

Research Division

In This Issue

- 1 Announcements
- 2 Division Updates
- 2 Wellness Corner
- 3 Dissemination
- 3 Global Health Project
- 5 Staff Spotlight
- 6 Division Directory



WELCOME FROM THE DIRECTOR

Hello and welcome to the Summer Edition of the Department of Family & Community Medicine Research Division Newsletter. Here you will find updates and news on our many projects and community collaborations. This issue continues our staff spotlight with Senior

Research Assistant Susie McDonald, MA. Let us know how we might work together and assist with building your project from grant submission to evaluation.

-Saundra (Soni) Regan, PhD
Director of DFCM Research Division

Charles Doarn, MBA, becomes Director of Master in Public Health (MPH) program

A special thank you to Charles Doarn, MBA, for his time as a professor and team member of the Research Division in the Department of Family and Community Medicine. Doarn was recently named Director of the Master in Public Health (MPH) program and will subsequently be positioned in the Department of Environmental Health within the College of Medicine. Jun Ying, PhD, had previously served in the role, and remains a faculty member in the Department of Environmental Health. The MPH program features seven areas of concentration: Biostatistics, Environmental Public Health, Epidemiology, Global Health, Health Education and Promotion, Health Services Management and Occupational Public Health.

Doarn was vehemently productive in his years within the DFCM, particularly as author of many manuscript submissions and editor of the *Telemedicine and e-Health* journal. He remains positioned on the cutting edge of technological advances in medicine. In addition to his



assistance with the Research

Division's app-based projects like the smoking cessation-based eQuit WoRx, Doarn keeps his focus in part on space medicine. He is a special assistant to the NASA Chief Health and Medical Officer in Washington, is the principal author of NASA's Strategic Plan for Telemedicine, and serves as the executive secretary of the Multilateral Medical Policy Board for the International Space station with NASA. Doarn has published over 350 books, book chapters, federal reports, editorials and peer-reviewed manuscripts.

In keeping with his seminal dissemination work, Doarn was also recently appointed Executive Editor of *Healthcare Transformation*. He will work in collaboration with Editor-in-Chief Jon Linkous and with the Publisher to advance the journal and contribute to its growing influence in the field.

Thank you, Chuck, for all your wonderful contributions!



UC DFCM team begins year 3 of Cardi-OH with regional dissemination

Dr. Michael Holliday is the University of Cincinnati principal investigator of the Ohio Cardiovascular Health Collaborative, a statewide partnership of schools of medicine across Ohio led by Case Western Reserve University. The development of the collaborative is the result of support from the Ohio Department of Medicaid and the Government Resource Center.

The first two years of the collaborative focused on development of materials focused on hypertension and cardiovascular care to disseminate to those practices serving high Medicaid patient populations. This coming third year will feature regional activities designed to capitalize on local expertise and resources to strengthen care in our local communities. Holliday returns with the DFCM team, featuring Research Division members Soni Regan, PhD, Harini Pallerla, MS, Mary Beth Vonder Meulen, RN, Sarah Brubaker, BA, and Daniel Hargraves, MSW. New to the UC internal Cardi-OH project team are research assistant Alexandra Burnett, MD, and Jackie Knapke, PhD (see below).

Michael Holliday, MD



The third year of dissemination will again capitalize on the momentum built during the ECHO pilot sessions last Spring. The upcoming Fall ECHO sessions will focus on weight management with Spring sessions highlighting social determinants of health.

The UC team is also planning on bringing customized academic detailing sessions around whole team care strategies and best practices designed to address local gaps in care and work toward implementing recommended guidelines. Holliday will lead the sessions, informed by self-identified needs in practices that serve our most vulnerable community members.

WELLNESS CORNER

By Mary Beth Vonder Meulen, RN

Sitting is the new Smoking!

In the past few years, medical researchers have found that a sedentary lifestyle, including sitting at a desk for hours, puts us at risk of developing many common diseases, including heart disease, diabetes, obesity and even some types of cancer.

