonline.org

End of Life Care:

- COPD is progressive and disabling and may lead to respiratory failure and death
- Discuss end-of-life issues with patients at an increased risk of dying in the near future

Pharmacologic Management

Bronchodilators:

- Bronchodilators are the mainstay of pharmacotherapy. They reduce air trapping and improve dyspnea and quality of life even if there is no improvement in spirometry
- Short-acting bronchodilator PRN
- Long-acting beta-agonist
- Long-acting anticholinergic

Inhaled Corticosteroid (ICS)/Long-Acting Beta-Agonist (LABA) Combination:

- For moderate to severe COPD
- If infrequent AECOPD (average < 1 per year) and persistent dyspnea despite optimal bronchodilator therapy, use lower dose ICS/LABA
- If frequent AECOPD (≥ 1 per year), use higher dose ICS/LABA

Other Medicines:

- PDE4 inhibitor
- Theophylline

Assess patient response to therapy; if inadequate benefit, consider dose adjustment, inhaler technique, and assess compliance.

Long-Term Oxygen Therapy can improve survival and function in appropriately chosen, stable COPD patients with chronic hypoxemia (PaO2 of 55 mm Hg or lower), or when PaO2 is less than 60 mm Hg in the presence of bilateral ankle edema, right heart failure or hematocrit > 56%.

Influenza & Pneumonia Vaccinations:

- Annual influenza vaccine
- Pneumococcal vaccine given at least once and repeated in 5 to 10 years

Acute Exacerbation of COPD:

- Oxygen therapy PRN (to maintain oxygen saturation at 88% - 92%)
- Inhaled bronchodilators to treat dyspnea
- Oral/parenteral steroids should be considered
- Antibiotics should be considered in patients with purulent exacerbations

Resources: COPD Care Map for Primary Care: www.olapep.ca/resources

Endorsed by: lung health foundation — ONTARIO THORACIC SOCIETY; lung health foundation — ONTARIO RESPIRATORY CARE SOCIETY

www.lungontario.ca
1-888-344-5864

Algorithm and references available at:
https://hcp.lunghealth.ca/clinical-tools/

Ontario Lung Association is a registered charity operating as the Lung Health Foundation

COPD Action Plan Instructions

The **goal of a COPD Action Plan** is to help those with COPD prevent and manage exacerbations in conjunction with the healthcare professional team (the physician*, the certified respiratory educator and the pharmacist), i.e., **collaborative self-management**. The healthcare professional team should complete/review the following information with the patient:

- a list of persons to contact when he/she needs help
- a list of baseline symptoms and the actions to be taken to stay well (green zone)
- the symptoms indicating worsening COPD and the actions to be taken to manage the exacerbation (yellow zone)
- the symptoms which require urgent treatment (red zone)

Early and appropriate intervention may help to prevent or minimize the impact of an exacerbation.

REMEMBER: The **COPD Action Plan** is a tool to facilitate communication between the COPD patient and his/her healthcare professional team. Once completed, the Action Plan should be brought to **each** follow-up visit, **reviewed** regularly and modified as necessary. Follow up should include a discussion on past exacerbations and how the patient used their Action Plan and managed flare-ups.

A certified respiratory educator or other qualified member of the healthcare professional team should discuss and review the document with the COPD patient to ensure he/she:

- has a clear understanding of how to recognize worsening COPD symptoms; and
- is confident in knowing when and what actions are to be taken based on the severity of symptoms, including when to fill the prescription for additional medications and when to seek urgent/emergent medical attention.

CAUTION: To be successful, the COPD patient must achieve behavioral change through collaborative self-management, although this is not without risk. Recently, it has been shown in a large clinical trial that patients engaged in a collaborative self-management program, which included the use of an Action Plan, could have unexpected negative outcomes, including increased risk of death.

The COPD Action Plan consists of two parts:

Part I includes written instructions on what actions should be taken by the person with COPD based on symptoms (sputum and shortness of breath) in the green, yellow and red zones. It includes three copies, a copy for the patient, the physician and the respiratory educator. Any member of the healthcare professional team can begin the process for completing the Action Plan.

Part II includes a prescription for medications to be initiated in the case of sustained worsening symptoms. It is completed by a physician. It also includes three copies, a copy for the patient, the physician and the pharmacist.

WARNING: 1) Separate both parts of the Action Plan before completing. Since both parts are carbon copied, ensure that when part I is being completed, part II is not directly underneath, as the information will be transferred. **2)** Please ensure the physician signs the pharmacist's copy of the Action Plan. In order for the prescription to be accepted by the pharmacist, an original signature from the physician is required on the pharmacist's copy of the Action Plan.

*or nurse practitioner

My COPD Action Plan

Patient's Copy

_____ Date _____

(Patient's Name)

Canadian Respiratory Guidelines

COPD
Treatable. Preventable.

This is to tell me how I will take care of myself when I have a COPD flare-up.

My goals are _____

My support contacts are _____ and _____

(Name & Phone Number) (Name & Phone Number)

My Symptoms	I Feel Well	I Feel Worse	I Feel Much Worse URGENT
I have sputum.	My usual sputum colour is: _____	Changes in my sputum, for **at least** 2 days. *Yes* ☐ *No* ☐	My symptoms are not better after taking my flare-up medicine for 48 hours.
I feel short of breath.	When I do this: _____	OR More short of breath than usual for **at least** 2 days. *Yes* ☐ *No* ☐	I am very short of breath, nervous, confused and/or drowsy, and/or I have chest pain.

My Actions	Stay Well	Take Action	Call For Help
	I use my daily puffers as directed.	If I checked 'Yes' to one or both of the above, I use my **prescriptions** for COPD flare-ups.	I will call my support contact and/or see my doctor and/or go to the nearest emergency department.
	If I am on oxygen, I use _____L/min.	I use my daily puffers as usual. If I am **more** short of breath than usual, I will take ____ puffs of _____ up to a **maximum** of ____ times per day.	**I will dial 911.**
		I use my breathing and relaxation methods as taught to me. I pace myself to save energy.	**Important information:** I will tell my doctor, respiratory educator, or case manager **within 2 days** if I had to use any of my flare-up prescriptions. I will also make follow-up appointments to review my COPD Action Plan twice a year.
		If I am on oxygen, I will increase it from ___ L/min to ___ L/min.	

