Optimal Management of COPD Patients in the 21st Century

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Mackid Symposium
15 April, 2016
Outline of my talk

• Guidelines & where they are heading
• Burden of COPD in Canada/Alberta
• Unmet needs of COPD patients
• Contribution to COPD care by other health professionals
• Proposal for CRE support for primary care doctors
Non-pharmacologic Interventions

- Pulmonary rehabilitation
- Psychological & social care
- Smoking cessation
- Nutrition intervention
- Oxygen therapy
- Surgery
- Vaccination
- Interdisciplinary teams
- Patient education
- Home telehealth
Pulmonary rehabilitation improves Dyspnea, Quality of life & Exercise Tolerance

- Exercise training improves:
  - Exercise tolerance
  - Muscle deconditioning
  - Dyspnea
  - Health–related quality of life

Adapted from
Update:

- Short-acting bronchodilators: salbutamol, ipratropium, combination
- LAAC-tiotropium, glycopyrronium, umeclidinimum, aclidinium
- LABA-salmeterol, formoterol, indacaterol, vilanterol, olodaterol
- Dual bronchodilators: Ultibro, Anoro, Duaklir, Inspiolto
- Combination: Advair, Symbicort, Zhale, Breo*
- Triple inhalers
- Theophylline, roflumilast, azithromycin
- Will there be a role for biologics? Anti-IL-5, anti-IL-13, antineutrophil agents (e.g. CXCR2 antagonists)

*In contradistinction to asthma no role for ICS monotherapy in COPD
COPD in the Calgary Zone 2009-2011 data

- 6,944 ED and UCC visits for AECOPD
- 55.6% admitted or transferred
- 12.6 hours average length of stay in ER
- 10.83 hospital days average (median 6.55 days)
- Average cost per admission: $10,000 (2008 data)*

Data provided by AHS Emergency Department UCC-Urgent Care Centre

*Chapman KR, Bhutani M, Bourbeau J, Chan CK, Field SK, Flood D, Fitzgerald JM,
The hospital burden of COPD in Canada. Am J Respir Crit Care Med 2010;181:A1500
Consequences of AECOPD

• Accelerated loss of lung function
• Poorer health status/QOL
• Subsequent AECOPDs are more likely\(^\dagger\)
• 4-14% in-hospital mortality
• 43% dead within 12 months of hospitalization* 
• 27% mortality among AECOPD discharges\(^\#\)

\(^\dagger\) Hurst et al Susceptibility to exacerbation in Chronic Obstructive Pulmonary Disease. NEJM 2010;363:1128-38

Mortality Increases with Frequency of AECOPD

‘Frequent flyers’

• In 2011, 400/1806 COPD patients attended ER more than once, up to 10 times/yr*
• Why? Limited access to outpatient care
• Many still don’t have a primary care physician
• Medicentres: care model often not conducive to ideal management
  • unfamiliar with patients
  • rapid throughput

* Data provided by AHS Emergency Department
COPD pathway

• Often confusing for patients & families
• After consultation, patients are usually discharged from specialist care with:
  • new prescriptions, often unfamiliar delivery devices
  • instructions to stop smoking & immunization
  • encouraged to participate in a rehab/exercise program
  • although recommendations are appropriate, often not followed, or only partially followed, to the detriment of patient care
COPD patient pathway through the system
• Consultation experience is stressful for patients & family members
• Instructions are misunderstood or forgotten
• Often inadequate time during consultation to insure that patients are properly instructed to use their new inhaler device(s) correctly
• Limited access to family doctors contributes to poor adherence to specialists’ recommendations
• Poorly controlled COPD patients are a significant burden on both out- & inpatient resources within Alberta Health Services
Canada

• One of the lowest MD/Population in OECD*
• Access to medical services/wait times are an increasing challenge
• Health care costs are increasing faster than GDP
• Increasing demand for other health care professionals to provide medical care

*OECD-Organization for Economic Cooperation & Development
Canadian experience with COPD care by non-MD health care workers

- Patients previously hospitalized with AECOPD
- Case manager/contact
- ‘Directed’ self-management
- Education about COPD
- Lifestyle counseling-diet, smoking cessation
- Action plan

Self-Management Education: Reduces Hospitalization

Self-Management Education: Substantial Cost Savings

JGH group: benefits of a nurse navigator

• Reduced respiratory ER visits*
• Decreased respiratory hospitalizations*
• Reduced total hospital days*
• Decreased hospitalizations for AECOPD*
• Reduced hospital days for AECOPD*
• Savings >$260,000

