MSHP Pharmascript

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Third Quarter

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Deadlines for Pharmascript Submissions

Submit articles for publication in the Fall Edition of Pharmascript by November 15, 2021

Submit articles for publication in the Winter Edition of Pharmascript by September February 15, 2021

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Remarks from the Incoming MSHP President

Molly Wascher, MSHP President 2021-2022

MSHP Spring Seminar, April 21, 2021

Good afternoon everyone,

The last time I had to give a speech like this I was running for class president in high school. In one of my speeches, I asked my classmates to stand up, and then told them to sit back down and said “my mom always said I could move a crowd”. After further reflection when writing this speech, I decided I shouldn’t use any of those as inspiration for today.

I want to start off by saying another thank you to all of our volunteer leaders. I am thoroughly impressed by all of the work our committees have been able to accomplish, particularly given the obstacles of the past year.

To our outgoing board members, Mike and David - it has been a joy working with you both over the past year. Mike - you consistently provide thoughtful feedback during our board meetings. Every time we have a challenging problem we’re trying to solve, you always seem to have the answer. And David- you have managed to keep our organization financially stable during this past year which is no small feat. Having talked with members from other state organizations, I feel very fortunate that MSHP has been able to financially weather the past year, this would not have been possible without your dedication and hard work.

To end my thank yous - I want to recognize Sandeep and Stacy for your incredible mentorship and support over the past year. You both have been dedicated to teaching me and preparing me for the upcoming year. I don’t think I truly knew what was in store for me when I became president-elect but having you both as role models has been inspirational. Sandeep - I look forward to continuing to work with you over next year, and Stacy - know that you will probably receive a few text messages or emails from me asking for advice.

I am going to do my best to limit discussion about the pandemic as I’m sure most of us are tired of talking about it. Though I do have to acknowledge that while the past year has presented a unique set of challenges, it has also provided new opportunities. For example, it has forced us to utilize technology in a way that has expanded our ability to connect with members from across the state. This is a trend that I hope is here to stay.

On a personal note - I got married this past year, and I was one of those lucky people that had the joys of planning and cancelling and re-planning a wedding during the pandemic. As part of our pre-marital process, Billy and I had to go through counseling sessions with our pastor. A big portion of these sessions were focused on preparing us for life during marriage and thinking ahead to how we could best work together. I can’t help but tie this to the upcoming MSHP strategic planning retreat. As Sandeep mentioned, we are fortunate that a member from ASHP will be joining and supporting our strategic planning process. During this time, we hope to thoroughly review our strategic plan and create a new one that will propel us for the next 1-5 years.

One key element of the strategic plan will be incorporating the work that was started this year regarding diversity, equity, and inclusion. Thinking back, when Sandeep gave his speech last June, he recognized the recent killing of George Floyd along with far too many black Americans. This week with the emotions and memories brought up by Derek Chauvin’s trial, and dealing with the recent killings of more Black and Asian Americans, we are reminded of the work that still needs to be done in our country. MSHP may not be able to solve the problem, but we do have a part to play. The formation of the [Diversity and Inclusion] steering committee is a first step to ensuring MSHP is taking action to improve the diversity within our organization and addressing health disparities in our communities.

When I refer to diversity for our organization, I'm thinking about all meanings of the word, including race, gender, sexual orientation, as well as, location in the state and type of practice. MSHP should be the professional home for all pharmacists and technicians practicing within health-systems in the state of Maryland. We want everyone to feel welcome to join and contribute, as well as find value in the organization. Looking externally, we need to be leaders in community initiatives and legislative action that support our most vulnerable patient populations.

Recently MSHP created the Ambulatory and Outpatient Pharmacy Committee to address a growing need for our members. We have already seen significant engagement in the committee which has helped solidify the need for this group. I am confident bringing together pharmacists and technicians that practice in this space will provide a fruitful forum for our members. And as someone who practices in specialty pharmacy, I believe this committee will help MSHP feel like a professional home for more individuals.

Lastly, to the new leaders being sworn today - Thank you for your willingness to volunteer and contribute your strengths for the betterment of our patients and our profession. I am looking forward to working with you all and I hope at some point this year we will be able to meet in-person.

