



School of Medicine

THE RESUSCITATOR

MARCH 2017

SPECIAL POINTS OF INTEREST:

- Changing Health Trends in Global Medicine Conference—April 20, 2017
- Edward S. Thomas Memorial Golf Outing—May 15, 2017
- EM Grand Rounds, every Thursday, Detroit Receiving Hospital

INSIDE THIS ISSUE:

Red Shoe Diaries	2
Chief Chatter	4
Update from the Land of Shadows	5
EMS Fellowship	6
Toxicology Update	8
Spotlight on the Clinical Research Fellowship	9
DRH EM Residency Update	11
Trip Sitters	12
Section of Global Health	14

Letter from the Chair

2016 has been another banner year and it should fill each one of you with a tremendous sense of accomplishment. The success of our department has continued to be built on the efforts of all our clinical and academic staff.

Highlights:

- Dr. Robert Wahl received The Distinguished Alumni Award from the WSU SOM Alumni Association, the SOM's highest honor!
- Dr. Thomas Sanderson has received enough citations on his publications to place him in the top 1% of his academic field. This is a high honor indeed for such a young investigator. Thomas also secured a \$2.7 million grant from the DOD with co-investigator Dr. Hutterman.
- Dr. Gloria Kuhn was presented with the 2016 ACE Women of Distinction Award in June by the WSU Chapter of the Michigan ACE Network and the President's Commission on the Status of Women. She retired this year after many years of service to the Department. She is now Professor Emeritus. I cannot thank her enough for all that she has done for our department.
- The Edward S. Thomas Section of Community and Public Health has been born and has already screened nearly 1,400 people and engaged nearly 500 with HTN on World Hypertension Day and secured over \$1 million in grant funding to date. The EST Section houses Global Health, D-LIVE and ED screening for HIV, Hep C, HTN and cardiovascular conditions.
- Dr. Tolu Sonuyi has established the Detroit Life Is Valuable Everyday (D.L.I.V.E.) initiative that seeks to break the cycle of violence. Tolu has successfully obtained a Skillman Foundation, DMC Foundation and a Blue Cross Blue Shield of Michigan Foundation grant to support his work. Tolu received the "Difference Maker Award" presented at the Charles H. Wright Museum. In

addition to his work with D.L.I.V.E., during President Obama's visit to Detroit, Dr. Sonuyi was invited to share lunch to discuss his work with "My Brother's Keeper", which is a national presidential initiative.

- Dr. Erik Olsen received both the Munuswamy Dayanandan Humanitarian Award and the Academic Teacher of the Year Award for DRH. This is the first time the same person has received both awards.
 - Dr. Anne Messman received both the Academic Teacher of the Year Award and the Voluntary Teacher of the Year Award from SGH, first time that has also happened!
 - Dr. Phillip Levy, based upon his track record of successful grant funding and ability to coordinate multidisciplinary research networks, has been named the Assistant Vice President for Translational Science and Clinical Research Innovation. Phil is the first EM physician that has been able to break the university's academic glass ceiling and we are very proud of him. Phil has also been named to the NIH's Cancer, Heart and Sleep Epidemiology Study Section.
 - The Department submitted 5 EMP grant applications this year, the highest number ever!
- This past November, the Department held a Research Retreat to help define the vision and direction of research. It was very evident that our current level of collaboration and coordinated multi-institution projects is greater than ever and will bode well for our collective academic mission. We will build upon this success to work toward federal grant submissions, funded research through our department and lasting impactful implications. This was, to some degree, a step away from our tremendous success with industry funded, multi-center clinical trials and a step towards federal grant funded



Brian J. O'Neil, MD, FACEP, FAHA
Munuswamy Dayanandan Endowed Chair
Edward S. Thomas Endowed Professor
Specialist In Chief, Detroit Medical Center

work, investigator initiated projects and other research with a strong academic emphasis.

Please save the date for The 2nd Annual Edward S. Thomas Memorial Golf Outing which will be held on Monday, May 15, 2017 at the Detroit Golf Club. This event celebrates the legacy of Edward S. Thomas and his commitment to improving community and public health in the City of Detroit. The proceeds of this event benefit the Edward S. Thomas Section of Community and Public Health which is a non-profit entity for our current research efforts and resources to improve the health of our community. The vision is to develop community and public health perspectives as an essential component of medical care by using the ED as a portal both initial patient contact and provisions or translational care. The Thomas Section seeks to reduce disparities in health and improve the quality of life and life expectancy for the citizens of Detroit. (Please contact Cari Williamson at cwilliamson@med.wayne.edu for more information)

Red Shoe Diaries

*I guess this is our last goodbye
And you don't care so I won't cry
But you'll be sorry when I'm dead
And all this guilt will be on your head
I guess you'll call it suicide
But I'm too full to swallow my pride...*

-Sting-

I have always maintained that as a former professional musician that I love music. I am beginning to think that I love melody, counter-melody, harmony and rhythm a LOT more than lyrics. I just never have spent a great deal of time analyzing what a particular song means—or what the message is. How many of us old enough to have listened to a lot of Billy Joel know that his up-beat sounding be bob shuffle “You’re Only Human (Second Wind)” is about suicide (both his attempt and in a “It’s a Wonderful Life” fashion, a message to adolescents)? It is probably a lot easier to see the link to suicide in Metallica’s brooding “Fade To Black”. Because I am so attracted to the music itself, I naively often figured that if the tune was uplifting to me, the song was about positive things and if the melody was dark and heavy and made me feel sad, then the song was about negative emotions. (Blues—my favorite genre—is an exception. I love the sound of the music so much that even though the lyrics can be negative, I am always uplifted after listening to it. Perhaps there is a catharsis after getting the bad news of your dog dying, your woman/man leaving and your TV being stolen that makes you feel better in the end!) As I researched my editorial, I was surprised to learn that there are hundreds upon hundreds of songs out there that are about suicide.

The opening paragraph is sort of a left field introduction to a very different topic—suicide and the search for the meaning in events in one’s life. Clearly my recovery from a devastating intracerebral hemorrhage approaches miraculous. How many patients with huge bleeds and mid-line shift do we see survive, much less return to practicing medicine—albeit not as an emergency physician? Despite intellectually knowing this, I couldn’t help pondering in my quiet moments, “Why

me?”, or in contrast to everything I have told my kids, “It’s not fair!” Well... I received my answer a few weeks ago.

