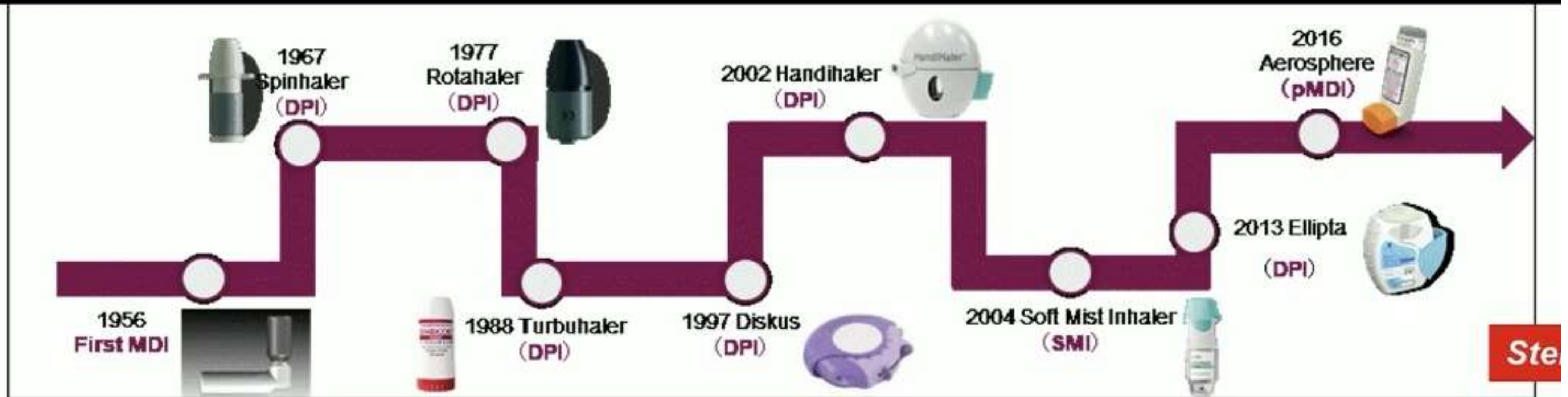


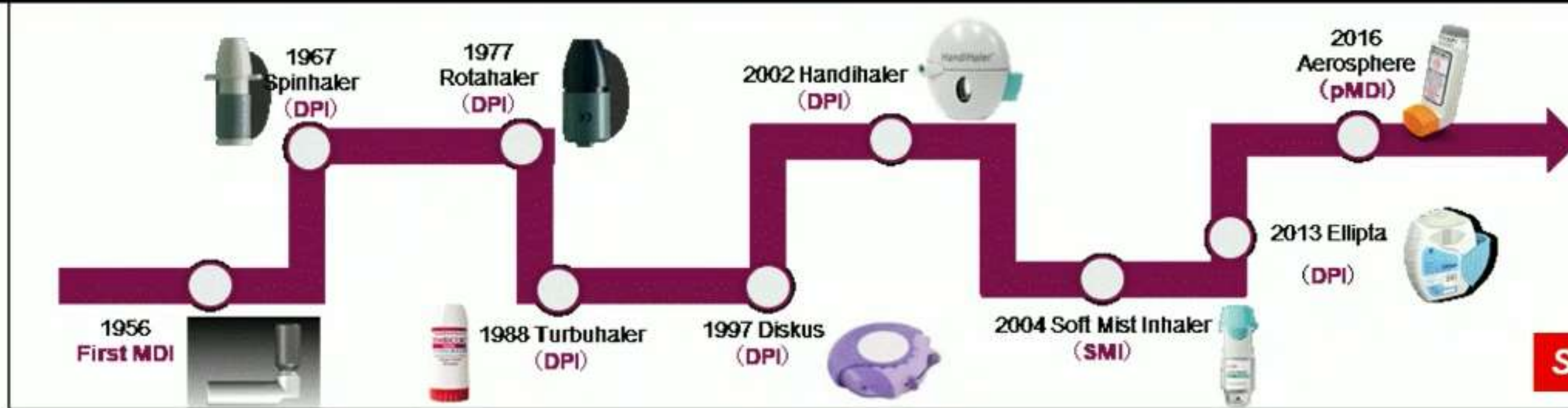
# Inhaladores

Dra M S Pilheu

# Innovation and Evolution in Inhaler Devices



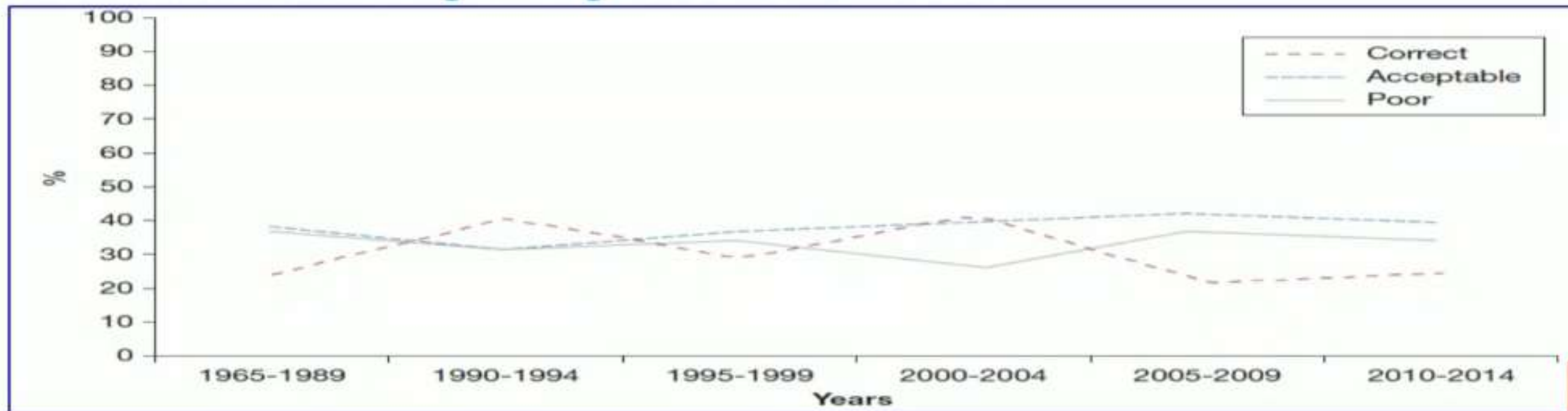
# Innovation and Evolution in Inhaler Devices



Stein S, JAMPDD 2017

## BUT ... Patient Inhaler Technique Has Not Improved Over Time

Systematic Review of Errors in Inhaler Use  CHEST  
Has Patient Technique Improved Over Time?



Sanchis J, CHEST 2016

# Los inhaladores NO son considerados parte del tratamiento



[Chronic Obstr Pulm Dis.](#) 2018; 5(2): 111–123.

Published online 2018 Apr 1. doi: [10.15326/jcopdf.5.2.2017.0168](https://doi.org/10.15326/jcopdf.5.2.2017.0168)

PMCID: PMC6190525

PMID: [30374449](https://pubmed.ncbi.nlm.nih.gov/30374449/)