Thank you all for taking the time to join the MSHP Spring Seminar today and for allowing me a few moments to speak.

Direct Oral Anticoagulants versus Warfarin for the Treatment of Left Ventricular Thrombus

David Emaikwu, PharmD Candidate 2022, Howard University College of Pharmacy;
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Left ventricular thrombus (LVT) is a complication associated with myocardial infarction (MI) and other non-ischemic cardiomyopathies. Following an acute MI, the timeline for LVT formation ranges from 1 day to 2 weeks.[1] The advent of percutaneous coronary intervention and other antithrombotic techniques have lowered the post-MI incidence rate of LVT from 21 – 46% to 4 – 15%.[2] Due to the location of the thrombus, detachment and subsequent stroke or systemic embolisms (SSE) are more common necessitating the need for anticoagulation therapy. Vitamin K antagonists (VKA) such as warfarin are the current American College of Cardiology/American Heart Association (ACC/AHA) guideline-recommended therapy for the management of LVT.[3] However, direct oral anticoagulants (DOACs) have gained interest as alternative treatment options. Although DOACs are more convenient for patients due to their ease of dosing, lack of monitoring, and absence of dietary restrictions, there is conflicting evidence regarding their efficacy and safety compared to warfarin for LVT treatment.[4-12]

DOACs use for LVT treatment is off-label. A total of 8 studies to date have compared warfarin and DOACs for LVT treatment. All studies were retrospective or observational, with a pooled sample size of 1955 patients.[4-12] Outcomes measured to assess the clinical efficacy or safety of warfarin vs DOACs included: bleeding rate, SSE occurrence, LVT resolution and mortality (table 1). Overall, from the pooled analysis, no significant differences were observed for the assessed outcomes. The pooled risk ratio (RR) of warfarin vs DOACs were:

- **Bleeding events:** 1.15; (95% CI 0.62–2.13; *P = 0.57*)
- **SSE occurrence:** 1.04; (95% CI 0.64–1.68; *P = 0.85*)
- **LVT resolution:** 1.11; (95% CI 0.51–2.39; *P = 0.76*)
- **Mortality:** 1.09; (95% CI 0.70–1.70; *P = 0.85*)

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	Bass (2019)	Daher (2020)	Robinson (2020)	Guddeti (2020)	Iqbal (2020)	Jones (2020)	Jaidka (2018)	Yunis (2020)	Ali (2020)
Population (n)	949 D: 180 V: 769	59 D: 17 V: 42	514 D: 121 V:236	99 D: 19 V: 80	84 D: 22 V: 62	101 D: 41 V: 60	49 D: 12 V: 37	264 D: 64 V: 200	92 D: 32 V: 60
SSE rate, n (%)	**D:** 59 (33%) **V:** 235 (31%) *p = 0.53*	**D:** 2 (12%) **V:** 4 (10%) *p = 0.8*	**D:** 17 (14%) **V:** 14 (6%) *p = 0.01*	**D:** 0 (0%) **V:** 2 (3%) *p = 0.49*	**D:** 0 (0%) **V:** 1 (2%) *p = 0.55*	**D:** 2 (5%) **V:** 1 (2%) *p = 0.39*	**D:** 0 (0%) **V:** 2 (5%) *p = 0.41*	**D:** 8 (12%) **V:** 11 (5%) *p = 0.09*	**D:** 2 (6%) **V:** 9 (15%) *p = 0.33*
Bleed rate, n (%)	**D:** 20 (11%) **V:** 60 (8%) *p = 0.4*	N/A	**D:** 8 (7%) **V:** 19 (8%) *p = 0.65*	**D:** 1 (5%) **V:** 5 (6%) *p = 0.96*	**D:** 0 (0%) **V:** 6 (10%) *p = 0.13*	**D:** 0 (0%) **V:** 4 (7%) *p = 0.03*	**D:** 1 (8%) **V:** 0 (0%) *p = 0.55*	**D:** 5 (8%) **V:** 10 (5%) *p = 0.4*	N/A
LVT resolution rate, n (%)	N/A	**D:** 12 (71%) **V:** 30 (71%) *p = 0.9*	**D:** 56 (46%) **V:** 131 (55.5%) *p = 0.1*	**D:** 15 (80%) **V:** 65 (81%) *p = 0.9*	**D:** 14 (65%) **V:** 47 (76%) *p = 0.33*	**D:** 34 (82%) **V:** 39 (64%) *p = 0.002*	**D:** 11 (89%) **V:** 26 (69%) *p = 0.25*	**D:** 62 (97%) **V:** 200 (100%) *p = 0.4*	**D:** 18 (53%) **V:** 37 (63%) *p = 0.85*
Mortality, n (%)	N/A	N/A	**D:** 14 (12%) **V:** 32 (14%) *p = 0.6*	N/A	**D:** 3 (14%) **V:** 6 (10%) *p = 0.61*	N/A	N/A	N/A	N/A

