In This Issue

Marcia J. Wyman, Pharm.D., BCPS
Drug Information Pharmacist
Editor

Mandy C. Leonard, Pharm.D., BCPS
System Director, Drug Use Policy and Formulary Management
Editor

Meghan K. Lehmann, Pharm.D., BCPS
Coordinator, Drug Information Services
Drug Information Specialist
Editor

Marigel Constantiner, MSc, BCPS, BCGP
Drug Information Pharmacist
Associate Editor

Christopher Snyder, B.S., R.Ph.
Drug Information Pharmacist
Associate Editor

Brian Hoffmaster, Pharm.D., MBA, BCPS
Student Education Pharmacist
Associate Editor

Sneha Shah, Pharm.D., BCPS
Drug Information Pharmacist
Associate Editor

Sarah Mersek, Pharm.D., BCPS
Drug Information Pharmacist
Associate Editor

Samuel V. Calabrese, R,Ph., MBA, FASHP
Chief Pharmacy Officer

Cleveland Clinic
Clinical Rx Forum

From the Department of Pharmacy
Drug Information Service
(216) 444-6456, option #1

Comprehensive information about medications, biologics, nutrients, and drug therapy

Cleveland Clinic
Clinical Rx Forum
From the Department of Pharmacy

July/August Issue **2022 Volume 10, Issue 4**

MenQuadfi®, A New Meningococcal Vaccine

By: Molly Rose Duffy, Pharm.D.

What is invasive meningococcal disease? Invasive meningococcal disease (IMD) is a type of meningococcal infection caused by the bacteria *Neisseria meningitidis* that inhabits the nasopharyngeal tract.[1] Six major serogroups (A, B, C, W, X, and Y) of *N. meningitidis* are known to cause most of IMD cases. Associated septicemia can occur in patients under 5 years of age due to an underdeveloped immune system; however adolescents and young adults are other groups with a high prevalence of this disease. Most patients present with non-specific symptoms of a viral illness such as fever, tachycardia, and occasionally a hemorrhagic purpuric rash within 24 hours of disease onset; these symptoms can rapidly progress into severe meningitis with elevated intracranial pressure and septic shock. The mortality rate of IMD is up to 10% with many survivors experiencing significant adverse sequelae.

Which vaccines are currently available to prevent IMD? MenQuadfi® and Menveo® are the two quadrivalent conjugate vaccines available to prevent IMD, caused explicitly by *N. meningitidis* serotypes A, C, Y and W.[2] Menactra® (MenACWY-D; Sanofi Pasteur), the first meningococcal quadrivalent vaccine available in the United States, gained approval from the Food and Administration (FDA) in 2005 for patients 9 months to 55 years of age, but was discontinued as of 2022.[3] Menomune® (MenA/C/Y/W-135; Sanofi Pasteur), another meningococcal polysaccharide vaccine, was withdrawn from the market in February 2017.[4] Menveo® (MenACWY-CRM; GlaxoSmithKline) received FDA approval in 2010 for patients 2 months to 55 years of age. MenQuadfi® (MenACWY-TT; Sanofi Pasteur) was more recently approved by the FDA in April 2020 for patients 2 years of age and older. Of note, none

(Continued on page 2)

Prevnar 20® for Pneumonia Prevention

By: Kevin King, Pharm.D.

What is pneumococcal disease? Pneumococcal disease is any infection caused by the pneumococcus bacteria, *Streptococcus pneumoniae*.[1] This gram-positive bacterium has numerous serotypes, but only a few cause most infections. Since *S. pneumoniae* is part of the commensal flora in the respiratory tract, its most common disease manifestation in the adult population in the United States is community-acquired pneumonia. However it is also responsible for 50% of the bacterial meningitis cases in adults.

