New Drugs of 2008 for Pharmacy Technicians
A Quick Overview

MSHP/ICHP Spring Meeting
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Disclosures

• Speaker owns less than 100 shares of Amgen stock.
• Branded product packaging is included for educational purposes to assist in the prevention of medication errors. Inclusion does not represent speaker endorsement.
• All conflicts have been resolved through peer review.
• Speaker has no other disclosures.

Learning Objectives

• Name the disease state and therapeutic class for each new agent.
• Discuss the dosage form and route of administration for each new agent.
• Describe the most serious adverse effects for each class of agent discussed.
• List special issues related to dosing, storage, and dispensing for each new agent.
New Drug Approvals 2008

January (7): ciclesonide, rh-thrombin, etravirine, somatropin, amoxicillin, fosaprepitant

February (4): niacin-simvastatin, rilonacept, desvenlafaxine, r-antihemophilic factor

March (2): levoleucovorin, bendamustine

April (6): rotavirus vaccine, regadenoson, olopatadine, sumatriptan-naproxen, certolizumab pegol, methylprednisolone bromide

May (2): alvimopan, r-Factor VIIa

June (5): triamcinolone acetonide, DTP-Polio-H.influenzae vaccine, metformin-repaglinide, difluprednate, DTP-Polio vaccine

July (1): gadobenate

August (3): cilnidipine, tetrahexizine, romiplostim

September (2): granisetron patch, ibogauene sulfate I 123

October (6): sirolimus, C1 inhibitor (human), benzyl peroxide & clindamycin topical, lacosamide, mesalamine, febuxostate

November (3): rufinamide, etrombopag, tapentadol

December (7): synthetic conjugated estrogen, adalatidene & benzyl peroxide, pirenzepine, zolpidem tartrate, gadofosveset trisodium, bimatroprost, degarelix

Pharmacist’s Letter, New Drugs Approved by the FDA in 2008
Drug Information Online. www.drugs.com

Review of Systems

- Ophthalmology
- Pulmonology
- Cardiology
- Gastroenterology
- Urology
- Obstetrics & Gynecology
- Neurology
- Immunology
- Endocrinology
- Hematology
- Oncology
- Dermatology
- Psychiatry
- Infectious Disease
- Pediatrics
- Radiology
- Surgery

Ophthalmology

- difluprednate (Durezol™)
- bimatroprost (Latisse™)
- triamcinolone (Trivaris™)
**difluprednate (Durezol™)**
- Corticosteroid
- Sterile topical ophthalmic emulsion
- For pain and swelling after eye surgery
- Start 24 hours after surgery, 4x/day for 2 weeks after surgery; then 2x/day for a week, then taper
- Don’t use if eye infection
- Store at room temperature
- Rx; not CS

Epocrates Drug Information. www.epocrates.com

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**bimatroprost (Latisse™)**
- Prostaglandin-like drug for hypotrichosis
- Approved in 2001 for glaucoma (Lumigan®)
  - Found to increase length, thickness and darkness of eye lashes
- May lower intraocular pressure
- Applied with applicator once nightly
- To base of eyelashes on top lids only
- May increase pigmentation
- Store at room temperature
- Rx; not CS
- L/SA: brimonidine; latanoprost

Epocrates Drug Information. www.epocrates.com

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**triamcinolone acetonide (Trivaris™)**
- Initially approved in 1957
- New suspension formulation
- For intravitreal injection
- 8mg/0.1ml single-use glass syringe
- Doesn’t come with a needle
- Do NOT give IV
- Store refrigerated
- Rx; not CS
- Others: Triescence™ & generics for intravitreal, intramuscular, and intra-articular injection

Epocrates Drug Information. www.epocrates.com

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What do you know?

Bimatoprost is a prostaglandin-like drug that
A. is available as an eye drop to decrease intraocular pressure.
B. is applied to the lower eyelid to thicken eye lashes.
C. is applied to the upper eyelid at the eyelash line to thicken eye lashes.
D. A and C only.

Pulmonology

- **olopatadine** (Patanase®)
- **ciclesonide** (Alvesco®)

**olopatadine** (Patanase®)
- Seasonal allergic rhinitis ≥ 12 yo
- Antihistamine nasal spray
- 2x/day 2 in each nostril
- Prime (x5) initially & (x2) if not used x7d
- ADR: bitter taste, HA, nosebleed, cough
- Caution: can cause sleepiness
  - Alone, EtOH, CNS depressants
- Contains 240 sprays (30 days)
- Store at room temperature
- Rx; not CS
ciclesonide (Alvesco®)

- Inhaled synthetic corticosteroid
- Asthma prevention
  - adults & peds ≥ 12 yo
- 2x/day inhalation; Prime (x3)
- NOT for acute attack
- Rinse mouth after use
- ADR: bronchospasm
- Store at room temp
- Rx; not CS

What do you know?

