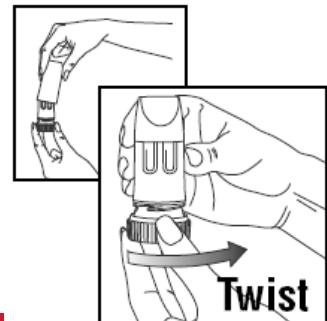




# SINGLE AGENT ICS DPI DEVICES- TECHNIQUES, PRIMING & CARE

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- **Disclosures:**

- This presentation and clinical recommendations support “best available evidence” from medical literature.
- I refrain from making recommendations regarding products or services.
- I have no financial relationship requiring divesting.
- I have associations or memberships with the following organizations
  - Stony Brook University Hospital
  - Association of Asthma Educators
  - National Association of Pediatric Nurse Practitioners
  - Asthma Coalition of Long Island



## DISCLOSURE

- CONTENT & GRAPHICS FOR THIS PRESENTATION HAS BEEN ADAPTED FROM VARIOUS LECTURES, POWER POINT PRESENTATIONS I HAVE GIVEN THROUGH MY JOB @ STONYBROOK UNIVERSITY HOSPITAL, AND THE ASTHMA COALITION OF LI
- Good resource : American Association for Respiratory Care Guide to Aerosol Delivery Devices
- [https://www.aarc.org/resources/aerosol\\_nonrt.pdf](https://www.aarc.org/resources/aerosol_nonrt.pdf)



## FACTS: ICS Dry Powder- Breath actuated inhalers

- Device that delivers medication to the lungs in the form of a dry powder
- DPI-Dry powder inhalers (e.g. diskus, flexhaler)
- Multiple dose devices, which contain up to 120 doses
- Throw away the inhaler 30-45 days after this date opened
- Need to follow specific instructions (usually ages 6yo & up)
- Require “quick and deep” inhalation, requires a specific inspiratory effort & ability to follow-EVALUATE ABILITY



- require minimal mouth to hand coordination
- drug aerosol is created by directing turbulent air through loose powder- respirable dose depends on inspiratory flow, DPI may require significantly high flows (30–90 L/min)
- advantage of needing no propellant
- Store in cool, dry place @ room temperature- Example Not a bathroom



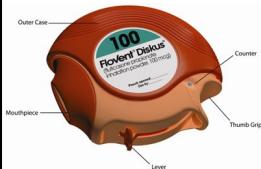
- ***Flovent Diskus*** (fluticasone)
- ***Asmanex Twisthaler*** (mometasone)
- ***Pulmicort Flexhaler*** (Budesonide)
- ✓ 1997-2007 was known as Turbuhaler
- ✓ Changes to Flexhaler are: 2 strengths, mouthpiece & dose counter improved
- ✓ Newest addition- **ARNUITY ELLIPTA** : (fluticasone furoate inhalation powder ) 2014-

|  <b>Stony Brook Children's</b> |                                    | <b>Pulmicort – Budesonide Flexhaler</b>                              |   |  |   |
|---|------------------------------------|--|---|--|---|
| <b>AAAAI Allergy &amp; Asthma<br/>Medication Guide<br/>Updated 6/2014</b>                                       | <b>GENERIC NAME<br/>Budesonide</b> | <b>BRAND NAME</b>  | <b>INDICATIONS</b>                              | <b>AGE/DOSE</b>  | <b>INSTRUCTIONS</b>   |
|                                |                                    | Pulmicort<br>Flexhaler<br>90 mcg<br>Pulmicort<br>Flexhaler<br>180mcg | Control/<br>prevent asthma.<br>Age 6 and older. | Children 6 to 17<br>180 mcg twice a day.<br>Maximum is 360<br>mcg twice a day.<br>Age 18 and older:<br>360 mcg twice a<br>day.<br>Maximum is 720<br>mcg twice a day. | <b>Shake before use?</b> No<br><b>Priming:</b> Before first use. Twist the grip in one direction, then back in the other direction until a click is heard one time.<br><b>Cleaning:</b> Weekly, clean the outside of the device with a dry tissue<br><b>Dose counter:</b> Yes<br>180 mcg = 120 dose<br>90 mcg = 60 dose |