Notes:

THE LUNG ASSOCIATION™ L'ASSOCIATION PULMONAIRE

CANADIAN SOCIÉTÉ THORACIC SOCIETY CANADIENNE DE THORACOLOGIE

Produced in collaboration with the *COPD & Asthma Network of Alberta (CANA)*. *The Canadian Thoracic Society (CTS)* acknowledges the past contributions of *Living well with COPD* and the *Family Physician Airways Group of Canada*.

Canadian Respiratory Guidelines

COPD ACTION PLAN (Patient's copy)

Why do I need this COPD Action Plan?

- Your Action Plan is a written contract between you and your health care team. It will tell you how to manage your COPD flare-ups. Use it along with any other information you get from your health care team about managing your COPD every day.
- Your Action Plan will help you and your caregivers to quickly recognize and act to treat your flare-ups. This will keep your lungs and you as healthy as possible.

How will I know that I am having a COPD "flare-up"?

- You will often see a change in your amount or colour of sputum and/or you may find that you are more short of breath than usual. Other symptoms can include coughing and wheezing more.
- Your flare-up Action Plan is to be used only for COPD flare-ups. Remember that there are other reasons you may get short of breath, such as when you have pneumonia, are anxious, or have heart problems.
- Before or during a flare-up you may notice changes in your mood, such as feeling down or anxious. Some people have low energy or feel tired before and during a COPD flare-up.

What triggers a "COPD flare-up"?

- A COPD flare-up can sometimes happen after you get a cold or flu, or when you are stressed and run down.
- Being exposed to air pollution and changes in the weather can also cause COPD flare-ups. To learn about the daily air quality in your area, visit Environment Canada's Air Quality Health Index (AQHI) website at www.ec.gc.ca/cas-aqhi/ and click on 'Your Local AQHI Conditions'. Ask your health care team about ways to avoid all possible triggers.

When should I use this COPD Action Plan?

- Your COPD Action Plan is used only for COPD flare-ups.
- Remember that there are other reasons you may get short of breath, such as when you have pneumonia, are anxious, or have heart problems. If you become more short of breath but don't have symptoms of COPD flare-up, see a doctor as soon as possible.

REMEMBER:

- Learn about your COPD from a respiratory educator, credible websites, such as www.lung.ca, and education programs.
- Take your regular daily medicine as prescribed.
- Don't wait more than 48 hours after the start of a COPD flare-up to take your antibiotic and/or prednisone medicines. See your pharmacist quickly to get your prescriptions for COPD flare-up.
- When you start an antibiotic, make sure that you finish the entire treatment.
- Quitting smoking and making sure that your vaccinations are up-to-date (for flu every year and for pneumonia at least once) will help prevent flare-ups.
- Be as active as possible. Inactivity leads to weakness, which may cause more flare-ups or flare-ups that are worse than usual. Ask your doctor about pulmonary rehabilitation and strategies to help reduce your shortness of breath and improve your quality of life.
- Follow up with your doctor within 2 days after using any of your prescriptions for a COPD flare-up.

MY NOTES AND QUESTIONS:

My COPD Action Plan

Physician's Copy

_____ Date _____

(Patient's Name)

Canadian Respiratory Guidelines

COPD
Treatable. Preventable.

This is to tell me how I will take care of myself when I have a COPD flare-up.

My goals are _____

My support contacts are _____ and _____

(Name & Phone Number) (Name & Phone Number)

My Symptoms	I Feel Well	I Feel Worse	I Feel Much Worse URGENT
I have sputum.	My usual sputum colour is: _____	Changes in my sputum, for **at least** 2 days. *Yes* ☐ *No* ☐	My symptoms are not better after taking my flare-up medicine for 48 hours.
I feel short of breath.	When I do this: _____	OR More short of breath than usual for **at least** 2 days. *Yes* ☐ *No* ☐	I am very short of breath, nervous, confused and/or drowsy, and/or I have chest pain. 

My Actions	Stay Well	Take Action	Call For Help
	I use my daily puffers as directed.	If I checked 'Yes' to one or both of the above, I use my **prescriptions** for COPD flare-ups.	I will call my support contact and/or see my doctor and/or go to the nearest emergency department.
	If I am on oxygen, I use _____L/min.	I use my daily puffers as usual. If I am **more** short of breath than usual, I will take ____ puffs of _____ up to a **maximum** of ____ times per day.	**I will dial 911.** 
		I use my breathing and relaxation methods as taught to me. I pace myself to save energy.	**Important information:** I will tell my doctor, respiratory educator, or case manager **within 2 days** if I had to use any of my flare-up prescriptions. I will also make follow-up appointments to review my COPD Action Plan twice a year.
		If I am on oxygen, I will increase it from ___ L/min to ___ L/min.	

Notes:

THE LUNG ASSOCIATION™ L'ASSOCIATION PULMONAIRE

CANADIAN SOCIÉTÉ THORACIC SOCIETY CANADIENNE DE THORACOLOGIE

Produced in collaboration with the *COPD & Asthma Network of Alberta (CANA)*. *The Canadian Thoracic Society (CTS)* acknowledges the past contributions of *Living well with COPD* and the *Family Physician Airways Group of Canada*.

Canadian Respiratory Guidelines

COPD ACTION PLAN (Physician's copy)

Pharmacological Treatment

1. Short-acting (beta$_2$-agonists and anticholinergic) bronchodilators to treat wheeze and dyspnea. Continue all of your long acting bronchodilators or inhaled steroids as prescribed.
2. Prednisone (oral) → 25-50 mg once daily for 10 days for patients with moderate to severe COPD.
3. Antibiotic choice is prescribed based upon the presence of risk factors as below.
4. Severe AECOPD complicated by acute respiratory failure is a medical emergency. Consider consultation with an emergency specialist or respirologist.