Which vaccines are currently available to prevent pneumococcal disease? Current pneumococcal conjugate vaccines (PCV) include PCV13 (Prevnar 13®; Pfizer), PCV15 (Vaxneuvance™; Merck), and PCV20 (Prevnar 20®; Pfizer).[2] There is also a 23-valent polysaccharide vaccine, PPSV23 (Pneumovax®23;Merck). Prevnar 20® contains all of the serotypes of Prevnar 13® along with seven additional polysaccharide conjugates represented in Pneumovax® 23. The Food and

(Continued on page 3)

(Continued from page 1)

of these vaccines protect against *N. meningitides* serotype B. The main difference between the meningococcal ACWY vaccines are their types of protein carriers used to conjugate the vaccines' antigens.[5-7] These vaccines are considered interchangeable for patients aged 2 years and older, based upon variations in FDA-approved age ranges.[2]

What are the current meningococcal ACWY vaccine recommendations from the Centers for Disease Control and Prevention (CDC)? The Advisory Committee on Immunization Practices (ACIP) recommends that all adolescents (11-12 years of age) receive an initial dose of a meningococcal ACWY vaccine, followed by a booster dose after 4 years or around 16 years of age.[2] Additionally, this vaccine is recommended as a single dose for certain high-risk groups ≥2 months of age which include 1) those receiving complement inhibitors (e.g., eculizumab or ravulizumab), 2) those living in or traveling to areas with a high prevalence of meningococcal disease, 3) those staying in crowded living conditions (e.g., college students, military recruits), 4) those with immunocompromised conditions (e.g., complement component deficiency, asplenia, human immunodeficiency infection), and 5) microbiologists who are routinely exposed to isolates of *N. meningitides.*

Which clinical efficacy trials led to the FDA approval of MenQuadfi®? Various clinical trials assessed the immunogenicity of MenQuadfi® as a primary vaccination across various participant age groups.[7] The primary endpoint in all studies of MenQuadfi® was non-inferiority based on the percentage of patients that had a pre-vaccination titer of <1:8 who achieved a post-vaccination titer was ≥ 1:16, or a pre-vaccination titer of <1:8 who achieved a post-vaccination titer of at least 4-fold or greater than the pre-vaccination titer at 30 days. This non-inferiority primary endpoint was achieved in the following group comparison studies: 1) children 2 through 9 years of age, MenQuadfi® (n=455-456) vs. Menveo® (n=458), 2) adolescents 10 through 17 years of age, MenQuadfi® (n=463) vs. Menveo® (n=464), 3) adolescents 10 through 17 years of age, MenQuadfi® (n=1097-1098) vs. Menactra® (n=400), 4) adults 18 through 55 years of age, MenQuadfi® (n=1406-1408) vs. Menactra® (n=293), and 5) adults 56 years of age and older, MenQuadfi® (n=433) vs. Menomune® (n=431). The booster dose of MenQuadfi® (n=402) was compared to Menactra® (n=407) for patients 15 years and older who had received a previous meningococcal vaccine 4-10 years prior with either Menveo® or Menactra®. Immune non-inferiority, based upon seroresponse rates, was demonstrated for MenQuadfi® compared to Menactra® for all four serotypes.

Can other vaccines be administered simultaneously with MenQuadfi®? MenQuadfi® is an inactivated vaccine, so co-administration of vaccines should follow CDC guidance.[2] Current trial data in patients ages 10 to 17 supports concurrent administration of MenQuadfi® with HPV (Gardasil®9) and Tdap (Adacel®) vaccines, without any clinical concern.[7] Unlike, Menactra®, MenQuadfi® does not interact with pneumococcal conjugate vaccines, and therefore, does not require a separation interval.

What are some potential adverse events of MenQuadfi®? Common side effects reported in >10% of all patients 2 years of age and older included injection site reactions (erythema, pain, and swelling), myalgias, headache, and malaise.[7] The incidence of these side effects varies per age group.

What is the dosing and administration of MenQuadfi®? MenQuadfi® is administered as a single, 0.5 mL intramuscular injection into the deltoid muscle. [7]

What is the cost and availability of MenQuadfi®? How should MenQuadfi® be stored? MenQuadfi® is available as a reconstituted, sterile solution for injection in a 0.5 mL vial, with an average wholesale price of $178.30.[7,8] MenQuadfi® vials should be stored in the refrigerator between 35°F to 46°F(2°C to 8°C).[7]

What is the formulary status of MenQuadfi®? MenQuadfi® was added to the Adult and Pediatric CCHS Formularies as the preferred product for patients 2 years of age and older, to replace Menactra®. MenQuadfi® was also added to the CCHS Adult Vaccination Recommendations Prior to Splenectomy Surgery and the Vaccination and Prophylaxis Recommendations Prior to Complement Inhibitor Therapy.[9,10]