Our bodies are designed to move! Health benefits associated with increased physical activity at work include increased productivity, weight loss, improved mood and even pain relief.

How can we begin to move when we're at work all day? Start Standing (www.startstanding.org) urges us to take the 30 days Challenge to Start Standing at Work. Go to their website to learn how to create a habit of standing throughout the day.

The 30 Day Challenge options include:

- ◆ using a standing desk
- ◆ using a sit/stand desk
- ◆ planning activity breaks every 20 minutes to walk, stretch or try a few 'desk workout' exercises (information about these can be found on their website)

Getting work colleagues involved can help you develop this healthy habit, as can setting up a phone app which reminds you to move. No matter what option you choose, remember to start slowly and to maintain good posture.

Stand up for wellness!



Research Division welcomes new team members

The Research Division recently welcomed two new members to its faculty and staff. Jackie Knapke, PhD, joins as a faculty member. She is currently the assistant director for the Center for Continuous Professional Development. She will assist with the Cardi-OH project, helping to analyze the qualitative data from practice focus groups (see above).

Alexandra Burnett, MD, is joining the team as a research assistant. She will also be on the Cardi-OH team as a co-lead on the academic detailing component. She will also be assisting with the Evaluating the ability to reduce Morphine equivalent dose for chronic Pain patients receiving Opioid-therapy through a Web-based E-Health self-management program (EMPOWER) and the Ohio Department of Medicaid-sponsored Virtual Reality Simulation and Social Determinants of Health: A High-Tech Strategy to Improve Health Outcomes projects.

Both Burnett and Knapke bring unique skills, knowledge, and experience that will prove valuable to our team and the projects they touch.

Global Health Projects Report: Born to Die: The Hepatitis B Epidemic

by Brian Bouchard, MD

Dr. Brian Bouchard, recipient of the Global Health Award for this year's graduating residents, recently completed his Global Health Senior Experience, spending an independent month with Village Life Outreach Project partners, KMT Shirati Hospital and SHED and VLOP Clinics in Shirati and Roche Tanzania, under the leadership of Dr. Esther Kawira. Dr. Bouchard's focus was managing febrile illnesses, malaria, HIV, and TB in low-resource settings, including the use of Point-of-Care Ultrasound. While the "Big Three" infectious diseases of HIV, TB, and Malaria proved a high burden as expected, Bouchard was especially impressed by the infectious disease now gaining world attention as the "big fourth," infectious hepatitis (B & C), and highlighted recently by the WHO and the New England Journal article cited in his case report.

A 27-year old male presented to Shirati Hospital with abdominal pain and bloody diarrhea. He had no abnormal vital signs. On questioning, he had first noted diarrhea only the day before and had not had any new or unusual dietary adventures. He was having diffuse, cramping abdominal pain with the diarrhea. On exam, he had mild abdominal distension, moderate diffuse tenderness, and hepatosplenomegaly. He was comfortable, pleasant and eating. While not universal at this hospital on the shore of Lake Victoria, hepatosplenomegaly is extremely common due to endemic recurrent schistosomiasis causing portal hypertension. The available laboratory tests—hematocrit, HIV, and a rapid malaria test—showed that he did not have malaria or HIV. He was anemic, but not more so than most in an area with poor nutrition and frequent infections. Thus, he was presumed to have uncomplicated dysentery and started on ciprofloxacin with the expectation that he could be discharged if his diarrhea slowed, he was feeling better, and able to eat.

