

# Inhaled Medications:

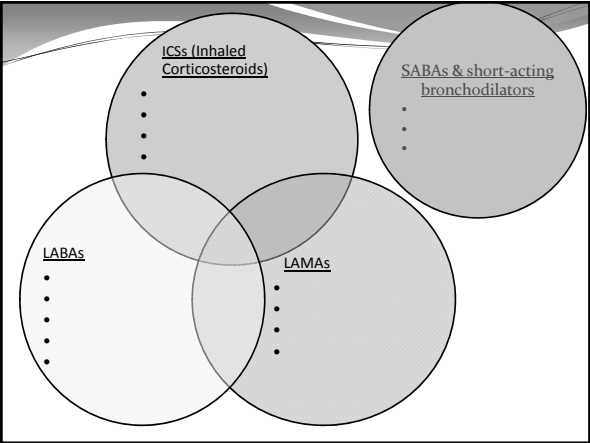
Recent developments in respiratory meds

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## Objectives

- Identify & classify the new inhaled agents for COPD and asthma
- Differentiate the magnitude of clinical impact of new agents
- Teach the proper use of new inhaler platforms
- Anticipate upcoming inhaled agents not yet on the market

## Identify & Classify the New Agents




## New Inhalation Device "Platforms"

## New Devices – EZ Breathe Atomizer

- Company
- Current Medications
- Patient Education
- Advantages
- Disadvantages
- Future Medications


## New Devices - Neohaler

- Company
- Current Medications
  -
- Patient Education
  - 
  - 
  -
- Advantages
- Disadvantages
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## New Devices – Ellipta DPI

- Company
- Current Medications
  -
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  - 
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  -
- Advantages
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## New Devices - RespiMat

- Company
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## New Devices - Pressair

- Company
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  -
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- Advantages
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## New Devices - Respiclick

- Company
- Current Medications
  -
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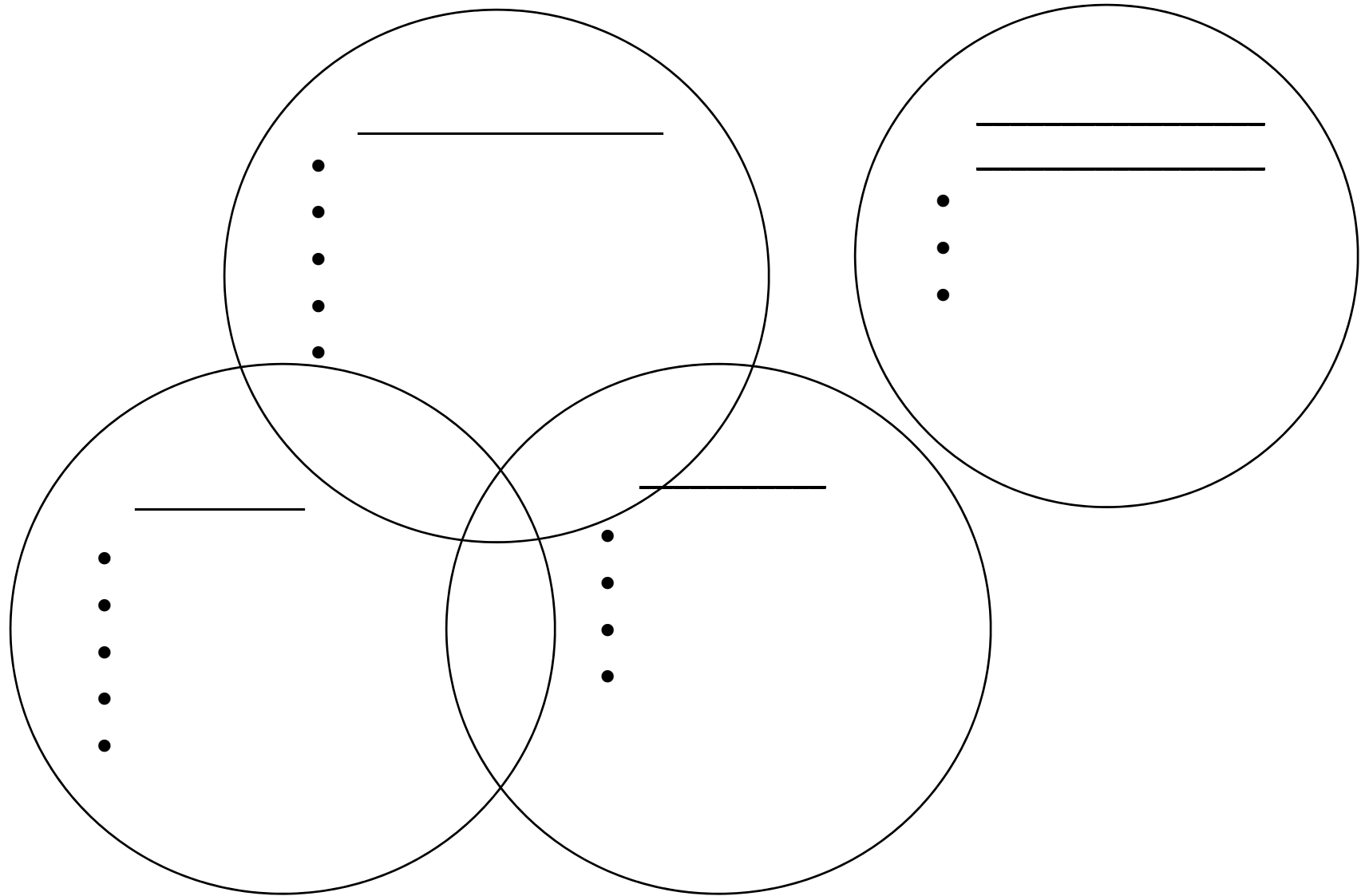


