



# Pharmacy Phacts: Updates in Medications

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## Objectives

- Discuss two new medicines for the treatment of Attention-Deficit/Hyperactivity Disorder (ADHD)
- Integrate new asthma treatment guidelines into patient care
- List two new treatments for infectious diseases
- Provide three examples of medication cost-savings
- Discuss two safety concerns of medications from the presentation

## Case — ADHD

- ML is an 8yo male with diagnoses of ADHD, autism, and insomnia who you are seeing in clinic for follow-up of conditions.
- His medications include methylphenidate XR suspension (Quillivant™) 20mg qam and clonidine 0.1mg TID.
- He is not able to swallow solid dosages and has taste and sensation aversions when crushing tablets or opening capsules.
- His ADHD is well-controlled and vital signs are stable.

## Case — ADHD

Caregivers are happy with his therapy, but they would like to decrease the number of times per day they give him clonidine. What are their options?

- a. Change to guanfacine ER 1mg tablet at bedtime.
- b. There are no options and will have to continue therapy.
- c. Initiate clonidine XR suspension (Onyda™ XR) 0.1mg po qHS and d/c 0.1mg tablets
- d. Change clonidine to melatonin liquid 1mg at bedtime.

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## Clonidine XR suspension 0.1mg/mL

- Alpha<sub>2</sub>-adrenergic agonist FDA approved for the treatment of ADHD in pediatric patients ≥6 years of age
- Once daily at bedtime
- Monotherapy or adjunct to stimulants
- Side effects and safety concerns are the same as clonidine tablets
- Store at room temperature for 30-60 days
- Adapter and dosing syringe
- Citrusy, orange flavor

## Clonidine XR suspension 0.1mg/mL

Initial Dose	Titrate	Maximum Dose	Discontinue Therapy
0.1mg at bedtime	0.1mg every 7 days	0.4mg once daily	Decrease by 0.1mg every 3-7 days

- NOT interchangeable on a mg-mg basis with tablet formulations.
- Suspension or crush tablets?
- Insurance coverage



Photo credit: Jillian Gould, PharmD, RPH

## Case — ADHD

- CL is a 10yo female with a diagnosis of ADHD who is being seen in your clinic for follow-up of ADHD.
- Her ADHD is sub-optimally treated with stimulant therapy, limited by patient's failure to grow. Her vital signs are stable.
- She has tried alpha-agonists in addition to her stimulant but was not able to tolerate somnolent side effects.

## Case — ADHD

CL's caregivers would like to know what other medicines are available. Which do you suggest?

- a. Add a stimulant from a different class.
- b. Add viloxazine ER
- c. Add bupropion.
- d. Add cyproheptadine.

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## Norepinephrine Reuptake Inhibitors (NRI's)

	Atomoxetine (Strattera®)	Viloxazine ER (Qelbree®)
Dosage Form	Capsule	Capsule
Administration	Swallow whole	Swallow whole or open
Dosing	mg/kg, titrate after 3 days	100mg – 600mg, titrate weekly
Frequency	1-2x daily	Daily
Onset of action	2 weeks	1 week
Generic	Yes	No
Safety	Suicidal ideation, liver	Suicidal ideation
Metabolism	CYP2D6	CYP1A2

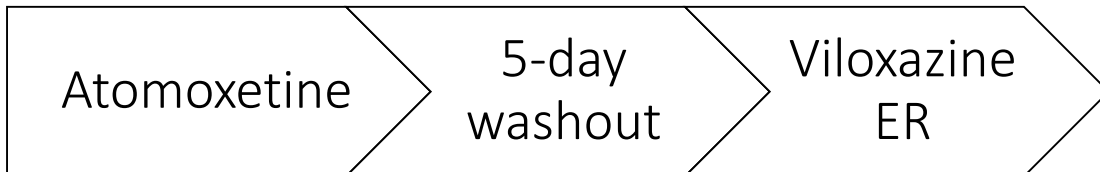
## Atomoxetine or Viloxazine ER

- 50 patients with combined-type ADHD at a psychiatric center in an open-label, voluntary crossover study of atomoxetine and viloxazine ER

