Volume 3, Issue 2
August 2021

Glennon Gazette

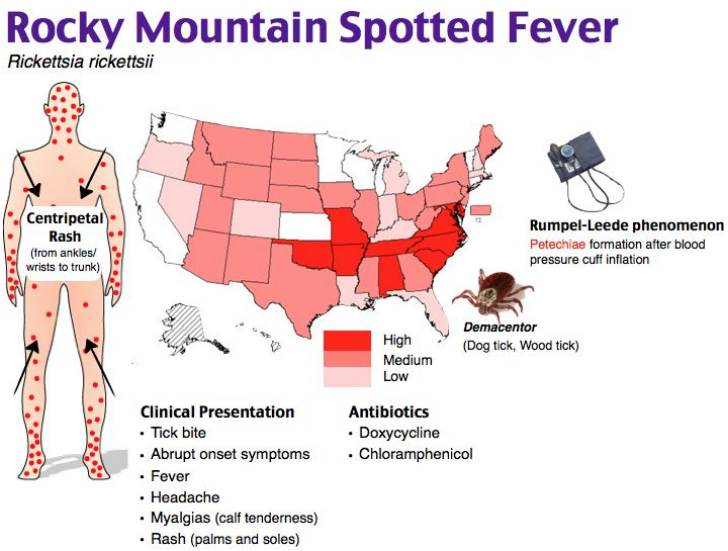
Inside this Issue

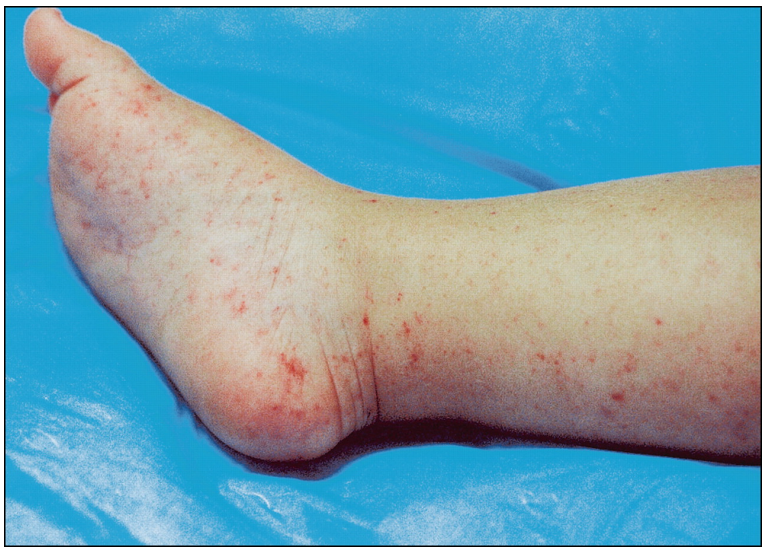
Common Pediatric Zoonoses

by Shannon McAllister, DO

Rocky Mountain Spotted Fever (RMSF) is a tick-borne illness caused by Rickettsia rickettsia, which is a gram-negative, obligate intracellular bacterium that has a predilection for endothelial cells. The primary tick that transmits R. rickettsii in Missouri is the American dog tick. It is relatively common in Missouri and across the southeastern United States and typically occurs in the spring and early summer. The classic presenting symptoms of RMSF are fever, headache, and rash in a person with a known tick exposure. Studies estimate that less than 30% of confirmed cases recall a tick bite or exposure. Initially, patients have non-specific prodromal symptoms. Children in particular can have significant abdominal pain that may be mistaken for appendicitis. The rash then typically appears between 3-5 days.