Like a lot of their peers, my adult sons have a few tattoos. My oldest son recently got a new one. In Roman numerals it has the date II XX MMX—the date of my stroke. Below the date it reads “Death blinked first”. I thought it was an interesting tribute to my ordeal and subsequent recovery. And in my typical ‘selfish only child’ perspective, I assumed it was all about me. It wasn’t. On February 20th, 2010, my 17 year old son was preparing to take his own life. It was my stroke, the illness that I have sometimes pitied myself over, that stopped him and saved his life. Being the typically responsible oldest son, he decided that he needed to be there to help his mother as she was stretched to the breaking point dealing with her critically ill husband and eight children.

According to 2014 CDC data, suicide is the second leading cause of death for ages 10-24. In the United States, there are over 5,240 suicide attempts by students grades 7-12. In 2011, approximately 1 in 6 teens considered suicide. (The highest rates of suicide remain in the older populations with ages 45-65 and >85 being number one and two respectively.) CDC data from 2016 indicate that suicide rates jumped from 10.5 per 100,000 in 1999 to 13 in 2014—a 24% increase. The good news is that in teenagers, the rate has dropped from a high of 11.1 per 100,000 in 1990 to 7.5 in 2014. The bad news is that it is still much too high. (For example, in 1950 it was 2.7.) To round out the demographics, among high school students, girls are more likely to have planned or attempted suicide than boys, while Blacks and Hispanics are more likely than Whites. However the ‘successful’ suicide rate (what stupid phrasing) is actually 3 times higher for high school student boys than girls and also higher for Whites than Hispanics and Blacks. (The highest rate is actually in the Native American and Inuit teens.)

It is important to be aware of the warning signs that may signal a person’s consideration of suicide as people who talk about suicide, threaten suicide or call a crises line are 30 times more likely to kill themselves. Even seemingly innocent teenage ennuui statements like “I hate my life” can

be a warning sign. The threats may not be verbal. (Although we monitor our children’s Facebook, Twitter and Snap Chat, we haven’t monitored their text messages.) Other risk factors include previous suicide attempts, preoccupation or obsession with death or suicide (essays, poems, artwork, and music) as well as typical signs of depression (personality changes, decrease in school performance, avoidance of favorite activities, irritability, withdrawal, lack of hygiene and changes in eating and sleeping habits).

The scariest thing is that we did not see any of the signs and had no idea our son was in such a place in his life. His grades remained excellent and he continued in his extra-curricular activities and had a nice circle of friends. His occasional “I hate my life” seemed more like a joke. Like my music analogy in the opening paragraph, that if the music sounded happy then a song must have an upbeat meaning, I assumed if everything seemed okay on the surface, then everything must be okay with my kids.

Fortunately my son never went through with his plan and is doing well and has never again approached that precipice but it rocked my world to learn about his suicidal intent and plan. I wish I could offer some great advice that would prevent this from affecting other families. My wife and I are reassessing how we monitor our children but we sort of just got lucky. But I am paying more attention to the ‘lyrics’ of their song—not just the tone of the music on the surface. One thing is for sure, I will never again feel sorry for myself when I think about my stroke and wonder, “Why me?” I now know why... and my son is alive because of it.

You’ve been keeping to yourself these days

Cause you’re thinking everything’s gone wrong

Sometimes you just want to lay down and die

That emotion can be so strong

But hold on

Still that old second wind comes along

-Billy Joel-



Philip A. Lewalski, M.D.
Assistant Professor
Editor-in-Chief

*“...I naively
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tune was
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WSU SOM RESEARCH RETREAT

DETROIT ATHLETIC CLUB

NOVEMBER 7, 2016



Drs. Eric Malone and Erik Olsen



Drs. Claire Pearson and Kerin Jones



Drs. Matthew Griffin and Marc-Anthony Velilla



Drs. John Deledda, Mark Favot, Phillip Levy and Richard Nowak



Drs. Joseph Miller, Imran Ayaz and John Gallien

Chief Chatter—Reflections on Residency and Motherhood

For those of us in residency, we understand sacrifice. We have dedicated the majority of our lives to education, longing to reach the light at the end of the tunnel. The countless hours at work, the studying, the perplexing patients who keeps us awake at night do not help with making time for our personal lives. We spend so much time caring for others that we often put our own lives on the back burner.

When I began thinking about starting a family, it only added further complication to the idea of work/life balance. Should I have children in medical school, during residency, or wait until after residency? Will I be too old to become a mother after residency? How will the residency program respond if I become pregnant? As these questions weighed on my mind, I began to wonder if I picked the right career—could I have a family and be doctor?

Although not an easy path, I have discovered the answer is a resounding “yes”. After two months of motherhood, here are some of the lessons that I have learned on my journey thus far:



1.) Treat others as you want to be treated. I did not know what to expect being on the other side—being a patient. I’ve been the one taking care of others, so it was very different having someone else care for me. I had a difficult labor that was 42 hours with complications. I thought I’d bounce right back, and I thought I wouldn’t need any pain medications. Wrong. I couldn’t do the simplest of things. I was not able to get in and out of bed without assistance. I had nurses help me to the bathroom and IN the bathroom. All dignity went out the door. It was a very humbling experience, which required me to rely on my OB and nurses. The care that I received was phenomenal and made me see the far reaching effects of a good team.

During my labor and delivery, I was scared and in pain. That is the same type of person I encounter in the Emergency Department. Having this experience has made me more compassionate and willing to help those who are truly struggling.

2.) Being a doctor has made me a better mother, and being a mother has made me a better doctor. You would think going through four years of medical school and more than two years of residency would give you a good idea of how to be a mother, right? No. After my baby was born, I was clueless. I was handed a baby and then left alone. The first night was great and he mostly slept. I thought, ‘this isn’t that bad.’ I was so wrong—the next night he cried and screamed nonstop. I had no idea what to do—his diaper had been changed, he had been fed. What was I missing?