Antibiotic Treatment Recommendations for Acute COPD Exacerbations[1, 2]

Group	Probable Pathogens	First Choice	Alternatives for Treatment Failure
I, Simple Smokers FEV1 > 50% ≤ 3 exacerbations per year	H. influenzae M. catarrhalis S. pneumoniae	Amoxicillin, 2nd or 3rd generation cephalosporin, doxycycline, extended spectrum macrolide, trimethoprimsulfamethoxazole (in alphabetical order).	Fluoroquinolone β-lact/ β-lactamase inhibitor.
II, Complicated, as per I, plus at least one of the following should be present: FEV1<50% predicted; ≥4 exacerbations/year; ischemic heart disease; use home oxygen or chronic oral steroids; antibiotic use in the past 3 months.	As in group I, plus: Klebsiella spp. and other Gram-negative bacteria Increased probability of β-lactam resistance.	Fluoroquinolone β-lact/ β-lactamase inhibitor (in order of preference).	May require parenteral therapy. Consider referral to a specialist or hospital.
III, Chronic Suppurative II, plus: Constant purulent sputum; some have bronchiectasis; FEV1 usually <35% predicted; chronic oral steroid use; multiple risk factors.	As in group II, plus: P. Aeruginosa and multi-resistant Enterobacteriaceae.	Ambulatory - tailor treatment to airway pathogen; P. Aeruginosa is common (ciprofloxacin) Hospitalized - parenteral therapy usually required.	

General Recommendations for the Physician

- Patients need to be instructed to call or visit their treating physician if symptoms persist or worsen after 48 hrs in spite of patient-initiated treatment. Please instruct patients to notify their doctor, respiratory educator, or case manager within 2 days of filling any of their prescriptions for a COPD flare-up.
- Prescriptions for antibiotics and prednisone can be refilled twice each, as needed, for 1 year. Pharmacists may fax the doctor's office after any portion of the prescriptions for COPD flare-up has been filled.
- To reduce the risk of antibiotic resistance, if more than one treatment is required over 3 months, the class of antibiotics should be changed on subsequent courses of therapy.
- Review with your patient measures to prevent future COPD exacerbations including smoking cessation, annual influenza vaccination, pneumococcal vaccination and appropriate use of inhaled daily medications.
- Consider referral to a local respiratory educator and pulmonary rehabilitation program if available.

1 O'Donnell DE, Hernandez P, Kaplan A, Aaron S., et al. CTS recommendations for management of COPD – 2008 update – highlights for primary care. Can Resp J 2008; 15(Suppl A):1A-8A.

2 Balter MS, La Forge J, Low DE, Mandell L., et al. Canadian guidelines for the management of acute exacerbation of chronic bronchitis. Can Respir J 2003; 10(Suppl B):3B-32B.

With acknowledgment to:

My COPD Action Plan _____ Date _____
Educator's Copy
(Patient's Name)

Canadian Respiratory Guidelines

COPD
Treatable. Preventable.

This is to tell me how I will take care of myself when I have a COPD flare-up.

My goals are _____

My support contacts are _____ and _____
(Name & Phone Number) (Name & Phone Number)

My Symptoms	I Feel Well	I Feel Worse	I Feel Much Worse URGENT
I have sputum.	My usual sputum colour is: _____	Changes in my sputum, for **at least** 2 days. *Yes* ☐ *No* ☐	My symptoms are not better after taking my flare-up medicine for 48 hours.
I feel short of breath.	When I do this: _____	OR More short of breath than usual for **at least** 2 days. *Yes* ☐ *No* ☐	I am very short of breath, nervous, confused and/or drowsy, and/or I have chest pain.

My Actions	Stay Well	Take Action	Call For Help
	I use my daily puffers as directed.	If I checked 'Yes' to one or both of the above, I use my **prescriptions** for COPD flare-ups.	I will call my support contact and/or see my doctor and/or go to the nearest emergency department.
	If I am on oxygen, I use _____L/min.	I use my daily puffers as usual. If I am **more** short of breath than usual, I will take ____ puffs of _____ up to a **maximum** of ____ times per day.	**I will dial 911.**
		I use my breathing and relaxation methods as taught to me. I pace myself to save energy.	**Important information:** I will tell my doctor, respiratory educator, or case manager **within 2 days** if I had to use any of my flare-up prescriptions. I will also make follow-up appointments to review my COPD Action Plan twice a year.
		If I am on oxygen, I will increase it from ___ L/min to ___ L/min.	

Notes:

THE LUNG ASSOCIATION™ L'ASSOCIATION PULMONAIRE

CANADIAN SOCIÉTÉ THORACIC SOCIETY CANADIENNE DE THORACOLOGIE

Produced in collaboration with the *COPD & Asthma Network of Alberta (CANA)*. *The Canadian Thoracic Society (CTS)* acknowledges the past contributions of *Living well with COPD* and the *Family Physician Airways Group of Canada*.

Canadian Respiratory Guidelines

COPD ACTION PLAN (Educator's copy)

Pharmacological Treatment

1. Short-acting (beta$_2$-agonists and anticholinergic) bronchodilators to treat wheeze and dyspnea. Continue all of your long acting bronchodilators or inhaled steroids as prescribed.
2. Prednisone (oral) → 25-50 mg once daily for 10 days for patients with moderate to severe COPD.
3. Antibiotic choice is prescribed based upon the presence of risk factors as below.
4. Severe AECOPD complicated by acute respiratory failure is a medical emergency. Consider consultation with an emergency specialist or respirologist.