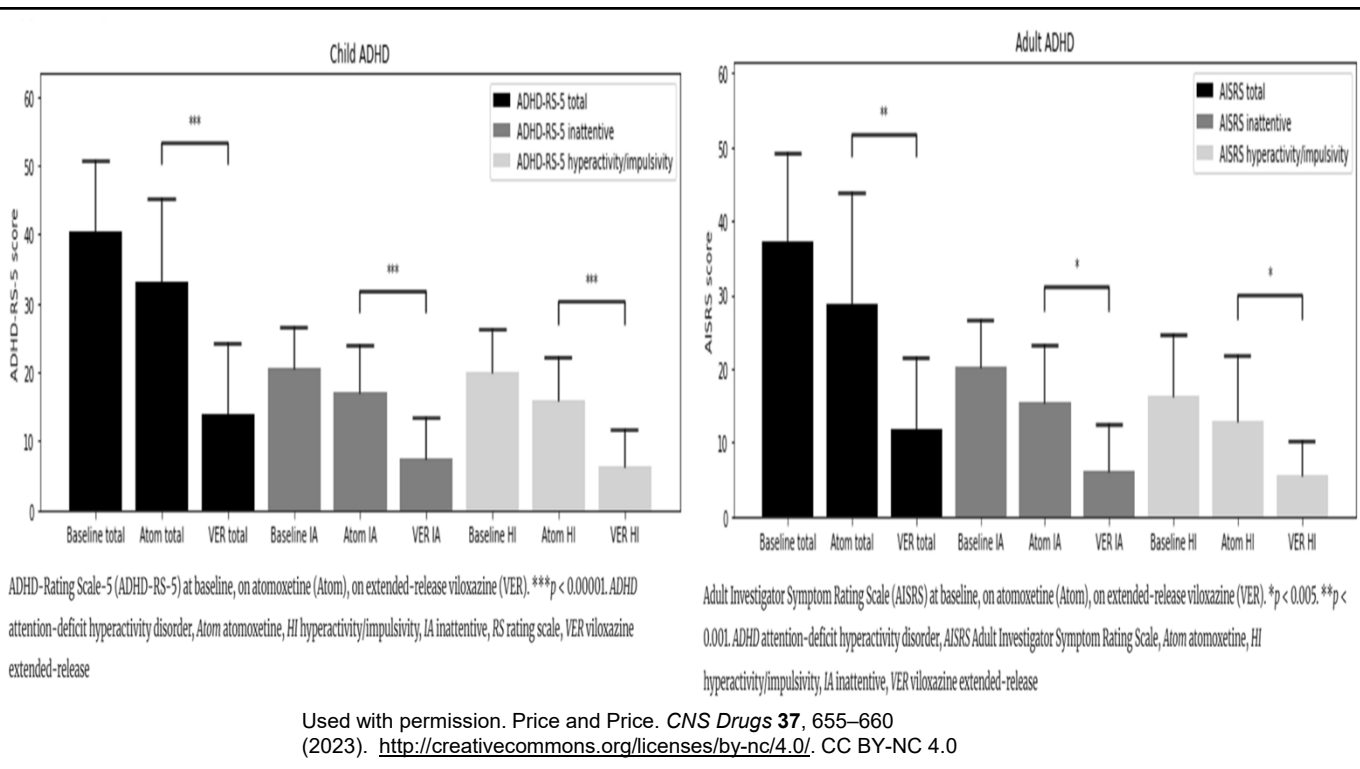
Study Subjects	Pediatric	Adult
Number	35	15
Age (average, range)	11.9 (6-17) years	29.3 (20-51) years
Sex	94.3% male	73.3% male
Race	94.3% white	93.3% white
Concomitant stimulant therapy	42.9%	73.3%