*D p<0.05

Rocker G et al QEI hospital Halifax
Chest 2013 DOI:10.1378/Chest 1703858

• Multidisciplinary team, 3 FTE
• After hospital, F/U Q2wk X 2/12, Q1/12 X 3/12
• Hospital & home-based support
• Disease education, focus on patient & family
• Written action plan for self-care of AECOPD
• Written action plan for dyspnea crises
• Advance Care planning
Rocker G et al QEII Halifax
Chest 2013 DOI:10.1378/Chest 1703858

• 6 months pre vs 6 months post: n=89
• ER visits 173->66 (62% reduction)
• Hospitalizations 107->37 (68% reduction)
• Hospital bed days 1129->382 (66% reduction)
• $749,000 savings (3 times cost of program)
• No improvement in QOL (CRQ)
Not all self-management programs work
• Unless patients follow instructions, they will not benefit

• Fan VS et al Ann Intern Med 2012, VA study no benefit but intervention group did not receive antibiotics or prednisone earlier than control group

• Bucknall et al BMJ 2012 no benefit vs control group BUT patients who adhered to instructions DID benefit

• Programs can work
• Need good ‘learners’ and need good ‘educators’, CREs would provide ‘good’ education
Certified Respiratory Educators (CRE)

- Rigorously trained to educate & help manage asthma, COPD, & to counsel smoking cessation
- And chronic cough*

* CCAP group Can Respir J 2009, Chest 2009
Challenges in COPD management (potential roles for CREs)

- Patient education: pathophysiology & rationale for treatments &
  - Smoking cessation
  - Vaccination
  - Adherence
  - Proper inhaler technique
  - initial instruction
  - remediation
  - Action plan
Patient Education Program

• Smoking cessation
• Basic Education (pathophysiology & rationale for treatments)
• Effective inhaler technique
• Self-management with case manager participation
• Early recognition and treatment of AECOPD
• Strategies to alleviate dyspnea
• Advanced directives and/or end-of-life issues

CREs provide smoking cessation counseling

- Stress of COPD-social & financial consequences create conditions that make smoking cessation less likely & increase likelihood of relapse

- 52% who achieve smoking abstinence relapse at least once

- Although controversial, counseling & support are felt to be important for relapse prevention

- If smokers aren’t encouraged to quit repeatedly, success rate for permanent smoking cessation is <5%

Nakajima M. Predictors of Risk for Smoking Relapse in Men & Women: A Prospective Examination. Psychol Addict Behav 2012 Feb 20. [Epub]
CREs can encourage vaccination

- Both influenza & pneumococcal vaccination are recommended for COPD patients
- In Alberta, only 41% of eligible are vaccinated

Poor adherence to maintenance therapy

After 3 months, over 50% of patients stopped maintenance therapy.
After a year, adherence decreased to below 30%.

Adherence

• Regular follow up by CREs, either by phone or face-to-face could reinforce adherence

• Use of spacer to reduce throat irritation &/or optimize bronchial deposition of medication

• Recommend change of delivery device to optimize adherence/preference/benefit (if required)
Inhaler technique

• Many COPD patients don’t use inhalers correctly
• Unless inhalers are used properly, patients don’t benefit & may suffer the same adverse health outcomes as non-adherent patients
• Proper inhaler use is a multistep process & improper technique at any point jeopardizes medication delivery & subsequent clinical outcomes
• Even patients instructed in proper inhaler use experience deterioration in quality of their technique over time & benefit from periodic remedial instruction
• CREs can provide the necessary initial instruction & remediation


Inhaler technique instruction & remediation

Unrealistic to expect that primary care doctors (or specialists) can instruct patients to properly use of all of these types of inhalers.

CREs are the obvious health care professionals to instruct patients how to use the different inhalers.
Action plan

• Canadian studies:
• At onset of an exacerbation, treat with oral prednisone +/- antibiotic
• Prednisone reduces relapses\(^1\)
• Antibiotics improve outcomes with ‘infectious’ exacerbations\(^2\)
• Early intervention & treatment escalation, should reduce ER visits & hospitalizations

Proposal for a CRE-managed clinic for patients with a history of exacerbations

At periodic assessments:
- Patients will be questioned about:
  - Smoking status
  - Medical encounters since last visit
  - Symptom control
  - Acute exacerbations
  - Adherence to specialist recommendations
Periodic management will consist of:

- Smoking cessation counseling (if needed)
- Medication adherence review
- Inhaler technique review/instruction
- +/- influenza/pneumococcal vaccination
- Reinforcement of action plan instructions
- Early intervention with AECOPD
- Provide resource when patient is unwell
- Involve specialist when needed to modify treatment
Summary

• COPD remains a major health burden in Canada
• AECOPDs adversely effect QOL
  • accelerate lung function decline
  • predict further AECOPDs
  • represent a significant financial burden, both direct & indirect costs.
    • Are significant contributors to mortality
• A CRE-managed clinic should improve outcomes