



UNIVERSITY OF  
**GEORGIA**  
College of Pharmacy

Inside This Issue:

Rotation Spotlight	1
Anticoagulation	2
Interprofessional Collaboration	3
Advice for Upcoming Fourth Years	3
Toceranib in Veterinary Oncology	4
Class of 2017	5
Upcoming Events	6
GA Licensure	6

# The Transition

4<sup>th</sup> Year Pharmacy Students Entering the Real World of Pharmacy

The Transition, Volume IV, Issue III

April 2017

## Rotation Spotlight



EISENHOWER  
MEDICAL CENTER

*Health Care As It Should Be*

<http://cernahomecare.com/palmsprings/wp-content/uploads/2014/05/EMC.jpg>

The Ambulatory Care rotation at Eisenhower Army Medical Center in Fort Gordon, Georgia, packs a punch with a plethora of unique opportunities in five weeks that fly by. On this rotation, I had the opportunity to spend time with eight specialized pharmacists, gaining experience in the following areas: pain management, polypharmacy, endocrinology, bariatric surgery, family medicine, and community/urgent care. Eisenhower Army Medical Center is under the Department of Defense which, similar to the VA, grants pharmacists provider status. The patient population is primarily active duty soldiers and their dependents but also includes some retired service members as well.

During the first week of the rotation, I observed while the pharmacist led the patient interactions and after each visit concluded, we discussed the rationale for their choices of therapy and care plans. By week two, I worked up all scheduled patients and discussed viable options for therapy prior to the patient's appointment. By week three, I was making my own care plans for the patients. Finally, at weeks four and five, I was leading the patient interviews, making therapy decisions, and writing notes while the pharmacist observed and jumped in as necessary. It was extremely fulfilling to play such an active role in patient care. While reviewing patients' charts, I could frequently track how far some patients had come while under a pharmacist's care.

Many of the patients that we see floundering in our community pharmacies do have the potential to manage their disease states; however, often, we instead see the disease state manage *them* simply due to a lack of education. With ambulatory care pharmacy, pharmacists can empower patients to take charge of their disease states. I observed the following very effective methods for successful patient outcomes while on my rotation:

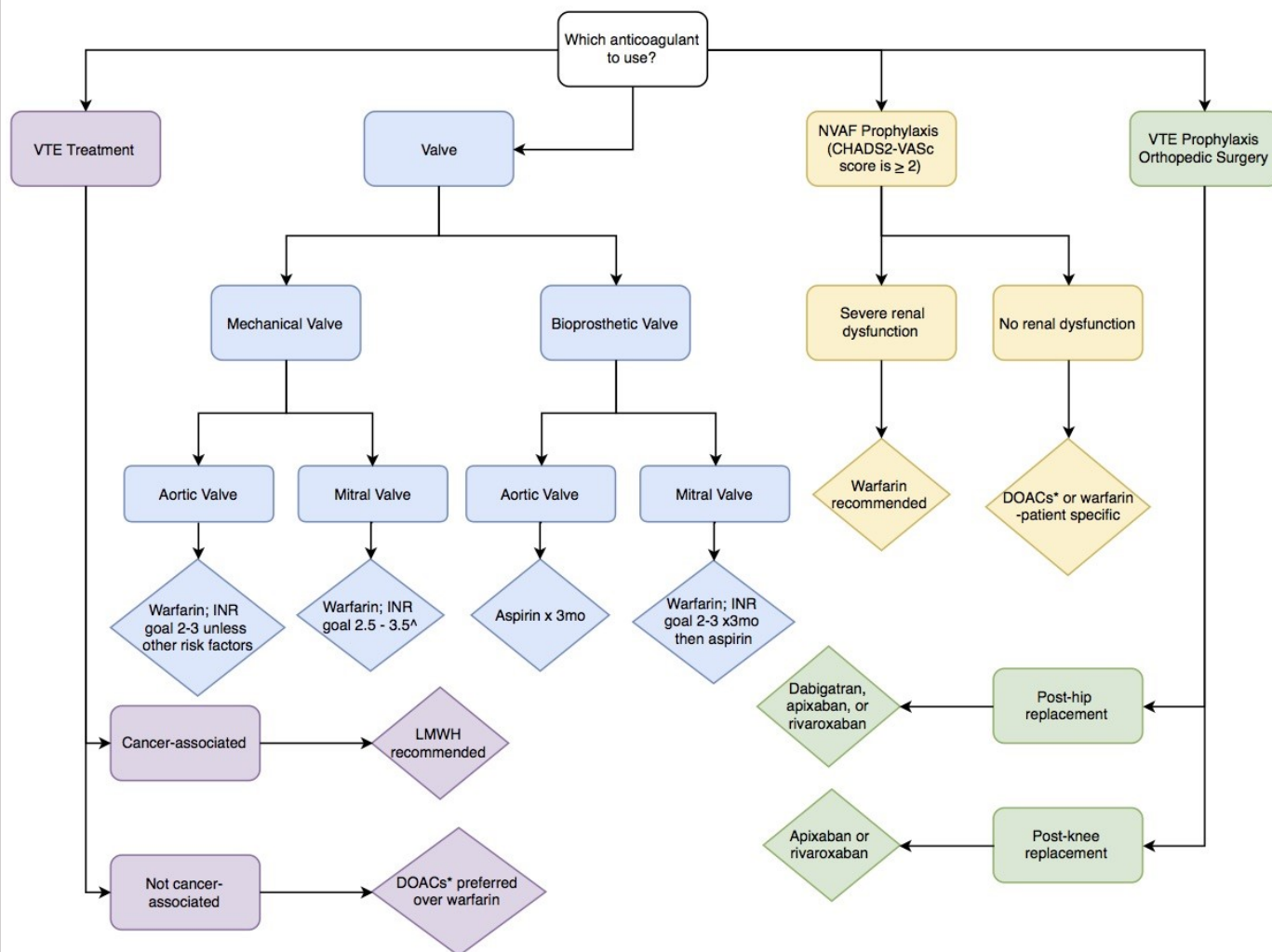
- Educate patients on why their disease matters (comorbidities, pathophysiology, quality of life, longevity).
- Educate patients on side effects to expect and how to manage them.
- Allow the patient to take ownership of their condition—provide, explain, and permit them to pick from therapy options that are available (within reason of course).