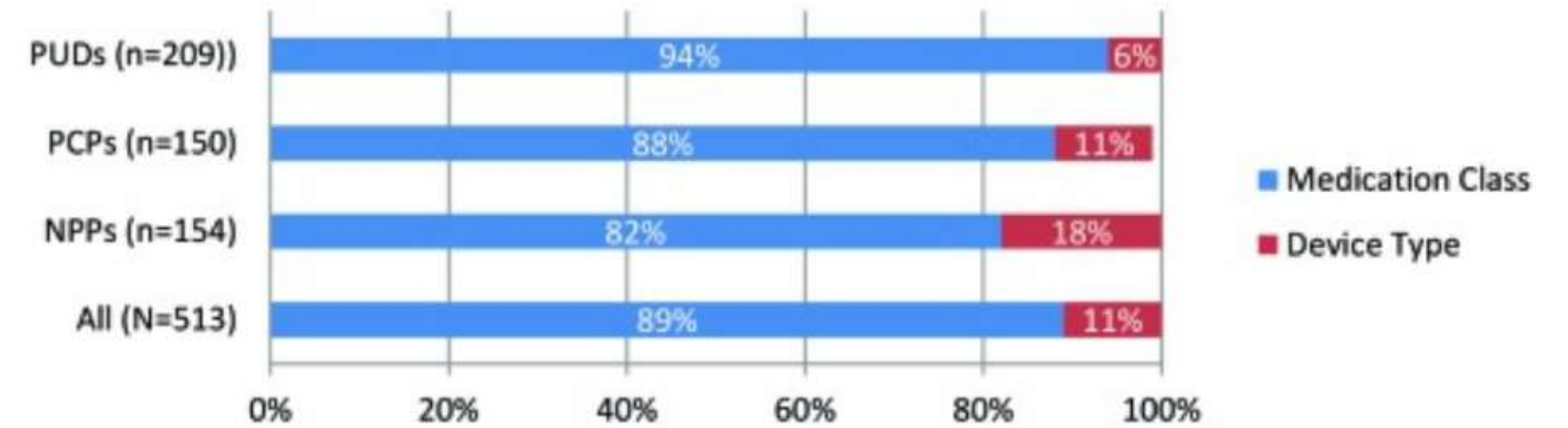
## The Role of Inhalation Delivery Devices in COPD: Perspectives of Patients and Health Care Providers

[Nicola A. Hanania, MD, MS](#),<sup>1</sup> [Sidney Braman, MD](#),<sup>2</sup> [Sandra G. Adams, MD, MS](#),<sup>3,4</sup> [Ruth Adewuya, MD](#),<sup>5</sup>

[Arzu Ari, PhD](#),<sup>6</sup> [JoAnn Brooks, PhD](#),<sup>7</sup> [Donald A. Mahler, MD](#),<sup>8</sup> [Jill A. Ohar, MD](#),<sup>9</sup> [Jay Peters, MD](#),<sup>3</sup> and

[Shahin Sanjar, PhD](#)<sup>10</sup>

a. When you consider prescribing a maintenance medication for a newly diagnosed, stable COPD patient, which is more important in determining which medication to prescribe – medication class or device type?



