The Outs and Ins of Respiratory Inhalers...

Mark Finnis, BA, RRT, CRE
Respiratory Education Centre
Royal Jubilee Hospital, Victoria

Presenter Disclosure

Presenter’s Name: Mark Finnis, RRT, CRE

I have the following Relationships with commercial interests:

Speaker/Consulting Fees:
AstraZeneca, Boehringer-Ingelheim, GlaxoSmithKline, Canadian Lung Association, MerckFrosst, Pfizer

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I have received a speaker’s fee from UBC Continuing Pharmacy Professional Development for this learning activity
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- AstraZeneca
- Boehringer-Ingelheim
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Objectives for today...

1. Recognize the unique challenges of treating respiratory disease and the importance of inhaler technique for optimal treatment.
2. Recognize common challenges/mistakes/omissions regarding inhaler teaching by healthcare professionals, particularly as they relate to the community pharmacy environment.
3. Recognize common challenges/mistakes/omissions regarding inhaler technique by patients.
4. Discuss the role of the pharmacist/pharmacy technician/pharmacy assistant in inhaler teaching; i.e. whose job is it anyway?
5. Demonstrate inhaler technique and teaching using peer to peer Direct Instruction Model.
What is there, other than drugs?

**Key Message**

“COPD is treatable at any stage of disease. A management strategy consisting of combined pharmacotherapy and non-pharmacotherapeutic interventions can effectively improve symptoms, activity levels and quality of life, at all levels of disease severity.”

*Can Respir J 2008;15(Suppl A):1A-8A.*

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**Comprehensive Management of COPD**

![Image of a flowchart showing the comprehensive management of COPD, including surgery, oxygen, inhaled corticosteroids/LABA, pulmonary rehabilitation, long-acting bronchodilator(s), PRN short-acting bronchodilators, smoking cessation/exercise/self-management/education, end of life care, and early diagnosis (spirometry).]

*Can Respir J 2008;15(Suppl A):1A-8A.*
Who, what, when, where and how?

How can we help people living with COPD (or asthma)? *Start* with the basics...
Compliance vs. Adherence? What’s the story with inhaler use?

![Graph showing treatment persistence and compliance with inhaled medications in COPD](image)


Role of the Pharmacist and Respiratory Educator?

**Key Message**

*Family Physician role is pivotal in COPD management:*

1. Early detection through targeted screening and disease prevention through smoking cessation counseling.

2. Optimize symptom control through appropriate use of pharmacologic and non-pharmacologic therapies.

3. Prevention and management of acute exacerbations of COPD.

*Can Respir J 2008;1 N(Suppl A):1 A-8A.*

UBC CPPD Update 2017 Conference
Once again, who provides the education?

**Key Message**

“Education of the patient and family with supervision and support based on disease-specific self-management principles is valuable.”

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What is the role of the pharmacist in asthma/COPD management? (my perception...)

Fill prescriptions – deliver prescriptions (smaller, community pharmacies).
Educate people regarding their medications, including intended effects and potential side effects.
Review of inhaler technique, including demonstrations.
Assist with *Fair Pharmacare* enquiries and Special Authority
Smoking cessation – pharmacologic and/or behavioural counselling.
Educate regarding COPD and asthma Action Plans.
Provide advice on healthy living.
Who can be a Respiratory Educator? What is their role?

Any Health Care Professional. NP, RN, RRT, PT, Pharmacist.

National certification process, based on the CTS Guidelines for asthma and/or COPD (www.cnrc.org).

Usually, but not always, in hospital settings, providing one on one* or group education (e.g. Living Well with COPD).

**Educators promote behaviour change.**

*Pharmacists in the community...

Why is self management so important? QOL, decreased AECOPD, slow disease progression, saving $$$. . . the benefits are clear.

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**Benefits of COPD Self Management Education**

What is involved with self management of COPD?

**Components of a COPD Patient Education Program**

- **Smoking cessation (level evidence 1A)**
- Basic COPD information (pathophysiology and rationale for medical treatments)
- Effective inhaler technique
- **Self-management plan with case manager participation (level evidence 1A)**
- Early recognition and treatment of acute exacerbations
- Strategies to alleviate dyspnea
- Advanced directives and/or end of life issues
- Identification of educational resources

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**Clinical Course of COPD**

COPD

- Expiratory flow limitation
- Air trapping
- Hyperinflation

⇒ Breathlessness

⇒ Deconditioning

⇒ Inactivity

⇒ HRQoL

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http://www.respiratoryguidelines.ca/sites/all/files/2008_CTS_Slide_Kit_COPD.pdf://
What does hyperinflation feel like?

