

DRUG CARDS | DAILY



NAME(S): Generic: tiotropium (ty oh TRO pee um) | **Brand:** Spiriva HandiHaler, Spiriva Respimat

PHARMACOLOGIC & THERAPEUTIC CLASS: Anticholinergic Agent | Long Acting Muscarinic Antagonist (LAMA)

DOSAGE FORM & STRENGTH: **Inhaled Aerosol Solution:** 1.25 mcg/actuation, 2.5 mcg/actuation | **Inhaled Capsule:** 18 mcg (contains milk proteins)

INDICATION(S) & DOSING(S): ADULTS

- Chronic Obstructive Pulmonary Disease (COPD): [Inhaled Caps via HandiHaler]** Maintenance tx. Tx range inhale 2 puffs (1 cap) PO into the lungs qd. Max of 1 cap/24 hours. Caps used via HandiHaler device only. **[Inhaled Aerosol Solution]** Inhale 2 puffs (2.5 mcg) PO into the lungs qd. Max 5 mcg/day.
- Asthma: [Inhaled Aerosol Solution]** Maintenance tx. Inhale 2 puffs PO into the lungs qd. Max of 2 puffs (2.5 mcg) once daily. Max benefits seen in up to 4-8 weeks or earlier. 5 mcg/day in pts with poor response to inhaled corticosteroid + long-acting beta agonist or adult pts w/ severe asthma.

INDICATION(S) & DOSING(S): PEDIATRICS

- Asthma: [Inhaled Aerosol Solution]** Maintenance tx. Approved for 6 yo and older. Inhale 2 puffs (2.5 mcg) PO into the lungs qd. Max 2.5 mcg/day.

MECHANISM OF ACTION & PHARMACOLOGY

- MOA:** Reversible competitive inhibition of acetylcholine at type 3 muscarinic receptors in bronchial smooth muscle. Inhibition leads to bronchodilation. | Poorly **absorbed** in GI w/ systemic absorption from lung. | Hepatically **metabolized** via the CYP2D6 and CYP3A4 pathways. | **Excreted** in the urine. | The **Time to Peak** for the dry powdered inhaler (DPI, inhaled caps) is around 7 minutes. The soft-mist inhaler (inhaled aerosol) is b/t 5-7 minutes. | The **Half-Life Elimination** for the DPI and soft-mist inhaler is 25 hours in pts w/ COPD and the soft-mist inhaler for pts w/ asthma is 44 hours. | 72% **protein bound**.

SPECIAL POPULATIONS & CONSIDERATIONS

- Renally Impaired:** Reduced clearance. Increased concentrations in plasma. | **Elderly:** Reduced clearance. | **Contraindications & Cautions:** Pts w/ acute bronchospasm, hypersensitivity to milk proteins (inhaled caps), CrCl <60, glaucoma, & bladder neck obstruction. | **Pregnancy:** Although data is limited, use is likely acceptable and uncontrolled asthma during pregnancy increases risk of perinatal mortality, preclampsia, low birth weights, etc. | **Lactation:** Risk is not expected due to minimal drug excretion into milk.

SIDE EFFECTS

- Common:** Cough, xerostomia, headache, sinusitis, GERD, palpitations, dizziness, rash, & UTI.
- Serious:** Paradoxical bronchospasm & angle-closure glaucoma

DRUG INTERACTIONS

- Considerations for DI:** Anticholinergics



- **Contraindicated & drug(s) of Caution:** Clozapine, amantadine, amitriptyline, aripiprazole, atropine, codeine, diphenhydramine, tramadol, trospium, quetiapine, pilocarpine, & potassium citrate/chloride/phosphate.

MONITORING PARAMETERS

- S/sx of anticholinergic if pt has a CrCl <60, FEV1, peak flow, s/sx of narrow angle glaucoma and urinary retention.

PATIENT COUNSELING INFORMATION

- Tiotropium is used to treat patients w/ **COPD** and **asthma**.
- Not a quick-relief inhaler and is **not to used to treat flare-ups or shortness of breath**.
- Do not use more than 2 times (2.5 mcg) in a 24 hour period.
- In order to get optimal results tiotropium should be used regularly at evenly spaced intervals.
- Clean inhaler at least once monthly with water and allow to air dry.
- Rinse mouth out to **prevent dry mouth** and **throat irritation**

REFERENCE(S) & RESOURCE(S)

1. <https://online.epocrates.com/drugs/365710/Spiriva-HandiHaler/Monograph>
2. <https://online.epocrates.com/drugs/702410/Spiriva-Respimat/Monograph>
3. <https://www.drugs.com/ppa/tiotropium.html>
4. <https://www.webmd.com/drugs/2/drug-89061-380/tiotropium-bromide-inhalation/tiotropium-powder-in-capsule-inhalation/details>
5. <https://www.uspharmacist.com/article/summarizing-the-2021-updated-gold-guidelines-for-copd>
6. <https://ginasthma.org/wp-content/uploads/2021/05/GINA-Main-Report-2021-V2-WMS.pdf>

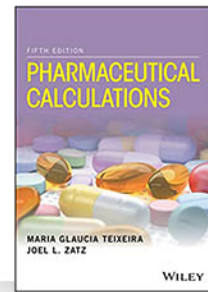


PREPARE FOR SUCCESS!

Comprehensive (NAPLEX)



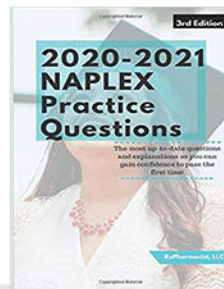
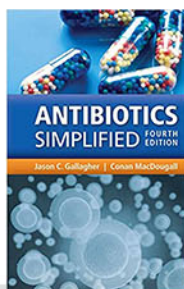
Calculations (NAPLEX)



Pharmacy Law (MPJE)



Supplemental



DRUG CARDS DAILY

Monday at 7 am EST
(6 am CST, 4 am PST)

HEY NEW GRAD!

So you landed that perfect job offer or got the perfect match for your PGY1 and now the **ONLY** thing standing in your way is passing the NAPLEX and MPJE.

Here are some NAPLEX & MPJE prep recommendations to help you do everything you can to **pass the first time!**

HEY STUDENT!

When I was P1 one of the best pieces of advice I got from those before me was to use a NAPLEX Prep book while learning each topic.

This helps focus your learning and the repetition helps to retain info and indirectly prepare you for the NAPLEX

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