# Los inhaladores NO son considerados parte del tratamiento



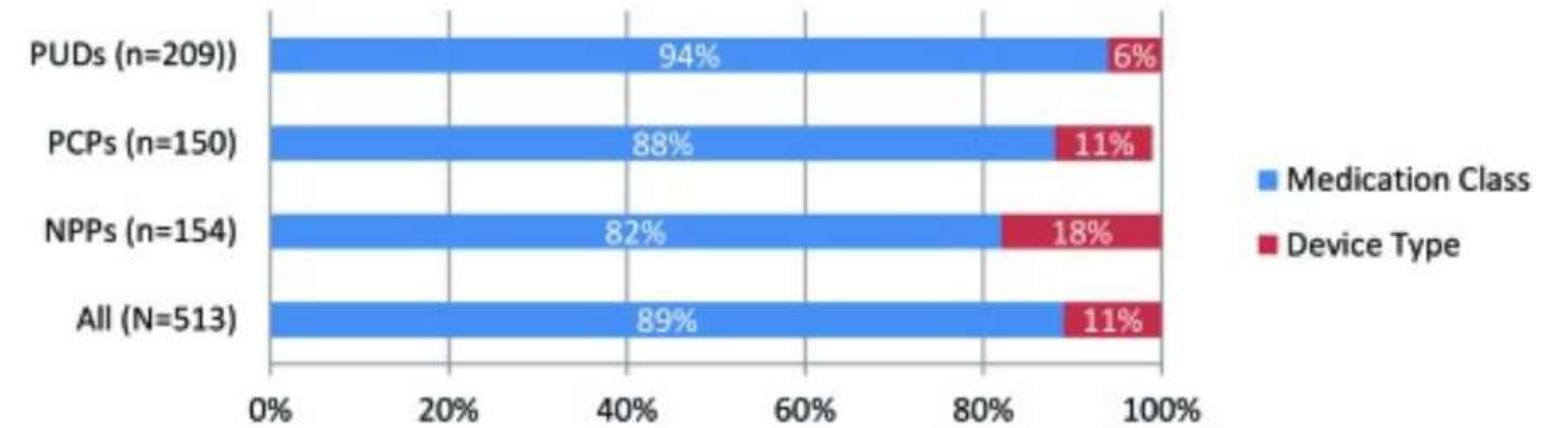
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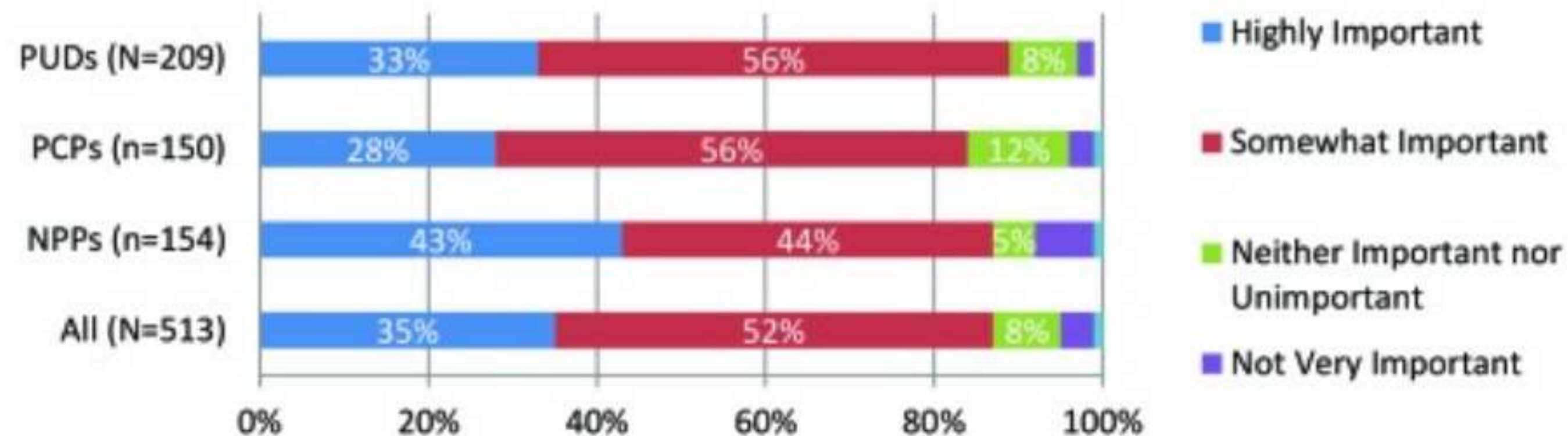
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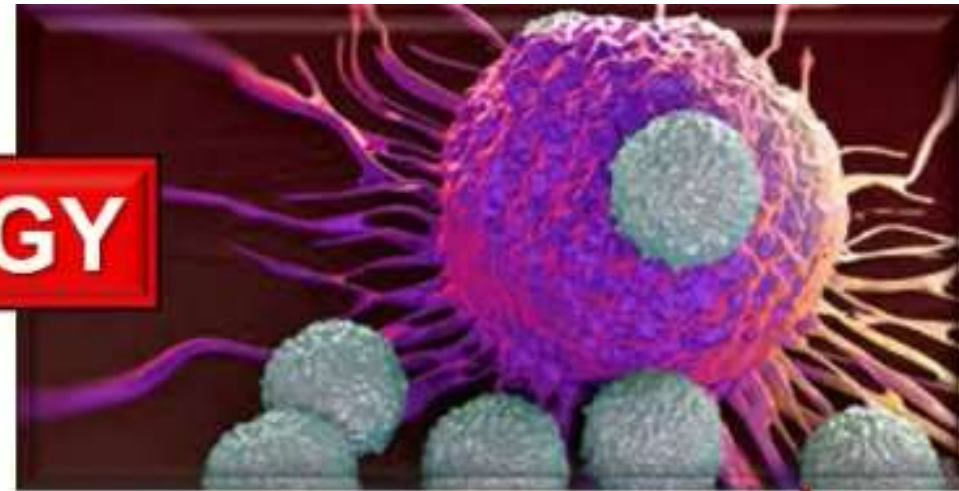


b. How important is the inhalation device in determining which medication you will prescribe to a newly diagnosed, stable COPD patient?



