COPD Device Workshop

Dr Philip Lee
Respiratory and Sleep Physician
St George Hospital, Sydney

Part 1	• Role of inhaler device in COPD
Part 2	• Incorrect inhaler technique-adverse clinical outcomes
Part 3	• Concise summary of major COPD inhaler devices
Part 4	• Practical strategies to optimize COPD inhaler use in primary care

Summary

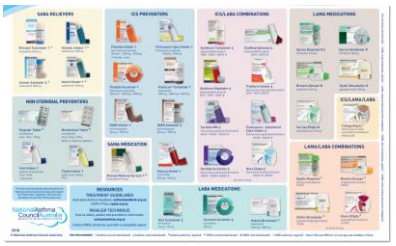
- COPD Inhaler devices are effective drug delivery systems
- Incorrect inhalation technique is common and results in adverse clinical outcomes
- Recognise key differences between different inhaler devices
  - Appropriate device selection and correct use is paramount
    - Impact on effective dose delivery
  - Treatment success is dependent on device properties and patient-device interaction
    - Inspiratory effort
    - Co-ordination skills
- Important role of primary care physicians
  - Maximise patient benefit via effective and appropriate inhaler use
  - Assess adherence and inhaler technique during every visit
  - Good understanding of various devices and aerosol properties via educational resources
  - Responsible Prescribing
    - Non-pharmacological strategies
    - Vigilant use of ICS

Role of inhaler device in COPD

Why use inhaler device in COPD?

- Direct drug delivery to the site of action: lungs
- Safe and effective
- Deliver an overall lower dose
  - Bypassing GI absorption
  - Minimise drug toxicity
  - Reduce systemic exposure

Choosing appropriate treatment/device: A challenge for 60% of Australian GPs surveyed



Australian Doctor, GP insights survey, July 2018.

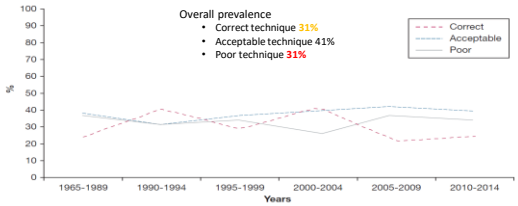
Incorrect inhaler technique

Incorrect inhaler technique

- Up to 90% of patients fail to use their inhaler correctly
- Poor technique = unable to get the optimal dose required
  - Wrong perception: Ineffective treatment
  - Fail to manage symptoms
  - Keep changing inhalers or "step up" to inappropriate regimes

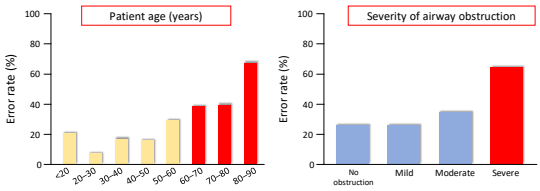

Inhaler mishandling remains common in real life and is associated with reduced disease control.
Melani AS, et al. Respir Med. 2011;105:930–8.

Incorrect inhaler technique: unacceptably frequent and has not improved over the past 40 years



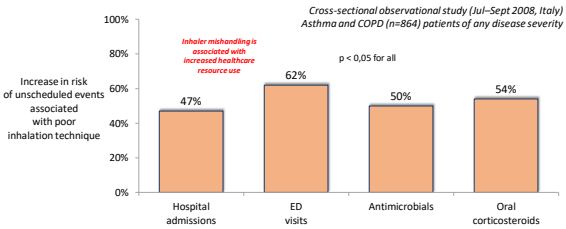
Systematic Review of Errors in Inhaler Use: Has Patient Technique Improved Over Time?
Sanchis J. Chest. 2016;150(2):394-406

High risk of ineffective inhalation despite training in older patients with advanced COPD



Dry powder inhalers: which factors determine the frequency of handling errors?
Wieshammer S, et al. Resp. 2008

Inhaler mishandling is associated with adverse health outcomes



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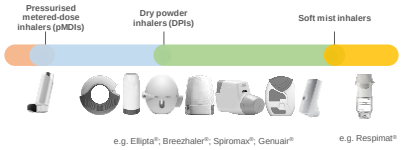
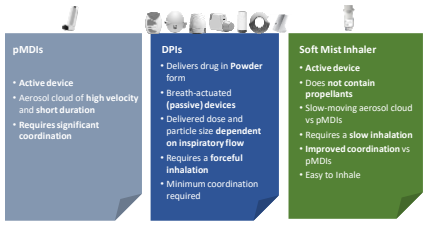
Concise summary of major COPD inhaler devices

Major classes of inhaler devices



Ellipta® is a registered trademark of GlaxoSmithKline group of companies; Breezhaler® is a registered trademark of Novartis Pharmaceuticals AG; Spiromax® is a registered trademark of Teva Pharma; Genuair® is a registered trademark of Almirall, S.A.; Respimat® is a registered trademark of Boehringer Ingelheim.