One final and special aspect of this rotation was the great rapport pharmacists shared with the physicians around them. Often physicians would stop by the pharmacist's office to discuss clinical cases, ask drug information questions, request input with a logistical issue a patient may be experiencing, or simply ask how their week was going. The respect other providers had towards pharmacists was palpable. In a world where pharmacists often sense a disconnect from either patients, prescribers, or both, it was inspiring to see the positive outcomes patients and providers could achieve when they worked in harmony.

Written by: Emily Murray  
(Augusta, GA)

## Anticoagulation Simplified

There are many agents on the market for anticoagulation. This chart tries to simplify which anticoagulants are FDA-approved for specific indications and recommended by guidelines. There are several terms for the newer agents, the most popular being NOAC, which previously stood for “novel oral anticoagulant”, but after 6 years these oral anticoagulants are not so “novel” anymore, and the acronym now stands for “non-vitamin K.” Another popular term is DOAC, which stands for “direct oral anticoagulant.” Although the CHEST guidelines prefer the term “NOAC,” the International Society of Thrombosis and Haemostasis (ISTH) endorses the term DOAC due to the possibility that NOAC be misunderstood as “NO AntiCoagulants.” Some less often seen acronyms include TSOAC (target-specific oral anticoagulant), ODI (oral direct inhibitor), and SODA (specific oral direct anticoagulant). This chart aims to clarify to pharmacists and physicians when DOACs are preferred agents and when warfarin is the preferred agent.



\*Refer to other resources for indication-specific dosing, age requirements, and renal adjustments..

^ Some patients may qualify for lower goals depending on type of valve.

VTE—venous thromboembolism; NVA—nonvalvular atrial fibrillation; LMWH—low molecular weight heparin; DOACs—direct oral anticoagulants

Written by: Belinda Li  
(Augusta, GA)

Reviewed by: Melanie Siv, PharmD, BCPS

## Learning through Interprofessional Collaboration: Polypharmacy

The proper care of a patient cannot be attributed to one single healthcare individual but rather a healthcare team. Working as a team does not always come naturally - it is something that takes practice to do well. As healthcare has transformed over the years, leaders in the healthcare realm have recognized the importance of an interdisciplinary approach in providing optimal care to patients. This trend has prompted the creation of interprofessional education (IPE) in which students from different healthcare fields work together on patient cases to become accustomed to intercollaborative practices. Recently, an IPE lesson, led by Dr. Susan Fagan and Dr. Amber Clemmons, was held between 2<sup>nd</sup> year medical students and 4<sup>th</sup> year pharmacy students on the Augusta campus and focused on polypharmacy in the elderly.