The classic rash is a blanching, erythematous rash with macules that become petechial over time. The rash usually starts at the wrists/ankles and spreads to the trunk. Characteristically, the rash involves the palms and soles. Severe cases may involve disseminated intravascular coagulation, hyponatremia, interstitial pneumonitis, myocarditis, encephalitis, or death. The diagnosis requires a high index of suspicion and typically requires empiric treatment as the definitive diagnosis is confirmed via serologic testing or the use of polymerase chain reaction (PCR) testing (1). Delaying treatment, particularly beyond five days of symptoms, is associated with higher risk of mortality. The antibiotic of choice is doxycycline 2.2mg/kg/dose (max 100mg) BID either IV or PO for seven days. More severe disease may require longer duration of therapy. Doxycycline is associated with mild nausea and vomiting as well as significant photosensitivity.



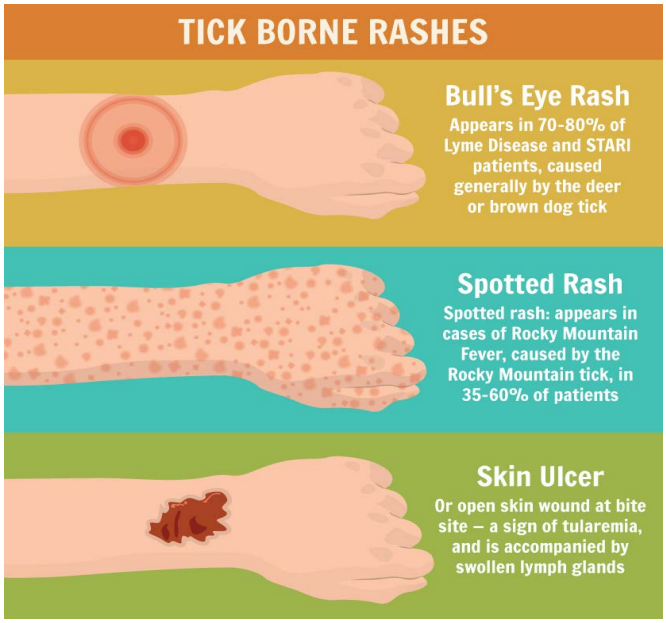


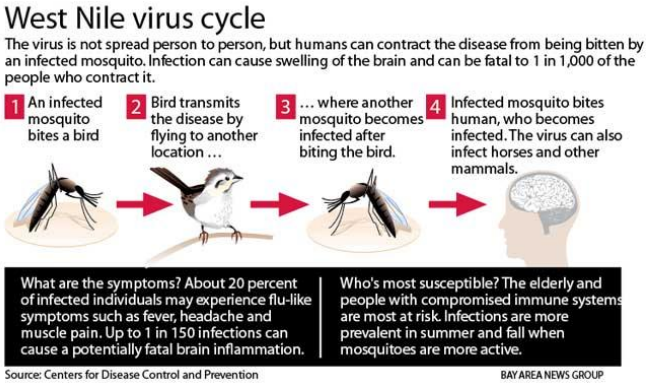
Board Prep Question #1: A child with cochlear implant is at increased risk of central nervous infection from what organism?

Board Prep Question #2: A 13 year old girl steps on a dirty, rusty nail. She has had 6 previous tetanus immunizations, with her last being a DTaP immunization 6 years ago. What do you recommend for her today?

Ehrlichiosis is a tick-borne illness that is most commonly caused by Ehrlichia chaffeensis, which is an obligate intracellular bacteria that grows within leukocytes. The primary tick that transmits E. chaffeensis in Missouri is the lone star tick. It is relatively common in Missouri and across the southeastern, south-central, and mid-Atlantic United States and typically occurs in the spring and early summer. In about half of cases, children present with fever, headache, rash and lymphadenopathy. The rash morphology is varied and described as macular, maculopapular, or petechial. Other disease manifestations occur include headache, myalgia, nausea/vomiting, and altered mental status. In severe cases, children may present with meningoencephalitis and develop seizures, coma, as well as renal and cardiorespiratory failure though severe disease is typically seen in immunocompromised hosts. Initial lab work may show leukopenia (often with a left shift), thrombocytopenia, as well as elevated transaminases, lactate dehydrogenase, and alkaline phosphatase. Many clinicians initially order a PCR and serology studies to confirm the diagnosis. The definitive diagnosis of Ehrlichiosis is confirmed by indirect fluorescent antibody (IFA) testing. An important limitation to IFA is that antibodies are first detectable two to three weeks after onset of illness thus treatment usually begins before definitive diagnosis is made (3).