References:

1. Nadel S, Ninis N. Invasive Meningococcal Disease in the Vaccine Era. Front Pediatr. 2018;6:321.
2. Mbaeyi SA, Bozio CH, Duffy J, Rubin LG, Hariri S, Stephens DS, et al. Meningococcal Vaccination: Recommendations of the Advisory Committee on Immunization Practices, United States, 2020. MMWR Recomm Rep 2020;69(No. RR-9):1–41.
3. Letter from Stacy Kearney Bucha, Head of US Meningitis, Travel & Endemics Franchise and Sanofi Pasteur (February 2022). Available from: https://portal.ct.gov/-/media/Departments-and-Agencies/DPH/dph/infectious_diseases/immunization/CVP-2020/2022-CVP-Communications/update-menactra-discontinuation-2-24-22.pdf. Accessed: June 11, 2022.
4. Centers for Disease Control and Prevention. Menomune (meningococcal polysaccharide vaccine) discontinuation. Available from: https://wwwnc.cdc.gov/travel/news-announcements/menomune-discontinuation. Accessed: June 11, 2022.
5. Menactra [package insert]. Swiftwater, PA: Sanofi Pasteur Inc.; Jan 2021.
6. Menveo [package insert]. Research Triangle, NC: GlaxoSmithKline; July 2020.
7. MenQuadfi [package insert]. Swiftwater, PA: Sanofi Pasteur Inc.; Nov 2021.
8. MenQuadfi. MicroMedex®2.0 Healthcare Series [Internet database]. Greenwood Village, CO: Thomson Reuters (Healthcare) Inc. Updated periodically.
9. According to Adult Vaccination Recommendations Prior to Splenectomy Surgery. The Cleveland Clinic Foundation. Last Updated April, 2022. K. Rivard, PharmD. Available from: http://dnndocuments.ccf.org/sites/pharm/A/ImmuneProphy-Splenectomy.pdf. Accessed: June 11, 2022.
10. According to Vaccination and Prophylaxis Recommendations Prior to Complement Inhibitor Therapy. The Cleveland Clinic Foundation. Last Updated May, 2022. Available from: http://dnndocuments.ccf.org/sites/pharm/A/ImmuneProphy-Eculizumab.pdf. Accessed: June 11, 2022.

(Continued from page 1)

Drug Administration approved Prevnar 20® in June 2021 for the prevention of pneumonia and invasive disease in adults ≥ 18 years of age for specific serotypes listed in the package insert. It also received accelerated approval requiring further studies to confirm efficacy for additionally listed serotypes.

What are the current pneumococcal vaccine recommendations for adults from the Centers for Disease Control and Prevention (CDC)? The pneumococcal vaccine is indicated for all adults aged ≥ 65 years and those aged 19-64 years with chronic medical conditions including those with immunosuppressive disorders and certain risk factors as found on the CDC website.[2,3] As of January 2022, the pneumococcal vaccine schedule has been updated to reflect the newer generation of pneumococcal vaccines, Vaxneuvance™ and Prevnar 20®. Since their release, Prevnar 13® has been removed from the adult immunization schedule, but is still used in pediatrics. The CDC offers two new options to complete pneumococcal vaccination in eligible adults with no history or an unknown history of pneumococcal vaccination. The first option is a single dose of Prevnar 20®. The second option is a two-dose sequence of Vaxneuvance™ followed 1 year later by Pneumovax® 23. Pneumovax® 23 may be given as early as 8 weeks following Vaxneuvance™ in immunocompromised individuals, those with cochlear implants, or those with a cerebrospinal fluid leak. Adults who received Prevnar 13® may complete their pneumococcal vaccine series with Prevnar 20® if Pneumovax ® 23 is unavailable.