|  <b>Stony Brook Children's</b>   |  | <b>BUDESONIDE FLEXHALER STEPS FOR USE</b> |
|---|--|---|
| <ol style="list-style-type: none"> <li>1.Hold the top (white cap) of the Pulmicort Flexhaler device in one hand, and unscrew the cap by twisting the bottom (brown dial) to the left.</li> <li>2.Twist the brown dial on the bottom of the inhaler to the right as far as it will go.</li> <li>3.Now, twist the brown dial back to the left as far as it will go.</li> <li>4.When you hear a "click" the medicine is now ready to be inhaled.</li> <li>5.Away from device exhale, hold the Flexhaler up to the mouth, making a tight seal with the lips around the tip of the inhaler.</li> <li>6.Take a long, deep breath, sucking in from the Flexhaler</li> <li>7. Hold the breath for 5 to 10 full seconds, then relax and exhale normally.</li> <li>8.Repeat steps 2 through 5 for each of the prescribed number of inhalations.</li> <li>9.Thoroughly rinse your mouth and/or brush your teeth after using any inhaled steroid, including the Pulmicort Flexhaler.</li> </ol> |  |   |

|  <b>Stony Brook Children's</b> <i>Asmanex -Mometasone Twisthaler 30-120 inhalation devices</i>                               |  |   |   |   |
|---|--|---|---|---|
|    | Asmanex - Mometasone Twisthaler 220mcg | Control/prevent asthma. Age 12 and older. | Age 12 and older: 220 to 880 mcg .          | <b>Shake before use?</b> No<br><b>Priming:</b> No<br><b>Cleaning:</b> Wipe mouthpiece dry after each use<br><b>Dose counter:</b> Yes<br><b>Beyond-use date:</b> 45 days after removal from foil pouch |
|    | Asmanex - Mometasone Twisthaler 110mcg | Control/prevent asthma. Age 4 to 11       | . Children 4 to 11: 110 mcg in the evening. | As above  |
| <a href="http://www.nationaljewish.org/healthinfo/medications/lung-diseases/devices/instructional-videos">http://www.nationaljewish.org/healthinfo/medications/lung-diseases/devices/instructional-videos</a> |  |   |   |   |

|  <b>Stony Brook Children's</b> <b>MOMETASONE TWISTHALER STEPS FOR USE</b>  |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Hold the bottom of the Asmanex Twisthaler device in one hand, and twist off the cap by unscrewing it in a counter-clockwise direction.</li> <li>• When the cap is removed, the dose of medication is automatically loaded into the inhaler device, and the dose-counter at the base of the inhaler will count down by one number.</li> <li>• Hold the Twisthaler up to the mouth, making a tight seal with the lips around the tip of the inhaler.</li> <li>• Take a long, deep breath, sucking in from the Twisthaler.</li> <li>• Hold the breath for 5 to 10 full seconds, then relax and exhale normally.</li> <li>• Screw the cap back onto the inhaler using a clockwise motion until the cap is securely attached to the inhaler.</li> <li>• Repeat steps 1 through 5 for each of the prescribed number of inhalations.</li> <li>• Thoroughly rinse your mouth and/or brush your teeth after using any inhaled steroid</li> <li>• Store in a room temperature, dry place , out of the reach of children</li> </ul> |  |