Over the next two days, his diarrhea did indeed slow and become less bloody. However, his abdomen became much more painful and significantly distended. An ultrasound was obtained three days into his admission which showed hepatosplenomegaly, ascites, and diffusely abnormal liver parenchyma. The liver appeared hyperechoic with the expected normal liver architecture nearly obliterated. He had no discreet mass in his liver, but the most experienced ultrasound clinician thought the significant changes may represent diffuse hepatoma. He was started on furosemide due to the ascites, but the hospital had no diagnostic testing for hepatitis. Given his young age and liver changes, the most likely etiology was vertical transmission of Hepatitis B leading to chronic infection. With the new ultrasound findings, he was transferred to a referral hospital when his family was able to afford the five-hour journey. A phone call later confirmed that his Hepatitis B testing was indeed positive, and he had been started on therapy. *(continued on page 4)*

DISSEMINATION

Manuscripts Recently Published or In Press

- Doarn CR**, Polk JD, Shepanek M. Health Challenges Including Behavioral Problems in Long Duration Spaceflight. *Neurol India*. 2019;67(8):S190-95.
- Tubb MR, **Vonder Meulen MB**, **Pallerla H**, **Regan S**, **Doarn CR**. Clinical Evaluation of e-Quit worRx: A Mobile App to Enhance Smoking Cessation Shared Decision Making in Primary Care. *mHealth*. 2019 In press.
- Goodnow, K**. 5 strategies to breathe new life into your Patient and Family Advisory Council. *Physicians Practice*; 2019 May 23 <https://www.physicianspractice.com/practice-management/5-strategies-breathe-new-life-your-patient-and-family-advisory-council>
- Simpson AT, **Doarn CR**, Garber SJ. Interagency Cooperation in the Twilight of the Great Society: Telemedicine, NASA, and the Papago Nation. *J Pol History* 2018. *In Press*

Posters and Presentations

- Boone J, **McDonald S**, **Pallerla H**, Cavanaugh T, Weed E, **Cotton S**. Interprofessional Mind-Body Course to Support Resiliency and Well Being Among Health Professional Students. 10th Biennial Monash Pharmacy Education Symposium, Prato, Italy, July 2019.
- Magee J, Henry M, **McDonald S**, Zhong Y. Thinking Styles about Nicotine Craving as Predictors of Smoking and Distress in Everyday Contexts: An Ecological Momentary Assessment Study. Oral presentation at the WCBCT conference. Berlin, Germany, July 2019.
- Shomo A, **Hargraves D**, Bates G, and Aunins B. Piloting a Nutrition Class Curriculum with Adolescents at an Underserved School Care Site. A poster presentation at the National School-based Health Care Convention; June 23-26, 2019; Washington, DC.

Global Health Projects Report, continued

Chronic liver disease from hepatitis viruses kills at astounding rates. In 2015, viral hepatitis accounted for nearly as many deaths globally as tuberculosis and more than either malaria or HIV.¹ Hepatitis B virus (HBV) infection drives approximately two thirds of these deaths through decompensated cirrhosis or hepatocellular carcinoma.² Among World Health Organization (WHO) Regions, Africa and the West Pacific vie for the highest prevalence with 6.1% and 6.2%, respectively, of the adult population in these regions infected.¹ As HBV infection rarely causes symptoms prior to liver failure, only 9% of infected individuals around the world are diagnosed. An adult who is newly infected may spontaneously clear the virus in 95% of cases. However, vertical transmission from mother to infant leads to chronic infection in 90% of cases.² Vertical transmission from undiagnosed and untreated mothers thus serves as the main engine of global infection with smaller contributions from sexual transmission and the growth of injection drug use.³ The most likely explanation for the young man discussed above is infection with HBV at or before birth leading to chronic infection and inflammation. He then had a flare of acute on chronic liver failure, a known



Ultrasound image of a patient with extrapulmonary TB, obtained by Dr. Bouchard, demonstrating pleural effusion just above the liver (effusion is black/anechoic, just left of the white/hyperechoic line which is the diaphragm)

phenomenon of chronic HBV infection. Responding to deaths and complications such as his, the WHO launched a Global Strategy for Viral Hepatitis in 2016 to eliminate viral hepatitis by 2030 through dramatically increased efforts to prevent, diagnose and treat viral hepatitis.⁴