Which clinical efficacy trials led to the FDA approval of Prevnar 20®? Two phase III immunogenicity trials have evaluated Prevnar 20®.[4,5] The first study was a randomized double-blind trial that compared the vaccine's immunogenicity and safety in three groups of ≥ 60 years of age (n=3009), 50-59 years of age (n=445), and 18-49 years of age (n=448).[4] Participants were randomized to receive one dose of Prevnar 20® or Prevnar 13® followed 1 month later in the ≥ 60 year age group by either Pneumovax® 23 or placebo. This trial found non-inferior immunogenicity for all age groups for comparable serotypes between Prevnar 20® and the comparator Prevnar 13® with and without Pneumovax® 23. The frequency of adverse reactions was similar between study groups. The second study, a multicenter randomized open-label trial that included adults ≥ 65 years of age, evaluated the safety and immunogenicity of Prevnar 20® as a follow-up dose to either Pneumovax® 23(n=375), Prevnar 13® (n=375), or the series of Prevnar 13® followed by Pneumovax®23 (n=125).[5] Investigators found that Prevnar 20® provided a strong immune response at 1 month to the 13 serotypes covered by Prevnar 13® as well as the additional seven serotypes covered by Pneumovax®23. The incidence of adverse effects was similar between study groups.

Can other vaccines be administered simultaneously with Prevnar 20®? Yes, Prevnar 20® may be co-administered with inactivated and live vaccines, according to the CDC's co-administration of inactivated vaccine recommendations.[6]

What are some potential adverse effects of Prevnar 20®? Common adverse effects reported in >10% of patients were pain at injection site, swelling, and redness.[7,8] The type and incidence of adverse effects varied by patient age.

What is the dosing and administration of Prevnar 20®? Each 0.5 mL dose of Prevnar 20® for adults is to be administered intramuscularly via the supplied pre-filled syringe using an attached sterile needle.[7]

What is the cost and availability of Prevnar 20®? How should Prevnar 20® be stored?
Prevnar 20® is available is a single-dose pre-filled syringe.[7] Its average wholesale cost is $298.65 per dose.[8] It should be stored in the refrigerator between 36°F to 46°F (2°C to 8°C).[7]

What is the formulary status of Prevnar 20®?
Prevnar 20® (PCV20) was added to the Adult CCHS Formulary with restrictions for adults ≥ 65 years and in individuals 19-64 years of age with underlying medical conditions with no known or no pneumococcal vaccine history. Prevnar 20® replaces Prevnar 13® (PCV13) and Pneumovax® 23 (PPSV23) in the adult pneumococcal vaccination series. Prevnar 20® was also added to the CCHS Adult Vaccination Recommendations Prior to Splenectomy Surgery and the Vaccination and Prophylaxis Recommendations Prior to Complement Inhibitor Therapy.[9,10]

References:

1. Centers for Disease Control and Prevention. Chapter 17: Pneumococcal Disease: Epidemiology and Prevention of Vaccine-Preventable Disease 14th Edition Available from: https://www.cdc.gov/vaccines/pubs/pinkbook/pneumo.html. Accessed: June 7, 2022.
2. Centers for Disease Control and Prevention. Pneumococcal Vaccination: Summary of Who and When to Vaccinate. Available from: https://www.cdc.gov/vaccines/vpd/pneumo/hcp/who-when-to-vaccinate.html. Accessed: June 7, 2022.
3. Centers for Disease Control and Prevention. Adult Immunization Schedule Recommendations for Ages 19 Years or Older, United States, 2022. Available from: https://www.cdc.gov/vaccines/schedules/hcp/imz/adult.html#note-pneumo. Accessed: June 7, 2022.
4. Essink B, Sabbarwal C, Cannon K, Frenck R, Lal H, Xu X et al. Pivotal phase 3 randomized clinical trial of the safety, tolerability, and immunogenicity of 20-valent pneumococcal conjugate vaccine in adults aged ≥ 18 years. Clin Infect Dis. Online ahead of print.
5. Cannon K, Elder C, Young M, Scott DA, Scully IL, Baugher G, et al. A trial to evaluate the safety and immunogenicity of a 20-valent pneumococcal conjugate vaccine in populations of adults ≥ 65 years of age with different prior pneumococcal vaccination. Vaccine. 2021; 39(51): 7494-7502.
6. Centers for Disease Control and Prevention. Timing and Spacing of Immunobiologics. Available from: https://www.cdc.gov/vaccines/hcp/acip-recs/general-recs/timing.html. Accessed: June 22, 2022.
7. Prevnar-20 [package insert]. Philadelphia, PA: Wyeth Pharmaceutical; June 2021.
8. Pneumococcal Conjugate Vaccine (20-Valent). Lexi-Drugs Online [Internet] Hudson (OH); Lexi-Comp Inc. 2022. Accessed: June 7, 2022.
9. According to Adult Vaccination Recommendations Prior to Splenectomy Surgery. The Cleveland Clinic Foundation. Updated April, 2022. K. Rivard. Pharm.D. Available from: http://dnndocuments.ccf.org/sites/pharm/A/ImmuneProphy-Splenectomy.pdf. Accessed: June 11, 2022.
10. According to Vaccination and Prophylaxis Recommendations Prior to Complement Inhibitor Therapy. The Cleveland Clinic Foundation. Last Updated May 2022. Available from: http://dnndocuments.ccf.org/sites/pharm/A/ImmuneProphy-Eculizumab.pdf. Accessed: June 8, 2022.