Which of the following is TRUE?

A. Ciclesonide is an antihistamine.
B. Olopatadine is a corticosteroid.
C. Both ciclesonide and olopatadine devices must be primed prior to initial use.
D. Both ciclesonide and olopatadine are administered once daily.

Cardiology

- niacin-simvastatin (Simcor®)
- clevidipine (Cleviprex™)
niacin-simvastatin (Simcor®)
- Unscored oral combination tablets for high cholesterol
- Niacin is extended-release
  A. 500mg/20mg
  B. 750mg/20mg
  C. 1000mg/20mg
- Take at bedtime with low-fat snack
- Do not cut, crush or chew
- Pregnancy Category X
- Watch blood sugar, muscle pain

clevidipine (Cleviprex™)
- Calcium Channel Blocker
- RTU emulsion for IV infusion
- For hypertensive crisis when oral not poss.
  – i.e. ICU, OR, ED
- ADRs: ↓ BP, ↑ HR (rebound)
- Store refrigerator, photosensitive
- RT ok x 2 months
- Light okay during infusion

What do you know?
Which of the following is TRUE?
A. Niacin/simvastatin is an ORAL drug for high blood pressure
B. Niacin/simvastatin can be CRUSHED and dispersed in apple sauce.
C. Clevidipine is a ready-to-use emulsion for IV infusion.
D. Clevidipine must be protected from light during infusion.
Gastroenterology

- certolizumab (Cimzia®)
- methylnaltrexone (Relistor®)
- alvimopan (Entereg®)
- granisetron (Sancuso®)
- mesalamine ER (Apriso™)

Pharmacist's Letter, New Drugs Approved by the FDA in 2008
Drug Information Online.  www.drugs.com

certolizumab pegol (Cimzia®)
- Subcutaneous injection
- Crohn’s disease in adults
- Don’t give w/: adalimumab, infliximab, natalizumab
- ADR: serious infection, muscle weakness, injection site reactions
- Reconstitute w/ SWI
- Vial = 200mg; Dose = 400mg (2 shots)
- 2 injections q 4wks by healthcare provider
- Rx; not CS

Epocrates Drug Information.  www.epocrates.com

methylnaltrexone (Relistor®)
- Subcutaneous injection
- Opioid-induced constipation
- Similar to naltrexone
  – doesn’t cross into CNS
- ADR: flatulence, DC if severe NVD
- Tell patient to be close to bathroom
- Works within 30 min to 4 hours
- Given NMT 1x/day PRN until BM
- Store at room temp
- RX, not CS

Epocrates Drug Information.  www.epocrates.com
alvimopan (Entereg®)
- Oral capsules
- Peripheral opioid receptor blocker
- Regain GI function after bowel resection
- Restricted access – hospitals must register
- May not be dispensed to discharge patients
- Caution if recent opioid use
- Store at room temperature
- Rx; not CS

granisetron (Sancuso®)
- Transdermal patch
- Chemo-induced NV
- Apply to upper outer arm
  – 24 hrs before chemo
- Protect patched skin from sunlight
- Can be worn for up to 7 days
- Store at room temperature
- Rx; not CS

mesalamine (Apriso™)
- New extended release form
- Locally acting aminosalicylate
- Maintain ulcerative colitis remission
- Once-daily (5 capsules)
- Don’t Crush or chew or give with antacids ADR:
  HA, diarrhea, upper abdominal pain
- Store at room temperature
- Rx; not CS
- USA: megestrol; memantine; metaxalone; sulfasalazine
What do you know?

Which of the following is TRUE?
A. Certolizumab is a self-administered.
B. Methylaltrexone causes opioid withdrawal symptoms.
C. Alvimopan can be obtained from community pharmacies.
D. Granisetron transdermal patches can cause skin photosensitivity reactions for up to 10 days after removal.
E. Meselamine extended release capsules can be given with antacids.

Urology

• silodosin (Rapaflo™)
• fesoterodine (Toviaz™)

silodosin (Rapaflo™)
• Oral capsule: 4mg & 8 mg
• Alpha-blocker
• Benign prostatic hyperplasia (BPH)
• Once daily with meal
• Caution: postural hypotension
• NOT for high blood pressure!
• Store at room temperature
• Rx; not CS

**Toviaz™ (fesoterodine)**

- Oral extended-release tablet
  - 4mg "FS" (A); 8mg "FT" (B)
- For overactive bladder
- Can be taken with/without food
- ADR: dry mouth, constipation, urinary retention
- Caution in heat
- Store at room temperature
- Protect from moisture
- Rx; not CS

**Obstetrics/Gynecology**

- synthetic conjugated estrogen (SCE-A)

**synthetic conjugated estrogen (SCE-A)**

- Plant-derived estrogen vaginal cream
- Initially approved in 1999
- For severe vaginal dryness and painful intercourse due to menopausal changes
- Reusable applicators
  - Remove plunger from barrel
  - Wash with mild soap and warm water
- Store at room temperature
- Rx; not CS
What do you know?