Key features of inhaler devices



Factors influencing choice of inhaler devices

Factors which may affect inhaler technique and adherence

- Age
- Patient preferences
- Dexterity
- Ease of Use
- Inspiratory capacity
- Cognitive function
- Health literacy
- Patient perceptions

It is important for prescribers to match inhaler devices to individual patient needs effectively

Evaluation of a novel educational strategy including inhaler-based reminder labels, to improve asthma inhaler technique. Basheti IA. *Patient Educ Couns* 2008; 72: 26-33.

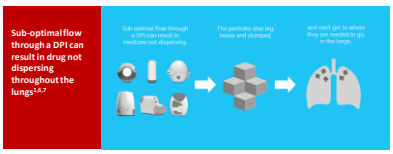
Advantages of DPIs

- Portable
- Environmentally friendly (no propellants)
- Dry powders are more stable than liquids
- Broad dosing range

"In general successful DPI design relies as much on the powder formulation as it dose on the device engineer" AR Clark, Aerosol Sci Tech1995

Pitfalls of DPIs

- Rapid and forceful inhalation is required
  - Some COPD patients may not be able to inhale forcefully via DPIs



National Asthma Council Australia. Inhaler technique for people with asthma or COPD. Information paper for health professionals 2018. Available from www.nationalasthma.org.au. Accessed August 2018.
ERS/ISAM TaskForce report: What the pulmonary specialist should know about the new inhalation therapies. Laube et al. Eur Respir J 2011; 37: 1308 – 1331.

Patient related, avoidable DPI administration errors

- Device **independent**:
  - Patient unable to exhale fully before inhalation (to FRC recommended)
  - Fail to breath hold after inhalation
- Device **dependent:**
  - **Stops inhaling prematurely**
  - Exhales into the device after loading or after exhalation
  - Fail to achieve tight seal of lips around the mouthpiece
  - Slow and not forceful inhalation

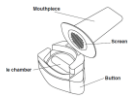
Assessment of handling of inhaler devices in real life: an observational study in 3811 patients in primary care. Molimard J Aerosol Med 2003

Genuair Inhaler

- Multi-dose
- Disposable device
- High lung deposition
- Visual & Acoustic feedback with dosing indicator
- Simple design to minimise errors

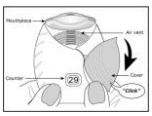
Breezehaler

- Capsule dosing
  - Check capsule contents
- Single dose
- Multiple use
- Simple design
- 'Whirring' or 'Rattling' noise
- Lactose 'carrier' taste

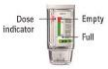


Ellipta

- Multi-dose
- Disposable device
- Designed for multi-drug administration
- Ease of use design
- Dose indicator



Respimat



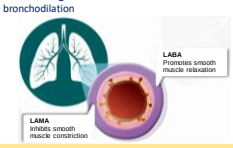
- Soft mist inhalers
- Developed to overcome some of the limitations of pMDIs and DPIs
- Active device
  - Actively releases the aerosol cloud
- Dose and particle size distribution released: independent of inspiratory effort (unlike DPIs)
- Slow target inspiratory flow (15-30 L/min)
  - Comparable to flows in normal tidal breathing
  - Reduced effort to inhale correctly through device

Long acting bronchodilators- Cornerstone of COPD management

Pharmacologic interventions – Goal is sustained bronchodilation

LAMA
Long-acting muscarinic receptor antagonist

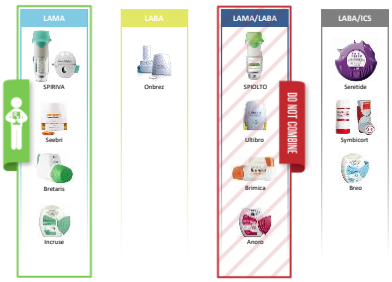
LABA
Long-acting β_2-adreno-receptor agonist



Inhaled long-acting bronchodilators, as monotherapy or in combination, are the cornerstone of maintenance treatment for all stages of COPD

Global Initiative for Chronic Obstructive Lung Disease (GOLD). Global strategy for diagnosis, management, and prevention of COPD. 2016.