Please stand up...

Take a deep breath in... 
Exhale half of your breath, and stop...
Now take another deep breath in...
Exhale half of your breath, and stop...
Now try breathing in and out from there...
How does that feel? Now try walking...or bending over...or exercising...or...?

Pharmacological Lung Volume Reduction

http://www.respiratoryguidelines.ca/sites/all/files/2008_CTS_Slide_kit_COPD.pdf
Bronchodilators are the key in COPD...

To reducing breathlessness by reducing air trapping (lowering FRC).

Using “rescue” inhalers BEFORE exercise in COPD works - we should encouraging this, NOT discouraging it (CTS 2008). One of the biggest differences between asthma and COPD.

LAMA, LABA and LAMA/LABA medications sometimes “don’t work” because people are already inactive and become SOBOE very easily; i.e. to reap the reward of reduced air trapping, someone needs to be active and experience the difference of medication vs. no medication.

Bronchodilators help to increase exercise capacity and decrease exacerbations in COPD.

What does someone need in their “tool kit” to control breathlessness and get medicine in their lungs, if they have COPD?

COPD causes air trapping – too much stale air is in the lungs...the 6 “P”s (it’s NOT an oxygen problem...)

Pursed lip breathing - breath control is vital
Pacing
Posture
Positive Attitude
Prioritize your activities – exercise vs. TV
Plan your schedule – exercise before TV

We will only talk about #1 and #3...as it relates to inhaler use.
Language: does it matter?

“Rescue inhaler”...for asthma...for COPD.
What does that mean to you, the clinician?
What does that mean to our patients/clients?
It’s a commonly used term, but is it accurate?
It makes sense to “us”, but perhaps it’s not as clear to our patients/clients?

Let the debate begin...

Question

What % of patients misuse their inhaler devices?

a. 10%
b. 25%
c. 50%
d. 60%
What’s gone wrong? Failure to:

Choose the right inhaler for the patient (listen to patient).
Provide device instruction to 25% of our patients.
Take adequate time to instruct and support patient learning.
Follow-up with 11% of patients.
Educate ourselves and to perfect our own skills.


Patient Considerations

Language (written/spoken), education & health literacy.
Learn improperly; “they”/“we” assume correct technique.
Coordinating actuation with inhalation; have spacer but don’t use it.
Dexterity problems; e.g. arthritis.
Visual problems; e.g. they can’t tell which inhaler is which, or how many doses are left.
Fail to recognize empty inhaler; some devices lock when empty, others do not.
Cognitive/memory problems.
Error rates ↑ with age & severity of air flow limitation.
Cannot achieve adequate inspiratory flow rate.
Cost issues; i.e. Special Authority, triple therapy for COPD.
Medication Delivery Devices: Common Errors

A recent study in BC showed that for COPD patients admitted to hospital:

59% of patients misused their inhaler devices.

93% using MDIs (no spacer) made critical errors that would result in inadequate amounts of drug reaching lungs.


Impact of Proper and Improper Inhalation Technique

Incorrect technique and poor adherence are common.
Poor technique can result in reduced medication deposition and consequently worsening lung disease.
Adherence increases when patients can feel that their medications actually work!
Treatment is more effective with correct inhaler technique, and the dose required can often be lower (the latter is often a good “selling point”).
Errors increase with age and increasing disease severity.
Inhalation Devices

Many delivery devices to choose from.
The evidence shows that, when used correctly, there is little difference in clinical efficacy between different inhaler types.

Lavorini F, et al. New inhaler devices - the good, the bad and the ugly. Respiration 2014;88:3–15

Education and follow up

Explanation of why and how to use medications/devices is critical.
Adherence to treatment is higher in patients who believe the medication will be effective; i.e. all people are experiential learners.
Demonstration, practice and feedback are essential.
OBSERVE the patient using their device at every visit* – patients gain and lose skills.

*CTS 2008
Has Patient Technique Improved Over Time?

Most frequent MDI errors:
  - Coordination (45%)
  - Speed and/or depth of inspiration (44%)
  - No post-inhalation breath-hold (46%)

Most frequent DPI errors:
  - Incorrect preparation (28%)
  - Expiration before inhalation (46%)
  - No post-inhalation breath-hold (37%)

Inhaler technique has not improved over the past 40 years.


