

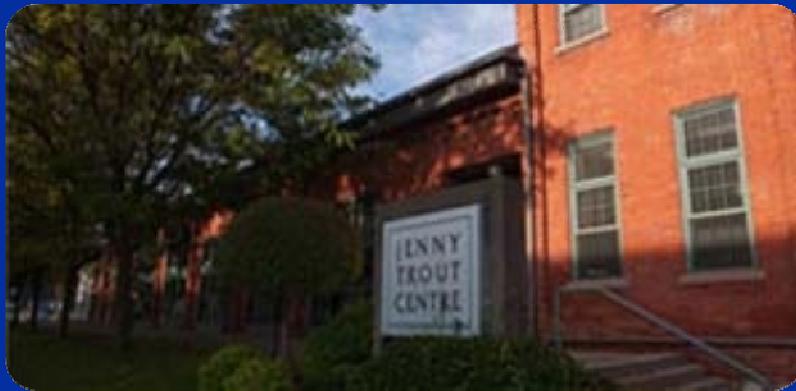
The Use of Spirometry in Family Practice

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Stratford Family Health Team
Respiratory Clinic
and
Smoking Cessation Counselling



STRATFORD
FAMILY
HEALTH
team



- ❖ ***12 Family Physicians***
- ❖ ***22,000 Rostered Patients***
- ❖ ***7 sites***

WHY & WHEN

- Ontario Telemedicine Network COPD/CHF Pilot implementation 2008
- OTN created awareness and need for a Lung Health Program
- Respiratory Clinic Assessment & Education Pilot June 8th- Aug 30th 2009
- Respiratory Clinic open! Sept 23, 2009



A Community Collaborative Who's Involved...

- Stratford Family Health Team
- Stratford General Hospital
- Horizon Pro-RESP
- Lung Association
- Community Pharmacists



Respiratory Clinic What's Involved...

- Registered Nurse/ Certified Respiratory Educator led Clinic
- Spirometry testing
- Asthma/COPD Assessment & EDUCATION Program
- Smoking Cessation Program (TEACH certified)
- O2 Testing & referral program

Respiratory Clinic Goals

- Reduce # of unnecessary visits to G.P.
- Reduce # of visits/admissions to hospital/emergency
- Optimize treatment & management with education of proper medication use, inhaler technique
- Teach & practice Self-Management



What is Spirometry?



- Spirometry is a method of assessing lung function by measuring expiration volume after maximal inspiration
- Indices derived from this measurement (e.g. FEV₁/FVC) are the most accurate and reliable way of confirming the diagnosis of COPD and Asthma
- Spirometry can provide a measure of the severity of airway obstruction, and whether there is reversibility after use of bronchodilators

FEV₁=forced expiratory volume in one second; FVC=forced vital capacity.

GOLD. Spirometry for healthcare providers; Available at:

<http://www.goldcopd.com/OtherResourcesItem.asp?I1=2&I2=2&intId=1836>

Why Perform Spirometry?

Spirometry should be performed to:

- Confirm the presence of airway obstruction
- Confirm FEV1/FVC ratio <0.7 after bronchodilator
- Provide an index of disease severity
- Help differentiate COPD from asthma
- Enable monitoring of disease progression
- Assess response to therapy
- Exclude COPD and thereby prevent inappropriate treatment

Is it Asthma?

- Recurrent episodes of wheezing
- Troublesome cough at night
- Cough or wheeze after exercise
- Cough, wheeze or chest tightness after exposure to airborne allergens or pollutants
- Colds “go to the chest” or take more than 10 days to clear



Pop Quiz!

- True or False

–Asthma can be cured?