Antibiotic Treatment Recommendations for Acute COPD Exacerbations[1, 2]

Group	Probable Pathogens	First Choice	Alternatives for Treatment Failure
I, Simple Smokers FEV1 > 50% ≤ 3 exacerbations per year	H. influenzae M. catarrhalis S. pneumoniae	Amoxicillin, 2nd or 3rd generation cephalosporin, doxycycline, extended spectrum macrolide, trimethoprimsulfamethoxazole (in alphabetical order).	Fluoroquinolone β-lact/ β-lactamase inhibitor
II, Complicated, as per I, plus at least one of the following should be present: FEV1<50% predicted; ≥4 exacerbations/year; ischemic heart disease; use home oxygen or chronic oral steroids; antibiotic use in the past 3 months.	As in group I, plus: Klebsiella spp. and other Gram-negative bacteria Increased probability of β-lactam resistance.	Fluoroquinolone β-lact/ β-lactamase inhibitor (in order of preference).	May require parenteral therapy. Consider referral to a specialist or hospital.
III, Chronic Suppurative II, plus: Constant purulent sputum; some have bronchiectasis; FEV1 usually <35% predicted; chronic oral steroid use; multiple risk factors.	As in group II, plus: P. Aeruginosa and multi-resistant Enterobacteriaceae.	Ambulatory - tailor treatment to airway pathogen; P. Aeruginosa is common (ciprofloxacin) Hospitalized - parenteral therapy usually required.	

General Recommendations for the Educator

- Patients need to be instructed to call or visit their treating physician if symptoms persist or worsen after 48 hrs in spite of patient-initiated treatment. Please instruct patients to notify their doctor, respiratory educator, or case manager within 2 days of filling any of their prescriptions for a COPD flare-up.
- Prescriptions for antibiotics and prednisone can be refilled twice each, as needed, for 1 year.
- To reduce the risk of antibiotic resistance, if more than one treatment is required over 3 months, the class of antibiotics should be changed on subsequent courses of therapy.
- Review with your patient some general measures to prevent future COPD exacerbations including smoking cessation, annual influenza vaccination, pneumococcal vaccination and appropriate use of inhaled daily medications.

1 O'Donnell DE, Hernandez P, Kaplan A, Aaron S., et al. CTS recommendations for management of COPD – 2008 update – highlights for primary care. Can Resp J 2008; 15(Suppl A):1A-8A.

2 Balter MS, La Forge J, Low DE, Mandell L., et al. Canadian guidelines for the management of acute exacerbation of chronic bronchitis. Can Respir J 2003; 10(Suppl B):3B-32B.

With acknowledgment to:

My COPD Action Plan _____ Date _____
Patient's Copy
(Patient's Name)

Canadian Respiratory Guidelines

COPD
Treatable. Preventable.

This is to tell me how I will take care of myself when I have a COPD flare-up.

My goals are _____

My support contacts are _____ and _____
(Name & Phone Number) (Name & Phone Number)

Prescriptions for COPD flare-up (Patient to take to pharmacist as needed for symptoms)

These prescriptions may be refilled two times each, as needed, for 1 year, to treat COPD flare-ups. Pharmacists may fax the doctor's office once any part of this prescription has been filled.

_____ _____
Patient's Name Patient Identifier (e.g. DOB, PHN)

1. (A) If **the colour** of your sputum **CHANGES**, start antibiotic _____ Dose:_____ #pills:_____
How often_____ for #days:____

(B) If the first antibiotic was taken for a flare-up in the **last 3 months**, use this different antibiotic instead:
Start antibiotic _____ Dose:_____ #pills:_____
How often_____ for #days:____

AND / OR

2. If you are **MORE short of breath** than usual, start prednisone _____ Dose:_____ #pills:_____
How often:_____ for #days:____

Once I start any of these medicines, **I will tell** my doctor, respiratory educator, or case manager within **2 days**.

_____ _____ _____
Doctor's Name Doctor's Fax Doctor's Signature

_____ _____
License Date

THE LUNG ASSOCIATION™ L'ASSOCIATION PULMONAIRE

CANADIAN THORACIC SOCIETY SOCIÉTÉ CANADIENNE DE THORACOLOGIE

Produced in collaboration with the *COPD & Asthma Network of Alberta (CANA)*. *The Canadian Thoracic Society (CTS)* acknowledges the past contributions of *Living well with COPD* and the *Family Physician Airways Group of Canada*.

Canadian Respiratory Guidelines

COPD ACTION PLAN (Patient's copy)

Why do I need this COPD Action Plan?

- Your Action Plan is a written contract between you and your health care team. It will tell you how to manage your COPD flare-ups. Use it along with any other information you get from your health care team about managing your COPD every day.
- Your Action Plan will help you and your caregivers to quickly recognize and act to treat your flare-ups. This will keep your lungs and you as healthy as possible.

How will I know that I am having a COPD "flare-up"?

- You will often see a change in your amount or colour of sputum and/or you may find that you are more short of breath than usual. Other symptoms can include coughing and wheezing more.
- Your flare-up Action Plan is to be used only for COPD flare-ups. Remember that there are other reasons you may get short of breath, such as when you have pneumonia, are anxious, or have heart problems.
- Before or during a flare-up you may notice changes in your mood, such as feeling down or anxious. Some people have low energy or feel tired before and during a COPD flare-up.

What triggers a "COPD flare-up"?

- A COPD flare-up can sometimes happen after you get a cold or flu, or when you are stressed and run down.
- Being exposed to air pollution and changes in the weather can also cause COPD flare-ups. To learn about the daily air quality in your area, visit Environment Canada's Air Quality Health Index (AQHI) website at www.ec.gc.ca/cas-aqhi/ and click on 'Your Local AQHI Conditions'. Ask your health care team about ways to avoid all possible triggers.

When should I use this COPD Action Plan?

- Your COPD Action Plan is used only for COPD flare-ups.
- Remember that there are other reasons you may get short of breath, such as when you have pneumonia, are anxious, or have heart problems. If you become more short of breath but don't have symptoms of COPD flare-up, see a doctor as soon as possible.