Polypharmacy, the use of four or more drugs in a patient, is sometimes necessary to treat a patient's complex health conditions but can at times contribute to poor health instead. Polypharmacy is especially concerning in the elderly due to the increased risk of side effects and drug interactions in this population. One major concern in regards to side effects is the increased risk of falls that can cause hip fractures, hemorrhagic strokes, and other adverse effects, which in turn leads to significant morbidity and mortality in the geriatric population. Due to these risks, it is imperative that healthcare professionals be aware of polypharmacy in the elderly and take measures to prevent and reduce the occurrences. One of the simplest and most important ways that this can be accomplished is through education.

Each 4<sup>th</sup> year pharmacy student who participated in the IPE worked as a consultant "pharmacist" to a group of up to ten 2<sup>nd</sup> year medical students. Each group was given a complicated, yet realistic, patient case. The pharmacy students were able to assist the medical students in utilizing a drug interaction checker, understanding the Beer's Criteria, and contemplating the appropriateness of therapy. There were many opportunities where pharmacy students were able to make notable interventions in our sample patients and provide the perspective of a pharmacist.

During the IPE experience, pharmacy and medical students worked as a team to provide the patient with the best care possible. This event built trust and respect between the two healthcare fields, causing them to value their colleagues. As rapport grows, this will hopefully only increase as we become licensed professionals. With the goal of improved patient care being essential, collaborations such as this will remain vital in the education of healthcare professional students.

Written by: Katie Ferguson  
(Augusta, GA)



## Advice for Upcoming Fourth Years

*"Create a spreadsheet or a document to record all your interventions no matter how big or small. I had a preceptor ask me to do this to help with their evaluation at the end of the rotation, but I found the information really helpful for me. I was able use my spreadsheet when filling out residency applications and preparing for interviews. Even if you are not going for a residency, it could be a question you are asked on job interviews. Trust me - it is difficult to remember every intervention you have made 4 to 6 months later."*

Rachel Stephens  
Augusta, GA

*"Make the most of your rotations. Even if the rotation is out of your area of interests, the skills acquired during the rotation will be applicable throughout your career and in the other rotations."*

Kaley Corley  
Augusta, GA

*"My best piece of advice as a P4 is to get a mentor, specifically in the area of pharmacy you are interested in. Mentors have great insight to provide based on their experiences, and can help you navigate through career and/or personal decisions. Also, as cliché as it sounds, pharmacy is truly a small world, so your mentor may provide connections that can help get your foot in the door. "*

Ife Anachebe  
Augusta, GA

## Toceranib in Veterinary Oncology



While prices for human oncology medications frequently soar to hundreds of thousands of dollars, few people are willing to accept a similar price tag for their animals. Research in oncology treatments for pets is limited by pet owner ability and willingness to pay. Despite this, oncology treatments are also advancing in the field of veterinary medicine. One such advancement is the drug toceranib (Palladia®), FDA-labeled for the treatment of recurrent grade II or III cutaneous mast cell tumors with or without regional lymph node involvement in dogs.

Toceranib works to treat cancer cells by acting as a tyrosine kinase inhibitor, interfering with cell signaling that drives tumor progression. Toceranib's targets include vascular endothelial growth factor receptor-2 (VEGFR2), platelet-derived growth factor receptor (PDGFR), stem cell growth factor receptor Kit, among others.<sup>1</sup> Tyrosine kinase inhibitors available for the treatment of human cancers include epidermal growth factor receptor (EGFR) inhibitors osimertinib (Tagrisso®), afatinib (Gilotrif®), gefitinib (Iressa®), and erlotinib (Terceva®), used for the treatment of non-small cell lung cancers; BCR-ABL inhibitors imatinib (Gleevec®), nilotinib (Tasigna®), dasatinib (Sprycel®), bosutinib (Bosulf®), and ponatinib (Iclusig®) for the treatment of chronic myeloid leukemia; and VEGFR2 inhibitor ramucirumab (Cyramza®) for the treatment of colorectal cancer.

Toceranib was approved for the treatment of recurrent grade II or III cutaneous mast cell tumors with or without regional lymph node involvement in dogs based on a randomized, placebo-controlled, double-blind, multicenter study. Dogs were randomized to receive placebo (n=63) or toceranib 3.25 mg/kg (n=86) every other day for 6 weeks during the blinded phase, followed by an open-label phase for dogs in both groups that showed complete response (CR), partial response (PR), or stable disease (SD) and dogs in the placebo group that showed progressive disease (PD) at 6 weeks, during which all dogs received toceranib. The primary endpoint of ORR for the blinded phase at 6 weeks was 37.2% vs. 7.9% in the toceranib and control groups respectively (p=0.0004). The ORR for all dogs that received toceranib over the course of the study (n=145) was 42.8%, with median duration of objective response 12 weeks and time to tumor progression 18.1 weeks. Common adverse events in the treatment group included diarrhea, emesis, anorexia, and neutropenia. Grade 3 and 4 adverse events were not significantly different between placebo and treatment groups.<sup>1</sup>