# Los médicos NO estamos entrenados

**ONCOLOGY**



SURGERY



RADIATION



HORMONE  
THERAPY



CHEMO  
THERAPY



**RESPIRATORY**



pMDI



DPI



Nebuliser



Spacer

# Factores a considerar en la terapia Inhalatoria

TAMAÑO DE LAS  
PARTÍCULAS

TÉCNICA DE USO DEL  
INHALADOR

ADHERENCIA

FLUJO INSPIRATORIO

# Tipos de Inhaladores

## *Dry powder inhaler (DPI)*



Easyhaler®  
(reservoir)



Ellipta®  
(reservoir)



Breezhaler®  
(capsule)

## *Soft mist inhaler (SMI)*



Respimat®

## *Pressurised metered dose inhaler (pMDI)*



Evohaler®  
(Traditional/patient-actuated)



Autohaler®  
(breath-actuated)



K-haler®  
(breath-actuated)

## *Spacer*



AeroChamber Plus®



Volumatic®



# DPI

- No se necesita coordinar activación e inspiración
- La inhalación depende de:
  - el esfuerzo inspiratorio del paciente
  - la resistencia del inhalador
- El flujo requerido depende de cada dispositivo

# pMDI

- Se debe coordinar activación e inhalación
  - no se requiere en los activados x inhalación
- Se puede agregar espaciador o aerocámara