Answer:

- **False!**
 - Asthma cannot be cured but it can be *controlled*
 - If your asthma is in good control, you have very few symptoms, you can exercise and play, and you don't miss important events like school or work
 - Uncontrolled Asthma can be DEADLY, even mild asthmatics are at risk if they do not maintain good control of their asthma and know the steps to take if their asthma becomes uncontrolled

Asthma Diagnosis

- History and pattern of symptoms
- Measurements of lung function (Spirometry)
- Measurement of airway responsiveness
- Measurements of allergic status to identify risk factors
- Extra measures may be required to diagnose asthma in children under 5 yrs old and the elderly
- Review history looking for other contributors such as GERD, nasal problems, cough NYD

Diagnosis of Asthma

- Confirm diagnosis with objective measures of CHANGE

Parameter	Level of Change
FEV ₁	<ul style="list-style-type: none">• ≥12% (ideally 15%) and at least 180 mL, 15 min after use of a short-acting β₂-agonist• >20% after 10-14 days treatment with ICS
PEF	<ul style="list-style-type: none">• >20% post-bronchodilator or after repeated measurements
Methacholine test	<ul style="list-style-type: none">• PC₂₀ <8 mg/mL (Juniper method)

30 Second Asthma Test

- **I cough, wheeze, or have a tight chest because of my asthma (2 or more days a week)**
- **I use my rescue inhaler 2 or more times per week**
- ****except one dose/day for exercise**
- **Coughing, wheezing, or chest tightness wakes me at night (1 or more times a week)**
- **I miss work or school because of my asthma (In the past 3 months)**
- **I stop exercising because of my asthma (In the past 3 months)**

Answering YES to any ONE of these statements indicates that asthma is NOT in control

Factors that Exacerbate Asthma

- Allergens
- Respiratory infections
- Weather changes
- Sulfur dioxide
- Food, additives, drugs
- Exercise and hyperventilation



Resp Clinic: Asthma Education

- To help people understand & achieve “control”
- Screening: The 30 Second Asthma test, Spirometry, Smoking Cessation (5A's)
- Education: Inhaler technique reviewed, allergies & triggers identified & reviewed, daily symptom diaries, Action Plans
- Follow up visits booked accordingly



...the importance of patient education:





THE PEOPLE IN YOUR PRACTICE

1 in 5 asthma patients in Canada who did fill their maintenance ICS did not take it

Asthma Society of Canada: State of the Asthma Nation, Nov, 2006





THE PEOPLE IN YOUR PRACTICE

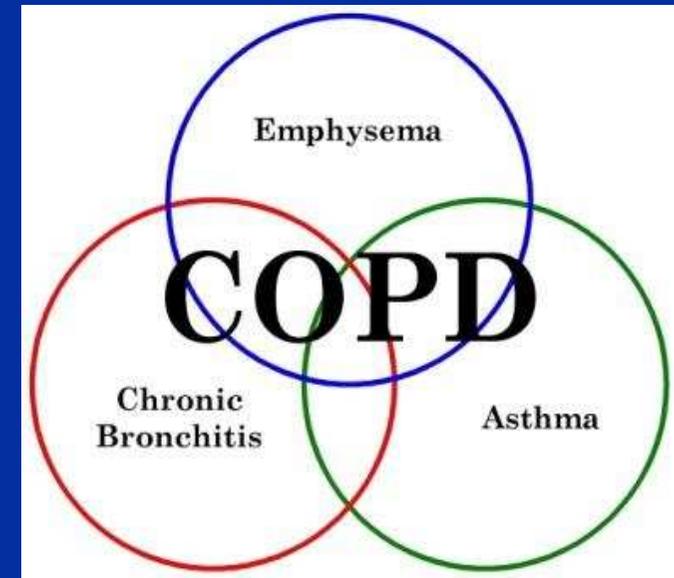
1 in 3 asthma patients in Canada had no intention of filling their maintenance ICS

Asthma Society of Canada: State of the Asthma Nation, Nov, 2006



COPD Screening

- Respiratory Assessment
- History taking
- Oximetry (rest, ambulatory)
- Spirometry Testing
- People who should be screened include people age 40+ who answer yes to any question on the *Canadian Lung Health Test...*



The Canadian Lung Health Test¹

		Yes	No
1	Do you cough regularly?	<input type="radio"/>	<input type="radio"/>
2	Do you cough up phlegm regularly?	<input type="radio"/>	<input type="radio"/>
3	Do even simple chores make you short of breath?	<input type="radio"/>	<input type="radio"/>
4	Do you wheeze when you exert yourself, or at night?	<input type="radio"/>	<input type="radio"/>
5	Do you get frequent colds that persist longer than those of other people you know?	<input type="radio"/>	<input type="radio"/>

If you answered yes to any one of the above questions, talk to your doctor about undertaking a **simple breathing test called spirometry**.