Table 1: Summary of studies evaluating DOAC vs. VKA efficacy and safety in LVT treatment D = Direct Oral Anticoagulant; HR = Hazard Ratio; LVT = Left Ventricular Thrombus; OR = Odds Ratio; RR = Relative Risk; SSE = Stroke and Systemic Embolism; V = Vitamin K Antagonist

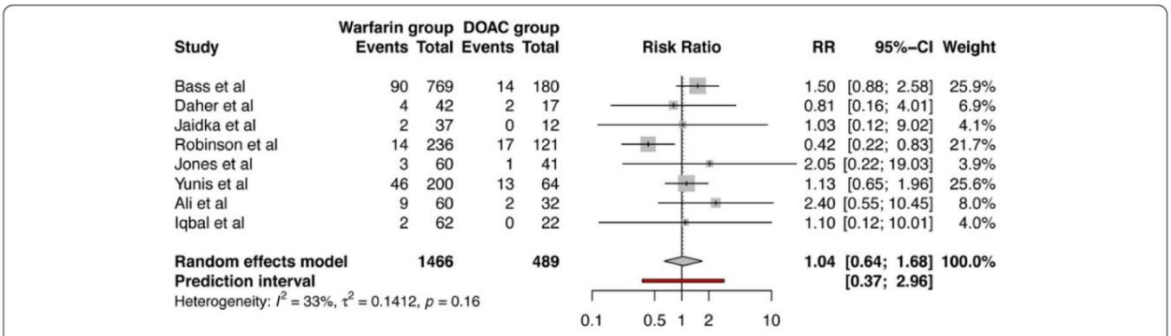

Fig. 3 Forest plot showing pooled risk ratio of stroke or systemic embolization in patients treated with warfarin compared to those treated with DOACs for left ventricular thrombus

There was a lack of homogeneity among the studies and notably some key differences. One difference was observed in the Robinson et al. (RED VELVT) study that observed a higher risk of SSE occurrence with DOACs compared to warfarin (figure 1).[4] For the unadjusted analysis, the HR 2.71; 95% CI 1.31-5.57; *P* = 0.01, and findings remain statistically significant with multivariable analysis with HR 2.64; 95% CI 1.28-5.43; *P = 0.01*. Potential explanations for this conflicting result may stem from intergroup variations and the patient categorization method. At baseline, the DOAC group had more risk factors for stroke such as a history of prior SSE, hyperlipidemia, atrial fibrillation, apical thrombus, and pedunculated thrombus. Robinson et al. had one of the longest follow-up periods to date (350 days). They observed more cases of SSE after 3 months of anticoagulation therapy, which is outside of the recommended treatment duration window for LVT. Additionally, they included patients who switched between DOACs and VKA during the study period. This was a key difference from other similar studies which excluded individuals who switch agents during the study period. To account for this change in methodology, Robinson et al. conducted a comparison between the therapy change, DOAC-only, and warfarin-only groups. While there were no statistically significant differences between the groups, the likelihood of additional confounders cannot be ruled out.

Overall, the reviewed literature suggests that DOACs are non-inferior or at least as effective as warfarin in the treatment of LVT. However, given recent findings of increased SSE, caution should be exercised when selecting DOACs for LVT treatment. Of note, there were more patients using warfarin in the reviewed studies, which may increase the detection of SSE or bleeding incidents in the overall study population. Further highlighting this potential bias is the fact that Robinson et al. had the lowest warfarin-to-DOAC ratio and they reported results contrary to the trend shown by other cohort studies. There were also critical differences between the groups at baseline which threaten the internal validity of these studies and point to the need for a randomized clinical trial.