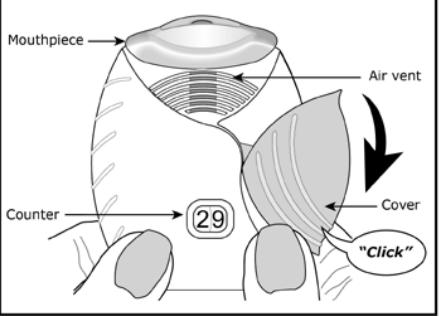
|  <b>Stony Brook Children's</b> |   | <b>Flovent- Fluticasone propionate inhalation powder DISKUS</b>  |  |
|---|---|--|--|
|                                | <p>FLOVENT DISKUS 50 mcg<br/>(fluticasone propionate inhalation powder, 50 mcg)</p> <p>FLOVENT DISKUS 100 mcg<br/>(fluticasone propionate inhalation powder, 100 mcg)</p> <p>FLOVENT DISKUS 250 mcg<br/>(fluticasone propionate inhalation powder, 250 mcg)</p> <p>FOR ORAL INHALATION USE</p> <p>Initial U.S. Approval: 1994</p> <p>60 inhalations</p> | <p><b>INDICATIONS AND USAGE</b></p> <p>FLOVENT DISKUS is an inhaled corticosteroid indicated for:</p> <p>Maintenance treatment of asthma as prophylactic therapy in patients aged 4 years and older</p> <p><b>DOSAGE AND ADMINISTRATION</b></p> <p>Patients aged 12 years and older</p> <p>Bronchodilators alone</p> <p>100 mcg twice daily</p> <p>500 mcg twice daily</p> <p>Inhaled corticosteroids</p> <p>100-250 mcg twice daily</p> <p>500 mcg twice daily</p> <p>Oral corticosteroids</p> <p>500-1,000 mcg twice daily</p> <p>1,000 mcg twice daily</p> <p>Patients aged 4-11 years</p> <p>50 mcg twice daily</p> <p>100 mcg twice daily</p> | <p><b>Shake before use?</b> No</p> <p><b>Priming:</b> No</p> <p><b>Cleaning:</b> Wipe mouthpiece dry after each use</p> <p><b>Dose counter:</b> Yes</p> <p><b>Beyond-use date:</b> write on label_ open date &amp; use by date (6-8wks)</p> <p><b>Store:</b> at room temperature between 68°F to 77°F (20°C to 25°C). in a dry place away from heat and sunlight</p> |

|  <b>DISKUS INSTRUCTIONS</b>  |  |
|---|--|
| <ol style="list-style-type: none"> <li>1. Grasp the <b>Flovent</b> (or <b>Advair</b>) Diskus with your non-dominant hand. Hold the larger part of the inhaler containing the sticker with the name of the medication.</li> <li>2. Place the thumb of your dominant hand into the thumb notch on the side of the diskus, next to the dose counter window.</li> <li>3. Slide the diskus open by pushing with your thumb while holding the Diskus steady in your non-dominant hand. Continue sliding until the mouth piece is fully revealed and you hear a click.</li> <li>4. Move your thumb from the thumb notch to the thumb lever next to the mouth piece. Push this lever away from the mouth piece until you hear a click. The dose counter will count down by one number when this is performed.</li> <li>5. Holding the device level (do not tip or shake the diskus, as the medication powder may fall out), place your mouth over the mouth piece and make a tight seal with your lips.</li> <li>6. Inhale deeply with your mouth, sucking the medication into the lungs. Hold your breath for 5 to 10 seconds, or as long as is comfortable.</li> <li>7. Close the cover of the diskus over the mouth piece. Keep an eye on the dose counter, as this number tells you the number of doses of medication remaining in the diskus.</li> <li>8. Rinse your mouth and brush your</li> </ol> |  |



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**ARNUITY ELLIPTA**



**fluticasone furoate inhalation powder 100 mcg & 200 mcg**  
Initial U.S. Approval: 2014

**once-daily dosing**

maintenance treatment of asthma as prophylactic therapy in patients aged 12 years and old

Pregnancy Category C.



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**ARNUITY ELLIPTA**

**HOW TO USE YOUR INHALER**

It comes in a foil tray. Keep the inhaler clean & dry. Avoid moisture, store in cool dry **place**..

**Check the counter – starts at #30, will turn red when < 10 doses left in DPI**

Slide the cover down to expose the mouthpiece. You should hear a “click.” The counter will count down by 1 number.

You do not need to shake this kind of inhaler.

While holding the inhaler away from your mouth, breathe out (exhale) fully. Do not breathe out into the mouthpiece. With lips tight around mouthpiece

Take 1 long, steady, deep breath in through your mouth. **Do not** breathe in through your nose.

- **Do not block the air vent with your fingers**

Hold breath 3-5 seconds , breath out slowly rinse mouth after use



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### HOW TO USE SINGLE AGENT ICS DPI

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- Use instructional handouts for each type
- Use a video clip such as which is available in multiple languages:
- <http://use-inhalers.com/learn-quick-video-twisthaler>
- or an App on your electronic devices
- **Assist Me-**  
FREE with multiple inhaler assistance  
step by step instructions on correct inhaler



MDI



Diskus



Handihaler



Twisthaler



Autohaler



Aerosizer



Flexhaler



Neohaler



Respimat



Stony Brook Children's

**“WHEN YOU CAN'T BREATHE, NOTHING ELSE MATTERS”**

Federal trademark registration *By: American Lung Association*