FDA labeling recommends an initial dose of 3.25 mg/kg by mouth every other day, with dose reductions of 0.5 mg/kg (to a minimum dose of 2.2 mg/kg) and dose interruptions of up to 2 weeks as necessary to manage adverse reactions. Contraindications include pregnancy, lactation, and planned use in breeding. Toceranib increases risk of gastrointestinal ulceration or perforation, so NSAIDs should be avoided on the day of toceranib administration. Due to potential adverse effects, CBC, hematocrit, albumin, creatinine, and serum phosphate should be monitored weekly for the first 6 weeks of therapy and then every 6 weeks following. The dog should also be monitored for gastrointestinal bleeding and excessive diarrhea.<sup>2</sup>

While toceranib's approval is an interesting advancement in the field of veterinary medicine, its price tag and somewhat limited duration of response (median 12 weeks) may prevent frequent use. The owner of a 15 kg dog would spend approximately \$300 per month on treatment. This price seems negligible compared to human oncology drugs, but as owners usually refrain from purchasing pet insurance and often are limited in ability and willingness to pay, the price may present a sizable barrier to use. Though toceranib may not be the great leap forward in veterinary medicine that could be desired, research into other veterinary oncology drugs continues with a recent FDA-approval for the treatment of canine lymphoma. As veterinary oncology moves forward, the parallels in molecular targets between human and veterinary drugs will be interesting to watch.

Written by: Andrea Clarke  
(Augusta, GA)

Reviewed by: Gerard Clarke, DVM

### References:

1. London CA, Malpas PB, Wood-Follis SL, et al. Multi-center, placebo-controlled, double-blind, randomized study of oral toceranib phosphate (SU11654), a receptor tyrosine kinase inhibitor, for the treatment of dogs with recurrent (either local or distant) mast cell tumor following surgical excision. *Clin Cancer Res*. 2009; 15(11).

2. Palladia® (toceranib) [package insert]. Zoetis Inc., Kalamazoo, MI; February 2015. [https://www.zoetisus.com/contact/pages/product\\_information/msds\\_pi/pi/palladia.pdf](https://www.zoetisus.com/contact/pages/product_information/msds_pi/pi/palladia.pdf). Accessed December 24, 2016.