## Future Device – Microdose Neb

- Dry powder neb; new piezo technology
- Portable, battery operated
- Early phase trials with RSV fusion inhibitor
  - Mask adaptor available
  - Elderly, neonatal application



Identifying and Classifying the New Inhaled Medications and Products for Asthma and COPD



## Inhaled Asthma & COPD Medications

SABAS	Albuterol Nebulization	Generic, Accuneb	0.63 mg per 3 mL 1.25 mg per 3 mL 2.5 mg/3 mL (0.083%)	Pre-mixed unit dose (3 mL); this low dose usually not recommended Pre-mixed unit dose (3 mL); add 0.5 ml to other agents or NS for neb
	Albuterol	ProAir, Proventil & Ventolin HFA	90 mcg per puff; <b>Note: ProAir &amp; Ventolin are the only SABAs with dose counters</b>	MDI; should be used with a spacer; shake 5 seconds; 4 primes to start; reprime after 2 wk without use or if dropped; expires 6 mo after opening; ProAir Respiclick available soon
	Levalbuterol	Xopenex HFA & Neb	45 mcg per puff (200); 0.31, 0.63 or 1.25 mg per unit dose	MDI: Shake 5 seconds; 4 primes to start; reprime after 3 days without use; Unit dose for neb; must use as soon as foil wrapper is opened
Inhaled Corticosteroids (ICS)	Beclomethasone	Qvar HFA	40 or 80 mcg per actuation (122)	MDI; recommended to be used without spacer; no shaking required; 2 primes to start; reprime after 10 days without use; Qvar now has a dose counter
	Budesonide	Pulmicort Flexhaler DPI	90 mcg per actuation (60); 180 mcg per actuation (120)	Counter indicates increments of 10; moves every 5 puffs; twist fully to the right, then left to load dose; do not tip once loaded; avoid humidity/moisture
		Pulmicort Respules	0.25, 0.5 or 1 mg per unit dose	Deliver with mask if <3 yo; older children may use a mouthpiece if able to breathe through mouth only (noseclip helpful); expires 2 wk after opened
	Fluticasone	Flovent Diskus DPI;	50, 100, 250 mcg per inhalation (60)	No priming; do not tip once loaded; avoid humidity & moisture
		Flovent HFA	44, 110 or 220 mcg per inhalation (124)	MDI; shake 5 sec; 4 puff priming; reprime after 7 days w/o use or if dropped
		Arnuity Ellipta DPI	100 or 200 mcg/puff (30)	
Mometasone	Asmanex DPI & HFA	220 mcg per puff (14, 30, 60, or 120) 110 mcg per puff (30) for peds 4-11 yo	Has dose counter; no priming; do not tip once loaded; avoid humidity & moisture; may give once daily in evening	
Ciclesonide	Alvesco HFA	80 or 160 mcg per inhalation (60)	MDI; should be used with spacer; no shaking required; 3 primes to start; reprime after 7 days without use; dose indicator in increments of 10	