Tularemia is an infection caused by Francisella tularensis, which is gram-negative, aerobic, and fastidious bacteria. It is relatively common in Missouri and across the south-central United States and occurs most commonly in the summer months. Disease transmission in children is most commonly via tick bite but can also occur via direct or indirect human contact with an infected animal (e.g. rodents, wild rabbits, cats), contaminated meat, contaminated water, or airborne transmission (e.g.: dust, lawn mowing, etc).
Patients typically have 3-5 days of non-specific symptoms including fever, anorexia, and malaise. Classically the fever may resolve for a few days then return.
At the time of presentation, the clinical symptoms of tularemia depend on the port of entry (e.g.: ulceroglandular, glandular, oculoglandular, etc). Glandular disease is the most common presentation in children and includes tender, regional lymphadenopathy near the site of inoculation, though there are no characteristic skin findings of single papulo-ulcerative lesion with central eschar at the site of inoculation, as in ulceroglandular presentations. The diagnosis is confirmed with serologies which take several weeks to return.
Antibiotic of choice for children is gentamicin 5-6 mg/kg/day divided in 2-3 doses for 7-10 days. Mild illness can be treated with ciprofloxacin 7.5-10mg/kg BID. Early treatment is associated with decreased morbidity (4). Gentamicin is associated with irreversible ototoxicity.





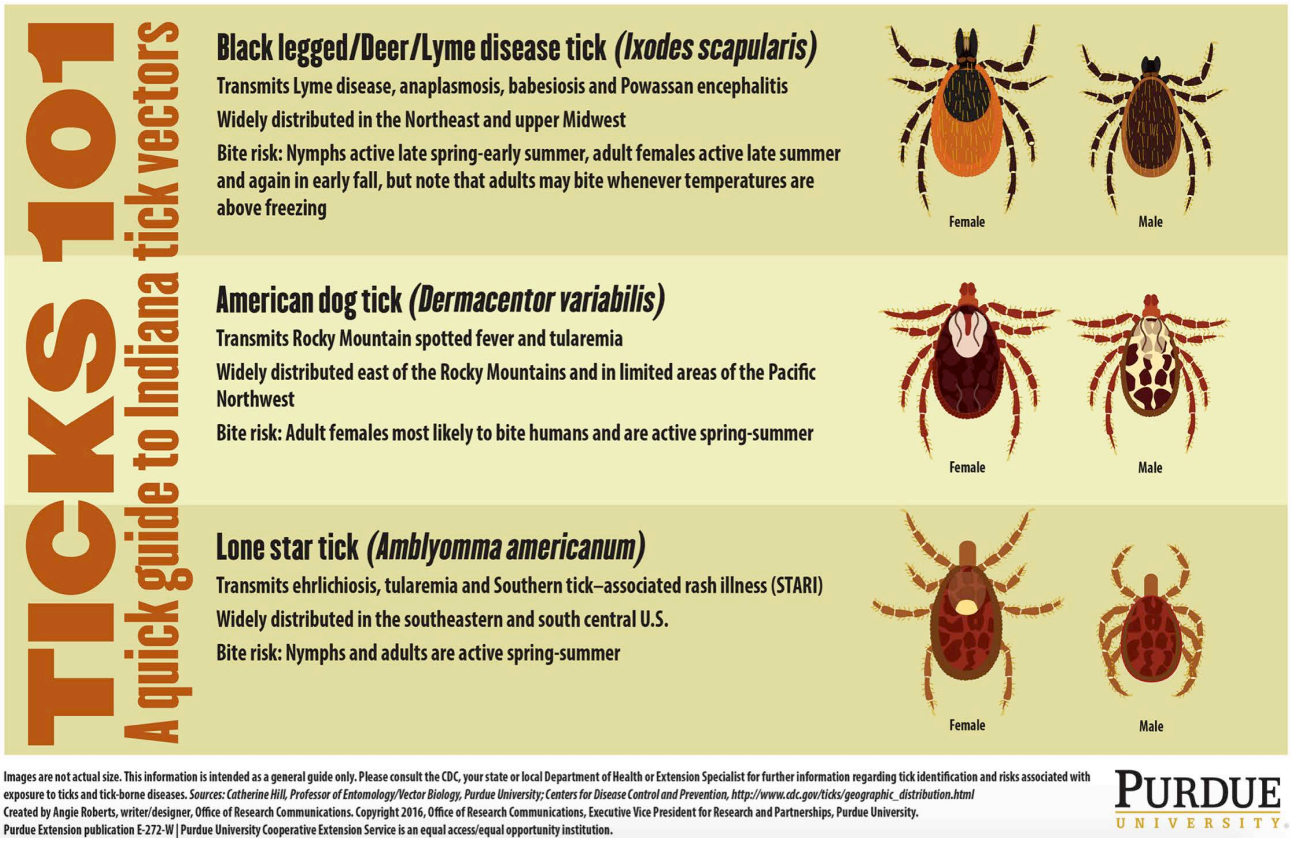
West Nile (WN) virus is an arbovirus primarily transmitted via Culex species of mosquitoes. Cases vary considerably across the United States. Illnesses typically peak in the late summer or early fall. Most cases are asymptomatic. Most symptomatic cases present as self-limited, febrile illnesses with headache, malaise, myalgias, and anorexia. Of the neuroinvasive presentations, meningitis is more common in children rather than encephalitis. WN can cause acute flaccid paralysis syndrome, which is caused by involvement of the anterior horn cells similar to poliomyelitis (5). Treatment is primarily supportive (6).

