Pharmacist Auto-Substitution of Allergy Medications

Veronica Prisco, PharmD, MHS, BCPS

√ Allergy medicine formulary management has been streamlined.
√ See table below: Drugs in the first column are NOT ON FORMULARY and will be converted by the pharmacist to the formulary equivalent listed.
√ This includes PRN orders.
√ This does NOT include pediatric orders.
√ This formulary policy was approved by Pharmacy & Therapeutics Committee and Medical Board.

Drugs NOT on formulary	Formulary equivalent
2nd Generation Antihistamine Home Dose & Frequency	Therapeutic Substitution
Cetirizine (Zyrtec) 5mg daily or 10 mg daily	Loratadine (Claritin) 10mg daily [tablet or solution]
Desloratadine (Clarinex) 5mg daily or 5 mg BID	
Fexofenadine (Allegra) 60mg BID or 180 mg daily	
Levocetirizine (Xyzal) 2.5mg daily or 5 mg daily	
Intranasal Corticosteroid Home Dose & Frequency	Therapeutic Substitution
Budesonide (Rhinocort Allergy) 32mcg 1 spray in each nostril BID	Fluticasone propionate (Flonase) 50mcg 1 spray in each nostril BID
Mometasone (Nasonex) 50mcg 1 spray in each nostril BID	
Triamcinolone (Nasacort Allergy) 55mcg 1 spray in each nostril BID	
Budesonide (Rhinocort Allergy) 32mcg 2 sprays in each nostril daily	Fluticasone propionate (Flonase) 50mcg 2 sprays in each nostril daily
Mometasone (Nasonex) 50mcg 2 sprays in each nostril daily	
Triamcinolone (Nasacort Allergy) 55mcg 2 sprays in each nostril daily	
Intranasal Antihistamine Home Dose & Frequency	Therapeutic Substitution
Olopatadine 0.6% (Patanase) 2 sprays in each nostril BID	Azelastine 0.15% (Astepro) 2 sprays in each nostril BID
Azelastine 0.1% nasal spray	Azelastine 0.15% (Astepro) at same number of sprays and frequency

Journal of The Valley Hospital Pharmacy

Pharmacy Focus

Volume 22-23 Winter

Formulary Update (Oct, Nov, Dec)

Aminolevulinic acid hydrochloride, ALA (Gleolan®)

ALA is an endogenous metabolite that is formed in the mitochondria from the condensation reaction between succinyl-CoA and glycine. ALA is converted to protoporphyrin IX (PpIX), which is a precursor of heme. Normally, the formation of heme is tightly regulated by a negative feedback mechanism and through this mechanism, PpIX production is limited to an amount that can be converted to heme. However, the **exogenous administration of ALA will disrupt this negative feedback mechanism, leading to the accumulation of PpIX.** PpIX has been found to accumulate in tumor cells, though the reason behind this is unknown**. Since PpIX preferentially accumulates in tumor cells, the exogenous administration of ALA has been studied in the visualization of malignant tissue.** Under a blue light filter, the tumor will fluoresce and glow a red-violet color while non-cancerous brain tissue will appear a blue color. ALA is an oral solution that has weight-based dosing. It is used as an optical imaging agent in patients with high-grade glioma during surgery as an adjunct for the visualization of tumors. It is administered as an oral solution three hours before anesthesia.

Inclisiran (Leqvio®)

Inclisiran is indicated as **adjunctive therapy for adults with heterozygous familial hypercholesterolemia or clinical atherosclerotic cardiovascular disease** who require additional lowering of LDL cholesterol despite statin and diet therapy. Inclisiran is a **subcutaneous injection administered by a healthcare provider**. Injection sites include upper arm, abdomen, or thigh. This is administered **in combination with a maximally tolerated statin therapy**. Inclisiran reduces LCL-C levels by targeting the liver through small interfering (si) RNA therapy. It prevents PCSK9 protein from forming, which allows more LCL-C to undergo degradation.

Antihemophilic Factor (recombinant) (Advate®)

Antihemophilic factor (recombinant) is indicated in **children and adults with hemophilia A for perioperative management**, control and prevention of bleeding episodes and routine prophylaxis to prevent or reduce the frequency of bleeding episodes. It exerts its effects through temporarily **replacing the clotting factor VIII** that is needed for effective hemostasis. Dose and frequency of administration are dependent upon the type of surgery and bleeding risk. Common adverse effects include pruritus, urticaria, headache, arthralgia, cough, nasopharyngitis, fever and upper respiratory tract infection. Advate is **restricted for use in the ambulatory infusion center**.