Guideline Recommendations for Spirometry in COPD

- Spirometry is recommended for any patient who has a history of^{1,2}
 - Exposure to risk factors for COPD (e.g. tobacco smoke, occupational dust/ chemicals)
 - Chronic respiratory illness, or
 - Chronic symptoms of cough, sputum production or dyspnea
- In addition, individual factors should be taken into account²
 - Age, height, BMI, MRC score (functional dyspnea)

¹GOLD. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease, Updated 2008; ²Celli BR et al. *Eur Respir J* 2004;23:932–46.

Guideline Recommendations for Spirometry in COPD

- Essential for diagnosis
- Provides a useful description of the severity of pathological changes in COPD¹
- Is recommended to detect airways obstruction and facilitate smoking cessation²

¹GOLD. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease, Updated 2008; ²Celli BR et al. *Eur Respir J* 2004;23:932–46.

MCHUMOR.COM by T. McCracken



“Your breathing test results would be normal ...
if you were 3'8" and 150 years old.”

©T. McCracken mchumor.com

IMPORTANCE OF PROMPT DIAGNOSIS

“Smoking cessation in patients with mild COPD has been shown to slow the progression of decline in FEV₁ and thus alter the natural history of the disease.”

“Earlier diagnosis and management may also be important given the availability of effective modern pharmacotherapy, which improves symptoms and health status in patients with COPD.”

COPD: Classification By Spirometry

Based on Post bronchodilator FEV₁

Mild	FEV ₁ /FVC < 0.70 FEV ₁ ≥ 80% predicted
Moderate	FEV ₁ /FVC < 0.70 50% ≤ FEV ₁ < 80% predicted
Severe	FEV ₁ /FVC < 0.70 30% ≤ FEV ₁ < 50% predicted
Very Severe	FEV ₁ /FVC < 0.70 FEV ₁ < 30% predicted

COPD Education

COPD is not curable. It's a declining, progressive disease that can be slowed down with proper interventions

- Breathing techniques (pursed lip)
- Coughing Techniques
- Energy Conservation Techniques
- Inhaler Evaluation, education of device
- Proper Medication Use
- Action Plans
- Smoking Cessation
- Resources/education materials “Breath Works Plan”
- Address End of Life Issues/planning (if need arises)
- Identify triggers, early warning signs for AECOPD
- Lung Association Breathing Support Group