REMEMBER:

- Learn about your COPD from a respiratory educator, credible websites, such as www.lung.ca, and education programs.
- Take your regular daily medicine as prescribed.
- Don't wait more than 48 hours after the start of a COPD flare-up to take your antibiotic and/or prednisone medicines. See your pharmacist quickly to get your prescriptions for COPD flare-up.
- When you start an antibiotic, make sure that you finish the entire treatment.
- Quitting smoking and making sure that your vaccinations are up-to-date (for flu every year and for pneumonia at least once) will help prevent flare-ups.
- Be as active as possible. Inactivity leads to weakness, which may cause more flare-ups or flare-ups that are worse than usual. Ask your doctor about pulmonary rehabilitation and strategies to help reduce your shortness of breath and improve your quality of life.
- Follow up with your doctor within 2 days after using any of your prescriptions for a COPD flare-up.

MY NOTES AND QUESTIONS:

My COPD Action Plan _____ Date _____
Physician's Copy
(Patient's Name)

Canadian Respiratory Guidelines

COPD
Treatable. Preventable.

This is to tell me how I will take care of myself when I have a COPD flare-up.

My goals are _____

My support contacts are _____ and _____
(Name & Phone Number) (Name & Phone Number)

Prescriptions for COPD flare-up (Patient to fill as needed for symptoms)

These prescriptions may be refilled two times each, as needed, for 1 year, to treat COPD flare-ups. Pharmacists may fax the doctor's office once any part of this prescription has been filled.

_____ _____
Patient's Name Patient Identifier (e.g. DOB, PHN)

1. (A) If **the colour** of your sputum **CHANGES**, start antibiotic _____ Dose:_____ #pills:_____
How often_____ for #days:____

(B) If the first antibiotic was taken for a flare-up in the **last 3 months**, use this different antibiotic instead:
Start antibiotic _____ Dose:_____ #pills:_____
How often_____ for #days:____

AND / OR

2. If you are **MORE short of breath** than usual, start prednisone _____ Dose:_____ #pills:_____
How often:_____ for #days:____

Once I start any of these medicines, **I will tell** my doctor, respiratory educator, or case manager within **2 days**.

_____ _____ _____
Doctor's Name Doctor's Fax Doctor's Signature

_____ _____
License Date

THE LUNG ASSOCIATION™ L'ASSOCIATION PULMONAIRE

CANADIAN SOCIÉTÉ THORACIC SOCIETY CANADIENNE DE THORACOLOGIE

Produced in collaboration with the *COPD & Asthma Network of Alberta (CANA)*. *The Canadian Thoracic Society (CTS)* acknowledges the past contributions of *Living well with COPD* and the *Family Physician Airways Group of Canada*.

Canadian Respiratory Guidelines

COPD ACTION PLAN (Physician's copy)

Pharmacological Treatment

1. Short-acting (beta$_2$-agonists and anticholinergic) bronchodilators to treat wheeze and dyspnea. Continue all of your long acting bronchodilators or inhaled steroids as prescribed.
2. Prednisone (oral) → 25-50 mg once daily for 10 days for patients with moderate to severe COPD.
3. Antibiotic choice is prescribed based upon the presence of risk factors as below.
4. Severe AECOPD complicated by acute respiratory failure is a medical emergency. Consider consultation with an emergency specialist or respirologist.

Antibiotic Treatment Recommendations for Acute COPD Exacerbations[1, 2]

Group	Probable Pathogens	First Choice	Alternatives for Treatment Failure
I, Simple Smokers FEV1 > 50% ≤ 3 exacerbations per year	H. influenzae M. catarrhalis S. pneumoniae	Amoxicillin, 2nd or 3rd generation cephalosporin, doxycycline, extended spectrum macrolide, trimethoprimsulfamethoxazole (in alphabetical order).	Fluoroquinolone β-lact/ β-lactamase inhibitor
II, Complicated, as per I, plus at least one of the following should be present: FEV1<50% predicted; ≥4 exacerbations/year; ischemic heart disease; use home oxygen or chronic oral steroids; antibiotic use in the past 3 months.	As in group I, plus: Klebsiella spp. and other Gram-negative bacteria Increased probability of β-lactam resistance.	Fluoroquinolone β-lact/ β-lactamase inhibitor (in order of preference).	May require parenteral therapy. Consider referral to a specialist or hospital.
III, Chronic Suppurative II, plus: Constant purulent sputum; some have bronchiectasis; FEV1 usually <35% predicted; chronic oral steroid use; multiple risk factors.	As in group II, plus: P. Aeruginosa and multi-resistant Enterobacteriaceae.	Ambulatory - tailor treatment to airway pathogen; P. Aeruginosa is common (ciprofloxacin) Hospitalized - parenteral therapy usually required.	

General Recommendations for the Physician

- Patients need to be instructed to call or visit their treating physician if symptoms persist or worsen after 48 hrs in spite of patient-initiated treatment. Please instruct patients to notify their doctor, respiratory educator, or case manager within 2 days of filling any of their prescriptions for a COPD flare-up.
- Prescriptions for antibiotics and prednisone can be refilled twice each, as needed, for 1 year. Pharmacists may fax the doctor's office after any portion of the prescriptions for COPD flare-up has been filled.
- To reduce the risk of antibiotic resistance, if more than one treatment is required over 3 months, the class of antibiotics should be changed on subsequent courses of therapy.
- Review with your patient measures to prevent future COPD exacerbations including smoking cessation, annual influenza vaccination, pneumococcal vaccination and appropriate use of inhaled daily medications.
- Consider referral to a local respiratory educator and pulmonary rehabilitation program if available.

1 O'Donnell DE, Hernandez P, Kaplan A, Aaron S., et al. CTS recommendations for management of COPD – 2008 update – highlights for primary care. Can Resp J 2008; 15(Suppl A):1A-8A.
2 Balter MS, La Forge J, Low DE, Mandell L., et al. Canadian guidelines for the management of acute exacerbation of chronic bronchitis. Can Respir J 2003; 10(Suppl B):3B-32B.

With acknowledgment to:

My COPD Action Plan _____ Date _____
Pharmacist's Copy
(Patient's Name)

Canadian Respiratory Guidelines

COPD
Treatable. Preventable.