Tremelimumab (Imjudo®)

Tremelimumab is indicated for treatment of adults with unresectable hepatocellular carcinoma (uHCC) in combination with durvalumab (Imfinzi), and treatment of adults with metastatic non-small cell lung cancer (mNSCLC) with no sensitizing EGFR mutation or ALK genomic tumor aberration, in combination with durvalumab (Imfinzi) and platinum-based chemotherapy
Tremelimumab, an immune checkpoint inhibitor, is a monoclonal antibody that blocks cytotoxic T-lymphocyte-associated antigen 4 (CTLA-4). It is now the second agent in the CTLA-4 inhibitor class along with ipilimumab (Yervoy). Tremelimumab is administered by 60-minute intravenous infusion. **This is restricted to ambulatory infusion center.**

CONTINUED ON PAGE 4.....

THE VALLEY HOSPITAL

USE 1.2 MICRON FILTER FOR ALL PN

Updated Policy December 2021

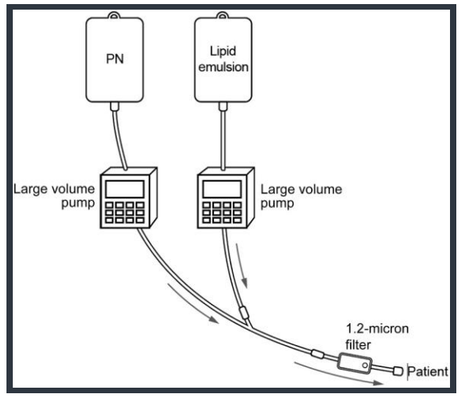
DEFINITIONS:
PN = PARENTERAL NUTRITION (OLD TERM WAS TPN)
TNA = TOTAL NUTRIENT ADMIXTURE (THE TERM FOR WHEN LIPIDS ARE MIXED INTO THE BAG)
ILE = INTRALIPID EMULSION

PURPOSE OF THE FILTER:
TRAP CANDIDA ALBICANS, LARGE LIPID PARTICLES, AND PRECIPITATES

Created by: Courtney Rohde, PharmD Candidate Class of 2022,
Fairleigh Dickinson University School of Pharmacy and Health Sciences

Call the pharmacy at EXT. 447-8126 for any questions.

1. Worthington, Patricia, et al. "Update on the Use of Filters for Parenteral Nutrition: An Aspen Position Paper." Nutrition in Clinical Practice, vol. 36, no. 1, 2020, pp. 29–39., https://doi.org/10.1002/ncp.10587.
2. CLINIMIX [package insert]. Deerfield, IL: Baxter Healthcare Corporation; 2014.



BEST PRACTICES FOR USING PN FILTERS

1. When administering the dextrose-amino acid component of the PN and the ILE as separate infusions, the first infusion must be completely set up and the pump programmed for that fluid before setting up the second infusion.
2. Avoid co-administration of medications with PN admixtures. Check with the pharmacist.
3. When co-administration of medications with PN cannot be avoided, the medication tubing should be attached at a Y-site above the filter. Medications that must not be filtered should not be administered with PN.
4. Select a 1.2 micron filter for all PN regimens including TNAs, dextrose-amino acid admixtures, lipids, and Clinimix.
5. Do not invert filter during priming.
6. Connect the filter to the hub of the patient's VAD. When administering the dextrose-amino acid component of the PN and the ILE as separate infusions, attach the filter below the Y-site where the infusions meet.
7. Schedule filter changes to coincide with the initiation of a new PN admixture and administration set.

Updated Inhaler Formulary Auto-Substitutions and Conversions

Veronica Prisco, PharmD, MHS, BCPS

The policy on pharmacist substitution of inhalers has been updated.

Formulary inhalers available in the inpatient setting include one inhaler type per pharmacologic category. Please refer to the table below for conversions.

- ***Admitted ADULT patients*** on select non-formulary inhalers (second column of the table):
  - will be automatically converted to a formulary equivalent by the pharmacist

- ***Admitted ADULT patients*** on inhalers NOT on this table:
  - will be required to bring in their own medication from home.
  - IF they cannot bring in medications from home, a new order must be written for a formulary equivalent - please contact pharmacy for help in choosing the best option

- ***For new orders:***
  - only formulary agents will be visible on Meditech for ordering

- At this time, the auto-substitution policy applies to adult patients; ***pediatric inhaler orders will remain unchanged.***

This formulary policy was approved by Pharmacy & Therapeutics Committee and Medical Board.