## Congratulations Class of 2017!



**Ron Abraham:** Walmart in Augusta, GA

**Ruchita Amin:** Methodist University Hospital in Memphis, TN

**Ife Anachebe:** VA North Texas Healthcare System (PGYI) in Dallas, TX

**Laura Hill Bannister:** VCU Health System (PGYI) in Richmond, VA

**Paul Bauman:** Augusta University Medical Center (PGYI) in Augusta, GA

**Madeline Burke:** Central Arkansas VA (PGYI) in Little Rock, AR

**Natalie Chong:** OhioHealth Riverside Methodist Hospital (PGYI) in Columbus, OH

**Andrea Clarke:** University Health Shreveport (PGYI) in Shreveport, LA

**Libby Daugherty:** Florida Hospital (PGYI) in Orlando, FL

**Jake Davis:** U-Save-It Pharmacy in Macon, GA

**Katie Donnan:** Carl Vinson VA (PGYI) in Dublin, GA

**Shaily Doshi:** Augusta University Medical Center (PGYI) in Augusta, GA

**Vidhi Doshi:** Presence St. Joseph Chicago (PGYI) in Chicago, IL

**Charlotte Dunderdale:** Johns Hopkins Hospital (PGYI) in Baltimore, MD

**Alyssa Elrod:** WellStar Atlanta Medical Center (PGYI) in Atlanta, GA

**Katie Ferguson:** Riggins Pharmacy in Lavonia, GA

**Josh Foley:** Baptist Health (PGYI) in Lexington, KY

**Demetrios Gavalas:** CVS in Washington, D.C.

**Paige Hughes:** Spartanburg Regional Medical Center (PGYI) in Spartanburg, SC

**Deven Jackson:** Sona Pharmacy & Clinic (PGYI) in Asheville, NC

**Youn Jeoung:** Kroger in Duluth, GA

**Vanessa Jenkins:** Providence Portland Medical Center (PGYI) in Portland, OR

**Taylor Kohn:** Rite-Aid in Columbus, GA

**Devin Lavender:** Memphis VA Medical Center (PGYI) in Memphis, TN

**Belinda Li:** TriStar Centennial Medical Center (PGYI) in Nashville, TN

**Renee Lorys:** Walgreens in Augusta, GA

**Mark Miller:** Children's Healthcare of Atlanta in Atlanta, GA

**Gina Mirza:** Columbus Regional Midtown Medical Center (PGYI) in Columbus, GA

**Michelle Morales:** Clement J. Zablocki VA Medical Center in Milwaukee, WI

**Natalie Morgan:** Piedmont Atlanta Hospital (PGYI) in Atlanta, GA

**Emily Murray:** Avera McKennan (PGYI) in Sioux Falls, SD

**Sherriel Padua:** Rite-Aid in Atlanta, GA

**Hanna Park:** Piedmont Atlanta Hospital (PGYI) in Atlanta, GA

**Asha Patel:** Walmart in Atlanta, GA

**Sara Petron:** Publix in Chattanooga, TN

**Allison Porter:** St. Joseph's/Candler Health System (PGYI) in Savannah, GA

**Zach Ruege:** Christ Community in Augusta, GA

**Andrew Russell:** Asante Rogue Regional Medical Center (PGYI) in Medford, OR

**Abigail Shell:** Memphis VA Medical Center (PGYI) in Memphis, TN

**Royal Shrestha:** CVS in Savannah, GA

**Beau Sinyard:** U-Save-It Pharmacy in Albany, GA

**Allyson Sleeman:** Greenville Health System (PGYI) in Greenville, SC

**Courtlyn Smith:** The Medical Center, Navicent Health (PGYI) in Macon, GA

**Gail Smith:** St. Joseph's/Candler Health System (PGYI) in Savannah, GA

**Taylor Smith:** Emory St. Joseph's Hospital (PGYI) in Atlanta, GA

**Shane Sneed:** UF Health/Shands (PGYI) in Jacksonville, FL

**Brian Soles:** Publix in Atlanta, GA

**Rachel Stephens:** Baptist Health Medical Center (PGYI) in North Little Rock, AR

**Amy Parks Taylor:** Novant Health Presbyterian Medical Center (PGYI) in Charlotte, NC

**Khushbu Tejani:** University of Illinois at Chicago (PGYI) in Chicago, IL

**Trinh Tran:** Northeast GA Health System (PGYI) in Gainesville, GA

**Paige Wallace:** VA Medical Center Decatur in Decatur, GA

**Drew Watkins:** CVS in Austin, TX

**Nathan Wayne:** UNC Rex Healthcare in Raleigh, NC

**Jensine Wilson:** Thomaston Prescription Shop in Thomaston, GA

**James Wojcik:** Piedmont Athens Regional Medical Center in Athens, GA

**Kristen Wooldridge:** Publix in Atlanta, GA

\*Includes those students who submitted their plans for next year - not all P4s listed



University of Georgia  
Augusta University  
UGA Clinical Pharmacy Program  
1120 15<sup>th</sup> Street, HM Building  
Augusta, GA 30912  
Phone: 706.721.4915  
Fax: 706.721.3994  
Email: TheTransitionUGA@gmail.com

## EDITORIAL BOARD

### Chief Editors:

Andrea Clarke, Pharm.D. Candidate, 2017 (Augusta)  
Belinda Li, Pharm.D. Candidate, 2017 (Augusta)

### Faculty Advisor:

Dianne May, Pharm.D., BCPS, FCCP  
Clinical Professor, UGA College of Pharmacy



## Upcoming Events

**April 21, 2017:** Last day of rotations

**April 25-28, 2017:** Pharmacy Board Review

**April 28, 2017:** Senior Banquet

**April 29, 2017:** Graduation

**June 8, 2017:** Pharmacist Practical Examination in Athens, GA at 8AM

**August 3, 2017:** Pharmacist Practical Examination in Suwanee, GA at 8AM

## How to Get Licensed in Georgia: FAQ

1. Where do I sign up for the NAPLEX (North American Pharmacist Licensure Exam) and MPJE (Multistate Pharmacy Jurisprudence Examination)?

- <http://www.nabp.net/programs/examination/naplex>

2. How do I sign up for GA Licensure?

- <https://gadch.mylicense.com/eGov/>

3. How do I score transfer?

- Go to <http://www.nabp.net/>
- Login with e-NABP profile ID
- Click on "NAPLEX/MPJE"
- Under "My Active Registrations" click "Add Score Transfer"

4. When can I sign up for web boards?

- Per the GA Board of Pharmacy, you will be signed up automatically after graduation (May 5th). You will receive a date/time via email. If you do not receive an email in 3-5 days after May 5th, call the GA Board of Pharmacy.