QIIP Learning Community

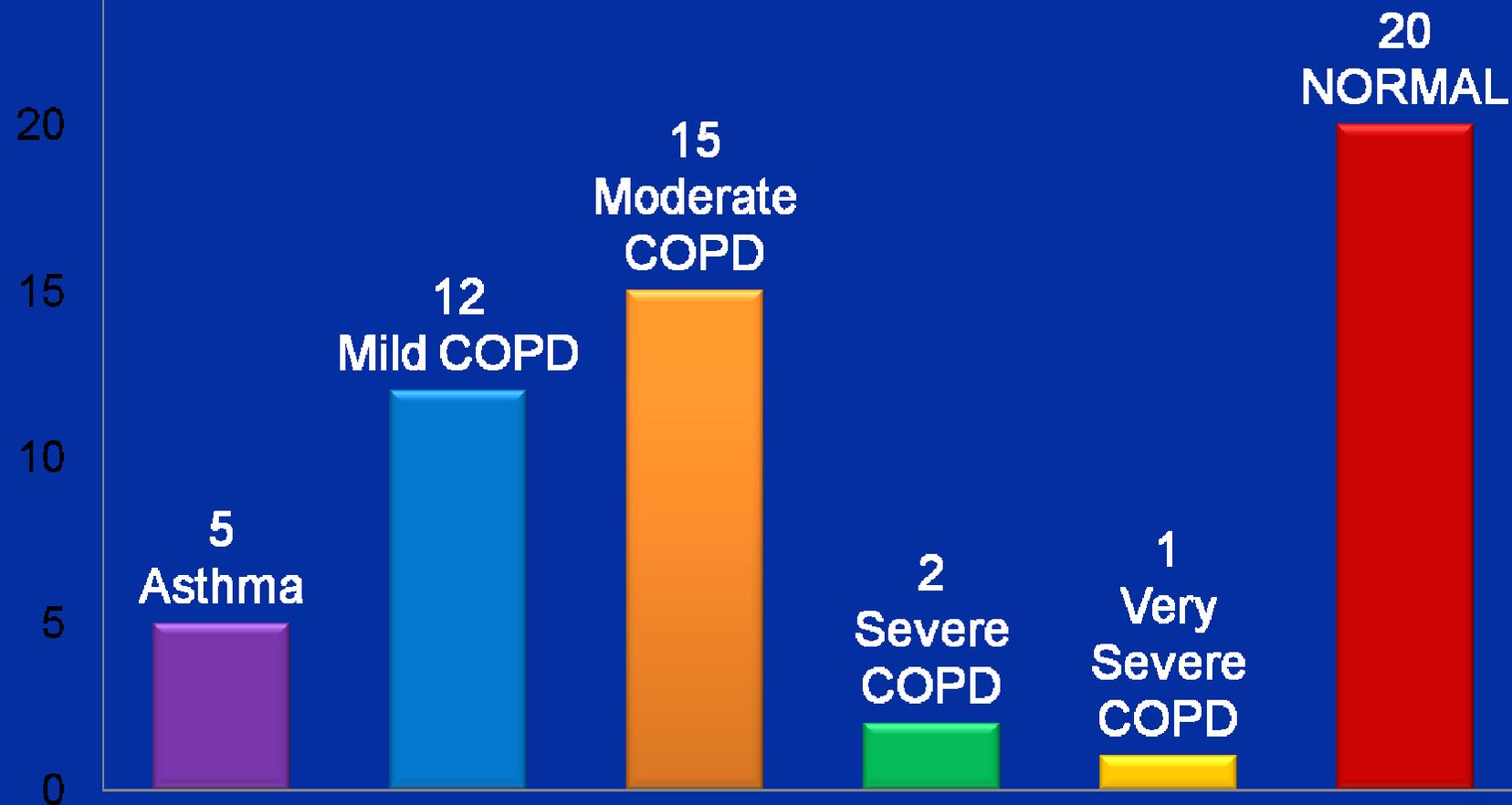
Screening smokers for COPD with CLHT

150 patients from one target physician were screened after being identified as having smoking history >10 yrs:

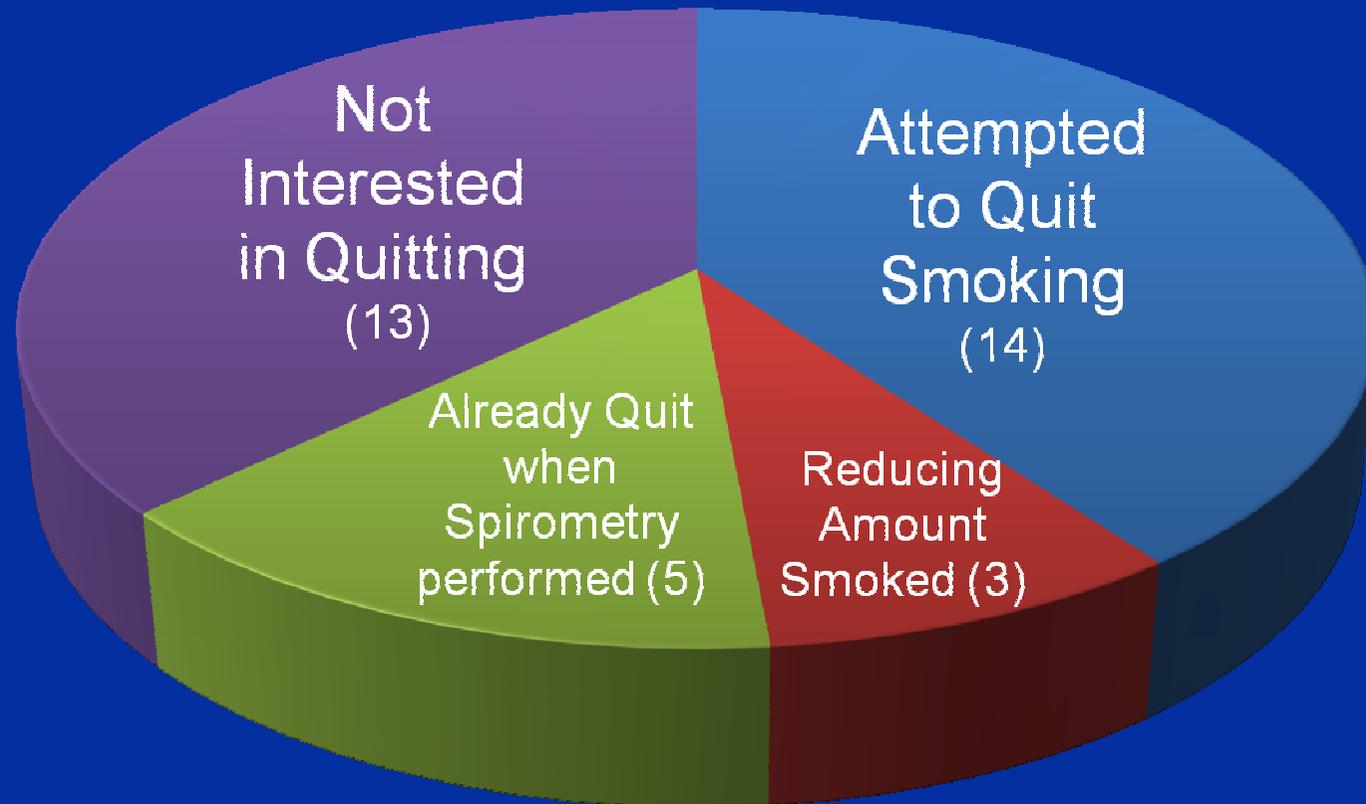


QIIP Learning Community *Spirometry Results*

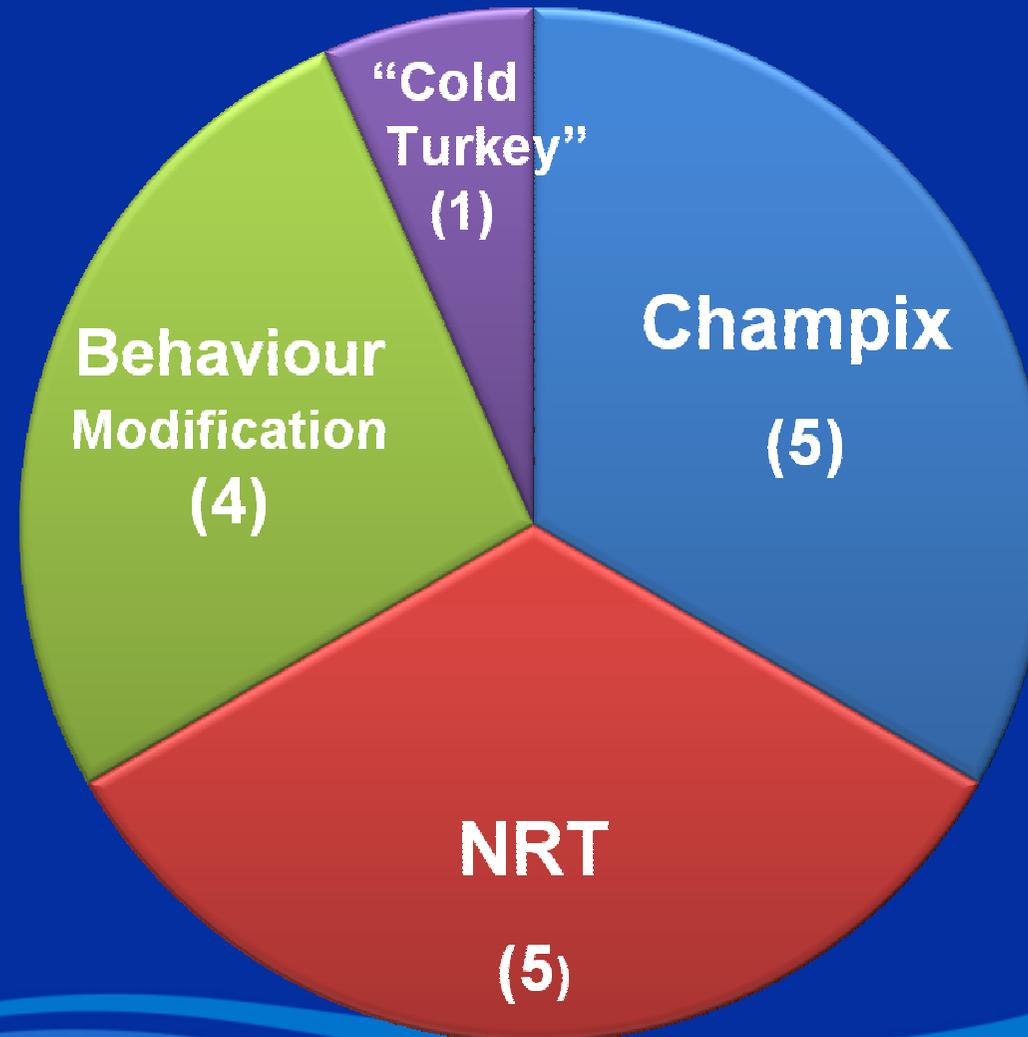
Spirometry performed on those answering "YES" to CLHT questions