Which of the following is FALSE?
A. Silodosin is used to treat hypertension and benign prostatic hyperplasia.
B. Fesoterodine can not be crushed or chewed, but can be taken with or without meals.
C. Alcohol can increase drowsiness with fesoterodine.
D. Applicators provided with synthetic conjugated estrogen vaginal cream can be washed with mild soap and warm water.

Neurology

- sumatriptan-naproxen (Treximet®)
- lacosamide (Vimpat®)
- rufinamide (Banzel™)
- tapentadol

sumatriptan/naproxen (Treximet®)
- Oral tablet: 500mg/85mg for acute migraine
  – Sumatriptan is a 5-HT1 agonist
  – Naproxen is a NSAID
- NMT 2 tabs/24 hours, separated by 2 hrs
- May increase risk of Heart Attack or GI Bleed
- Pregnancy registry
- Can be taken with/without food
- Store at room temperature
- Don’t repackage
- Rx; not CS
**Lacosamide** (Vimpat®)
- Oral tablets and IV injection
- Adjunct in partial onset seizures ≥ 17 yo
- PO 2x/day film-coated tablets
  - 50 mg (pink), 100 mg (dark yellow)
  - 150 mg (salmon), 200 mg (blue)
- IV when PO isn’t possible
  - IV daily dose equivalent to oral daily dose
  - Compatible w/ NSS, D5W & LR x24h in PVC or glass at room temperature
- Caution: suicidal behavior
- Pregnancy registry
- Store at room temperature
- Rx; not CS

**Rufinamide** (Banzel™)
- Oral tablets:
  - 200mg (A) & 400mg (B)
- Antiepileptic, not like any other
- Adjunct for Lennox-Gastaut Syndrome (LGS) seizures
- Adult and Pediatric use ≥ 4 yo
- Caution: suicidal ideation, seizures, decreased WBC, sleepiness
- Store at room temperature
- Rx, not CS

**Tapentadol**
- Oral opioid analgesic tablets
- Moderate to severe acute pain ≥ 18 yo
- Caution: respiratory depression, CNS effects
- 50, 75, 100mg q4-6hrs PRN pain
- For short term use only
- Physical dependence
- Addictive potential
- Rx, CS; in DEA review
What do you know?

Which of the following is TRUE?
A. Sumatriptan/naproxen can be unit dosed in the hospital pharmacy.
B. The IV and oral doses of lacosamide are equivalent.
C. Rufinamide is a controlled substance.
D. Tapentadol is available from wholesalers for stocking in the pharmacy.

Immunology

- rilonacept (Arcalyst™)
- human C-1 inhibitor (Cinryze™)

rilonacept (Arcalyst™)
- Cryopyrin-associated periodic syndromes (CAPS)
- Extremely rare inherited inflammatory response
  - 300 pts in US; 50% due to gene mutation
  - Acute attack after exposure to cold
- Adults & children ≥ 12 yo
- Injection site reactions
- Subcutaneous injection
- Lyophilized powder, use w/in 3 hrs
- 1st dose observed, then self-administered
- Doesn’t come with supplies
- Refrigerate, protect from light
- Rx; not CS

Pharmacist's Letter, New Drugs Approved by the FDA in 2008
Drug Information Online. www.drugs.com
human C-1 inhibitor (Cinryze™)
- From human plasma
- Hereditary angioedema prophylaxis
  - Life-threatening inherited condition
- Missing plasma protein;
- 6,000 – 10,000 pts in US
- IV 1 mL/min q3-4 days
- Freeze-dried powder
  - Reconstitute w/ 5ml SWI (not provided)
  - Withdraw via filter needle
  - Use w/in 3 hours
- Restricted access
- Refrigerate. Protect from light.
- Rx, not CS

Endocrinology
- somatropin (Accretropin™)
- metformin-repaglinide (Prandimet™)

somatropin (Accretropin™)
- Yet another growth hormone product!
- Pediatric growth hormone deficiency
  - Growth failure due to inadequate GH
  - Short stature due to Turner Syndrome
- Multi-dose vial
  - Use up to 14 days after first use
- Refrigerate
- Do not freeze. Do not shake.
- Rx
**repaglinide-metformin**  
(PrandiMet™)  
- Combination for Type 2 diabetes  
- Oral tablets  
  - 1mg/500mg (yellow)  
  - 2mg/500mg (pink)  
- 2-3x daily, 15-30 minutes before a meal  
- If meal is skipped, dose should not be taken.  
- ADR: low blood sugar (repaglinide); NVD (metformin)  
- Store at room temp.  
- Protect from moisture.  
- Rx; not CS  


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**What do you know?**
Which of the following is TRUE?
A. Rilonacept packaging does not include the syringes, needles, diluent, alcohol wipes and gauze the patient needs to administer the drug.
B. Human C-1 inhibitor packaging does not include the sterile water needed for reconstitution.
C. Repaglinide-metformin should be taken 15-30 minutes before a meal.
D. All of the above are TRUE.