This is to tell me how I will take care of myself when I have a COPD flare-up.

My goals are _____

My support contacts are _____ and _____
(Name & Phone Number) (Name & Phone Number)

Prescriptions for COPD flare-up (Patient to fill as needed for symptoms)

These prescriptions may be refilled two times each, as needed, for 1 year, to treat COPD flare-ups. Pharmacists may fax the doctor's office once any part of this prescription has been filled.

_____ _____
Patient's Name Patient Identifier (e.g. DOB, PHN)

1. (A) If **the colour** of your sputum **CHANGES**, start antibiotic _____ Dose:_____ #pills:_____
How often_____ for #days:____

(B) If the first antibiotic was taken for a flare-up in the **last 3 months**, use this different antibiotic instead:
Start antibiotic _____ Dose:_____ #pills:_____
How often_____ for #days:____

AND / OR

2. If you are **MORE short of breath** than usual, start prednisone _____ Dose:_____ #pills:_____
How often:_____ for #days:____

Once I start any of these medicines, **I will tell** my doctor, respiratory educator, or case manager within **2 days**.

_____ _____ _____
Doctor's Name Doctor's Fax Doctor's Signature

_____ _____
License Date

THE LUNG ASSOCIATION™ L'ASSOCIATION PULMONAIRE

CANADIAN SOCIÉTÉ THORACIC SOCIETY CANADIENNE DE THORACOLOGIE

Produced in collaboration with the *COPD & Asthma Network of Alberta (CANA)*. *The Canadian Thoracic Society (CTS)* acknowledges the past contributions of *Living well with COPD* and the *Family Physician Airways Group of Canada*.

Canadian Respiratory Guidelines

COPD ACTION PLAN (Pharmacist's copy)

Pharmacological Treatment

1. Short-acting (beta$_2$-agonists and anticholinergic) bronchodilators to treat wheeze and dyspnea. Continue all of your long acting bronchodilators or inhaled steroids as prescribed.
2. Prednisone (oral) → 25-50 mg once daily for 10 days for patients with moderate to severe COPD.
3. Antibiotic choice is prescribed based upon the presence of risk factors as below.
4. Severe AECOPD complicated by acute respiratory failure is a medical emergency. Consider consultation with an emergency specialist or respirologist.

Antibiotic Treatment Recommendations for Acute COPD Exacerbations[1, 2]

Group	Probable Pathogens	First Choice	Alternatives for Treatment Failure
I, Simple Smokers FEV1 > 50% ≤ 3 exacerbations per year	H. influenzae M. catarrhalis S. pneumoniae	Amoxicillin, 2nd or 3rd generation cephalosporin, doxycycline, extended spectrum macrolide, trimethoprimsulfamethoxazole (in alphabetical order).	Fluoroquinolone β-lact/ β-lactamase inhibitor
II, Complicated, as per I, plus at least one of the following should be present: FEV1<50% predicted; ≥4 exacerbations/year; ischemic heart disease; use home oxygen or chronic oral steroids; antibiotic use in the past 3 months.	As in group I, plus: Klebsiella spp. and other Gram-negative bacteria Increased probability of β-lactam resistance.	Fluoroquinolone β-lact/ β-lactamase inhibitor (in order of preference).	May require parenteral therapy. Consider referral to a specialist or hospital.
III, Chronic Suppurative II, plus: Constant purulent sputum; some have bronchiectasis; FEV1 usually <35% predicted; chronic oral steroid use; multiple risk factors.	As in group II, plus: P. Aeruginosa and multi-resistant Enterobacteriaceae.	Ambulatory - tailor treatment to airway pathogen; P. Aeruginosa is common (ciprofloxacin) Hospitalized - parenteral therapy usually required.	

General Recommendations for the Pharmacist

- Patients need to be instructed to call or visit their treating physician if symptoms persist or worsen after 48 hrs in spite of patient-initiated treatment. Please instruct patients to notify their doctor, respiratory educator, or case manager within 2 days of filling any of their prescriptions for a COPD flare-up.
- Prescriptions for antibiotics and prednisone can be refilled twice each, as needed, for 1 year. Even if you have any concerns to discuss with the doctor, please fill at least the minimum quantity of the appropriate prescription based on the patient's symptoms.
- To reduce the risk of antibiotic resistance, if more than one treatment is required over 3 months, the class of antibiotics should be changed on subsequent courses of therapy.
- Review with your patient some general measures to prevent future COPD exacerbations including smoking cessation, annual influenza vaccination, pneumococcal vaccination and appropriate use of inhaled daily medications.

1 O'Donnell DE, Hernandez P, Kaplan A, Aaron S., et al. CTS recommendations for management of COPD – 2008 update – highlights for primary care. Can Resp J 2008; 15(Suppl A):1A-8A.

2 Balter MS, La Forge J, Low DE, Mandell L., et al. Canadian guidelines for the management of acute exacerbation of chronic bronchitis. Can Respir J 2003; 10(Suppl B):3B-32B.

With acknowledgment to:

Box 5-2a.Usual features of asthma, COPD and asthma-COPD overlap

Box 5-2b.Features that if present favor asthma or COPD

Feature	Asthma	COPD	Asthma-COPD overlap	More likely to be asthma if several of …*	More likely to be COPD if several of…*
Age of onset	Usually childhood onset but can commence at any age.	Usually > 40 years of age	Usually age ≥40 years, but may have had symptoms in childhood or early adulthood	☐ Onset before age 20 years	☐ Onset after age 40 years
Pattern of respiratory symptoms	Symptoms may vary over time (day to day, or over longer periods), often limiting activity. Often triggered by exercise, emotions including laughter, dust or exposure to allergens	Chronic usually continuous symptoms, particularly during exercise, with 'better' and 'worse' days	Respiratory symptoms including exertional dyspnea are persistent but variability may be prominent	☐ Variation in symptoms over minutes, hours or days ☐ Symptoms worse during the night or early morning ☐ Symptoms triggered by exercise, emotions including laughter, dust or exposure to allergens	☐ Persistence of symptoms despite treatment ☐ Good and bad days but always daily symptoms and exertional dyspnea ☐ Chronic cough and sputum preceded onset of dyspnea, unrelated to triggers
Lung function	Current and/or historical variable airflow limitation, e.g. BD reversibility, AHR	FEV_1 may be improved by therapy, but post-BD $FEV_1/FVC < 0.7$ persists	Airflow limitation not fully reversible, but often with current or historical variability	☐ Record of variable airflow limitation (spirometry, peak flow)	☐ Record of persistent airflow limitation (post-bronchodilator $FEV_1/FVC < 0.7$)
Lung function between symptoms	May be normal between symptoms	Persistent airflow limitation	Persistent airflow limitation	☐ Lung function normal between symptoms	☐ Lung function abnormal between symptoms
Past history or family history	Many patients have allergies and a personal history of asthma in childhood, and/or family history of asthma	History of exposure to noxious particles and gases (mainly tobacco smoking and biomass fuels)	Frequently a history of doctor-diagnosed asthma (current or previous), allergies and a family history of asthma, and/or a history of noxious exposures	☐ Previous doctor diagnosis of asthma ☐ Family history of asthma, and other allergic conditions (allergic rhinitis or eczema)	☐ Previous doctor diagnosis of COPD, chronic bronchitis or emphysema ☐ Heavy exposure to a risk factor: tobacco smoke, biomass fuels
Time course	Often improves spontaneously or with treatment, but may result in fixed airflow limitation	Generally, slowly progressive over years despite treatment	Symptoms are partly but significantly reduced by treatment. Progression is usual and treatment needs are high	☐ No worsening of symptoms over time. Symptoms vary either seasonally, or from year to year ☐ May improve spontaneously or have an immediate response to BD or to ICS over weeks	☐ Symptoms slowly worsening over time (progressive course over years) ☐ Rapid-acting bronchodilator treatment provides only limited relief.
Chest X-ray	Usually normal	Severe hyperinflation & other changes of COPD	Similar to COPD	☐ Normal	☐ Severe hyperinflation
Exacerbations	Exacerbations occur, but the risk of exacerbations can be considerably reduced by treatment	Exacerbations can be reduced by treatment. If present, comorbidities contribute to impairment	Exacerbations may be more common than in COPD but are reduced by treatment. Comorbidities can contribute to impairment	****Syndromic diagnosis of airways disease: how to use Box 5-2b*** *Shaded columns list features that, <u>when present</u>, best identify patients with typical asthma and COPD. For a patient, count the number of check boxes in each column. If three or more boxes are checked for either asthma or COPD, the patient is likely to have that disease. If there are similar numbers of checked boxes in each column, the diagnosis of ACO should be considered. See Step 2 for more details.*	
Airway inflammation	Eosinophils and/or neutrophils	Neutrophils ± eosinophils in sputum, lymphocytes in airways, may have systemic inflammation	Eosinophils and/or neutrophils in sputum.		

Section 5: PCAP-Related Research

Primary Care Asthma Program

Related Research Articles

1. **The Burden of Asthma: Can it be Eased?**
   Andrea Gershon, Chengning Wang, Lisa Cicutto and Teresa To (Healthcare Quarterly Vol 10 No 1. 2007) ICES Reports

   http://www.longwoods.com/content/18644/print

2. **Can A Community Evidence-based Asthma Care Program Improve Clinical Outcomes? *A Longitudinal Study***
   Teresa To et al. (Medical Care • Volume 46, Number 12, December 2008)

   http://www.ncbi.nlm.nih.gov/pubmed/19300316

3. **Examining intra-rater and inter-rater response agreement: A medical chart abstraction study of a community-based asthma care program**
   Teresa To et al. (BMC Medical Research Methodology 2008, 8:29)

   http://www.biomedcentral.com/1471-2288/8/29

4. **How much do health care providers value a community-based asthma care program? – a survey to collect their opinions on the utilities of and barriers to its uptake**
   Teresa To et al. (BMC Health Services Research 2009, 9:77)

   http://www.biomedcentral.com/1472-6963/9/77

5. **Is it feasible to use indicators to collect data on asthma care performance in the primary care setting? A feasibility study**
   Teresa To et al. (The Primary Care Respiratory Journal)

   http://www.thepcrj.org/journ/view_article.php?article_id=850

6. **Moving Population and Public Health Knowledge Into Action**
   Nancy Garvey. Ontario's Asthma Plan of Action: Bridging the gap between knowledge and practice

   http://www.cihr-irsc.gc.ca/e/30751.html#a

Primary Care Asthma Program

Related Research Articles

7. **Primary care asthma program puts evidence into practice, reducing symptoms and visits to emergency departments**
   (Ontario Health Quality Council, 2009 Report on Ontario's Health System)

http://www.hqontario.ca/portals/0/Documents/pr/qmonitor-full-report-2009-en.pdf
http://www.on.lung.ca/document.doc?id=776

8. **Asthma in Ontario: Ontario's Asthma Plan of Action**

https://10012.thankyou4caring.org/document.doc?id=772

Section 6: Resource Links

Primary Care Asthma Program

Useful links and resources:

Asthma and Allergies:
1. AllerGen Canada http://www.allergen-nce.ca/
2. Allergy Asthma & Immunology Society of Ontario http://allergyasthma.on.ca/
3. Food Allergy Canada: http://www.foodallergycanada.ca
1. Asthma Society of Canada: http://www.asthma.ca
2. Canadian Asthma Consensus Guidelines: http://www.respiratoryguidelines.ca/guideline/asthma
4. Global Initiative for Asthma (GINA): http://www.ginasthma.org/
5. Ontario Physical Health and Education Association (OPHEA): http://www.ophea.net/
http://lungontario.ca/we-can-help/asthma-support/work-related-asthma/
7. Asthma Friendly Schools (Ryan's Law) http://www.ryanslaw.ca
8. Ontario Asthma Surveillance Information System (OASIS) http://lab.research.sickkids.ca/oasis/
9. Find an asthma program in Canada https://www.lung.ca/lung-health/get-help
Air Quality:
1. Air Quality Health Index – Environment Canada http://www.ec.gc.ca/cas-aqhi/
2. Your Healthy Home http://www.yourhealthyhome.ca/
COPD:
1. Canadian COPD Consensus Guidelines: http://www.respiratoryguidelines.ca/guideline/chronic-obstructive-pulmonary-disease