Laube et al, Eur Respir J 2011; 37: 1308–1331

Levy et al, Adv Ther 2019; 36: 2547–2557

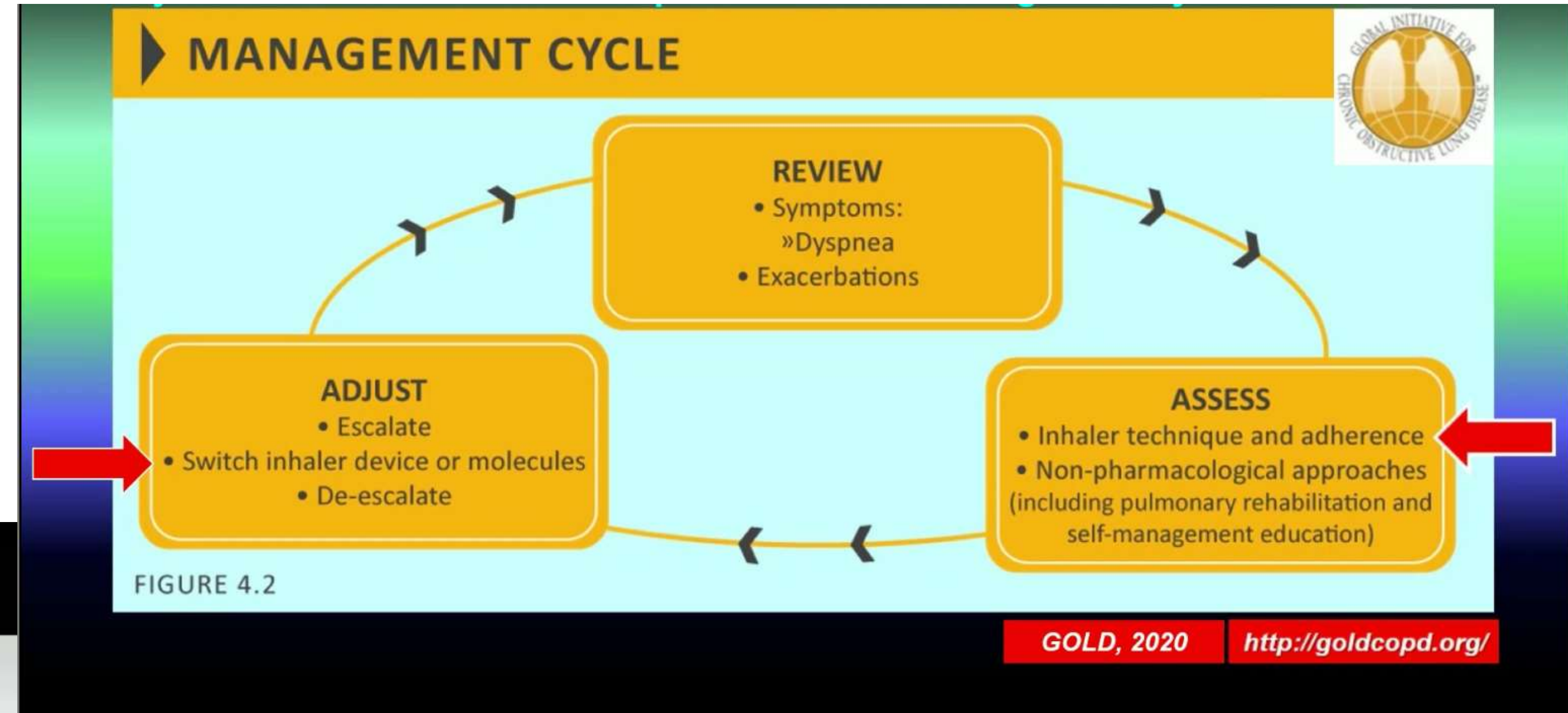