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**Hematology**
- r-antihemophilic factor (Xyntha™)  
- romiplostim (Nplate™)  
- eltrombopag (Promacta®)  
- bendamustine (Treanda®)  
- plerixafor (Mozobil™)
r-antihemophilic factor (Xyntha™)
- Hemophilia A (FVIII deficiency)
  - Bleeding control
  - Surgical prophylaxis
- Additional treatment option
- Recombinant
- Plasma and albumin free
  - Minimizing risk of infection
- Pt reconstitutes & gives IV over a few minutes
- Use within 3 hours of reconstitution
- Kit includes all supplies
- Store refrigerated
- RT storage ok for up to 3 mo
- Rx, not CS

romiplostim (Nplate™)
- Weekly subcutaneous injection
- Restricted distribution (REMS)
- Thrombopoietin receptor activator
- Idiopathic thrombocytopenic purpura (ITP)
- Do NOT use to normalize platelet counts
- Administered by healthcare provider
- FDA-mandated medication guide
- Lyophilized powder, refrigerate
- Use syringes w/ 0.01ml graduations
- Use w/in 24hrs of reconstitution
- Rx, not CS

eltrombopag (Promacta®)
- Oral once daily tablets
  - 25 mg (A); 50mg (B)
  - Give on empty stomach
  - Lower dose in East Asians & Liver Disease
- Restricted distribution (REMS)
- Thrombopoietin receptor agonist
- Idiopathic thrombocytopenic purpura (ITP)
  - Stop if no response in 4 weeks
- Do NOT use to normalize platelet counts
- CAUTION: liver toxicity
- Pregnancy Registry
- Rx, not CS
**bendamustine** (Treanda®)
- Chemotherapy agent (alkylating)
- Leukemia and lymphoma
  - Chronic lymphocytic leukemia (CLL)
  - Non-Hodgkin lymphoma (NHL)
- CAUTION: ↓WBC, ↓platelets, NV, skin reactions, fever, fatigue
- Lyophilized powder – store at room temp
- Reconstitute w/ SWI and dilute with NSS w/in 30 minutes of reconstitution
  - Stable 3 hrs @ RT; 24 hrs refrigerated
- Use chemo precautions
- Pregnancy Category D
- Rx; not CS

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**plerixafor** (Mozobil™)
- Mobilizes stem cells
- Regimen includes filgrastim
- Subcutaneous dose 11 hrs prior to each stem cell harvesting session
- ADRs: NVD, fatigue, injection site reaction, HA, achiness, dizziness
- Pregnancy Category D
- Store at room temperature
- Rx; not CS

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**What do you know?**

Which of the following is FALSE?

A. Recombinant antihemophilic factor is both human plasma and albumin free.

B. Both romiplostim and eltrombopag are used in ITP. Neither should be used routinely to normalize platelet counts.

C. When preparing bendamustine, chemo precautions should be used.

D. Plerixafor is used alone to stimulate stem cells before transplantation.
Oncology

- fosaprepitant (Emend® Injection)
- levoleucovorin (Fusilev™)
- degarelix

fosaprepitant (Emend® Injection)
- IV formulation
- Chemo nausea & vomiting prevention
- Given with corticosteroid and 5-HT3 antagonist
- Rapidly converts to aprepitant when given IV
- Given IV on first day only, continued with oral aprepitant
- Not recommended for chronic use.
- Refrigerate
- Rx; not CS

levoleucovorin (Fusilev™)
- IV infusion
- Folic Acid analogue for methotrexate rescue
  - After high-dose methotrexate
  - After accidental methotrexate overdose
- Active enantiomer of leucovorin
  - ¼ usual dose of racemic form
- 50mg freeze-dried powder
  - Reconstitute w/ NSS
  - Given slowly because of Ca content
- Store at room temperature
- Rx; not CS
degarelix
- Subcutaneous injection (deep)
- Advanced prostate cancer
- Slows growth & progression of prostate cancer by suppressing testosterone
- ADR: injection site reactions, hot flashes
- Pregnancy Category X
- Use chemo precautions
  - Reconstitute 80 & 120 mg vials w/ SWI
  - Keep vial vertical & swirl gently (15 min)
  - Do not turn vial upside down to withdraw
  - Do not shake; Use within 1 hr
- Store at room temperature
- Rx; not CS

What do you know?
Which of the following is FALSE?
A. Fosaprepitant is a prodrug of aprepitant that is used for chemotherapy-induced nausea and vomiting.
B. The dosing of levovaloxinarin is the same as leucovorin.
C. Degarelix works on prostate cancer by decreasing testosterone levels.
D. All of the above are TRUE.