Additions to the Adult CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Restrictions/Comments**
Agalsidase Beta (Fabrazyme®) Injection	Enzyme	Fabry disease	Restricted to Hematology/ Oncology for outpatient use only
Ciltacabtagene Autoleucel (Carvykti™) Injection	CAR-T Immunotherapy	RRMM	Restricted to Hematology/ Oncology and Bone Marrow Transplant
Faricimab (Vabysmo®) Intraocular Injection	VEGF and Ang-2 Inhibitor	nAMD DME	Restricted to Ophthalmology for outpatient use only
Nitrofurantoin Microcrystal (Macrodantin®) Capsules	Antibiotic	Various infections	Restricted to patients who cannot swallow solid dosage forms or with feeding tubes. Furadantin® oral suspension was removed from the formulary due to an increase in price. Macrodantin® capsules can be opened and the contents mixed with food or juice and can also be administered via feeding tubes.*
Nivolumab and Relatlimab (Opdualag™) Injection	Anti-PD-1 and LAG3 Inhibitor	Metastatic Multiple Myeloma	Restricted to Hematology/ Oncology for outpatient use only
Pafolacianine (Cytalux®) Injection	Imaging Agent	Ovarian Cancer	Restricted to Gynecologic Oncology
Ruxolitinib (Jakafi®) Tablets	JAK inhbitor	GVHD	Restricted to Hematology/ Oncology and Bone Marrow Transplant for initiation of therapy in patients with steroid refractory acute or chronic GVHD who are unable to supply patient home medication within 72 hours
Sutimlimab (Enjaymo™) Injection	C1s Inhibitor	Cold Agglutinin Disease	Restricted to Hematology/ Oncology for outpatient use only in patients in whom other treatment options have failed or are contraindicated
Tezepelumab (Tezspire®) Subcutaneous Injection	Monoclonal Antibody	Asthma	Restricted to the Departments of Allergy/ Immunology and Pulmonary/ Critical Care for outpatient use only

*Macrobid® (nitrofurantoin monohydrate and macrocrystal) oral capsules will remain on formulary for those able to swallow capsules.
No changes will be made to the pediatric formulary (Furadantin® oral suspension and Macrobid® capsules will remain on the pediatric formulary).
CAR-T=Chimeric antigen receptor T cell RRMM=Relapsed or refractory multiple myeloma VEGF=Vascular endothelial growth factor
Ang-2=Angiopoietin-2 nAMD=Age-related macular degeneration DME=Diabetic macular edema PD-1=Programmed cell death-1 ligand
LAG3=Lymphocyte activation gene JAK=Janus associated kinase GVHD=Graft versus host disease C1s=Complement protein subcomponent

