

**Feasibility and Adherence of mHealth Monitoring in Women  
Post-Delivery with Hypertension**



Sarah Rhoads, PhD, DNP, APRN, Christian E. Lynch, MPH, Songthip T. Ounpraseuth, PhD, C. Heath Gauss, MS, Curtis L. Lowery, MD and Hari Eswaran, PhD

Preeclampsia is a hypertensive disorder in pregnancy. The current evidence-based practices recommend that not only during pregnancy, but also during post-delivery the patient needs to be monitored for several days, since the patient may still have an elevated blood pressure even though the preeclampsia was cured by the delivery itself. One method to improve patient outcomes and treatment adherence is through mobile health (mHealth) technologies.

This study examines the potential factors that influenced use of mHealth technology and adherence to monitor symptoms related to preeclampsia in postpartum (post-delivery) women. Based on their decision to choose the mHealth monitoring system, postpartum women were categorized into a user or non-user group, users were given mHealth devices to monitor their blood pressure, weight, pulse and oxygen saturation over a two week period. Device readings were monitored by a nurse call center and participants were contacted as needed. Participants in all groups completed a baseline and follow-up survey.

Women who elected to use the mHealth technology on average tended to have lower household income and lower levels of perceived technology barriers compared to those who opted not to use mHealth. Additionally, they reported higher facilitating conditions and perceived benefits of the technology. At the follow-up period, there was no statistical difference between the two groups.

This study provided a basis for restructuring the management of care for postpartum women with hypertensive disorders through the use of mHealth technology. Clinical Impact: If it is possible that through enhanced communication with the health care team that post-delivery women will increase adherence to treatment regimen, then it would be possible to manage treatment using an outpatient model of care. This change could impact the frequency of post-natal complications, hospitalization rates as well as potentially decrease health care costs.

Showcase of Medical Discoveries  
**A Focus on Health Services**



**Wednesday, Sept. 20, 2017  
4:30—6:00 p.m.**

*“Health services research can be loosely defined as scientific inquiry into the ways in which health services are delivered to various constituents.”* (Forrest, C.B., Martin, D., Holve, E., & Millman, A. (2008). Health Services Research Doctoral Core Competencies. Final report)

**A Wine & Cheese Reception Featuring UAMS  
Investigators Discussing their  
Research and Discoveries.**

Winthrop P. Rockefeller Cancer Institute  
10th Floor Rotunda



Poster #1

**Factors Influencing Long-term Opioid Naïve Patients: An Examination of Initial Prescription Characteristics and Pain Etiologies**



Anuj Shah, B.Pharm, Corey J. Hayes, PharmD, MPH, and Bradley C. Martin, PharmD, PhD

We explored the relationships between the initial opioid prescription and pain etiology with the probability of opioid discontinuation using national health insurance claims data. We identified 1,353,902 persons aged  $\geq 14$  with no history of cancer or substance abuse, with new opioid use episodes and categorized them into 11 mutually exclusive pain etiologies. Cox Proportional Hazards models were estimated to identify factors associated with time to opioid discontinuation. Patients with chronic pain had the highest probability for continued opioid use and patients prescribed doses above 90 morphine milligram equivalents (HR=0.91, CI: 0.91-0.92); initiated on tramadol (HR=0.90, CI: 0.89-0.91) or long-acting opioids (HR=0.78, CI: 0.75-0.80); were less likely to discontinue opioids. Increasing days' supply of the first prescription was consistently associated with a lower likelihood of opioid discontinuation (HRs, CIs: 3-4 days' supply = 0.70, 0.70-0.71; 5-7 days' supply = 0.48, 0.47-0.48; 8-10 days' supply = 0.37, 0.37-0.38; 11-14 days' supply = 0.32, 0.31-0.33; 15-21 days' supply = 0.29, 0.28-0.29;  $\geq 22$  days supplied = 0.20, 0.19-0.20). The direction of this relationship was consistent across all pain etiologies. Clinicians should initiate patients with the lowest supply of opioids to mitigate unintentional long term opioid use.

Poster #16

**The Center for Mental Healthcare & Outcomes Research (CeMHOR): A Center of Innovation**



**CeMHOR**  **Arkansas**  
Center for Mental Healthcare  
& Outcomes Research

Richard R. Owen, MD, Teresa J. Hudson, PhD, PharmD, and Robin M. Smith, PhD

CeMHOR's primary focus is to improve access to/engagement in evidence-based mental health and substance use care for Veterans. For a quarter century, CeMHOR has focused on improving care and outcomes for Veterans with mental disorders or substance use disorders. CeMHOR investigators conduct and develop new research on the highest priority issues—for our nation, for the Veterans Healthcare System, for the VA Health Services Research & Development Service (HSR&D) and for Veterans—including improving mental healthcare, preventing suicide; addressing opioid use and misuse; improving access to and engagement in care; and implementing evidence-based practices. Two cross cutting themes of CeMHOR research are rural health and implementation science.