Dermatology
- benzoyl peroxide & clindamycin (Acanya™)
- adapalene & benzoyl peroxide (Epiduo™)
benzoyl peroxide & clindamycin (Acanya™)
- Topical combination gel
- Severe acne in ≥ 12 yo
- Wash face, apply small dab daily
- Avoid sunlight & sunlamps
- Use beyond 12 wks not studied
- Supplied in a kit with spatula
  - Prepare prior to dispensing
- Stable at RT for 2 months.
- Keep jar tightly closed
- Rx; not CS

adapalene & benzoyl peroxide (Epiduo™)
- Topical combination gel
- Adapalene has retinoid-like properties
- Severe acne in ≥ 12 yo
- Wash face & apply dab to forehead, chin, and each cheek, spread thinly
- Avoid sunlight & sunlamps
- 45 gram tube, keep tightly closed
- Store at room temperature
- Rx; not CS

Psychiatry
- desvenlafaxine (Pristiq™)
- zolpidem (Zolpimist™)
**desvenlafaxine** (Pristiq™)
- Oral Extended Release Tablet
  - 50mg (pink) or 100mg (orange) once daily
- SNRI for major depression > 25 yo
- Exposure 3rd trimester
  - Neonatal complications
- Increased suicide in children, adolescents and young adults
- Do not stop abruptly
  - taper gradually
- Store at room temperature
- Rx; not CS.

**zolpidem** (Zolpimist™)
- New dosage form
- Oral spray for insomnia
- Cherry flavored solution
- Zolpidem available since 1992
- 1-2 sprays, immediately before bedtime
- Spray in mouth over the tongue
- Prime container (5x)
- Short term treatment
- Store at room temperature
- Rx, C-IV

**Infectious Disease**
- **etravirine** (Intelence™)
- **amoxicillin** (Moxatag™)
- **rotavirus vaccine** (Rotarix®)
- **DTP-Polio-H.flu vaccine** (Pentacel®)
- **DTP-Polio vaccine** (Kimrix™)
**Etravirine (Intelence™)**
- Oral tablet, 100mg
- NNRTI for HIV infection
- Used in combination with other select antiretrovirals
- Two tabs twice daily after a meal
- If unable to swallow tablet, can disperse in glass of water, stir & drink
- Multiple drug interactions
- Store at room temperature
- Store in original container with desiccants.
- Rx: not CS

**Amoxicillin (Moxatag™)**
- New once daily formulation
- For strep tonsillitis or pharyngitis > 12 yo
- Take once daily x 10 days with meal
- Do NOT cut, crush or chew
- Store at room temperature
- Contact MD if diarrhea after discontinuation
- Rx: not CS
- L/SA: amoxapine, Amoxil®, ampicillin, Atarax®, Augmentin®

**New Vaccines**
- **Rotavirus Vaccine (Rotarix™)**
  - Oral vaccine with diluent
  - Prevent severe gastroenteritis in infants & children
  - Requires one less dose than other vaccine, but includes only one serotype.
  - Syringes and vials.
- **DTP-Polio (Kinrix™)**
  - Vaccine against diphtheria, tetanus, pertussis, and poliomyelitis
  - Similar protection to separate DTaP and IPV
  - Protection against four diseases with one less shot
- **DTP-Polio-H.influenzae (Pentacel®)**
  - Vaccine against diphtheria, tetanus, pertussis, poliomyelitis, and Haemophilus influenzae
  - Given as a four-dose series, reducing number of shots by seven
- Rx: not CS
What do you know?
If patients are unable to swallow, etravirine can be dispersed in water and amoxicillin once-daily can be crushed.
A. True
B. False

All three vaccines discussed in this presentation must be stored under refrigeration.
A. True
B. False

New Testing Products

- **regadenoson** (Lexiscan™)
  - IV stress agent for cardiac testing in patients unable to do the exercise stress test
  - Store at room temperature
- **gadoxetate** (Eovist®)
  - IV contrast agent
  - Store at room temperature
- **gadofosveset** (Vasovist™)
  - gadolinium-based contrast agent
- **lobenguane I-123** (AndreView™)
  - Diagnostic radiopharmaceutical
  - Store at room temperature
  - Follow Nuclear Regulatory Commission
  - Safety & efficacy established in children > 1 month old

New Surgery Product

- **rh-thrombin** (Reothrom™)
  - Recombinant human thrombin
  - For TOPICAL use in surgery
  - Stops blood oozing
  - Sterile lyophilized powder for solution: 5,000 (A) & 20,000 (B) unit kits
  - Apply saturated on gel sponge or with spray applicator kit (C)
  - Store at 2-25°C (36-77°F)
  - Once reconstituted, use within 24 hours at these same temperatures.
  - Rx; not CS.
Thank You!