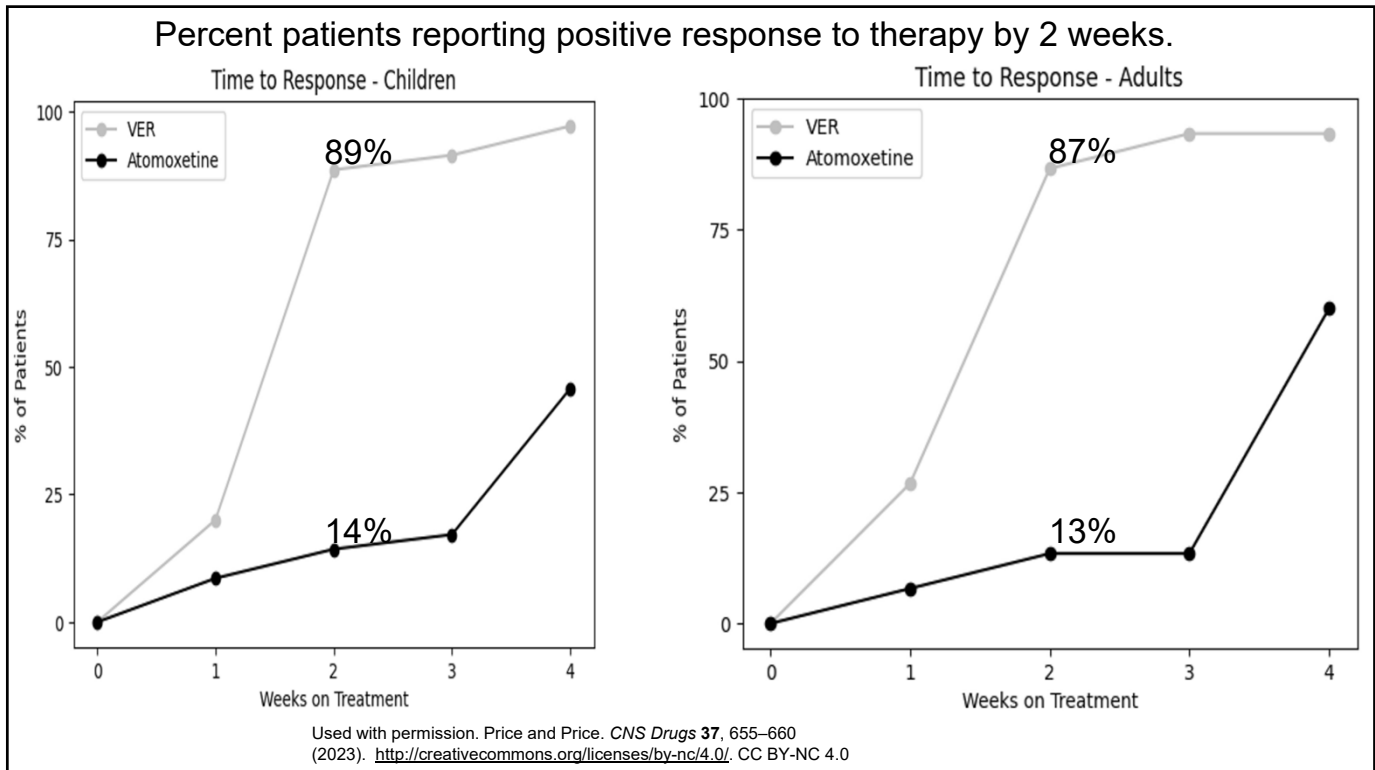
# Atomoxetine or Viloxazine ER

- Pediatric ADHD Rating Scale and Adult Investigator Symptom Rating Scale



- Maximum treatment of 4 weeks each
- Atomoxetine average daily dose: 60mg (25-100mg)
- Viloxazine ER average daily dose: 300mg (100-600mg)





## Atomoxetine or Viloxazine ER

- No one discontinued due to lack of response
- Discontinued for side effects
  - 36% discontinued atomoxetine
  - 4% discontinued viloxazine ER
- 96% participants preferred viloxazine ER over atomoxetine
- 85% were able to taper psychostimulants

## Atomoxetine or Viloxazine ER

- Limitations
  - Very small population
  - Unblinded, open-label, retrospective chart review
  - No placebo group
  - Potential placebo effect, period effect, carryover effect
- Strengths
  - Pediatric and adult participants
  - Validated rating scales
  - Real-world clinic setting
- Barrier = insurance preferences

## Two Truths and a Lie—ADHD

- a. High doses of amphetamines may be linked to risk of psychosis over methylphenidate in adolescents and young adults.
- b. Patients that take stimulants or norepinephrine reuptake inhibitors for treatment of ADHD should be monitored for cardiovascular side effects.
- c. Stimulant adverse effects can be expected at the same incidence in all patients no matter their age.

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## **Two Truths and a Lie—Allergies**

- a. A new warning for cetirizine and levocetirizine is the possibility of developing kidney stones.
- b. Omalizumab is approved to reduce allergic reactions to food in patients 1 year of age and older.
- c. neffy® is the name of a new epinephrine nasal spray approved by the FDA.