The feeling of not knowing what to do with another human being that is dependent on you has helped me bond with parents. My first shift back at Children’s Hospital of Michigan, I found myself connecting with new mothers—we briefly shared our

stories and laughed at our mishaps. I felt having a child gave me more credit when I voiced my opinion and recommendations. I could empathize and address their fears.

There is no formal training on how to be a good mother. However, the patience and kindness I have learned while taking care of others has made me more nurturing and loving with my newborn. I know patience will be even more necessary once my little guy is a toddler or teenager!

3.) Be present and maximize time. I initially dreaded the thought of returning to work. How could I leave my baby? I cried driving to work the first day after I left him at daycare. I had spent 8 weeks with my baby literally attached to me. However, after the first week, it wasn’t so bad. Now that he is in daycare, I have time to focus on my career goals. It’s the best of both worlds. When I’m at work, I am able to focus on helping patients. When I am at home, the time we have is more meaningful and enjoyable.

As an ER doctor, we have more free time than the average physician. There is no call. You do not have to worry about maintaining a practice or trying to bring in new patients. I am able to enjoy my job while I am there and then go home. I am also able to move my schedule around so I can make to special events. When I have a weekday off, I feel lucky to be able to spend uninterrupted time devoted to my baby. No matter how much I enjoy my job, my top priority is family. Working in Emergency Medicine has given me the flexibility to enjoy patient care while also being able to devote time as a mother, daughter and wife.

Being a good physician and a good mother is difficult and requires sacrifice, but I am learning a lot. My life is full with love for my beautiful little boy and passion for patient care.

-Amy Lee, M.D.



Dr. Amy Lee
Chief Resident

Update from the Land of Shadows...



ful use of point-of-care ultrasound across our system. Our goal for the coming year is to further educate and engage clinicians in this critically important tool in improving patient care, and to begin reaching out to other departments outside of emergency medicine and other emergency departments outside of the DMC

The Section of Ultrasound is very active and has enjoyed tremendous growth over the past year. We have grown to four core faculty with an additional two to be added over the coming months. This expansion is going to permit much great clinical, educational, and research goals to be met.

The clinical impact of ultrasound over the past year has been most noticeable in the implementation of an organized reliable quality assurance program, in which we are able to QA all scans that are submitted from any of our four emergency departments. This is accomplished by a program known as Qpath, and it allows us to review scans and provide learning feedback to the residents and attendings who are involved in the clinical care of the patients. Qpath has been integrated with our EMR, so that the reports and images will be available by consultative services across our healthcare system, serving to vastly improve the meaning-

to work on standardizing best practices for the use of point-of-care ultrasound for diagnostics and procedures.

Education continues to remain a very strong focus for the division of ultrasound, and we are on our third year of an ED based Ultrasound Fellowship, led by Drs. Mark Favot and Leo Bunting. Over those three years, we have grown into the largest ultrasound program in Southeast Michigan, and in fact, the entire Midwest. Because of this presence of fellowship-trained staff and current fellows working in our ED's, education has moved from books and websites to the bedside. We have seen the effects of this with ever increasingly ultrasound-savvy residents working in our emergency departments. We hope to prove the knowledge our residents have acquired by competing in the National Sonogames Competition at the SAEM Convention in Orlando, Florida this May. Beyond educating just our own, we have begun educating pediatric

emergency medicine fellows, neuro-critical care fellows, medical students, and nursing staff across the system, further integrating emergency medicine into the care of patients far beyond the walls of our emergency departments.

Research has emerged over the last year as one of the leading components of our fellowship and division. We had three papers accepted for publication over the last year, and Dr. Rob Erhman was the recipient of a two-year \$150,000 clinical research training grant from the Society of Academic Emergency Medicine Foundation. There are currently more than six active research projects within the division, with a mix of both investigator initiated and industry sponsored studies. Our goal for the coming year is to increase both our grant funding and accepted publications and initiate robust multi-center studies across Southeast Michigan and beyond.

This past year has been a very exciting year for point-of-care ultrasound within our system, and thanks to the continued support of DMC, MCES, and Wayne State University, we expect the coming year to be far more productive and exciting than what has come before.



Dr. John Gallien
Assistant Professor
Director of EM Ultrasound Education

“Education continues to remain a very strong focus for the division of ultrasound...”



EMS Fellowship



Now is an exciting time to pursue an EMS career, given the recent recognition of EMS by the American Board of Medical Specialties as a unique subspecialty. Our EMS fellows receive mentorship, didactics, and hands-on experience that covers the breadth of clinical, operational, and administrative core content of the specialty of EMS. Our program has graduated three fellows, all of whom now serve in EMS, public service, and academic leadership roles. We prepare the trainee to pass the EMS Board Exam and to assume a leadership role in EMS. We offer diverse experiences to provide the practical knowledge to be successful in all areas of prehospital medicine and disaster preparedness.

This is a dynamic time in Detroit—the city is transforming. EMS has matured substantially. There are dozens of new units, fire first responders for the first time in history, and the city has adopted a state of the art call-taking and Emergency Medical Dispatch. With this, it is a very effective EMS medical record and

data system to support research projects. David Strong, M.D., our current fellow has been a great addition to our program.

He has been learning the strange way of Detroit and Michigan, since we are such a unique state.

Detroit EMS evolution over the last six years:

2011:

- 6-10 Functioning EMS units/ No MFR
- Broken fire apparatus
- EMS and Fire single role
- No formal relation with private EMS
- No units available every day
- No medical dispatch or call taking—few trained call takers
- No Departmental Medical Director
- Times Vague 20-25 minutes
- Paper records
- Cardiac Arrest survival to hospital discharge 0.7%

2013

- \$78M awarded in FEMA grants
- Non-traditional funding sources—Industry
- New Public Safety

- Wayne State University
 - Fellowship Accredited
 - Research Participation
 - Led CARES initiative for the City
- 23 donated ambulances rec'd Dec 2013—Penske
- 50 FF EMT-basic certified Dec 2014

DFD Today:

- Bankruptcy ended 12-2014
- Hiring 150 firefighters under FEMA funding
- Currently using state of the art call taking and dispatch software
- Fire first response (MFR) rollout started 4-2015, for the first time in Detroit history, fire engines and squads are providing initial care
- MFT reflex times average 6.3 (answering 911 call to unit on scene)
- DEMS 9 ALS units, 16 BLS units, +4 peak
- Private Ambulance support agreement gets 8 additional Peak units
- 6 new Ambulances Dec 2016
- Union Changes, single parent union IAFF for EMS and Fire Fighters



Dr. Robert Dunne
Associate Professor
EMS Fellowship Director



David Strong, M.D., EMS Fellow



Drs. Robert Dunne, Erin Brennan and Stephanie Wise
Detroit Turkey Trot 2016

EMS Fellowship (con't)



Dr. Robert Dunne
Detroit Movement Festival

naloxone delivery, and route of naloxone delivery.