Changes in Restrictions to the Adult CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Restrictions/Comments**
AbobotulinumtoxinA (Dysport®) Injection	Neuromuscular blocking agent	Facial Spasms	Modified restrictions to include use by Ophthalmology for outpatient use only
Ertapenem (Invanz®) Injection	Antibiotic	Various Infections	Modified restrictions to include patients undergoing pancreaticoduodenectomy who have life-threatening or severe beta-lactam allergy and who have not tolerated previous beta-lactam therapy
Leuprolide Acetate (Lupron® Depot) Injection	GRH-Agonist	Ovarian Suppression	Modified restrictions to include use by Obstetrics/ Gynecology for ovarian suppression
Liposomal doxorubicin (Doxil®) Injection	Antineoplastic Agent	Various Cancers	Modified restrictions to allow inpatient use of liposomal doxorubicin
Nirmatrelvir-ritonavir (Paxlovid®) Tablets and Molnupiravir (Lagevrio®) Capsules	Antiviral Agents	Treatment of COVID-19 Infection	Modified restrictions to: 1) Restricted for outpatients within 5 days of symptom onset and SARS-CoV-2 positive test who are high risk for progression to severe COVID-19. 2) Adults 18 years and older and children 12 to 17 years with a weight of at least 40 kg with the following criteria: a. Positive SARS-CoV-2 viral test (PCR or antigen test) and symptoms for <5 days b. Not requiring hospitalization at any time for management of COVID-19 c. Not requiring supplemental oxygen or not requiring change in baseline supplemental oxygen d. Not utilized for pre– or post-exposure prophylaxis for COVID-19 AND must meet one of the clinical criteria for high risk progression to severe COVID-19*

* Specific criteria for high-risk progression to severe COVID-19 infection will be listed in Lexicomp
GRH=Gonadotropin-release hormone COVID-19=Corona virus disease-19
SARS-CoV-2= Severe acute respiratory syndrome coronavirus 2 PCR=Polymerase chain reaction

Changes in Restrictions to the Adult CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Restrictions/Comments**
Tocilizumab (Actemra®) Intravenous Injection	Monoclonal Antibody	Giant Cell Arteritis	Modified restrictions on intravenous tocilizumab to include use by Rheumatology and Immunologic Disease for giant cell arteritis (includes inpatient and outpatient use)
Tranexamic acid Tablets	Hemostatic Agent	Heavy menstrual and uterine bleeding	Modified restrictions to include use by Obstetrics/ Gynecology

Removals from the Adult CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Rationale**
Sulfadiazine	Antibiotic	Various Infections	Removed from formulary since it will not longer be carried by the CCHS supplier. Please see Adult Formulary Product Standardization section under Sulfadiazine Therapeutic Interchange for more details
Nitrofurantoin Macrocrystals Oral Suspension (Furadantin®)	Antibiotic	Various Infections	Removed from formulary due to a substantial increase in price. Please see Adult Formulary Addition section under nitrofurantoin microcrystal capsules for more details

Denials to the Adult CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Rationale**
Ibrexafungerp (Brexafemme®) Tablets	Antifungal	VVC	A request for formulary addition was denied due to: 1) Ibrexafungerp is much more expensive than fluconazole 2) Lack of data to support the use of ibrexafungerp in the treatment of invasive fungal disease and azole- and echinocandin-resistant *Candida* or *Aspergillus* infections. 3) Inpatient use was anticipated to be minimal
Mavacamten (Camzyos®) Tablets	Cardiac Myosin Inhibitor	Hypertrophic Cardiomyopathy	Not added to formulary for initiation of therapy since: 1) It is a REMS drug which can cause systolic heart failure and therefore, is only available through a restricted distribution program. 2) Cleveland Clinic inpatient pharmacies cannot obtain this medication due to the REMS program. Continuation of therapy is permitted with a Cardiology consult and patient must use own mavacamten (via non-formulary home medication policy) Cleveland Clinic Specialty Pharmacy (outpatient) is a REMS-certified pharmacy and can dispense the medication to patients (if allowed by the patient's insurance)
Tedizolid (Sivextro®) Tablet/Injection	Antibiotic	Various Infections	Not added to formulary based on: 1) Low utilization 2) No major clinical or adverse reaction benefit compared to formulary agent linezolid