References

1. McCarthy CP, Vaduganathan M, McCarthy KJ, et al. Left ventricular thrombus after acute myocardial infarction: screening, prevention, and treatment. *JAMA Cardiol*. 2018;3(7):642–9.
2. Dalia T, Lahan S, Ranka S, et al. Warfarin versus direct oral anticoagulants for treating left ventricular thrombus: a systematic review and meta-analysis. *Thrombosis J.* 2021;19(1):7.
3. Kernan WN, Ovbiagele B, Black HR, et al; American Heart Association Stroke Council, Council on Cardiovascular and Stroke Nursing, Council on Clinical Cardiology, and Council on Peripheral Vascular Disease. Guidelines for the prevention of stroke in patients with stroke and transient ischemic attack: a guideline for healthcare professionals from the American Heart Association/American Stroke Association. *Stroke*. 2014; 45(7):2160-2236.
4. Robinson A, Trankle C, Eubanks G, et al. Off-label Use of Direct Oral Anticoagulants Compared With Warfarin for Left Ventricular Thrombi. *JAMA Cardiol*. 2020; 5(6):685-692.
5. Bass M, Kiser T, Page R, et al. Comparative effectiveness of direct oral anticoagulants and warfarin for the treatment of left ventricular thrombus. *Journal of Thrombosis and Thrombolysis*. 2021.
6. Daher J, Da Costa A, Hilaire C, et al. Management of Left Ventricular Thrombi with Direct Oral Anticoagulants: Retrospective Comparative Study with Vitamin K Antagonists. *Clin Drug Investig.* 2020; 40:343–353.
7. Guddeti RR, Anwar M, Walters RW, et al. Treatment of left ventricular thrombus with direct oral anticoagulants: a retrospective observational study. *Am J Med*. 2020; 133(12):1488–91.
8. Iqbal H, Straw S, Craven TP, et al. Direct oral anticoagulants compared to vitamin K antagonist for the management of left ventricular thrombus. *ESC Hear Fail*. 2020; 7(5):2032–41.
9. Jones DA, Wright P, Alizadeh MA, et al. The use of novel oral anticoagulants (NOAC) compared to vitamin K antagonists (warfarin) in patients with left ventricular thrombus after acute myocardial infarction (AMI). *Eur Hear J Cardiovasc Pharmacother*. 2020.
10. Jaidka A, Zhu T, Lavi S, et al. Treatment of left ventricular thrombus using warfarin versus direct oral anticoagulants following anterior myocardial infarction. *Can J Cardiol.* 2018; 34:S143.
11. Yunis A, Seese L, Stearns B, et al. Direct oral anticoagulants are effective therapy in treating left ventricular thrombi. *JAMA Cardiol.* 2020;75.
12. Ali Z, Isom N, Dalia T, et al. Direct oral anticoagulant use in left ventricular thrombus. *Thrombosis J.* 2020;18:1–4.

Considerations for SGLT2 Inhibitor Use in Hospital Settings

Michelle Yang, PharmD Candidate 2022, University of Maryland Eastern Shore School of Pharmacy

Sodium-glucose cotransporter-2 inhibitors (SGLT2is) are a class of drugs that aim to lower hemoglobin A1c (HbA1c) levels and blood glucose (BG) levels for individuals with type 2 diabetes mellitus (T2DM) by blocking the reabsorption of glucose in the kidneys, resulting in increased excretion of glucose in the urine and overall reduced BG levels.[1] In the recently updated 2021 American Diabetes Association guidelines for the management of T2DM, certain SGLT2is (empagliflozin, canagliflozin, and dapagliflozin) are singled out as favored second line agents following metformin in the setting of atherosclerotic cardiovascular disease (ASVD), heart failure (HF), and chronic kidney disease (CKD).[2]