Direct Instruction Model (DIM)
DIM Phases

**Background and Introduction**
Establish rapport with client, explain the intention of the interaction and the sequence of the instruction that is about to follow.

**Presentation**
Explain new info/skills, highlight the important features (i.e. of a device or action plan), demonstrate steps to the specific skill, model, reinforce important features of the learning the skill (why it is important).

**Structured Practice**
WITH client, perform the steps to the specific skill.
Observe client's sequential practice of skills, provide corrective feedback and reinforcement as necessary.

**Guided Practice**
"Let's do this together..."

**Independent Practice**
Monitor client practicing while educator provides instruction on steps involved in task.
Provide corrective feedback (when necessary) and reinforce

**Independent Practice**
Client practices on own and educator assesses accuracy, provides corrective feedback and reinforces using questioning and review.
Independent practice may take a variety of forms i.e. client leaves (practices independently) and a follow-up appointment is scheduled, OR Educator asks client for a ‘Teach Back’ – "Now I’d like for you to teach ME how to...”
How To Use a Breezhaler®

1. Pull cap off.
2. Tilt mouthpiece to open inhaler. Place capsule in chamber. Close inhaler until you hear a "click".
3. Press both buttons ONCE and release.
4. Breathe out away from the mouthpiece.
6. Open to see clear capsule; If not all clear, repeat steps 4-5.

https://sk.lung.ca/lung-diseases/inhalers/videos/breezhaler

Breezhaler® Safety Considerations and Counselling Tips

“Capsules” are for inhalation only:
They must not be swallowed – do NOT refer to them as “pills”.
Capsules can be mistakenly placed into the inhaler mouthpiece.
Capsules are packaged separately from the inhaler.
The mouthpiece must be opened to prompt capsule placement inside the capsule chamber.
Empty chamber completely after use.
Discard the capsule directly into the garbage.

How To Use a Diskus®

1. Closed.
2. Push the thumb grip open.
3. Slide the lever as far as it will go until a click is heard.
4. Breathe out away from the mouthpiece.
6. Close the Diskus®. Rinse mouth with ICS.

https://sk.lung.ca/lung-diseases/inhalers/videos/diskus

How To Use an Ellipta™

1. Closed.
2. Open the cover. Slide the cover down until you hear a “click”.
3. Breathe out away from the mouthpiece.
4. Put mouthpiece in between lips. Breathe in a long, steady, and deep breath (do not block air vent on inhaler with hands).
5. Hold breath 5-10 seconds or as long as comfortable. Breathe out.
6. Close the inhaler. Rinse mouth with ICS.

https://sk.lung.ca/lung-diseases/inhalers/videos/ellipta
Ellipta™ Safety Considerations and Counselling Tips

The foil package and desiccant must be discarded.
The colored cap should be opened before inhaling.
If the device cover is opened and then closed without inhalation of the loaded dose the dose will be lost.
Double dosing will not occur.
If the medication is tipped past horizontal, medication can fall out of the mouthpiece.
When there are less than 10 doses remaining, the left half of the counter shows red.


How To Use a Genuair®

1. Remove cap.
2. Press green button ONCE and release.
3. Check color control window is green.
4. Breathe out away mouthpiece.
5. Place mouthpiece between lips. Breathe in strongly and deeply even after click is heard. Hold breath for 5 - 10 seconds.
6. Check color control window is red.
7. If not 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.

https://sk.lung.ca/lung-diseases/inhalers/videos/genuair
Genuair® Safety Considerations and Counselling Tips

To prepare for inhalation the colored button should be pressed and released.

The colored control window will change from red to green.
Do not hold down the button while inhaling.

During dose inhalation there is an audible click.
Upon proper inhalation of the dose the colored control window will change back to red.
Keep breathing in after hearing the click to ensure delivery of the full dose.

When a red stripe band appears in the dose window obtain a new inhaler.
The device will lock when the last dose has been loaded.