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<table>
<thead>
<tr>
<th>Specialty</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Manufacturer</th>
<th>Rte</th>
<th>Class &amp; Indication</th>
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<td>Cardiology</td>
<td>clevidipine</td>
<td>Cleviprex™</td>
<td>Medicines Co.</td>
<td>IV</td>
<td>Injectable calcium channel blocker emulsion for HTN when oral therapy is not feasible</td>
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<td>Cardiology</td>
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<td>Lexiscan™</td>
<td>CV Therapeutics &amp; Astellas</td>
<td>IV</td>
<td>Stress agent for radionuclide myocardial perfusion imaging in patients unable to undergo exercise stress testing.</td>
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<td>Dermatology</td>
<td>adapalene &amp; benzoyl peroxide</td>
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<td>TOP</td>
<td>New topical combination product for acne</td>
<td>12/8/2008</td>
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<td>Dermatology</td>
<td>Benzoyl peroxide &amp; Clindamycin</td>
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<td>Topical antibacterial/antibiotic for acne</td>
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<td>somatropin</td>
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<td>Adolor</td>
<td>PO</td>
<td>Mu opioid receptor antagonist to help patients regain GI function earlier following bowel resection surgery</td>
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<td>Cimzia®</td>
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<td>SQ</td>
<td>Pegylated anti-TNF for moderate to severe Crohn’s disease in adults</td>
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<td>Gastroenterology</td>
<td>methylnaltrexone bromide</td>
<td>Relistor®</td>
<td>Progenics-Wyeth</td>
<td>SQ</td>
<td>Mu opioid receptor antagonist for opioid-induced constipation in palliative care patients</td>
<td>4/24/2008</td>
</tr>
<tr>
<td>Hematology</td>
<td>eltrombopag</td>
<td>Promacta®</td>
<td>GSK</td>
<td>PO</td>
<td>Thrombopoietin receptor agonist for thrombocytopenia in patients with chronic idiopathic thrombocytopenic purpura</td>
<td>11/20/2008</td>
</tr>
<tr>
<td>Hematology</td>
<td>Factor VIIa</td>
<td>NovoSeven® RT</td>
<td>Novo Nordisk</td>
<td>IV</td>
<td>New room temperature formulation</td>
<td>5/9/2008</td>
</tr>
<tr>
<td>Hematology</td>
<td>r-antihemophilic factor VIII</td>
<td>Xyntha™</td>
<td>Wyeth</td>
<td>IV</td>
<td>Plasma and albumin free antihemophilic factor for hemophilia A</td>
<td>2/21/2008</td>
</tr>
</tbody>
</table>