Do not combine



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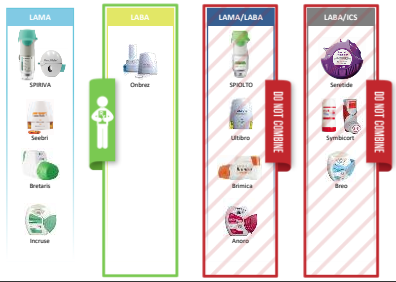

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Do not combine

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Practical strategies to optimize COPD inhaler use in primary care

Important role of prescribers

- The use of an inhaler by a patient has a strong scientific basis
  - Related to the dose of drug deposited into the lungs
- Effective dose delivered to the lungs is dependent on the correct use of the delivery system
- Prescribers for inhaler devices should ensure their patients are able to use them correctly
- Prescribers should:
  - Know the devices currently available to deliver the prescribed drugs
  - Familiar with various techniques appropriate for each device
  - Able to evaluate the patient's inhalation technique to promote proper use of the devices
  - Ensure the inhalation device/method is appropriate for each patient

European Respiratory Society/International Society for Aerosols in Medicine (ERS/ISAM) Task Force Report. Laube et al., Eur Respir J 2011 37:1308–31

Practical strategies to optimize COPD inhaler use in primary care (1)

- Provide instruction on correct inhaler technique when a new device is prescribed for COPD patients:
  - Verbal instruction
  - Written supporting material including clear visual step-by-step instructions
  - Demonstration of correct technique (keep placebo devices on site)
- Adherence and inhaler technique should be re-assessed on a regular basis
  - Ideally at each visit
  - Ensure patients continue to correctly use their devices

Practical strategies to optimize COPD inhaler use in primary care (2)

- Improve prescriber knowledge: *"Train the trainer"*
  - Patient appropriate device selection
  - Understanding of the UpToDate prescribing guidelines
  - Improve skills in teaching inhaler technique
  - Check and re-check inhaler technique during every consultations
    - Consistent messages
- Improve patient knowledge and technique
  - Provide patients with information about their device
  - Ensure carer/partner knows how to use the device
  - Involve carer/partner in device selection
    - Getting engagement is vital

Responsible Prescribing in COPD

Do the right things (non-pharmacological interventions) :

- ✓Smoking cessation
- ✓Vaccination of suitable patients against influenza and pneumococcus regularly
- ✓Pulmonary rehabilitation reduces admissions and health care resource utilization, improves exercise capacity and health related quality of life
- ✓Prescribe in accordance with evidence-based guidelines

Do the right things right:

- ✓Ensure correct inhaler technique most patients fail to use inhaler correctly and health care professionals need to demonstrate device correctly prior to treatment commencement
- ✓Use a spacer when using an pMDI
- ✓Use ICS vigilantly Triple therapy (ICS/LABA/LAMA)is recommended only in Gold Group D patients (more symptomatic/higher risk of exacerbation) who **continue to exacerbate** despite LAMA/LABA therapy (or for patients with an **asthma** component)

Adherence and inhaler technique should be assessed during every visit

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Patient Resources

Patient resources for inhalation devices, including videos of correct inhaler technique for a range of devices, are available from:

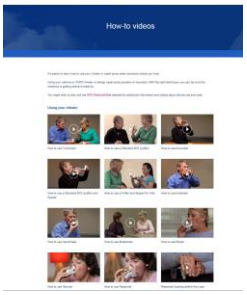
Lung Learning
An Australian site for respiratory information, tools, education and resources on COPD, asthma, idiopathic pulmonary fibrosis and lung cancer for you and your patients. You will find Respimat information and resources including device preparation and how-to-use videos and downloadable guides for your patients.

Lung Foundation Australia
The patient booklet Better Living with Chronic Obstructive Pulmonary Disease has a chapter on using inhalation devices: lungfoundation.com.au/patient-support/copd/better-living-with-copd-a-patient-guide

National Asthma Council
Videos demonstrating correct technique for a variety of asthma and COPD inhalers: www.nationalasthma.org.au/how-to-videos/using-your-inhaler

NPS Medicinewise
Information and videos on a variety of inhaler devices for respiratory medicines: www.nps.org.au/topics/how-to-bemedicinewise/managing-your-medicines/inhaler-devices-for-respiratory-medicines

Online Resources for inhaler technique



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Thank you