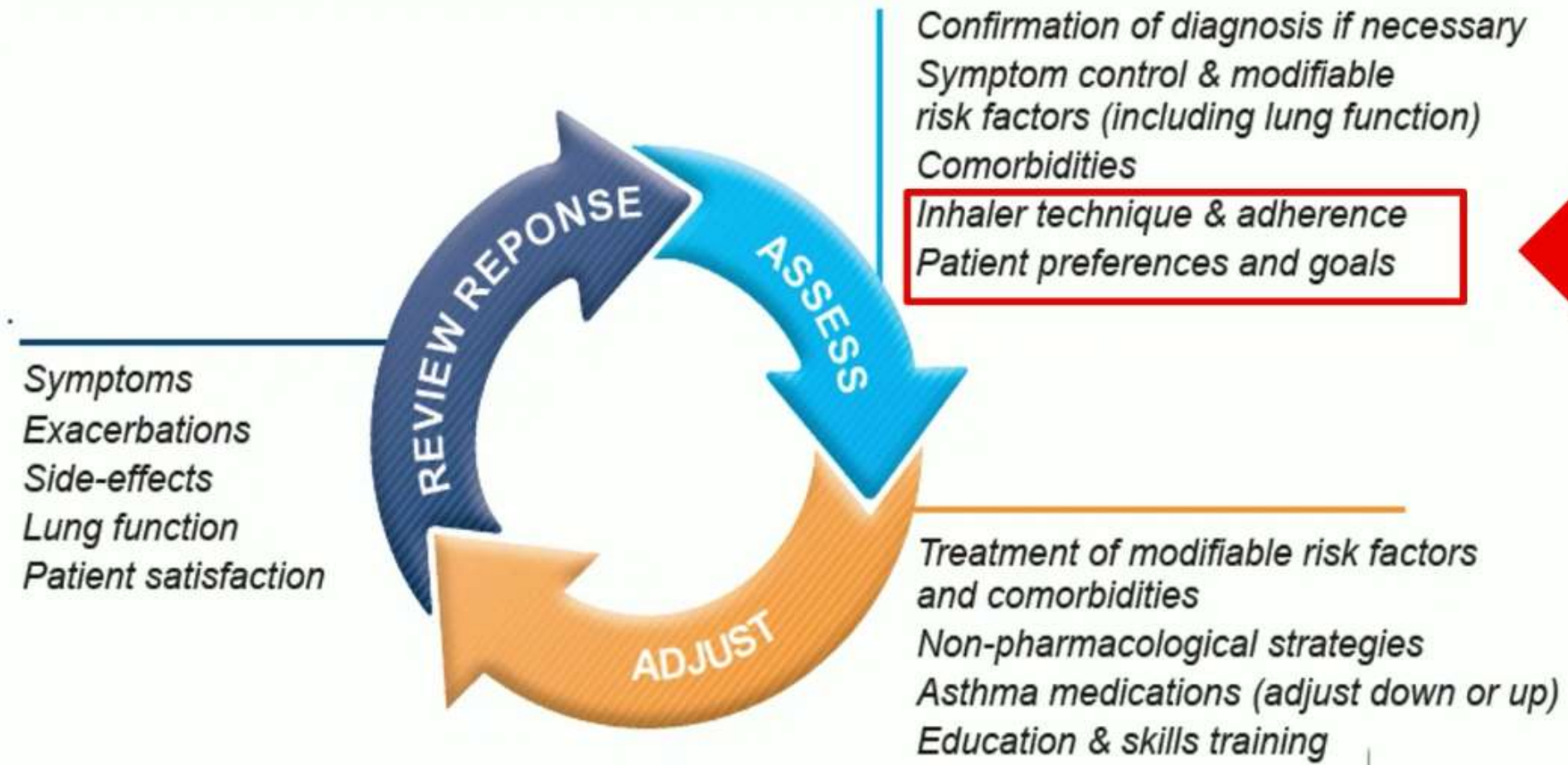
Csonka P, Lehtimäki L. ERJ Open Res 2019;5:00158-02018