Primary Care Asthma Program

2. Find a COPD program in Canada https://www.lung.ca/lung-health/get-help
3. Global Initiative for Chronic Obstructive Lung Disease (GOLD): http://www.goldcopd.org/
4. Living Well With COPD http://www.livingwellwithcopd.com/
Spirometry:
1. American Thoracic Society https://www.thoracic.org/statements/pulmonary-function.php
Smoking Cessation:
1. CAMH STOP program: https://www.nicotinedependenceclinic.com/English/stop/Pages/Home.aspx
2. Ontario Tobacco Research Unit (OTRU) http://otru.org/
Continuing Education:
1. CAMH TEACH program (Smoking cessation): https://www.nicotinedependenceclinic.com/English/teach/Pages/Home.aspx
2. Canadian Network For Respiratory Care (CRE certification course) http://cnrchome.net/
3. Provider Education Program (PEP) for Health Care Professionals: http://www.olapep.ca
4. RespTrec (Respiratory Education) and SpiroTrec (Spirometry training) http://www.resptrec.org
Ontario Organizations:
1. Association of Family Health Teams of Ontario (AFHTO) http://www.afhto.ca/
2. Association of Ontario Health Centres: http://www.aohc.org
3. Ministry of Health and Long-Term Care (MOHLTC): http://www.health.gov.on.ca/en/
4. Local Health Integration Network (LHIN): http://www.lhins.on.ca/home.aspx

Primary Care Asthma Program

5. Ontario Lung Association: http://www.on.lung.ca
Professional Organizations:
1. Canadian Network for Respiratory Care (CNRC) http://cnrchome.net/
2. College of Family Physicians and Surgeons: http://www.cfpc.ca/Home/
3. Ontario Respiratory Care Society: http://lungontario.ca/for-health-professionals/ontario-respiratory-care-society/
4. Ontario Thoracic Society: http://lungontario.ca/for-health-professionals/ontario-thoracic-society/
5. Registered Nurses Association of Ontario (RNAO): http://rnao.ca/
6. Respiratory Therapy Society of Ontario http://www.rtso.ca/

Section 6: Resource Links

Primary Care Asthma Program

Useful links and resources:

Asthma and Allergies:
1. AllerGen Canada http://www.allergen-nce.ca/
2. Allergy Asthma & Immunology Society of Ontario http://allergyasthma.on.ca/
3. Food Allergy Canada: http://www.foodallergycanada.ca
1. Asthma Society of Canada: http://www.asthma.ca
2. Canadian Asthma Consensus Guidelines: http://www.respiratoryguidelines.ca/guideline/asthma
4. Global Initiative for Asthma (GINA): http://www.ginasthma.org/
5. Ontario Physical Health and Education Association (OPHEA): http://www.ophea.net/
6. Work-related Asthma: http://lungontario.ca/we-can-help/asthma-support/work-related-asthma/
7. Asthma Friendly Schools (Ryan's Law) http://www.ryanslaw.ca
8. Ontario Asthma Surveillance Information System (OASIS) http://lab.research.sickkids.ca/oasis/
9. Find an asthma program in Canada https://www.lung.ca/lung-health/get-help
Air Quality:
1. Air Quality Health Index – Environment Canada http://www.ec.gc.ca/cas-aqhi/
2. Your Healthy Home http://www.yourhealthyhome.ca/
COPD:
1. Canadian COPD Consensus Guidelines: http://www.respiratoryguidelines.ca/guideline/chronic-obstructive-pulmonary-disease

Primary Care Asthma Program

2. Find a COPD program in Canada https://www.lung.ca/lung-health/get-help
3. Global Initiative for Chronic Obstructive Lung Disease (GOLD): http://www.goldcopd.org/
4. Living Well With COPD http://www.livingwellwithcopd.com/
Spirometry:
1. American Thoracic Society https://www.thoracic.org/statements/pulmonary-function.php
Smoking Cessation:
1. CAMH STOP program: https://www.nicotinedependenceclinic.com/English/stop/Pages/Home.aspx
2. Ontario Tobacco Research Unit (OTRU) http://otru.org/
Continuing Education:
1. CAMH TEACH program (Smoking cessation): https://www.nicotinedependenceclinic.com/English/teach/Pages/Home.aspx
2. Canadian Network For Respiratory Care (CRE certification course) http://cnrchome.net/
3. Provider Education Program (PEP) for Health Care Professionals: hcp.lunghealth.ca
4. RespTrec (Respiratory Education) and SpiroTrec (Spirometry training) http://www.resptrec.org
Ontario Organizations:
1. Association of Family Health Teams of Ontario (AFHTO) http://www.afhto.ca/
2. Association of Ontario Health Centres: http://www.aohc.org
3. Ministry of Health and Long-Term Care (MOHLTC): http://www.health.gov.on.ca/en/
4. Local Health Integration Network (LHIN): http://www.lhins.on.ca/home.aspx

Primary Care Asthma Program

5. Lung Health Foundation lunghealth.ca
Professional Organizations:
1. Canadian Network for Respiratory Care (CNRC) http://cnrchome.net/
2. College of Family Physicians and Surgeons: http://www.cfpc.ca/Home/
3. Ontario Respiratory Care Society: http://lungontario.ca/for-health-professionals/ontario-respiratory-care-society/
4. Ontario Thoracic Society: https://hcp.lunghealth.ca/ontario-thoracic-society/
5. Registered Nurses Association of Ontario (RNAO): http://rnao.ca/
6. Respiratory Therapy Society of Ontario http://www.rtso.ca/