Board Prep Question #3: Amphotericin B causes renal losses of which 2 electrolytes?

Other less common zoonoss include:
Heartland virus, a member of the Bunyavirus family, is a rare, likely tickborne (lone star) illness that was initially described in Missouri in 2012. Patients have presented with non-specific symptoms, including fever, headache, malaise, with a history of tick bite. Short-term memory loss lasting weeks to months has been reported as well as hemophagocytic lymphohistiocytosis. Death may occur. It is detected via PCR (7).

Bourbon virus, a member of the Orthomyxovirus, is a rare, likely tickborne (lone star) illness that was initially described in Missouri in 2014. A case report described an adult patient with several days of febrile, non-specific symptoms and a tick exposure. Physical exam showed diffuse maculopapular rash and non-tender axillary lymphadenopathy. Laboratory findings included leukopenia, thrombocytopenia, and elevated aspartate aminotransferase. Despite treatment with doxycycline, the patient died 11 days after onset of illness (7).

The microbial etiology of **southern tick-associated rash illness (STARI)** is unknown, but studies suggest it is caused by a spirochete called Borrelia lonestari that has been reported in Missouri. STARI presents with a rash typical of erythema migrans and flu-like symptoms. As a result, it is often mistaken for Lyme disease but does not occur in areas where Lyme disease is present. The disease course is generally mild and it is treated with doxycycline. There is no current laboratory test to identify STARI (8).



References:
1. Sexton et al. Clinical Manifestations and Diagnosis of Rocky Mountain Spotted Fever. UpToDate. May 2021.
2. Sexton et al. Treatment of Rocky Mountain Spotted Fever. UpToDate. May 2021.
3. Sexton et al. Human Ehrlichiosis and Anaplasmosis. UpToDate. May 2021.
4. Penn et al. Tularemia: clinical manifestations, diagnosis, treatment, and prevention. UpToDate. May 2021.
5. Petersen et al. Clinical Manifestations and Diagnosis of West Nile Virus Infection. UpToDate. May 2021.
6. Petersen et al. Treatment and Prevention of West Nile Virus Infection. UpToDate. May 2021.
7. Hughes et al. Emerging Viruses. UpToDate. May 2021.
8. Sexton et al. Southern Tick-Associated Rash Illness. UpToDate. May 2021.