Effective tests and treatments exist but can be reactionary and commonly unavailable. An accurate and available test for the HBV, based on the HBV surface antigen, costs only \$0.50.¹

Antiviral therapy with tenofovir or entecavir are the mainstay of therapy, though interferon can also be used if necessary.^{2,5} Though less effective in acute decompensation, these drugs can achieve viral suppression, and resistance to tenofovir has yet to surface. While viral suppression is achievable, the HBV surface antigen remains present in most patients' blood despite therapy.² Current guidelines recommend therapy until antigen clearance, thus antivirals become life-long treatment.^{2,5} Effective treatment is estimated to cost \$48/person/year.¹ WHO Africa presented a new scorecard at the region's first Hepatitis Summit in Kampala in June 2019. The Scorecard quickly reviews the status of efforts surrounding viral hepatitis and found that

fewer than eight African nations had a subsidized program for testing and treatment of HBV.⁶ Tanzania is building a national hepatitis treatment program, but the 50-cent diagnostic test is not widely available. Uganda and Rwanda are the only African nations that have scaled up subsidized testing and treatment programs.⁶

Prevention remains the most effective strategy for eliminating HBV infection with vaccination being the most available and cost-effective strategy. HBV vaccination, which has been available for more than three decades, creates a sufficient immune response to prevent infection in 90% of adults and 95% of children.⁷ Furthermore, a dose administered to a newborn within the first 24 hours of life can prevent vertical transmission from the mother and costs less than \$0.20.^{6,7} A more robust and effective strategy includes universal screening and treatment of pregnant women in addition to administering hepatitis B immunoglobulin (HBIG) to the newborn.⁵ While most campaigns target prenatal screening, HBIG is rarely if ever available in resource limited settings. The WHO Hepatitis Strategy aims to increase birth-dose coverage to 50% by 2020 from the global baseline of 38% in 2015. Additionally, the 2020 goal for coverage of all three childhood doses is 90%--an increase from 82% in 2015.⁴ According to the recent scorecard, Tanzania is not on track to meet these goals and has not implemented a strategy for vaccination at birth.⁶

While hypertension has been the "silent killer" of resource-rich regions, viral hepatitis is a silent killer in resource-limited regions like sub-Saharan Africa. Young, otherwise healthy persons like the young man above descend into liver failure due to a vaccine preventable illness or cancer. Technology exists to achieve the WHO 2016 goals, including effective vaccines, diagnostic blood tests, and pharmaceuticals. Funding and knowledge are lacking. Of the African nations reporting in the 2019 Scorecard, 25 had developed a strategic plan but only 13 had published a plan and only three had secured funding.⁶ With funding and mobilization, the young man above could have avoided an infection at birth and perhaps his presentation would have been a simple case of dysentery rather than acute liver decompensation carrying a very high mortality rate.



Shore of Lake Victoria with abundant snail shells, intermediate hosts for *Schistosoma haematobium*. Like Hepatitis B and C, Schistosomiasis is another leading cause of chronic liver disease in low income tropical countries like Tanzania.

References

1. "Global Hepatitis Report, 2017". Geneva: World Health Organization. 2017.
2. Seto W, Lo Y, Pawlotsky J, and Yuen M. "Chronic Hepatitis B Infection". *Lancet*. 2018; 392: 2313-24
3. Longo, D. "Global Elimination of Chronic Hepatitis". *N Eng J Med*. 2019; 380:20141-50.
4. "Global Health Sector Strategy On Viral Hepatitis 2016-2021: Towards Ending Viral Hepatitis". Geneva: World Health Organization. June 2016.
5. Terrault, NA, et al. "Update on Prevention, Diagnosis, and Treatment of Chronic Hepatitis B: AASLD 2018 Hepatitis Guidance". *Hepatology*. 2018; 7(4): 1560-99.
6. "Hepatitis Scorecard for the WHO Africa Region Implementing the hepatitis elimination strategy" Kampala: World Health Organization Africa Region. June 2019.
7. "Epidemiology and Prevention of Vaccine-Preventable Diseases". Chapter 10. Centers for Disease Control. 13th Ed. 2015: p 157-60.