Pharmacologic Category	Inhalers	Formulary Equivalent
SABA	Proair (Albuterol) 90mcg MDI Proventil (albuterol) 90mcg MDI	**Ventolin** (albuterol) 90mcg
SAMA	**Atrovent** (ipratropium bromide) HFA 17mcg	
SABA/SAMA	**Combivent** (ipratropium bromide/albuterol) Respimat 25mcg/100mcg	
ICS	Flovent Diskus (fluticasone propionate) 50mcg, 100mcg, 250mcg Qvar (beclomethasone) 40mcg, 80mcg	**Asmanex Twisthaler** (mometasone) 110mcg, 220mcg
ICS/LABA	Symbicort (budesonide/formoterol) 80/4.5mcg, 160/4.5mcg Advair (fluticasone/salmeterol) 100/50, 250/50, 500/50 Breo Ellipta (fluticasone/vilanterol) 100/25, 200/25	**Dulera** (mometasone/formoterol) 100/5mcg, 200/5mcg
LABA	Serevent Diskus (salmeterol) 50mcg Formoterol (Perforomist) 20mcg/2mL 1 INH BID	**Striverdi Respimat** (olodaterol) 2.5mcg Arformoterol (Brovana) 15mcg/2mL 1 INH BID
LAMA	Spiriva Handihaler (tiotropium)18mcg Incruse Ellipta (umeclidinium) 62.5mcg *(NEW THERAPEUTIC SUBSTITUTION)*	**Spiriva Respimat** (tiotropium) 2.5mcg
LAMA/LABA	Anoro Ellipta (umeclidinium/vilanterol) 62.5/25mcg	**Stiolto Respimat** (tiotropium/olodaterol) 2.5/2.5mcg
ICS/LAMA/LABA *(NEW)*	**Trelegy Ellipta** (fluticasone/umeclinidium/vilanterol) 100/62.5/25mcg, 200/62.5/25mcg *(NEW FORMULARY ADDITION)*	

Pharmacy Residents Present at National Pharmacy Conference

ASHP, Las Vegas, NV

December 4-8, 2022

Poster Title: Identifying Barriers to Effective Glycemic Control in Type 2 Diabetics with Hemoglobin A1C ≥8% and Implementing Pharmacist-Led Interventions to Optimize Disease Management and Patient Outcomes

Gabrielle Sanza, PharmD

PGY1 Community-Based Pharmacy Resident

As of 2022, 37.3 million Americans have overt diabetes and 96 million Americans 18 years or older have prediabetes. Despite the vast number of effective pharmacologic options and evidence- based lifestyle modifications, approximately 50% of patients with type 2 diabetes mellitus (T2DM) do not achieve blood glucose targets. Diabetes cost the US healthcare system $327 billion in 2017. The American Diabetes Association has recommended a coordinated multidisciplinary team-based approach to benefit patients, improve glycemic control, and slow or prevent associated complications of diabetes. Studies have shown pharmacists' interventions and follow-up on patients with uncontrolled T2DM leads to improved outcomes, better adherence to medication therapy and education on pharmacologic therapy (e.g., proper administration/injection technique, side effects and monitoring parameters). More frequent follow-up(s) due to team-based care and collaboration between pharmacists and physicians has shown to improve patient outcomes and diabetes self-management. The project named "Diabetes Mellitus Adherence Initiative" represents the first organized, interdisciplinary attempt to improve outcomes in patients with A1C ≥8% through pharmacist intervention at The Valley Health System. Patients are referred to a pharmacist by an endocrinologist. A retrospective chart review of patients referred to the pharmacist was conducted between July 22 and November 7, 2022. Results showed that patients with uncontrolled diabetes often have a myriad of factors preventing glycemic control. T2DM is a complex and progressive disease and requires extensive self-management and thus extensive patient education and motivation. Patients need to commit to significant lifestyle and dietary modifications while also often adhering to complicated treatment and monitoring regimens in order to control their blood sugar and improve other metabolic facets of T2DM. Incorporating pharmacists to the care-management team for T2DM patients provides opportunity for counseling, monitoring, motivational interviewing, and emotional support and these interactions can help elicit information which can lead to improved individual patient outcomes.

Poster Title: Evaluating the Appropriateness of Fentanyl Patch Orders Based on 2022-2023 ISMP Targeted Best Practices