Faculty Spotlight

Trevor Tredway, MD, PhD

Dr. Tredway is a a Pediatric Emergency Medicine physician and fellowship director at Cardinal Glennon. He completed medical school, residency and fellowship at SLU. He is a former Pediatrics chief resident and also holds a PhD.

Q: *How did you decide you wanted to pursue a career in Pediatric Emeregency Medicine?*
A: I have had a very unconventional journey to where I am at today. I never really saw myself as a physician. I was interested in research, so after college I got a job as a research assistant. My mentor was involved in clinical medicine and thus the appeal in becoming a physician was born. Since I enjoyed both the clinical and research aspects of medicine, I completed an M.D./ Ph.D. track. My pediatrics experiences in medical school were the ones I enjoyed the most, therefore I chose a residency in pediatrics. During residency it seemed more like emergency medicine picked me. The usually fast pace and uncertainty intrigued me. The more time I spent there, the more I realized it was where I belonged. I feel at home and very comfortable working in the emergency department.

Q: *What is one piece of advice you would like to share with the residents?*
A: Make sure to take time for yourself and have fun. There will be times during your residency training when things are tough, and you may face challenges. Fortunately, those are usually few and far between. Just remind yourselves that you have the opportunity to make a difference in the lives of the children you care for.

Q: *If you were to have pursued a career outside of medicine, what would it have been?*
A: I would have probably ended up in accounting or finance. During one semester in college, I took some accounting classes, and I thought that would be the career for me.

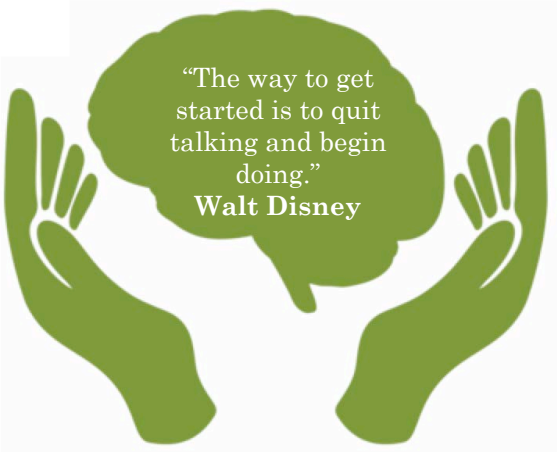
Q: *What's something residents can be more cognizant of when we rotate through the ER?*
A: Listen to the parents! Particularly in pediatrics, the simple acknowledgment of a parent's concerns, no matter how big or small, is imperative. When caring for children in the emergency department, communication and compassion are an important part of the patient-parent-physician triad. In the end, many parents just want reassurance that their child is going to be okay.

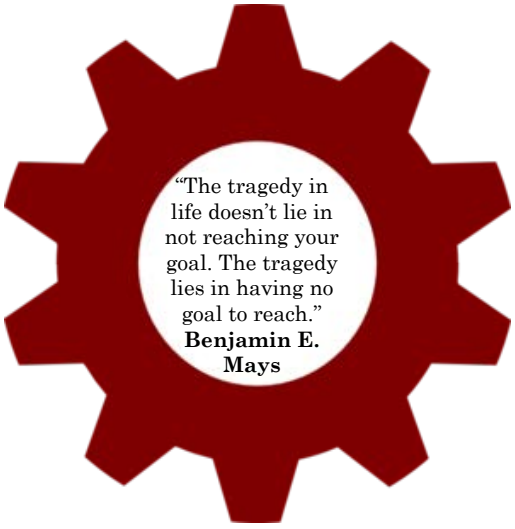
Q: *What are three things on your bucket list?*
A: Visit Ireland, hike the Grand Canyon, and run the NYC or Boston Marathon.