## Two Truths and a Lie—Allergies

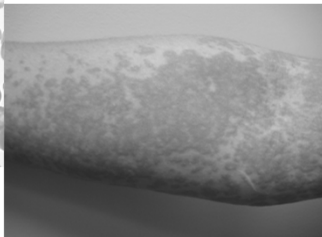
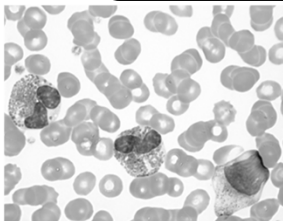
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## Omalizumab (Xolair®)

2024 FDA approval to reduce allergic reactions to food in patients as young as 1 year of age

Preventative not rescue

Practice avoidance and carry epinephrine



# ASTHMA



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# Epinephrine nasal spray (neffy®)



- Approved for patients down to 4 years of age.
  - 15-29kg: 1mg/0.1mL
  - ≥30kg: 2mg/0.1mg
- Similar to other sprayers
- Clinical trials for approval:
  - Four adult studies
  - 1 pediatric study
- Compared to intramuscular epinephrine

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# Epinephrine nasal spray (neffy®)



- Side effects
  - Nasal discomfort, tingling, dryness
  - Epistaxis
  - Sneezing, rhinitis or congestion
  - Anxiety or dizziness
- 1 sprayer in 1 naris
  - Repeat in 5 minutes in the same nostril if needed.
- Prescribe at least 2 devices + refills
- About \$200 per carton of 2
- Instant savings down to \$25 for 4

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## Case—Asthma

TL is a 23yo female in clinic for a follow-up of her persistent asthma.

She expresses to you her frustration with having to have 2 inhalers for the treatment of her asthma. Her medications include medium-dose inhaled corticosteroid (ICS) daily BID and albuterol as needed (prn).

TL needs at least 2 puffs of albuterol for her asthma symptoms, and albuterol works sometimes. She is adherent to her ICS.

A friend mentioned to TL that her doctor gave her one inhaler to use daily and as needed, and TL tells you she is interested in something similar.



## Case — Asthma

Which of the following points should you *not* include in your counseling about SMART (single maintenance and reliever therapy) to TL?

- ICS-formoterol inhaler patents have been extended since the FDA approved them for use as SMART.
- ICS-formoterol SMART regimen significantly reduces the risk of severe exacerbations compared to traditional daily controller + prn albuterol regimens.
- The preferred product for SMART is budesonide + formoterol.
- ICS-formoterol inhaler can also be used before physical activity.

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## SMART/MART Pearls

PRN doses of ICS-formoterol are just 1 puff

Can be used in any patient 4 years of age and older

Patients with a history or risk of adverse events to systemic steroids

Doses of ICS depend on the patient's age (4-11yo and ≥12yo)

Max daily doses:  
4-11yo = 8 puffs  
12yo+ = 12 puffs

Do not HAVE to rinse after prn doses

Prescriptions should be written for 2 inhalers per dispense

Works as quickly as albuterol and as well as having 2 inhalers

## **Two Truths and a Lie—Asthma**

- a. Uninsured patients can get low-cost inhalers for treatment of asthma and chronic obstructive pulmonary disease (COPD).
- b. Providers are excelling in the adoption and implementation of Global Initiative for Asthma (GINA) asthma guidelines.
- c. Montelukast has recently been found to attach to receptors in the brain that impact psychiatric functioning.

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## Case—COPD

DM is a 66yo male who you are seeing for a COPD exacerbation follow-up; he is back to baseline. He is a 20-pack year former smoker. His medication regimen includes umecclidinium-vilanterol 6.25mcg-25mcg/actuation dry powder inhaler, 1 inhalation once daily; and albuterol 90mcg/actuation metered dose inhaler, 2 puffs with a spacer q4h prn cough, wheeze, shortness of breath.

The clinic pharmacist reports that the patient is adherent to treatment and has good device techniques.

He is not a candidate for LABA/LAMA/ICS triple therapy because he does not have an elevated eosinophil count.

## Case—COPD

DM would like to know if there is anything else that can be done to prevent exacerbations. Which of the following do you discuss with him as an option?