Results: 150 and 336 cases were analyzed for the periods before and after institution of the new protocol respectively. There were 25 MFR and 159 BLS administrations of naloxone after the new protocol. 53% and 65% of patients had a positive clinical response in

respect to each period. ($p < 0.05$). Shorter dispatch to treatment time was associated with a higher clinical response rate, 17 minutes vs. 14 minutes ($p < 0.01$) Naloxone protocol for MFT and BLS providers more than doubled the number of patients treated in our predominately BLS system.



Other ongoing projects include: a longitudinal study of cardiac arrest across the city; assessment of the impact of the first responder program; impact of community and CPR training (with the WSU Department of Urban Studies); impact of interventions on frequent users of EMS. We are also working with computer science on sensor technology applications to enhance fire fighter safety and provide real time patient telemetry when needed. The EMS group also works on integrating pre-hospital data with hospital data to support other projects around the medical school. Please contact any of the EMS team if you are interested.



Congratulations to Robert Dunne, Marc Rosenthal and Stefanie Wise, who have all been elected as Fellows of the Academy of Emergency Medical Services. They are part of the inaugural class of FAEMS recipients and fellowship status is strictly limited to those individuals who substantially contribute to the advancement and development of EMS.

WSU EMS FACULTY



Robert Dunne, M.D.
EMS Fellowship Director



Mark Rosenthal, Ph.D., D.O.
EMS Assoc. Program Director



Erin Brennan, M.D.
Faculty



Howard Klausner, M.D.
Faculty

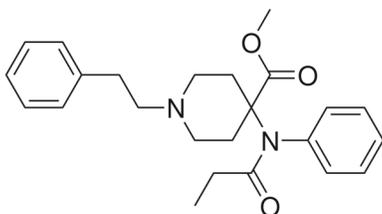


Stephanie Wise, M.D.
Faculty

Toxicology Update

A big “Happy New Year” from all of us in the Medical Toxicology Division and the Children’s Hospital of Michigan Regional Poison Control Center. 2016 was something, wasn’t it?

As most of you in the ED are already intimately aware, carfentanil has hit the streets of Detroit. Wait! You mean that stuff Russian Special Forces used in 2002 to end a 3-day hostage situation with Chechen separatists in a Moscow theater—killing more than 120 of the 800 hostages? You mean the stuff that is 100X more potent than normal Fentanyl and usually used to tranquilize elephants and “mooses”? You mean the stuff that has been killing Americans since July that comes from China at just under \$3,000 per kilo? Yes, my friends, THAT stuff!



We have seen a huge increase in hospital calls for apparent heroin overdoses that have taken much larger-than-usual doses of Naloxone for reversal. In fact, many EMS agencies throughout the state have run into relative Naloxone shortages because of it!

To this end, you may ask the very good and logical question, “Why would heroin dealers use something THAT potent and risk their customer’s lives? Most drug dealers I know do not have an axis II personality disorder and often can be found reading to children at the local public library.” Well, we can only hypothesize. First, due to its potency, they are likely using very small amounts. The smaller the

amount, the harder it is to mix and dose appropriately per pack. Additionally, some of this may be a natural phase II trial to assess the safety parameters. “Hey Larry, only 40% of our customers came back after getting the ‘test packs of smack’ this week. Their friends are telling me they died at DRH and SGH. Me thinks we should dilute it a little this week. What do you say?”

The thing for healthcare providers to remember is to, #1 not use heroin themselves and #2, take reasonable safety precautions. Whackers: Please put down the Level A Hazmat suit. All you need is love, gloves, and if you happen to find a baggie with powder in it, avoid aerosolizing it. If you cannot avoid an area that contains aerosolized carfentanil (re: EMS room), just use an n95 mask. Also, avoid using flash-bangs in the resuscitation bay. It scares the pharmacists. Other opioids have been showing up around the country as well. “Street Narco” - containing Fentanyl and a new synthetic opioid U4770—reared its ugly head in central California. And counterfeit Xanax—that contained straight Fentanyl—was identified in Florida.

The ongoing opioid epidemic has also demonstrated to us unique and deadly features of previously thought relatively inert medications. High doses of Loperamide—aka “poor man’s methadone” - it turns out it can cause cardiac dysrhythmias. Increasing the differential for wide-complex tachycardia one drug at a time! You’re welcome!

Our group remains as good looking as ever and the MCES board was very generous to sponsor a medical toxicology fellowship spot for our newest fellow, Luke Bisoski, M.D. He is doing a great job and we see big things from him. The senior fellow, Eric Malone, M.D., has been

blowing minds at our national toxicology meetings with abstracts and posters. Both Luke and Eric have authored textbook chapter this year and both are working on some very interesting research projects. Luke is taking a hard look at common causes of metabolic acidosis and Eric is writing the largest case series in the *WHOLE WIDE WORLD* on Massasauga envenomations. It brings a tear to my eye just to think of its beauty. <sniffle>

Bram Dolcourt, M.D. has secured a grant to being lead screening for women of childbearing age in Detroit. More to come on this soon. Otherwise, he just had a paper accepted to Pediatrics describing a case of serotonin syndrome and has been doing the usual Associate PD stuff and Sinai-Grace. Oh, he also got a fast car. It has wheels, and a motor, and all that. You should ask him about it.

Cynthia Aaron, M.D. has been intimately involved in a number of high profile poisonings and exposures in the news, working with the Michigan Department of Health, the EPA, and the freaking FBI!!! We may have said too much already. The first rule of Fight Club...