Q: *If you could have one superpower, what would it be?*
A: Regeneration or self-healing. I am somewhat injury prone so that would be a helpful superpower.

Q: *What is your favorite thing to do outside of work?*
A: Running, biking and spending time with my family

Q: *Who is your favorite Disney character?*
A: I can't say I have a true favorite Disney character, but my family tells me I remind them of Carl Fredericksen from the movie "Up". I am not sure if they are referring to his adventurous side or his grumpy side





You Got This

by A. Tanios, MD

Productivity is a philosophy of life, a state of mind. Being efficient means doing, at every moment, what we consciously choose to do and not what we feel we are doing forced by circumstances. Productivity means adopting an attitude for continued improvement. Since we constantly strive to improve ourselves, finding the right productivity style is necessary.

"When you begin organizing your life and work according to the natural preferences of your style," writes Carson Tate in her Work simply book, "you are likely to find yourself relaxing and enjoying the sensation of truly being in the driver's seat of your life rather than struggling with the tension that arises from fighting against your preferred thinking style."

According to Tate, a Productivity Style Assessment has helped workers identify their preferred way of operating and optimize for maximum productivity. The four personal productivity styles she identified are:
1. **The Prioritizer**
Characteristics: Logical, analytical, fact-oriented, realistic, efficient, goal -oriented and consistent.
Blind spots:Tendency to be controlling and rigid, excessive competitiveness, valuing speed over excellence, and focusing on project over process
2. **The Planner**
Characteristics: Organized, detail-oriented, conscientious, and punctual .
Blind spots: resistant to deviating from their plans, lack of spontaneity and valuing process over project.
3. **The Arranger**
Characteristics: Expressive, supportive, collaborative, team-oriented and emotionally aware of surroundings.
Blind spots: Lack of awareness of how their style affects others, excessive involvement with people, taking too much responsibility for other people's problems,nearsightedness,and loss of focus on the end results.
4. **The Visualizer**
Characteristics: Holistic, intuitive, integrating, synthesizing, big-picture thinking
Blind spots: Tendency to overlook the details, may fail to plan ahead and end up turning in work late and excessive spontaneity and impulsivity.

So whatever your style is , embrace it—but remember, you are not defined by it. You may have a combination of different styles but have a preference for a productivity style, a primary one that you lean on heavily, but you can cherry-pick strategies from other productivity styles that work well for you.

References:
Tate, Carson. "Work Simply: Embracing the Power of Your Personal Productivity Style"

Announcements

Annual Midwest APPD Virtual Regional Fall Meeting
Friday, September 3
8:00 AM - 12:30 PM
via Zoom link
*Submission deadline for poster and platform presentations is **August 24.***
Click here to access submission form.

SWIMS 2021 Spotlight on Women in Medicine and Science- Theme: The Value of Mentoring in Career Development
Guest Speaker: Wendy Ward, Ph.D.
Associate Provost for Faculty University of Arkansas for Medical Sciences
Wednesday, September 22
12:00 – 3:00 PM
Pitlyk Auditorium, LRC

Cardinal Glennon Sun Run
October 10, 2021
The Pediatric Residents are excited to walk/ run to support all the kids they take care of on a daily basis. Help our team raise funds for SSM Health Cardinal Glennon Children's Hospital by signing up at https:// sunraise.glennon.org/team/363803

Region VI Annual Fall Meeting
Theme: Frontiers in Pediatrics
Thursday & Friday, October 21 & 22
12 PM – 4 PM
Virtual Host: University of South Dakota and Sanford School of Medicine
(More information regarding registration and call for abstracts to come soon)

Boards: Questions & Answers

Answer 1: **Streptococcus pneumoniae**
S. pneumoniae is a normal inhabitant of the upper respiratory tract and is a common cause of acute bacterial otitis media, sinusitis, and pneumonia in children <5 years of age. Children with cochlear implants have an increased risk of pneumococcal meningitis.