Laura Lee, PharmD

PGY1 Pharmacy Resident

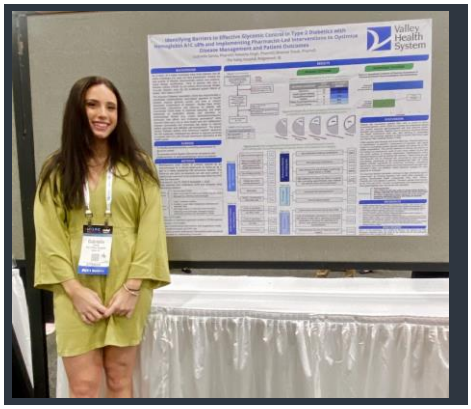
Each year the Institute of Safe Medication Practices (ISMP) releases a list of Targeted Medication Safety Best Practices that provides recommendations to mitigate medication safety issues. The most recent list for 2022-2023 includes a recommendation that healthcare professionals verify and document a patient's opioid status and type of pain prior to prescribing and dispensing extended-release and long-acting opioids, including fentanyl patches. Based on the prescribing information and ISMP, fentanyl patches should only be prescribed in opioid-tolerant patients for the management of chronic pain. However, nationally there have been increasing reports of inappropriate prescribing of fentanyl patches, which could potentially lead to life threatening respiratory depression. This evaluation assessed the appropriateness of fentanyl patch orders at The Valley Hospital based on the 2022-2023 ISMP Targeted Best Practices. Results from this medication use evaluation showed that 15% of patients were opioid-naïve prior to administration of the fentanyl patch and 5% of patients were receiving a concomitant long-acting oral opioid. These results suggest that there is further need for improvement to ensure the appropriate use of fentanyl patches at The Valley Hospital. Providers or nurses should be proactive in documenting the opioid status of a patient prior to ordering a fentanyl patch and pharmacists should be vigilant in confirming that patients are not receiving concomitant long-acting opioids while on the fentanyl patch.

ashp® MIDYEAR 2022
Clinical Meeting & Exhibition

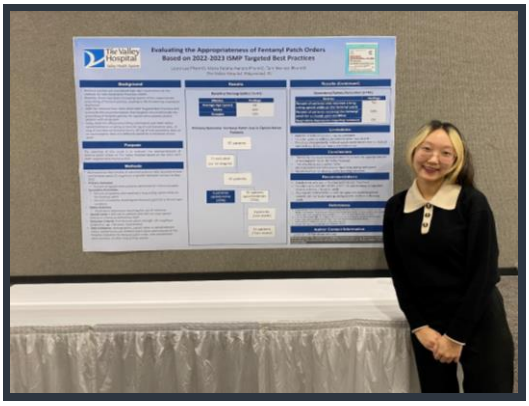
Poster Title: Evaluation of Laxative Use in Patients Receiving Methylnaltrexone (Relistor®) Injection in Hospitalized Patients at a Non-Teaching Hospital

Melissa Rock, PharmD, MHS
PGY1 Pharmacy Resident

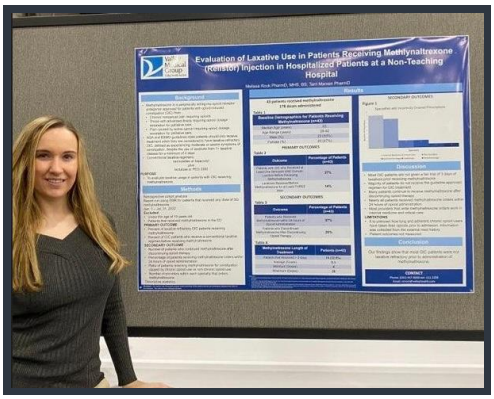
A 2021 preliminary review of methylnaltrexone (Relistor®) led to the recommendation by the Quality Performance Improvement Peer Review Committee to restrict methylnaltrexone to cases of opioid induced constipation (OIC) with failure of response to traditional laxatives. Methylnaltrexone is a peripherally acting mu-opioid receptor antagonist that reverses constipation caused by opioids. It is FDA approved for patients with OIC in cancer and noncancer pain. OIC can occur independently from dose or duration of opioid treatment. Guidelines express that only laxative-refractory OIC patients should be appropriately managed by receiving methylnaltrexone. This is when they experience moderate or severe symptoms of constipation, despite the use of at least one osmotic laxative and at least one stimulant laxative for a minimum of three days. Conventional laxatives include either sennosides or bisacodyl plus either lactulose or PEG 3350. A follow up retrospective cohort analysis was performed at The Valley Hospital to evaluate laxative usage in patients with OIC receiving methylnaltrexone. It included any inpatient adults who received methylnaltrexone from June 1 through July 31, 2022. The review found that 37% of patients with OIC received at least one stimulant and osmotic laxative before receiving methylnaltrexone, but only 14% of all patients received these laxatives for at least 3 days. Currently, a committee of pharmacists and physicians is working together to implement an improvement plan.



Gabrielle Sanza, PharmD



Laura Lee, PharmD



Melissa Rock, PharmD, MHS

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Formulary Update (Oct, Nov, Dec)

Ferric Derisomaltose (Monoferric®)

Ferric derisomaltose is indicated for the treatment of iron deficiency anemia in adult patients who have intolerance or had an unsatisfactory response to oral iron, as well as patients with non-dialysis dependent chronic kidney disease. It is composed of a complex of iron (III) and derisomaltose. It is a one-time dose of a 20 minute intravenous infusion. There is also co-pay assistance. Common adverse effects include hypophosphatemia, skin rash, and nausea.