Recent landmark trials have also demonstrated benefits in the listed disease states such as the DEFINE-HF for dapagliflozin use in patients with HF with reduced ejection fraction (HFrEF), EMPEROR-Reduced for empagliflozin in patients with HFrEF, and DAPA-CKD for dapagliflozin in patients with CKD with or without diabetes.[3,4,5] Although the mechanism of action of SGLT2is in the context of HFrEF remains unclear, several possible influences include weight loss, improved myocardial energetics, adaptive cellular reprogramming, and reductions in left ventricular hypertrophy have been reported.[6] The 2021 American College of Cardiology HFrEF guidelines, now recommend the addition of either empagliflozin or dapagliflozin in patients not adequately controlled on their guideline-directed medical therapy who also have an estimated glomerular filtration rate above the specified thresholds.[7]

Inpatient use of SGLT2is has historically been controversial due to the risk of diabetic ketoacidosis (DKA), worsening renal function, and unclear short-term benefits. In 2015, the U.S. Food and Drug Administration (FDA) issued a warning regarding SGLT2i use and the increased risk of developing DKA.[8,9] The FDA noticed that many reported cases of DKA with SGLT2i use occurred with a BG level of less than 250 mg/dL which may prevent early recognition of emerging DKA, as well as some distinct risk factors for DKA including infection, poor nutrition, and decreased endogenous insulin production.[9] This statement was corroborated in a 2019 retrospective cohort study by Hamblin, et. al. that found a significant portion of inpatient DKA cases could be attributed to SGLT2i use, primarily in the context of surgery and/or fasting.[8] Additionally, the diuretic effect of SGLT2is can lead to dehydration and mild reductions in kidney function similar to angiotensin converting enzyme inhibitors.[1] Many individuals admitted to the hospital present with profiles that fall in line with these risk factors, potentially increasing their overall risk of inpatient complications.

In the SOLOIST-WHF trial published in 2020, researchers sought to evaluate the safety and efficacy of sotagliflozin when initiated before or shortly after discharge in clinically stable patients hospitalized for decompensated HF. With relatively balanced patient demographics in both the sotagliflozin and placebo arms including use of standard goal-directed medical therapy, the researchers found the rate of the composite endpoint of deaths from cardiovascular causes, hospitalizations, and urgent visits for HF in the sotagliflozin arm was 51 per 100 patient-years versus 76.3 per 100 patient-years in the placebo arm ($p<0.001$, see figure 1). Rates of adverse effects including acute kidney injury and DKA were similar between sotagliflozin and placebo.[6] The results of this study suggest substantial benefits in initiating SGLT2is in patients with worsening HF before or shortly after discharge.

New evidence suggests that inpatient use of SGLT2is is safe and effective at reducing negative cardiovascular outcomes, including death and rehospitalization, in patients with HF. Care should be taken when initiated in the inpatient setting, particularly in clinically unstable patients or in the setting of surgery, fasting, infections, or renal impairment.

References

1. Lexi-Drugs. Lexicomp. Wolters Kluwer Health, Inc. Riverwoods, IL. http://online.lexi.com. Accessed July 28, 2021.
2. Standards of medical care in diabetes – 2021. *Diabetes Care*. 2021;44(1). https://care.diabetesjournals.org/content/44/Supplement_1. Accessed July 28, 2021.
3. Nassif ME, Windsor SL, Tang F, et al. Dapagliflozin Effects on Biomarkers, Symptoms, and Functional Status in Patients with Heart Failure with Reduced Ejection Fraction. *American Heart Association*. 2019;140:1463-1476. doi: 10.1161/CIRCULATIONAHA.119.042929.
4. Packer M, Anker SD, Butler J, et al. Cardiovascular and Renal Outcomes with Empagliflozin in Heart Failure. *N Engl J Med*. 2020;383:1413-1424. doi: 10.1056/NEJMoa2022190.
5. Heerspink HJL, Stefansson BV, Correa-Rotter R, et al. Dapagliflozin in Patients with Chronic Kidney Disease. *N Engl J Med*. 2020;383:1436-1446. doi: 10.1056/NEJMoa2024816.
6. Bhatt DL, Szarek M, Steg PG, et al. Sotagliflozin in Patients with Diabetes and Recent Worsening Heart Failure. *N Engl J Med*. 2021;384:117-28. doi: 10.1056/NEJMoa2030183.