# Qué considerar al elegir un inhalador?

- Efectivo: que dispense partículas del tamaño adecuado
- Eficiente: sencillo y reproducible su manejo
- Enganing: que el paciente se “enganche”
- a prueba de Errores: para el uso diario
- fácil de Enseñar
- fácil de Enrocar

# GINA 2020 – Inhaler Technique

## The control-based asthma management cycle



# Como elegir el inhalador adecuado

## E X 3: EVALUAR, ELEGIR, ENTRENAR

Pedirle al paciente que exhale tranquilo y que eleve el mentón antes de probar cada una de las siguientes maniobras inspiradoras:

Lenta y Sostenida x 3 a 5 segundos

Rápida y Profunda x 2.3 segundos

Si no está seguro considere evaluar con dispositivo

Lenta y Sostenida

pMDI

Rápida y Profunda

DPI

Enseñar - Entrenar

# Pragmatic Approach to Choosing an Inhaler Device

Usmani OS et al, [www.guidelines.co.uk](http://www.guidelines.co.uk) Sep 2020

## 7-Steps

Choosing an appropriate inhaler device for the treatment of adults with asthma or COPD

Development Group—Usmani, Capstick, Saleem, Scullion

### Seven steps for correct inhaler technique

Review and reinforce inhaler technique every time you see the patient

#### 1. Preparation:

- check dose counter (where present)
- shake inhaler, if applicable

#### 2. Priming:

- prime the device ready for use
- open inhaler/remove cap

#### 3. Exhaling:

- exhale gently away from the mouthpiece

#### 4. Mouth:

- place mouthpiece in mouth, tilt the chin, and close lips around the mouthpiece to form a tight seal

#### 5. Inhalation:

- slow and steady—pMDI/SMI/BAI
- quick and deep—DPI

Inhale **SLOW**  
and **STEADY**

Inhale **QUICK**  
and **DEEP**

#### 6. Breath holding:

- remove inhaler from mouth and hold breath for up to 5 seconds

#### 7. Closing and repeating:

- close inhaler/replace cap
- repeat as necessary.

Select required drug once inhaler device has been chosen, in line with local formulary

If you and the patient are both happy, prescribe the drug and device

# Tips prácticos

- NO cambiar el inhalador sin discutirlo con el paciente
- NO sumar más de un tipo de dispositivo (en lo posible)
- Rechequear la técnica de uso en cada visita
- Entrenarse a uno mismo
- <https://www.asthma.org.uk/advice/inhaler-videos/>

**GRACIAS!!!**

**@neumosalo**