Staff Spotlight: Susie McDonald, MA

Over the course of the past several editions, the Research Division has continued to highlight the staff members behind the scenes of the success of many of the department's projects within the university's walls and out in the community. This interprofessional team is a culmination of years of training and experience in varied backgrounds, providing a strong, unique base of skills that reaches beyond standard tools of academia. This spotlight section is dedicated to highlighting a more granular view of the division's celebrated staff.

We continue the series with the Research Division's senior research assistant, Susie McDonald, MA. McDonald has been part of the Research Division for over 5 years, offering a unique skillset and background to the DFCM and projects within the emerging field of integrative medicine. Below, McDonald describes how she became a Research Division team member and some of her numerous projects, including leading the ECHO program here at UC.



From Susie McDonald, MA:

As an undergraduate student at UC, I worked as a Teaching Assistant in the Department of Psychology for one of my professors, Dr. Kenneth King. Dr. King recommended that I also join a research lab and put me in contact with one of his colleagues, Dr. Robert Frank, who ran the Chemical Senses Lab. Here, I worked on research studies examining the connection between olfaction and memory. We were especially interested in potential clinical applications of using sense of smell to test for early signs of dementia. I found my favorite part to be working with the research participants, so I began looking into clinical psychology graduate programs, and moved to Southern California to start the Masters of Psychology program at Pepperdine University in 2012.

After graduation, I began applying for jobs around San Diego, but my husband and I missed our families back in Cincinnati (and the low cost of living in the Midwest), which pushed me to apply to some positions in Cincinnati. I was hired by Dr. Josh Magee at UC as a project manager on the Attention Modification Program (AMP), which studied the effect of a computer CBT-based intervention on social anxiety and alcohol dependence in adults. This brought me to the Family Medicine Research Division, where I have continued to work with Dr. Magee, who is now faculty at Miami University, and also have had the opportunity to work with many others, including Dr. Nancy Elder on chronic pain research and Dr. Sian Cotton on Integrative Medicine research.



I'm currently the site PI for Dr. Magee's Smoking Cessation/ Cravings study, which is wrapping up its third phase of participant follow-ups. I have been the program manager of the Cincinnati ECHO Chronic Pain teleconference program since its inception in 2015 and have expanded the program with Dr. Mike Privitera in the Department of Neurology to offer the Cincinnati ECHO Epilepsy/Neurology teleconference program as well. I also work with Dr. Cotton with the Center for Integrative Health & Wellness. I manage the Mind-Body Skills Program for UC faculty, staff, and students; the Mindful Stress Reduction program for the Free Store Food Bank Cincinnati COOKS program; and the Mindfulness Based Stress Reduction Program at the Breathing Room, which is open to anyone in the community.

I am especially passionate about mind-body medicine, integrative health, wellness, and healthcare education. I am interested in educational programs centered around preventative, holistic care for all kinds of learners from physicians and other healthcare providers to medical students, patients, or other people in our community. My dream team is always interdisciplinary—I love to learn from others and hear perspectives or approaches that are new or different. I think being in Family Medicine inherently leads to important interdisciplinary collaboration because we touch so many different specialties.

Research Directory

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Dedicated full-time staff members with over 50 years of cumulative experience provide full project support from assisting in design and implementation to analysis and evaluation. The division offers expertise in:

- Project Management
- Data Management
- Grant Writing
- IRB Protocols
- Statistical Analysis
- Data Collection Methods
- Project Reports
- Manuscript Development, Writing and Editing
- Research Nurse
- Qualitative Research



For more updates on our projects and other events in the UC Department of Family & Community Medicine, please like our Facebook page today!

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