Answer 2: **Tdap immunization**
The girl has had greater or equal to 3 tetanus immunizations in the past, so she does not require immune globulin for this dirty wound. However, her last tetanus immunization was 6 years ago and was a DTaP. She has not had a Tdap booster that includes pertussis, so she needs this today. If her last immunization 6 years ago had been Tdap, then today she would be given a Td. Oonly 1 Tdap per lifetime is recommended at present, the exception being that maternal Tdap is recommended for each pregnancy.

Answer 3: **Potassium and magnesium**
Amphotericin B is a polyene antifungal agent. While it remains an effective treatment for most systemic mycoses, amphotericin B has many side effects which include fever, renal failure, phlebitis and acidosis, as well as low potassium and magnesium. Always monitor serum potassium and magnesium levels during amphotericin B therapy.

Residents of the Month

Congratulations to **Olivia Max** (PGY-1) and **Matthew Reinhardt** (PGY-2) on earning peer and faculty recognition in the form of Resident of the Month!

Celebrations

Congratulations to Charlie Landis (PGY-3) and his wife Megan on the birth of their son George Matthew Landis!

Congratulations to Madeline Cohn (PGY-2) on her wedding!

Celebrations

Congratulations to Becky Indelicato on her retirement after 40 years of dedicated service at Cardinal Glennon!! Becky, you will be greatly missed!

Resident Spotlight

Matthew Reinhardt, DO

Q: Tell us about your future aspirations and what interests you about that field.
A: Currently, I am leaning toward general pediatrics. I love the continuity and getting to build relationships with your patients and their families. I also love the diversity of the field and getting to see something different every day.

Q: If you were to have pursued a career outside of medicine, what would it have been?
A: I have always thought anthropology is super fascinating so I might have pursued that as a career. But I also think that being a pilot would be fun. I had two roommates in college that are pilots and I always thought that I could do that too. But to be fair, working in pediatrics is such a rewarding career.

Q: What is your favorite Glennon memory?
A: My favorite memory so far has been all the times I have got to spend with my co-residents outside the hospital. Hopefully, we'll get to do a lot more this year post-COVID. I also have loved my night shifts. I got lucky to be with great senior residents who made the night shifts fun.

Q: What is a fun fact, hobby or hidden talent that you have?
A: Not to toot my own horn, but I am very good at sudoku puzzles.

Q: What are three things on your bucket list?
A: Attend a World Cup game, learn to speak a different language, and get my private pilot's license

Q: If you could have one superpower what would it be?
A: Be able to fly, duh.

Q: What is your favorite thing to do outside of work?
A: With all my abundant free time, I like to binge TV series, go on runs in Tower Grove park, eat ice cream, and spend time with friends.

Q: Who is your favorite Disney character?
A: Mulan

Resident Spotlight

Nancy Kennedy-Delgado, MD

Q: Tell us about your future aspirations and what interests you about that field.
A: I am pursuing a career in primary care! My childhood experience with medicine fueled my desire to become a pediatrician. I've seen how children are made vulnerable by their limited capacity to advocate for themselves.

Q: If you were to have pursued a career outside of medicine, what would it have been?
A: Tough question! Maybe a science teacher, yoga instructor, or painter.

Q: If you could have one superpower what would it be?
A: Eradicate Covid-19!

Q: What's a fun fact, hobby or hidden talent that you have?
A: I can make an origami paper fortune teller on the spot!

Q: What are three things on your bucket list?
A: Swim in all the oceans, have a family reunion (I have a huge family), and visit Bora Bora

Q: What is your favorite thing to do outside of work?
A: I like watching movies/TV shows with my husband and two dogs. We are currently watching Sweet Tooth on Netflix.

Q: Who is your favorite Disney character?
A: Raya from Raya and the Last Dragon. She's one powerful woman!