Smoking Status of those 35 Patients with Abnormal Spirometry Tests



Chosen Quit Attempts of those with Abnormal Spirometry Tests



Spirometry is Underutilized

- All major guidelines recommend spirometry for the diagnosis of COPD¹⁻³
- In 2006, a study investigated spirometry rates in ~200,000 patients in the US aged ≥40 years who had recently been diagnosed with COPD :⁴
 - Spirometry was performed in only one-third (33.7%) of diagnoses
 - Fewer than 1 in 6 (15.5%) of newly diagnosed patients received spirometry within 90 days of onset of an acute exacerbation

¹GOLD. Global Strategy for the Diagnosis, Management, and Prevention of Chronic Obstructive Pulmonary Disease. Updated 2008; ²Bellamy, et al. IPCRG Guidelines. *Prim Care Respir J* 2006;15:48-57; ³American Thoracic Society, European Respiratory Society. Standards for the diagnosis and management of patients with COPD. Available at: <http://www.thoracic.org/sections/copd/>; Accessed May 2009; ⁴Lee TA et al. *Chest* 2006; 129: 1509–1515

Referrals to Respiratory Clinic

- Referral by GP direct through EMR
- Self-referral by patient
- Inter-disciplinary team referral
- Referral to Stratford Hospital for further PFTs and investigation if necessary



Referrals to Inter-disciplinary Team

- Smoking Cessation Program
- Registered Dietitian
- Chiropodist
- Hypertension Clinic
- CHF Program
- Chronic Pain Program
- Mental Health Program



Referral to Stratford General Hospital, or to Respiriologist

- Symptoms that do not coincide with simple spirometry results
- Abnormal spirometry showing moderate or severe obstruction indicates need for full PFTs at SGH
- Referral may then be made to Respiriologist for further assessment
- Baseline PFTs if warranted

Summary

- Identifying patients with respiratory symptoms before the disease becomes too advanced is important to optimise the treatment and management of symptomatic patients
- Simple, easy-to-use and inexpensive questionnaires and devices are useful for screening to help identify those patients most likely to have Asthma or COPD
- Diagnostic-standard spirometry is the best way to confirm a diagnosis.
- Patient teaching is very important in encouraging self-management of chronic disease processes, and help lead to *change* of behaviours (smoking cessation).

Thank you!

Questions?