7. Maddox TM, Januzzi JL, et al. 2021 update to the 2017 ACC expert consensus decision pathway for optimization of heart failure treatment: answers to 10 pivotal issues about heart failure with reduced ejection fraction. 2021;77(6):773-810.
8. Hamblin PS, Wong R, Ekinci EI, et al. SGLT2 Inhibitors Increase the Risk of Diabetic Ketoacidosis Developing in the Community and During Hospital Admission. *J Clin Endocrinol Metab*. 2019;104(8):3077-3087. doi: 10.1210/jc.2019-00139.
9. Levine JA, Karam SL, Aleppa G. SGLT2-I in the Hospital Setting: Diabetic Ketoacidosis and Other Benefits and Concerns. *Curr Diab Rep*. 2017;17:54. doi: 10.1007/s11892-017-0874-3.
10. Koufakis T, Mustafa OG, Ajjan RA, et al. The Use of Sodium-Glucose Co-Transporter 2 Inhibitors in the Inpatient Setting: Is the Risk Worth It? *J Clin Pharm Ther*. 2020;45:883-891. doi: 10.1111/jcpt.13107.
11. Gajjar K, Luthra P. Euglycemic Diabetic Ketoacidosis in the Setting of SGLT2 Inhibitor Use and Hypertriglyceridemia: A Case Report and Review of Literature. *Cureus*. 2019k;11(4):e4384. doi: 10.7759/cureus.4384.
12. McMurray JJV, Solomon SD, Inzucchi SE, et al. Dapagliflozin in patients with heart failure and reduced ejection fraction. *N Engl Med.* 2019;381:1995-2008. doi: 10.1056/NEJMoa1911303.

Technician Corner: Pharmacy Technicians as Immunizers Across the Nation

Susan Daly, CPhT, CSPT

COVID-19 has brought a year with many changes around the world. We have learned to adapt and make changes to all areas of our lives from school, work and play. Beyond personal and professional changes the practice of medicine has adapted, too. As 2020 grew to a close, the light at the end of a long year had shown in the development and administration of a COVID-19 vaccine. The Federal Drug Administration (FDA) approved the first COVID-19 vaccine for emergency use on December 11, 2020. But prior to the FDA emergency use authorization of the COVID-19 vaccine, the Secretary of Health and Human Services (HHS) invoked the Public Readiness and Emergency Preparedness (PREP) Act. The PREP Act was signed into the law in December 2005. It authorized the Secretary of HHS to issue a PREP Act declaration in times of public emergency due to natural disaster, war or pandemic. The act provides immunity to liability during a public health emergency but can be amended as different needs arise.[1]

The declaration of the PREP Act was issued on March 17, 2020 to help with the COVID-19 pandemic response. Seven amendments have been added since the declaration was issued. The fourth amendment to the declaration expanded who is qualified to administer vaccinations, what vaccines they would be able to administer, and who they are able to vaccinate. This amendment allows for pharmacy technicians and pharmacy interns to vaccinate as long as certain criteria are met:[1]

> The administration authority comes with a number of prerequisites. Specifically, in order to administer FDA-approved/licensed, Advisory Committee on Immunization Practices (ACIP) recommended immunizations, state-authorized pharmacy interns and qualified pharmacy technicians will need to meet the following requirements:
>
> - The vaccination is ordered by the supervising qualified pharmacist;
> - The supervising qualified pharmacist is readily and immediately available;
> - In the case of a COVID-19 vaccine, the vaccination is ordered and administered according to ACIP's COVID-19 vaccine recommendation(s);
> - In the case of a childhood vaccine, the vaccination is ordered and administered according to ACIP's standard immunization schedule;
> - The state-authorized pharmacy intern or qualified pharmacy technician has completed a practical training program that is approved by the Accreditation Council for Pharmacy Education (ACPE), including hands-on injection technique and the recognition and treatment of emergency reactions to vaccines;