VVC=Vulvovaginal candidiasis REMS=Risk evaluation mitigation strategy

Product Standardizations of the Adult CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Comments**
Bortezomib (Velcade®) Injection	Antineoplastic Agent	Antibody-mediated rejection Various Cancers	We will be converting to Sagent's generic brand of bortezomib since it is AP-rated to Velcade® and there are no differences in inactive ingredients, storage, stability, or preparation. There will be a considerable cost savings across the enterprise.
Filgrastim-aafi (Nivestym®) Injection	Colony Stimulating Factor	Neutropenia and Various Indications	We will be converting from Neupogen® to the biosimilar filgrastim-aafi (Nivestym®). Nivestym® shares similar pharmacokinetic, toxicity, antidrug antibody response rates, and storage and stability to Neupogen®. There will be a considerable cost savings across the enterprise.
Melatonin Therapeutic Interchange	Dietary Supplement	Insomnia	A therapeutic interchange for melatonin will be expanded to allow for automatic conversion of various non-standard stock formulations of melatonin to be interchanged with the same dose of CCHS-stocked IR melatonin tablets. It was also approved to round the melatonin doses >3 mg to ensure ordered doses are optimized for administration.*
Revefenacin (Yupelri®) Inhalation Solution	LAMA	COPD	Revefanacin was added to the current LAMA therapeutic interchange.*
Sulfadiazine	Antibiotic	Various Infections	Since a decision was made to remove sulfadiazine from the formulary, a therapeutic interchange was approved to convert sulfadiazine orders to TMP/SMX.*

*Details are in Therapeutic Interchange List on Drug Information Pharmacy SharePoint Site
IR=Immediate release LAMA=Long-acting muscarinic agent COPD=Chronic obstructive pulmonary disease
TMP/SMX=Trimethoprim/sulfamethoxazole

Process Changes to the Adult CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Comments**
Feiba® Injection Maximum Dosing Weight	Blood Factor	DOAC reversal	Actual body weight should be used to calculate the dose of Feiba® with a dosing weight cap of 100 kg. This dosing weight cap will only be applied to the DOAC reversal indications and not for hemophilia.
Long-acting Injectable Antipsychotics	Antipsychotics	Psychiatric Disorders	To prevent medication errors in the ED setting, a guidance document was created and approved by the Behavioral Health Operations Committee to aid providers in appropriate prescribing of LAIAs. To prevent administration of these agents too soon before the next scheduled dose, an order question requiring the ordering provider to enter the date of the last injection when ordering LAIAs in the ED was added.

DOAC=Direct-acting oral anticoagulant ED=Emergency department LAIAs=Long-acting injectable antipsychotics

Additions to the Pediatric CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Restrictions/Comments**
Fenfluramine (Fintepla®) Oral Solution	Anti-Seizure Agent	Dravet Syndrome Lennox-Gastaut Syndrome	Restricted to the following circumstances: 1) Initiation of fenfluramine is restricted to providers from the Pediatric Epilepsy Service and Pediatric Neurology AND: A. Prescriber and patient must meet Fintepla® REMS program requirements 2) Continuation of therapy: A. The inpatient prescriber does NOT need to be a certified REMS prescriber for continuation of therapy B. Patients must meet Fintepla® REMS Program requirements
Fish Oil Triglycerides (Omegaven®) Injection, Emulsion	Caloric Agent	Parenteral Nutrition-Associated Cholestasis	Restricted to pediatric patients on parenteral nutrition for > 2 weeks with cholestasis defined as conjugated bilirubin > 2 mg/dL AND unlikely to wean from parenteral nutrition in the next 4 weeks. Approval from: Dr. Kadakkal Radhakrishnan, MD (Medical Director, Pediatric Nutrition Support) AND Christina Detallo, RD (Clinical Director, Pediatric Nutrition Support) will be required.
Tezepelumab (Tezspire®) Subcutaneous Injection	Monoclonal Antibody	Asthma	Restricted to the Departments of Pediatric Allergy and Clinical Immunology and Pediatric Pulmonary Medicine for use in the outpatient setting only

REMS=Risk evaluation mitigation strategy

Change in Restrictions to the Pediatric CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Comments**
Nirmatrelvir-ritonavir (Paxlovid®) Tablets	Antiviral Agent	Treatment of COVID-19 Infection	Please refer to the Adult Changes in Formulary Restrictions for further details.

COVID-19=Corona virus disease-19

Process Changes to the Pediatric CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Restrictions/Comments**
Acetaminophen, Ibuprofen, and Ondansetron Oral Dose Rounding	Analgesics and Antiemetic	Pain/Fever and Nausea/Vomiting	Details of dose rounding of oral formulations of acetaminophen, ibuprofen, and ondansetron will be in Lexicomp.

Removal from the Pediatric CCHS Formulary			
Drug	**Pharmacologic Class**	**Formulary Use**	**Rationale**
Sulfadiazine	Antibiotic	Various Infections	Please see Adult Formulary Product Standardization section under Sulfadiazine Therapeutic Interchange for more details