LABAS	Salmeterol	Serevent Diskus DPI	50 mcg per actuation (60)	No priming; do not tip once loaded; avoid humidity; expires 6 wk after open
	Formoterol	Foradil DPI &	12 mcg per capsule (72 or 360)	Asthma & COPD indications, but MUST be used along with an ICS for asthma.
		Perforomist Neb	20 mg nebulization	COPD indication only
	Arformoterol	Brovana Neb	15 mcg ampule	COPD
	Olodaterol	Striverdi Respimat	2.5 mcg/puff	2 puffs/dose; 60 dose inhaler; same as Combivent device
Indacaterol	Arcapta DPI	75 mg inhaled capsule	COPD; Basically same device as formoterol	
ICS/LABA Combo	Fluticasone/Salmeterol	Advair Diskus DPI	100/50, 250/50 or 500/50 mcg per puff (60)	Same as Serevent DPI except expires one month after opening
		Advair HFA	45/21, 115/21 or 230/21 mcg per puff (124)	Same as Flovent HFA except reprime @ 4 wk without use or if dropped
	Fluticasone/Vilanterol	Breo Ellipta DPI	100 mcg/25 mcg per puff (30)	COPD indication; 1 puff once daily
	Budesonide/Formoterol	Symbicort HFA	80/4.5 or 160/4.5 mcg per inhalation (120)	MDI; use with spacer; shake 5 seconds; 2 primes to start, reprime after 7d without use; do not use more than BID; expires 90 days after opening
Mometasone/Formoterol	Dulera HFA	100 mcg/5 mcg, 200 mcg/5 mcg (120)	MDI; use with spacer; shake 5 seconds; 4 primes to start, reprime after 5d without use; do not use more than BID; expires 90 days after opening	
	Umeclidinium/Vilanterol	Anoro Ellipta DPI	62.5 mcg/25 mcg per puff (30)	Only LAMA/LABA combo on the market at this time; 1 puff once daily; COPD
Anticholinergics	Ipratropium	Atrovent MDI/Neb	200 puffs (counter goes down q5-7 puffs);	Prime x2 at first and if unused >3 days;
	Ipratropium/albuterol	Duoneb Neb	0.5 mg/3mg per 3 ml	See individual ingredients above.
	Ipratropium/albuterol	Combivent Respimat MDI	120 puffs (counter); typical dose 1 puff q6h prn; mist sprays over almost 2 seconds;	Discard 3 mo after open; unused 3 days, reprime 1 puff; 21 days, full reprime; locks when counter reaches "0"; MDI is not being sold any more.
	Tiotropium	Spiriva DPI; Respimat	18 mcg capsule – 1 dose/day; 2.5 mcg Respimat – 2 puffs once daily	LAMA; Do not swallow capsule; Use Handihaler to pierce capsule; inhale x2 and listen for vibrating sound; dump capsule directly in trash;
	Umeclidinium	Incruse Ellipta DPI	62.5 mcg/puff – 1 dose/day	
	Aclidinium	Tudorza DPI	200 mcg/puff (60 puffs/inhaler)	LAMA. Dose window tells user is ready and if the dose was given.