- The state-authorized pharmacy intern or qualified pharmacy has a current certificate in basic cardiopulmonary resuscitation;
- The state-authorized pharmacy intern or qualified pharmacy has completed two hours of ACPE-approved, immunization-related continuing pharmacy education during the relevant State licensing period(s);
- The supervising qualified pharmacist must comply with recordkeeping and reporting requirements of the jurisdiction in which he or she administers vaccines, including informing the patient's primary care provider when available and submitting the required immunization information to the state or local immunization information system (vaccine registry);
- The supervising qualified pharmacist is responsible for complying with requirements related to reporting adverse events;
- The supervising qualified pharmacist must review the vaccine registry or other vaccination records prior to ordering the vaccination to be administered by the qualified pharmacy technician or State-authorized pharmacy intern;
- The qualified pharmacy technician and State-authorized pharmacy intern must, if the patient is 18 years of age or younger, inform the patient and the adult caregiver accompanying the patient of the importance of a well-child visit with a pediatrician or other licensed primary-care provider and refer patients as appropriate;
- The supervising qualified pharmacist must comply with any applicable requirements (or conditions of use) as set forth in the CDC's COVID-19 vaccination provider agreement and any other federal requirements that apply to the administration of COVID-19 vaccine(s).[2]

The Pharmacy Technician Certification Board (PTCB) has come forward to help technicians with a new Immunization Administration Certification. To be eligible, you must be a Certified Pharmacy Technician (CPhT) in good standing and complete a PTCB recognized immunization administration education and training program.[3] The training program consists of a didactic portion and a skills test. In the skills test you apply what you have learned by doing an injection assessment with either a pharmacist immunizer or other qualified healthcare professional. For the injection assessment you must perform one subcutaneous and two intramuscular injections for which the assessor evaluates you on proper placement, technique, etc.

Prior to COVID-19, three states (Idaho, Rhode Island and Utah) were the only states that allowed pharmacy technicians to immunize. Although pharmacy technicians as immunizers in many states, including Maryland, is only temporary, there is an opportunity to potentially expand the technician's role in the health care workforce. Since pharmacy technicians work in a number of areas, including hospitals and retail pharmacies, these settings could be utilized to not only help with COVID vaccinations and testing, but also to help increase overall vaccination rates.

References

1. PHE.gov. Public Readiness and Preparedness Act. www.phe.gov/Preparedness/legal/prepact/Pages/default.aspx. Accessed 2021 Apr 9.
2. ASHP.org. HHS Authorizes Pharmacy Technician and Pharmacy Intern Administration of COVID-19 Tests and Vaccines. https://www.ashp.org/Advocacy-and-Issues/Key-Issues/Other-Issues/HHS-Authorizes-Pharmacy-Tech-and-Intern-Administration-of-COVID-19-Tests-and-Vaccines?loginreturnUrl=SSOCheckOnly. Accessed 2021 Apr 22.
3. PTCB.org. https://www.ptcb.org/. Accessed 2021 Apr 14.

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Student Spotlight: University of Maryland Eastern Shore

Randi Wright, PharmD Candidate 2022, University of Maryland Eastern Shore School of Pharmacy;
Michelle Yang, PharmD Candidate 2022, University of Maryland Eastern Shore School of Pharmacy;
Hoai-An Truong, PharmD, MPH, FAPhA, FNAP

When most people think of the Federal Emergency Management Agency (FEMA), natural disasters such as tornadoes, hurricanes and earthquakes spring to mind. As the COVID-19 pandemic raged across the globe, FEMA's approach to public health crises expanded to a much broader inclusion of healthcare professions. Starting in late March, the agency collaborated with the Department of Defense, US Public Health Service, US Navy and US Coast Guard to coordinate mass vaccination efforts across the country, with one such clinic operating 120 miles south of Princess Anne in Norfolk, Virginia.

The week following the University of Maryland Easter Shore 2021 Spring commencement, May 17-22, we had the opportunity to serve alongside individuals from various professions, backgrounds and states, including pharmacists, physicians, nurses, paramedics and emergency medical technicians from various federal agencies and volunteers from the private sector.