In the meantime, Matt is growing something on his face.

In closing, remember that no exposure is too inconsequential, no ingestion is too small, no undifferentiated altered mental status or metabolic acidosis is inconsequential enough to NOT call your friends at the Poison Center.

Dr. Andy King
Assistant Professor
Medical Toxicology Fellowship
Director

“...avoid using flash-bangs in the resuscitation bay. It scares the pharmacists.”

Spotlight on the Clinical Research Fellowship

After four years of medical school and the need for specialty training and certification through a residency training program; many, if not most, medical students and emergency medicine residents gravitate further away from the knowledge and skills required to master a career in academia and specifically clinical research. This trend seems to be enhanced by the increased use of on-line resources (and other quick sources) and the accompanying decrease in the ability to consult the primary literature on which these rapid sources are theoretically based. Understanding clinical research design, analysis, and utilization of the results has become more complex for us all and is basically a specialty of its own. Therefore, those interested in an academic career in clinical research will need enhanced and advanced training to insure their success. This background has defined and fostered the need for our department to offer advance training in clinical research through a fellowship training program described below.

The ultimate specific goals of a clinical research fellowship will vary based on need, the fellow's area of interest, and the mentor's skills and work area. There are, however, a number of general goals for the clinical research fellowship that include:

Working with the individual fellowship applicant to address their goals and needs—Many graduating residents have specific interests but need assistance in determining how they will meld those interests with a clinical research career. Our faculty has extensive experience and will help the new fellow define their career goal and focus their area of research interest.

Formal training in research methodology—This is accomplished through a variety of mechanisms that include formal course work and intense individual mentoring in research methodology and project development.

Research project development, submission to the IRB for approval, and carrying out the project—The fellow will, with the mentor's and other assistance, design and complete a clinical research project. Our department has many resources that will be available to assist and teach the fellow these mechanisms including, IRB experts, finance and grants management personnel, data base developers and managers, statistics and methodology support, and research assistants. Nested within this aspect of the program is emphasis and training related to research ethics.

Abstract, manuscript, and grant writing experience and

mentoring—Scientific writing is as much an art as it is science. The ability to communicate research goals, methods, results, and to help interpret results requires careful thought and a format that allows the reader to easily follow the research trail. This format is not always intuitive so the fellowship is designed to promote quality writing skills by utilizing published faculty in an authorship mentoring role.

Manuscript publication and grant submission—At the end of the training program, it is expected that the fellow will have submitted at least 1-2 manuscripts for publication (with emphasis on quality over quantity) and have a submission ready grant proposal completed reflective of their area of interest.

Overall, the fellow will be prepared for an academic career in clinical research.

So where are we now and where are we going with the program? I, along with others in clinical research, have been tasked to review and, if needed, re-structure the program. Currently, our fellows are appointed as DMC fellows with a salary that of a PGY4 resident. They also will work, on average, 6 shifts a month, thus providing decent income. Funding for the DMC salary must come from other sources and likely this will be from grants and contracts and this will continue. The available areas of research for which we offer a qualified lead mentor include:

- Hypertension (Levy)
- Heart Failure (Levy)
- Public Health (Levy)

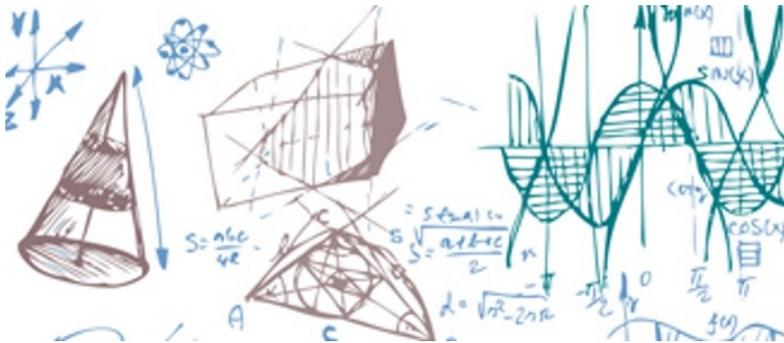


Dr. Robert Welch
Professor
Director of Clinical Research

“...those interested in an academic career in clinical research will need enhanced and advanced training to insure their success.”



Spotlight on the Clinical Research Fellowship



- Sepsis (Sherwin, Paxton)
- Neurological Disorders (seizures, stroke, TBI) (Welch, O’Neil)
- Cardiac arrest and global brain ischemia (O’Neil)
- Circulatory access (Paxton)

In addition, we have young investigators in bedside ultrasound and echocardiography who will be available in the future to mentor a research fellow. In fact, there is already an ultrasound research component for the ultrasound fellows.

- Ultrasound (Favot, Ehrman, Gallien)

Another up and coming area where mentorship is available, but currently not at an NIH level:

- Violence prevention (Sonuyi)

Advanced training and obtaining an advanced degree is critical for developing the skills needed to compete in the research world. We currently have a number of physicians who have obtained advanced degrees mostly from outside institutions. We are now looking at tailoring the MPH program at WSU for the Emergency Medicine Clinical Research Fellowship. Dr. Phillip Levy, our department Associate Chairman, and Assistant Vice President for Translational Science and Clinical Research Innovation for WSU and Dawn Misra, Ph.D., Pro-

fessor and Associate Chair for Research, Family Medicine & Public Health Sciences, will be advising and assisting in the MPH program development so our fellow will be able to receive needed education and experience solely through WSU. Alternatively, the University of Michigan on job/on campus (OJOC) programs are potentially available.

Along with formal training, there are experts in data base management (Brian Reed), statistical analysis (Scott Millis, Reed, Welch), and public health (Levy, Brody). Peter Whittaker, Ph.D. is currently enrolled in the Executive MSc Health Economics, Outcomes, and Management in Cardiovascular Sciences at the London School of Economics and Political Science and will add that area of expertise to our fellowship training program.

The program, as designed, will require 2 years to complete with the goals of the trainee 1.) submitting competitive federal grant and, 2.) having the requisite skills to succeed in academic research career. To supplement our program, we are exploring certification of the fellowship program. The Society for Academic Emergency Medicine offers an accreditation process for clinical research fellowships and we plan on pursuing that rigorous certification process.