- a. There are no additional medicines that can be added.
- b. Initiate dupilumab sub-q injections.
- c. If he has another exacerbation, you will send him to the hospital for treatment with benralizumab.
- d. Initiate azithromycin 500mg three times weekly.

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## Case—COPD

Seeing how sick DM gets with his COPD, his wife would like help with her smoking cessation efforts. Which of the following suggestions can you give her?

- a. Nicotine replacement as monotherapy
- b. Change to cigars
- c. DM should hide his wife's cigarettes and lighter
- d. ZYN<sup>®</sup> nicotine pouches

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## Respiratory Syncytial Virus (RSV) Immunoglobulin



	Nirsevimab (Beyfortus <sup>®</sup> )	Clesrovimab (Eflonsia <sup>™</sup> )
Dosage Form	Prefilled syringe for injection	
Administration	Intramuscular	
Dosing	<5kg = 50mg ≥5kg = 100mg 2nd RSV season = 200mg (2 x 100mg)	105mg
Target population	<8 months of age 8-19 months of age at increased risk	<8 months of age
Frequency	Once unless vulnerable for a 2nd season	Once
Age Limitation	Up to 24 months of age	Up to 12 months of age
Length of immunity	At least 5 months	
Price	\$556 for all doses	

## Two Truths and a Lie—Infectious Disease

- a. Treating a female's sexual male partner for bacterial vaginosis has no effect on the female patient's risk of recurrence.
- b. Solupenem etzadroxil and probenecid (Orlynvah™) is a new antibiotic to treat female urinary tract infections.
- c. Gepotidacin (Blujepa™) is a new antibiotic successful in treating female urinary tract infections and gonorrhea.



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# Insulin Affordability

Brand	Package Size	Daily Dose	Day's Supply	Price
Lantus® SoloStar® 100 units/mL	Any quantity!	Any dose!	30 days	\$35
Toujeo® SoloStar® 300 units/mL	Any quantity!	Any dose!	30 days	\$35

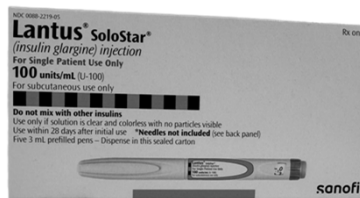


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# Insulin Affordability

Walmart's ReliOn® Brand	Package Size	Daily Dose	Day's Supply	Price
-NPH 100 units/mL -Regular 100 units/mL -70/30 100 units/mL	10mL vial	80 units	12 days	~\$25
-NPH 100 units/mL -Regular 100 units/mL -70/30 100 units/mL	5 - 3mL pens per carton	80 units	18 days	~\$43

## DOAC "Affordability"

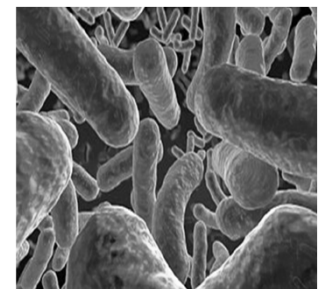
- Rivaroxaban 2.5mg tablet
  - Indicated for the reduction of major cardiac events in adults with coronary artery disease and peripheral artery disease
  - 10mg, 15mg, 20mg, and starter packs are brand name
  - #60 for 30 days \$150-\$200
- Eliquis® Direct-to-Consumer Sales
  - Eliquis 360 Support Program
  - Under- and uninsured patients
  - ~43% discount
  - Medicare averages \$230



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## Medication Safety

- Disposal
  - DEA Take Back Days
  - Mail-back envelopes
  - Collection receptacles
- Probiotics in premature babies
- Tirzepatide and oral contraceptives
- Testosterone replacement and the heart



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## Summary

- Clonidine XR (Onyda™ XR) suspension and viloxazine ER (Qelbree®) are two newer ADHD medicines.
- New medicines and new ways to treat allergic reactions and asthma exist.
- Nirsevimab (Beyfortus®) and clesrovimab (Eflonsia™) are passive antibodies to prevent severe RSV infection in infants.
- Solupenem etzadroxil (Orlynvah™) and Gepotidacin (Blujepa™) are new antibiotics to treat female UTI

## Summary

- Manufacturers have programs to make medications like insulin and inhalers more affordable, but not all generic medications are affordable.
- Safety concerns about medications revolve around issues such as disposal, side effects, and drug-drug interactions.