How To Use a HandiHaler®

1. Open lid.
2. Open mouthpiece.
3. Place capsule in centre chamber.
4. Close mouthpiece until you hear a “click”.
5. Hold the HandiHaler® upright. Press green button ONCE and release.
6. Breathe out away from the mouthpiece.
8. Repeat steps 6-7 for a second breath in.
9. Open mouthpiece, discard capsule, close HandiHaler®.
10. Wash hands.

https://sk.lung.ca/lung-diseases/inhalers/videos/handihaler
How To Use a Metered-Dose Inhaler (MDI)

1. Remove cap.
2. Shake the inhaler.
3. Breathe out.
4. Place mouthpiece between lips. **Breathe in and depress canister ONCE. Breathe in slowly and deeply.**
5. Hold breath for 5-10 seconds. Breathe out.
6. Wait 30 seconds and repeat steps 2-5 if another dose is prescribed.
7. Close cap. **Rinse** mouth with ICS.

**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.


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How To Use a Metered-Dose Inhaler (MDI) With a Spacer Device

1. Remove cap from inhaler.
2. Shake inhaler.
3. Remove cap on spacer. **Insert** mouthpiece of the inhaler into spacer.
4. Place one-way valve holding chamber mouthpiece between lips. **Breathe out. Press down on the canister ONCE. Breathe in slowly and deeply for about 3-5 seconds.**
5. Hold breath for 5-10 seconds
6. Wait 30 seconds and repeat steps 2-5 if another dose is prescribed.
7. Close caps; **rinse** mouth with ICS.

**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.

**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.

How To Use a Metered-Dose Inhaler (MDI) With a Spacer Device & Mask

1. Remove cap.
2. Shake MDI.
3. Remove cap on the one-way valve holding chamber. **Insert** mouthpiece of the MDI into spacer.
4. Apply the mask to face. Press down on the canister ONCE.
5. Encourage a slow deep breath and hold breath for up to 10 seconds. If not possible (infants and young children) have them breathe normally into the device 5-6 times.
6. Wait 30 seconds and repeat steps 2-5 if another dose is prescribed.
7. Close caps. Rinse mouth and wipe face with ICS.

*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.


How To Use a RESPIMAT®: Assembly (1 of 3)

1. Two pieces. An inhaler, and a medication cartridge.
2. Cap closed. Press safety catch to remove clear base.
3. Push narrow end of cartridge into inhaler as far as it will go.
4. Place inhaler upright on firm surface. Push down firmly.
5. Put clear base back into place.

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

https://sk.lung.ca/lung-diseases/inhalers/videos/respmat
How To Use a RESPIMAT®: Priming (2 of 3)

1. Hold inhaler upright with cap closed. **TURN** the base until it "clicks" (half turn).
2. Flip the cap **OPEN** until it snaps fully open.
4. Repeat steps 1-3, 3 more times to ensure inhaler is prepared for use.

How To Use a RESPIMAT® (3 of 3)

1. Hold the inhaler upright with cap closed.
2. **TURN** clear base in direction of the white 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. Close lips around the mouthpiece without covering air vents. Point the inhaler to the back of the throat. While taking a **slow, deep** breath, **PRESS** the dose **release** button and continue to breath in slowly.
6. Hold breath for 10 seconds or as long as you can. Breathe out.
7. Close the cap.
RESPIMAT® Safety Considerations and Counselling Tips

Insertion of the cartridge before first use may require more force than expected.
- Cartridge should be preloaded by the pharmacy before dispensing.
- Priming is required before first use.
Lips should be tightly closed around the mouthpiece without covering the air vents (on the sides of the mouthpiece).
When a 7 day supply of medication remains in the device, the red pointer will enter the red zone of dose counter on the base.


How To Use a Turbuhaler®

1. Hold upright.
2. Remove cap.
3. Turn base until a “click” is heard.
4. Breathe out, away from mouthpiece.
5. Place the mouthpiece between lips. **Breathe in** quickly and deeply. **Hold** breath for 5-10 seconds. **Breathe out**.
6. Repeat steps 3-5 if another dose is prescribed.
7. Close cap. **Rinse** mouth with ICS.

https://sk.lung.ca/lung-diseases/inhalers/videos/turbuhaler
Resources – Medications and Delivery

https://sk.lung.ca/health-professionals/resources/resptrec-resources

Living Well with COPD Resources

Summary

All respiratory guidelines around the world recommend inhaler teaching, including recurring review of technique. It is not so much the device that is important, but whether the patient can correctly use the device(s) they have, and feel confident using it/them.

Where possible, using the same type of device is preferable to having multiple devices requiring different techniques.

Why do we need to review inhaler technique regularly? Because just like “us”, our patients forget things and develop “bad” habits.