Finally, the experience of a recent fellow, Aaron Brody, is of interest for any potential application. He has related to me his experience that is summarized here:

- “The degree was challenging, but I felt I had the time, resources, and basic statistical knowledge to succeed”
- “I worked 6 clinical shifts a month”
- “The mentoring aspect was probably the most significant element of the fellowship. Phil (Levy) has profound insights, and extensive experience in clinical research, specifically regarding HTN and public health. He helped me set short and long term goals, and gave me numerous writing and publishing opportunities. I probably would have appreciated closer collaboration with a senior mentor from another discipline / institution, to expand my academic contract”
- “The fellowship definitely prepared me well for an academic career. I feel that I did jumpstart me”

Given our current and bright future in clinical research; a person with interest in an academic and research-based career should strongly consider applying for our clinical research fellowship training program.

“Advanced training and obtaining an advanced degree is critical for developing the skills needed to compete in the research world.”

Greetings from the DRH EM Residency Program Leadership

After coming back to DRH last year (many years after my EM training here from '95-'98, followed by moving to SGH full time as their Program Director, then moving into 6 years of hospital administration), I am really happy to be back. It is so great to see that great teamwork continues for both WSU and MCES. Drs. O'Neil and Sweeny have forged a strong team, as they have been forced to adapt and overcome the many challenges facing academic, urban and now "For Profit" ED's across the nation. Somehow we have not only survived, but the Department's reputation and accomplishments continue to mount despite the changing climate.

As regards to the residency specifically, much gratitude goes to Dr. Erik Olsen, who has really established himself as a program leader, outstanding didactic and clinical educator, and a great advocate for the Emergency Department at system meetings. Thanks also to Drs. Kerin Jones and Bob Wahl who kept the wheels turning during the transition as well, and to all the Attendings and Residents who were present during the transition.

Faculty:

The EM Fellowships are prospering, and in great hands. Dr. Andrew King remains an active and highly regarded educator at both the DRH and SGH programs, often cited as one of the Department's best teachers.

Research growth has been incredible. One of our goals will be to increase the

participation by the residents and program faculty in many projects. This will then naturally parlay into increased rates and numbers of academic advancements.

The phenomenal teaching that has been the hallmark of the program since its inception continues, and we have an excellent mix of physician educators and researchers at different phases of their careers, with many different interests. We have had some focus by recent graduates in specific areas of the program—for example, the development of an in-service exam preparation course by Dr. Wollman. Thank you as well for the outstanding work on the residents local Oral board practice augmentation done by Dr. Elizabeth Dubey.

Residents:

Great team, true family environment, led by outstanding Chief Residents. We really can't say it any better than that. The credentials and experiences coming in the door are phenomenal, and the performance in this program has been outstanding. The participation in the program elements, specifically recruitment dinners and participation by residents as stakeholders in the selection process is noted by the candidates who interview with the program.

Nursing:

It was welcoming to see some faces that were instrumental in my training are still here, and of course the many new faces that create the team at DRH.

The reputation of the DRH and other high acuity ED's in training nurses, in a pathway parallel to the resident's and medical students' education, clearly it continues in a very strong fashion.

Working in this environment is a two-way street for all of us, as we are at times both teachers and learners. The strength of the best ED teams, like other highly functioning, high reliability teams lies in the coordination/mutual respect between nurses and physicians who share the common goal of providing the highest value patient care.

Going Forward:

The only constant in healthcare is change. Although we continue to do more with less, we do have opportunities for efficiency that could make our environment more enjoyable. My favorite mantra is "work smarter, not harder". I think for both physicians, and especially for our nursing colleagues, working harder is not the goal, but improving efficiency and the ease with which they do their multiple tasks can be improved. We can find ways to eliminate the many forms of "waste": time, energy, motion, equipment, and supplies. We should continue to seek to be very "nimble" in our responses to patient arrival rates, queuing of patients and ED holding. Common sense adaptation is the goal, led by those who use the system regularly, and this will allow the highest-level of care to be provided in an efficient and save manner.

Conclusion:

The program is in great shape and there remain many opportunities for growth, both for residents and faculty, and in all facets of EM training and practice. It is great to be back full time among the MCES/DRH and WSU Department of EM family.



Matthew Griffin, M.D.
Assistant Professor
Program Director, EM
Residency, DRH DMC

"The credentials and experiences coming in the door are phenomenal..."



ABEM In-service Examination
March 22, 2017

Trip Sitters—Marijuana is a Drug but is Marijuana Medicine?

The last issue I gave you some information about how marijuana came to be a scheduled substance. In this issue, I would like to talk about the pharmacology of cannabinoids and what evidence is available regarding risks and benefits of these drugs.

More than you ever wanted to know about cannabinoid pharmacology:

During evolution, plants opted to remain stationary as opposed to animals which opted for the run away approach to survival. Due to this choice, the kingdom of plants have become the ultimate chemical weapon smiths. These metabolic products are referred to as secondary metabolites. Not serving much of a purpose in a plants metabolic cycle but making the plant either attractive or repulsive to increase the genetic success of a particular species. These secondary metabolites can either entice use of a particular part of the plant to increase cultivation or to prevent predation. Examples of these secondary metabolites include sugars in food stuffs, scent from flowers, opiates from other flowers, capsi-cum in peppers to name a few. These chemicals cause a particular effect, usually through a receptor mediated pathway. While these receptors produce a given response to a plant product, they are not there to give the plants a particular area to act. This is true for cannabinoids as well, there are 2 identified cannabinoid receptors, CB₁, CB₂. The receptors are largely defined by where they are expressed, with CB₁ largely expressed in the central nervous system and CB₂ being expressed in the periphery, although some expression has been discovered in the brain as

well. The receptors are both G-protein mediated receptors that act through intracellular modulation of cAMP, typically decreasing the levels of cAMP and generally inhibitory to neurotransmission.