We worked as volunteer vaccinators at the mass vaccination clinic and were also assigned to visit remote sites in underserved areas of Norfolk and neighboring Hampton, Virginia. We went to churches, high schools and jails in those communities. In less than three months, this mass vaccination effort also delivered more than 75,000 inoculations in the Tidewater, Virginia, area, including 310 vaccines that UMES students were able to administer.

This FEMA deployment provided us ample opportunity to address patient care in a public health emergency response setting in a variety of ways. As immunizers, we encountered and worked to reconcile vaccine hesitancy and trypanophobia (fear of needles) through providing education and demonstrating compassion. As members of the pharmacy profession, we contributed to vaccine preparation, quality control and administration of the two-step Pfizer vaccine, as well as the single-dose counterpart produced by Johnson & Johnson.

This has been such a rewarding experience, not only from the benefits delivered to the community, but also through the connections with pharmacy colleagues from across the country we made along the way. FEMA's COVID-19 Vaccine Mission broadened our understanding of what it means to provide patient care on a national scale during a public health emergency.

This FEMA deployment provided a hands-on opportunity to take knowledge and skills from the classroom and apply them in the real world, and underscored the pharmacists' role and contributions to population health during a global pandemic.

Meet the authors:

Randi Wright is a fourth year PharmD candidate in the UMES School of Pharmacy and Health Professions and a member of the UMES chapter of ASHP-SSHP, who by participating in the vaccination clinic, fulfilled a part of her Public Health - Advanced Pharmacy Practice Experience rotation, an elective under the supervision of *Dr. Hoai-An Truong*, PharmD, MPH, FAPhA, FNAP.

Michelle Yang is a 4th year PharmD candidate in the UMES School of Pharmacy and Health Professions and is the former president of the UMES chapter of ASHP-SSHP, which nationally assisted FEMA in identifying volunteers.

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Education and Programming Committee Updates

Kate Burdalski, MSHP Educations and Programming Committee Co-Chair

The MSHP Spring events were a virtual success! The Educational Programs Committee and the MSHP Board were pleased at the turnout and active participation of the organization's members while they supported their colleagues' educational presentations and research endeavors.

The Spring Seminar 2021 provided education on buprenorphine for pain management, refeeding syndrome and nutrition support, parenteral nutrition-associated liver disease, and social determinants of health to over sixty attendees while also providing the annual members business meeting. The society welcomed David Chen of ASHP to discuss the status of ASHP's Opioid Task Force and their initiatives and outcomes.

The Research Seminar was provided for the second time in MSHP history. The engagement and attendance were so successful that the committee and Board has decided to continue this as an annual tradition, in conjunction with the Spring Seminar. This event will continue to celebrate the hard work of our researchers, share clinical and operational lessons and successes across the Maryland Health Systems, and support the growth and development of new researchers. This year we provided a 'Best Research Award' which takes into consideration the methods, conclusions, presentation, and relevance to pharmacy practice. The award is a personalized MSHP plaque with a $100 Visa gift card. MSHP would like to congratulate Joshua Borris, PharmD, current PGY2 in palliative care at University of Maryland, for receiving this year's Best Research Award for his research *Evaluation of Split Dosing Versus Once Daily Buprenorphine-Naloxone on Outcomes in Substance Use Disorder*. Abstract submissions for our 2022 Research Seminar will open in January. More details to follow!

The MSHP Educational Programs Committee would love to hear from you! Here are ways you can get involved:

Submit ideas that you'd like to see educational presentations on here: https://forms.gle/YVj2it5nZe1wmHFJ8

Submit your interest in being a speaker (with or without a topic) here: https://forms.gle/g3EiStD44aSj5aDg8

To volunteer or gather more information about volunteering with the Educational Programs Committee please email Ann Zhou (xzhou38@jhmi.edu) or Kate Burdalski (cburdal1@jhmi.edu).

The 2021 Fall Seminar will take place on Friday, October 1st at The Hotel at Ann Arundel Preserve. We're excited to welcome ten speakers for six different subject areas including precepting, neurocritical care, substance use disorder and opioid stewardship, DEI Teaching, employee engagement and retention, and transitions of care. There will be both an in-person and virtual registration option. A networking event will follow the seminar. Please see the MSHP email blasts for more details. We look forward to another engaging seminar and hope to see you there!