NOTE: This chart is provided for reference purposes only. Product specific prescribing information (see Brand Name links) should be consulted prior to application in the clinical setting.
<table>
<thead>
<tr>
<th>Specialty</th>
<th>Generic Name</th>
<th>Brand Name</th>
<th>Manufacturer</th>
<th>Rte</th>
<th>Class &amp; Indication</th>
<th>Approved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hematology</td>
<td>romiplostim</td>
<td>Nplate™</td>
<td>Amgen</td>
<td>SQ</td>
<td>Thrombopoietin agonist to increase platelet production in patients with idiopathic thrombocytopenic purpura (ITP)</td>
<td>8/22/2008</td>
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<tr>
<td>Immunology</td>
<td>C1 inhibitor (human)</td>
<td>Cinryze™</td>
<td>Lev Pharm</td>
<td>IV</td>
<td>C1-esterase inhibitor for prevention of hereditary angioedema attacks</td>
<td>10/10/2008</td>
</tr>
<tr>
<td>Immunology</td>
<td>rilonacept</td>
<td>Arcalyst™</td>
<td>Regeneron</td>
<td>SQ</td>
<td>IL-1 blocker for cryopyrin-associated periodic syndromes</td>
<td>2/27/2008</td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>amoxicillin</td>
<td>Moxatag™</td>
<td>Middlebrook</td>
<td>PO</td>
<td>Once-daily extended-release amoxicillin for tonsillitis or pharyngitis caused by <em>Streptococcus pyogenes</em></td>
<td>1/23/2008</td>
</tr>
<tr>
<td>Infectious Disease</td>
<td>etravirine</td>
<td>Intelen™</td>
<td>Tibotec</td>
<td>PO</td>
<td>HIV infection refractory to other antiretrovirals.</td>
<td>1/18/2008</td>
</tr>
<tr>
<td>Neurology</td>
<td>lacosamide</td>
<td>Vimpat®</td>
<td>UCB</td>
<td>PO &amp; IV</td>
<td>Anticonvulsant for partial onset seizures in adults</td>
<td>10/28/2008</td>
</tr>
<tr>
<td>Neurology</td>
<td>rufinamide</td>
<td>Banzel™</td>
<td>Eisai</td>
<td>PO</td>
<td>Tiazole antiepileptic drug for adjunctive treatment of seizures associated with Lennox-Gestaut syndrome</td>
<td>11/14/2008</td>
</tr>
<tr>
<td>Neurology</td>
<td>sumatriptan-naproxen</td>
<td>Treximet®</td>
<td>GSK</td>
<td>PO</td>
<td>Combination triptan-NSAID for acute migraine</td>
<td>4/15/2008</td>
</tr>
<tr>
<td>Neurology</td>
<td>tetrabenazine</td>
<td>Xenazine®</td>
<td>Prestwick Pharma</td>
<td>PO</td>
<td>Monoamine depletor for involuntary movement of Huntington's Chorea</td>
<td>8/15/2008</td>
</tr>
<tr>
<td>OB-GYN</td>
<td>synthetic conjugated estrogen</td>
<td>SCE-A</td>
<td>Duramed</td>
<td>TOP</td>
<td>Plant-derived estrogen vaginal cream for moderate to severe vaginal dryness and pain with intercourse</td>
<td>12/1/2008</td>
</tr>
<tr>
<td>Oncology</td>
<td>degarelix</td>
<td>TBA</td>
<td>Ferring</td>
<td>SQ</td>
<td>Gonadotropin releasing hormone (GnRH) receptor inhibitor for prostate cancer.</td>
<td>12/29/2008</td>
</tr>
<tr>
<td>Oncology</td>
<td>fosaprepitant</td>
<td>Emend®</td>
<td>Merck</td>
<td>IV</td>
<td>IV prodrug of aprepitant for chemotherapy-induced NV (same brand name for both)</td>
<td>1/25/2008</td>
</tr>
<tr>
<td>Oncology</td>
<td>levoleucovorin</td>
<td>Fusilev™</td>
<td>Spectrum</td>
<td>IV</td>
<td>Enantiomer of leucovorin for use in high-dose methotrexate therapy.</td>
<td>3/7/2008</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>bimatroprost</td>
<td>Latisse™</td>
<td>Allergan</td>
<td>OPH</td>
<td>Hypotrichosis (reduced amount of hair) of the eyelashes</td>
<td>12/29/2008</td>
</tr>
<tr>
<td>Ophthalmology</td>
<td>triamcinolone acetonide</td>
<td>Trivaris™</td>
<td>Allergan</td>
<td>IO</td>
<td>Injectable corticosteroid suspension for intravitreal administration.</td>
<td>6/16/2008</td>
</tr>
<tr>
<td>Pain Management</td>
<td>tapentadol</td>
<td>TBA</td>
<td>Pricara</td>
<td>PO</td>
<td>Analgesic for moderate to severe acute pain</td>
<td>11/20/2008</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>desvenlafaxine</td>
<td>Pristiq™</td>
<td>Wyeth</td>
<td>PO</td>
<td>SNRI for depression</td>
<td>2/29/2008</td>
</tr>
<tr>
<td>Psychiatry</td>
<td>zolpidem tartrate</td>
<td>Zolpimist™</td>
<td>NovaDel</td>
<td>PO</td>
<td>Oral spray for short-term treatment of insomnia.</td>
<td>12/22/2008</td>
</tr>
<tr>
<td>Pulmonology</td>
<td>ciclesonide</td>
<td>Alvesco®</td>
<td>Nycomed</td>
<td>INH</td>
<td>Inhaled corticosteroid for asthma</td>
<td>1/10/2008</td>
</tr>
</tbody>
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</thead>
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<tr>
<td>Pulmonology</td>
<td>olopatadine</td>
<td>Patanase®</td>
<td>Novalar</td>
<td>NAS</td>
<td>New nasal spray formulation for seasonal allergic rhinitis</td>
<td>4/15/2008</td>
</tr>
<tr>
<td>Radiology</td>
<td>gadofosveset trisodium</td>
<td>Vasovist™</td>
<td>EPIX</td>
<td>IV</td>
<td>A blood pool magnetic resonance angiography agent, for use in adults whose pelvic arteries may have become narrowed or blocked</td>
<td>12/24/2008</td>
</tr>
<tr>
<td>Radiology</td>
<td>gadoxetate</td>
<td>Eovist®</td>
<td>Bayer</td>
<td>IV</td>
<td>Gadolinium-based contrast agent for MRI of the liver</td>
<td>7/3/2008</td>
</tr>
<tr>
<td>Radiology</td>
<td>lobenguane sulfate 123</td>
<td>AndreView™</td>
<td>GE Healthcare</td>
<td>IV</td>
<td>Diagnostic radiopharmaceutical for detection of rare neuroendocrine tumors in children (neuroblastoma) and adults (pheochromocytoma).</td>
<td>9/19/2008</td>
</tr>
<tr>
<td>Surgery</td>
<td>rh-thrombin</td>
<td>Reothrom™</td>
<td>ZymoGenetics</td>
<td>TOP</td>
<td>Recombinant human thrombin for hemostasis during surgery</td>
<td>1/17/2008</td>
</tr>
<tr>
<td>Urology</td>
<td>fesoterodine</td>
<td>Toviaz™</td>
<td>Pfizer</td>
<td>PO</td>
<td>Antimuscarinic for overactive bladder</td>
<td>10/31/2008</td>
</tr>
<tr>
<td>Vaccine</td>
<td>DTP-Polio</td>
<td>Kinrix™</td>
<td>GSK</td>
<td>IM</td>
<td>Active immunization against diphtheria, tetanus, pertussis, and poliomyelitis in children</td>
<td>6/24/2008</td>
</tr>
<tr>
<td>Vaccine</td>
<td>DTP-Polio-H.influenza</td>
<td>Pentacel®</td>
<td>Sanofi-Pasteur</td>
<td>IM</td>
<td>Active immunization against diphtheria, tetanus, pertussis, poliomyelitis and Haemophilus influenzae in infants and children.</td>
<td>6/20/2008</td>
</tr>
<tr>
<td>Vaccine</td>
<td>rotavirus</td>
<td>Rotarix®</td>
<td>GSK</td>
<td>PO</td>
<td>Oral live two-dose vaccine to prevent rotavirus gastroenteritis in infants and children</td>
<td>4/3/2008</td>
</tr>
</tbody>
</table>