The endogenous ligands that have been discovered include N-arachidylethanolamide (AEA), 2-arachidonoylglycerol (2AG), and 2-arachidonoylglycerol ether. There is some evidence in animal models of the CB₁ receptor forming a complex with some of the opioid receptors. There have been some animal studies looking at the neuroprotective effects of the endocannabinoids, particularly as they relate to ischemic or anoxic injury. Some of the insult of these ischemic events is potentiated by excessive glutamate neurotransmission and elevated intracellular calcium resulting in initiation of apoptosis. Activation of the endocannabinoid system will limit this insult. There is also some suggestion that CB₂ is also important with modulation of the vascular smooth muscle or mediating the immune response to these types of insults. The CB₁ receptors are also heavily expressed in the nociceptive pathways and are thought to be significantly involved in pain transmission of pain in the gastrointestinal tract and either via local mechanisms in the GI tract or inhibition of the central chemotrigger zone in the brain to decrease emesis. Cannabinoid dysregulation has also been shown to be significant in some of the neurodegenerative disorders such as Parkinson's disease and multiple sclerosis, although there have been no studies with use of either CB₁ agonists or antagonists that have modulated these disease processes. Activation of CB₂ is also

heavily expressed on immune tissues and activation of these receptors has shown to have anti-inflammatory properties in animal models. There are some animal and human case series that have shown improved clinical response with patients with irritable bowel syndrome as well as improvement of symptoms of in patients with inflammatory bowel disease.

Cannabinoids have been proposed for the treatment of anxiety, asthma, depression, glaucoma, seizure disorder, headache symptoms, multiple sclerosis, muscle spasticity, pain syndromes, Parkinson disease and Tourette syndrome. Marijuana does have approval for anorexia-cachexia related to HIV infection and chemotherapy induced nausea and vomiting resistant to other therapies. CV receptor antagonists have been proposed as possible anorectic and treatment for obesity.

Now, the hard part. Prove it! Well there are some problems there. There are studies that have shown benefit in the treatment of human disease, although these studies have been with purified cannabinoids or cannabinoid receptor agonists. There are significant problems trying to evaluate the literature regarding efficacy, making comparisons difficult. Looking at animal studies with purified cannabinoids that show changes in neurotransmission and trying to compare that study to a study with people smoking a marijuana cigarette for the same condition is problematic. Is the does equivalent? Where is my placebo control? How does it com-



Matthew Hedge, M.D.
Assistant Professor
Associate Medical Director
Poison Control

Trip Sitters—Marijuana is a Drug but is Marijuana Medicine? (Continued from page 12)

pare to standard therapy? Starting with the dosing issues, herbal medicines have been used throughout the history of medicine. Problems with evaluating plant-based therapeutics typically include; what part of the plant, when was the plant harvested, what is the concentration of a particular chemical constituent and is the particular compound I'm interested in being absorbed in the patient? While the tetrahydrocannabinol (THC) is largely associated with the psychoactive effects, the "high feeling", of marijuana use, there is some suggestion that the cannabidiol (CD) may be the more therapeutically beneficial component. How the marijuana is used is also going to affect drug effect with significant and rapid absorption from the lungs compared to delayed absorption from the GI tract; with peak concentrations achieved, at times, typically greater than an hour after ingestion with significant first pass metabolism diminishing the total dose from a particular sample. Smoking behavior will also affect dose. Duration of inhalation and amount of time the products of combustion are retained in the lungs affects the amount of drug absorbed.

With that pile of problems I've just set out, you can see why approval of medical marijuana has not gotten very far. Some of the better studies out there compare marijuana to placebo and found improvement in clinical outcome—most notably decreased amounts of perceived nausea and emesis related to chemotherapy. There is always a but... when the use of marijuana to ondansetron was compared for the same condition, marijuana was not superior in efficacy. The next group of studies that are interesting to look at are the use of marijuana for chronic neuropathic pain. Interesting in that there are a

number of studies with positive outcomes, but again, difficult in comparison studies with regards to what condition am I actually treating. Is it an undefined neuropathic pain syndrome, reflex sympathetic dystrophy, fibromyalgia, phantom limb syndrome, post traumatic pain syndrome? Many of these studies show improved outcomes with the use of marijuana compared to the control group, which is frequently a no treatment group.

There are a couple of large studies with cannabinoids being used for muscle spasms in multiple sclerosis. These drugs have been shown to be beneficial regarding improvement in pain symptoms but these studies have been done with purified oral cannabis extracts and some of the CB₁ agonists while the smoked herbal product is unstudied.

As for the risks of the use of marijuana, it looks a lot like tobacco users. The largest problem in terms of risk of the drug is the route of use as inhalation of combustion products are never good. Increased inflammatory markers in the lungs suggestive of obstructive lung disease with chronic use and inhalation of all those lovely carcinogens are very real and significant problems with the use of inhaled herbal marijuana. There is some suggestion of increased risk of atherosclerotic cardiac disease based off of a retrospective case control study. The issues that are present when looking for drug effect and benefit are also a problem when looking for risk as well, i.e. dose, duration of exposure, self-reported administration. Cognitive issues and poor performance on standardized testing while using and with habitual users have been shown in comparison of non-users and other substance abusers. The duration of this effect is unclear. Is it just during the acute intoxication phase or until the THC have

been cleared?

Application of this cognitive impairment, particularly how an individual operates a motor vehicle are going to become a significant issue, either for patients currently using marijuana therapeutically or if recreational approval comes to pass. A couple of theories exist regarding driving with chemicals: impairment or presence. Ethanol is an example of impairment. You are considered able to still safely operate a motor vehicle up until this particular drug level. Compared to a theory where if any of a particular compound is detected, you are considered unsafe to be driving. The use of the impairment theory is not bad when you look at ethanol with a relatively linear relationship between drug level and impairment. Problems with applying this theory to marijuana, include large volume of distribution, where there is significant equilibrium between blood and tissue compartment. Marijuana has also not been shown to have a similar linear response curve and there is significant individual variability of response to a particular dose. Something that law enforcement needs to be evaluating now is now to determine if someone is impaired. There are some methods that are currently being evaluated, apps on phones, specifically. These apps are looking at visual tracking, duration of attention and reaction time lag. These measures are thought to be secondary markers to say who is hazardous to be behind the wheel. There are definitely needs more work before they are applied to the population as a whole.

Well that is my run down this drug induced rabbit hole, hopefully you found it both enjoyable and educational.

Section of Global Health



The Global Health Section of Emergency Medicine has been gaining momentum over the last year as the team has been fostering our international and local collaborations. We are currently assisting the University of Health Sciences in Laos, PDR as well as the Universidad de San Carlos de Guatemala in Guatemala with the development of their respective EM residency programs; strengthening the curriculum for faculty and students participating in the World Health Student Organization (WHSO) missions at WSU and developing a handbook for their travels. We are working with tertiary and rural health centers in northern India to develop a rural health telemedicine system as well as introducing sub-specialty fellowship for EM residency programs in India.

Over the last year, three EM resi-

dents from UWI, Jamaica and one from UNMSM, Peru, spent some time rotating in our ED's along with focused education. They had a wonderful experience and gave outstanding reviews about all our ED sites. We are looking forward to more such resident exchanges and invite our residents to take advantage of this opportunity to visit other international EM residency sites. Recently, our residents travelled to Laos where they took part in an EMS project and to India where they conducted a health camp and presented at the EMCON conference.

A recent survey of our department showed that of the 27 faculty who responded, 20 were interested in volunteering abroad. The Global Health Section offers many opportunities for our faculty to get involved in international work. Specifically, we hope to attract several attending's for one-week or two-week resident training camps in Laos and Guatemala yearly or travel along with the WSU School of Medicine WHSO week-long rural health clinics in Haiti, Ecuador, or Nicaragua. As we progress, we also foresee faculty involvement in India and

Jamaica with research development and resident/faculty exchange.

We are in the process of starting global health CME activities in collaboration with other departments (pediatrics and infectious disease) that will cover global health topics such as travel safety, tropical diseases, disaster medicine and local cultural competency. The Global Health Section is soliciting donations that will be used to purchase equipment, offer scholarships to our EM residents for travel and fund the International Emergency Medicine (IEM) Conference. The 2nd Annual IEM Conference will be held this year on the 20th of April at WSU and the theme will be "Changing Health Trends in Global Medicine". (See page 15) We will be having speakers from infectious disease, trauma and pediatrics talk, about their global experiences. A must-attend event for all interested in global health. Please welcome our first IEM fellow, Dr. Jeffrey VanLaere, who will join us in July 2017. Jeff completed his EM residency from DRH and did on year at Johns Hopkins before coming back and joining us. He will be a great addition to your Global Health team!



V. Arun Kumar, M.D., M.P.H
 Assistant Professor
 Associate Director, IEM Fellowship
 Assistant Medical Director, Observation Medicine

“The Global Health Section offers many opportunities for our faculty to get involved in international work.”



Drs. Kumar, Kaufmann, Jensen and Kalarikal at EMCON 2016 Maduari, India



2nd Annual DMC International Emergency Medicine Conference

Changing Health Trends in Global Medicine

April 20th, 2017

Registration: 7:00AM

Discussion: 7:30AM - 2PM

Margherio Conference Hall
WSU School of Medicine

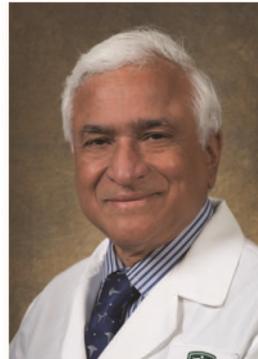
This conference is designed to inform participants about international emergency medicine and help them appreciate the role of the emergency physician as an advocate for public health. Expect lively discussions and lectures from renowned speakers in their respective fields.



Moderator
Dr. Phillip Levy
Professor of EM
Associate Chair for Research
Dept. of Emergency Medicine



Presenter
Dr. Karen Olness
Professor of Pediatrics
Global Health and Diseases
Case Western University



Presenter
Dr. PV Chandrasekhar
Professor of IM
Chief of Infectious Disease
WSU and KCI



Presenter
Dr. Prashant Mahajan
Professor of EM
Vice Chair, Dept. of EM,
Division Chief, Pediatric EM
Univ. of Michigan

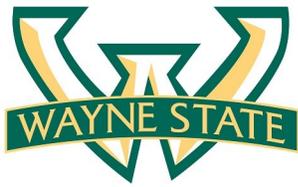
This conference is open to medical students, residents, public health personnel, EM physicians, or anyone interested in global health.

Conference Co-Directors:
Kristiana Kaufmann MD MPH kkaufman@dmc.org
Vijaya Arun Kumar, MD MPH vkumar@med.wayne.edu

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Wayne State University
School of Medicine
Department of Emergency Medicine
4201 St. Antoine
UHC - 6G
Detroit, MI 48201

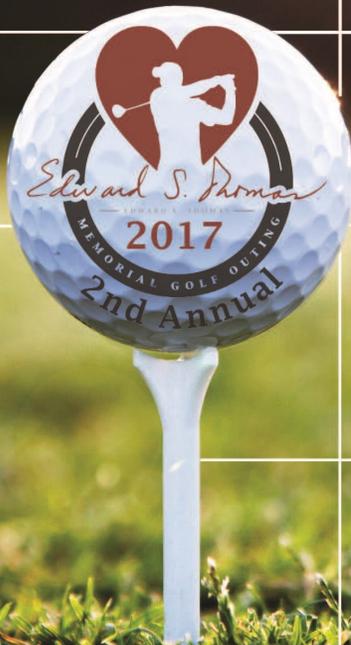


Philip A. Lewalski, M.D.
Editor-in-Chief
plewalsk@dmc.org



Cari L. Williamson, M.B.A.
Managing Editor
cwilliamson@med.wayne.edu

We at the Resuscitator would like your input. We would love to hear from both our faculty and our graduates scattered throughout the country. If any of you have any gripes, concerns or comments, please submit them to me or Cari Williamson for publication in the “Ventilator” column. If you have any funny stories or anecdotes, we will try to include them in the “Doctor Aware” column. For the creative among you, please feel free to send me any artistic pursuits you would like to share. Finally, to our core faculty and researchers, please send me information about your on-going or future projects.



Save the Date

Edward S. Thomas

— EDWARD S. THOMAS —

Memorial Golf Outing

Monday, May 15, 2017
Detroit Golf Club