Sources: Pharmacist's Letter; FDA.gov; drugs.com; manufacturer websites

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NOTE: This chart is provided for reference purposes only. Product specific prescribing information (see Brand Name links) should be consulted prior to application in the clinical setting.
Self-Assessment Questions

1. Bimatroprost is a prostaglandin-like drug that
   A. is available as an eye drop to decrease intraocular pressure.
   B. is applied to the lower eyelid to thicken eye lashes.
   C. is applied to the upper eyelid at the eyelash line to thicken eye lashes.
   D. A and C only.

2. Which of the following is TRUE?
   A. Ciclesonide is an antihistamine.
   B. Olopatadine is a corticosteroid.
   C. Both ciclesonide and olopatadine devices must be primed prior to initial use.
   D. Both ciclesonide and olopatadine are administered once daily.

3. Which of the following is TRUE?
   A. Niacin/simvastatin is an ORAL drug for high blood pressure
   B. Niacin/simvastatin can be CRUSHED and dispersed in apple sauce.
   C. Clevidipine is a ready-to-use emulsion for IV infusion.
   D. Clevidipine must be protected from light during infusion.

4. Which of the following is TRUE?
   A. Certolizumab is a self-administered.
   B. Methylaltrexone causes opioid withdrawal symptoms.
   C. Alvimopan can be obtained from community pharmacies.
   D. Granisetron transdermal patches can cause skin photosensitivity reactions for up to 10 days after removal.
   E. Meselamine extended release capsules can be given with antacids.

5. Which of the following is FALSE?
   A. Silodosin is used to treat hypertension and benign prostatic hyperplasia.
   B. Fesoterodine can not be crushed or chewed, but can be taken with or without meals.
   C. Alcohol can increase drowsiness with fesoterodine.
   D. Applicators provided with synthetic conjugated estrogen vaginal cream can be washed with mild soap and warm water.

6. Which of the following is TRUE?
   A. Sumatriptan/naproxen can be unit dosed in the hospital pharmacy.
   B. The IV and oral doses of lacosamide are equivalent.
   C. Rufinamide is a controlled substance.
   D. Tapentadol is available from wholesalers for stocking in the pharmacy.

7. Which of the following is TRUE?
A. Rilonacept packaging does not include the syringes, needles, diluent, alcohol wipes and gauze the patient needs to administer the drug.
B. Human C-1 inhibitor packaging does not include the sterile water needed for reconstitution.
C. Repaglinide-metformin should be taken 15-30 minutes before a meal.
D. All of the above are TRUE.

8. Which of the following is FALSE?
   A. Recombinant antihemophilic factor is both human plasma and albumin free.
   B. Both romiplostim and eltrombopag are used in ITP. Neither should be used routinely to normalize platelet counts.
   C. When preparing bendamustine, chemo precautions should be used.
   D. Plerixafor is used alone to stimulate stem cells before transplantation.

9. Which of the following is FALSE?
   A. Fosaprepitant is a prodrug of aprepitant that is use for chemotherapy-induced nausea and vomiting.
   B. The dosing of levoleucovorin is the same as leucovorin.
   C. Degarelix works on prostate cancer by decreasing testosterone levels.
   D. All of the above are TRUE.

10. If patients are unable to swallow, etravirine can be dispersed in water and amoxicillin once-daily can be crushed.
    A. True
    B. False

11. All three vaccines discussed in this presentation must be stored under refrigeration.
    A. True
    B. False