CeMHOR, which in 1998 gave rise to both Mental Health Quality Enhancement Research Initiative (QUERI; now the QUERI for Team-Based Behavioral Healthcare) and the South Central Mental Illness Research, Education and Clinical Center (MIRECC), is the leading HSR&D Center of Innovation (COIN) with regard to advancing the field of implementation science and the only COIN that focuses on meeting mental healthcare needs of rural Veterans.

## Poster #15

### ***Associations between Deployment-Related Experiences and Binge Drinking among US Servicewomen Deployed to Iraq and Afghanistan***



Michael A. Cucciare, Ph.D., Anne G. Sadler, Ph.D., Michelle A. Mengeling, Ph.D.  
James C. Torner, Ph.D., Xiaotong Han, M.S., John M. Ray, Ph.D.  
and Brenda M. Booth, Ph.D.

High rates of recent (10%) binge drinking have been observed among US servicewomen. Military deployment is known to be a significant risk factor for binge drinking and alcohol-related problems in this population. However, little is known about specific deployment-related experiences that increase risk of binge drinking among US servicewomen. This study applies a seven factor conceptual model of war-zone stressors to understand contributors to binge drinking among servicewomen deployed to Iraq or Afghanistan (I/A). It examines whether five factors of the model that describe combat experiences – fighting, killing, threat to oneself, death of others, and atrocities are associated with binge drinking in a community sample of servicewomen deployed I/A. This study found that in a sample of 688 US servicewomen, that those reporting sexual assault or experiencing sexual harassment while deployed to Iraq or Afghanistan were more likely to report at least one episode of binge drinking in the prior 28-days. Further, servicewomen reporting more experiences in the death/injury to others factor also reported a greater frequency of binge drinking.

## Poster #2

### ***Advance Care Planning in Hospice***



Justin M. McLawhorn, MD and Masil George, MD

A serious medical illness or severe injury may leave an individual unable to make medical decisions for themselves. Advanced care planning (ACP) involves learning about the types of healthcare decisions that might need to be made, considering these decisions ahead of time, and letting others know about these preferences often in the form of an advance directive. We conducted a survey about advance care planning among 20 hospice patients and assessed if they had an ACP, and if so, determined who had initiated the conversation and the context during which the ACP discussion was initiated. Our study revealed that a fourth of the survey participants did not have an ACP. Furthermore, only 3% of the participants had completed an ACP during their routine health care visit with only 26% reporting that their physician initiated the ACP conversation. Our study highlights the need for physician discussion of ACP during routine health care visits in order to help patients make informed health care choices for themselves.

Poster #3

***Breast Cancer Risk Reduction Clinic for Elderly Women: Promoting Prevention and What We Have Learned***



Burcu Ozdemir MD , Joel B. Goodin PhD

Breast cancer is a major cause of morbidity and mortality requiring prevention for an estimated 3.5 million elderly women, though no promising alternative to screening is known. High risk patients were seen in a breast cancer prevention clinic held for one-half day each month for 3.5 years. EHR data for this time period was extracted for Gail Risk Index (GRI), age, number of chronic medical problems per patient, medication for prevention, duration of treatment, duration of follow-up and causes for discontinuing the medication. Twenty-four female patients aged 59-80 ( $\bar{x}$  = 72.6) had GRIs from 1.7-17% ( $\bar{x}$ =4.08%) and lifetime GRIs from 2.1-49% ( $\bar{x}$  =11.1%). Pharmacologic prevention was given to 23 women at some time during their follow-up. Two women developed breast cancer validating the high risk status of this group, one of whom had declined preventative medicine. Both cancers were estrogen receptor positive. GRI can be used to identify high-risk elderly women for counseling and prevention. Preliminary findings suggest pharmacologic prevention is effective and well-tolerated in select elderly women.

Poster #14

***Implementing an innovative suite of mobile applications for depression and anxiety***



Carolyn J. Greene, Smit Naik, Ken Weingardt, and David C Mohr

Mental health problems are common and grossly undertreated. Only around 20% of Americans with mood disorders and 13% of those with anxiety disorders receive minimally adequate treatment in any given year. To address these needs, an ever-growing number of technology-based interventions have been developed. A large number of RCTs over the past 15 years have consistently shown that these interventions, when coupled with low intensity coaching, can be highly effective at reducing depression and anxiety at low cost.

The current study aims to implement the IntelliCare suite of mobile apps in an integrated Primary Care setting. Using a user-centered design process that involves key stakeholders, including patients, providers, and administrators, we will optimize the IntelliCare suite to meet the unique needs of the UAMS Primary Care patient population. Further, we will develop a coaching protocol to both provide support to app users and seamlessly integrate with the Primary Care clinic's services.

Poster #13

***VA Quality Enhancement Research Initiative (QUERI) for Team Based Behavioral Health***



JoAnn E. Kirchner, Mark S. Bauer, David Oslin, Laura Wray, Bradford Felker, Richard Goldberg, Matthew Chinman, Mona Ritchie, Jeffrey Smith, Bo Kim, Christopher Miller, Sara Landes, and Kate Iverson

The VA QUERI for Team-Based Behavioral Health (BH QUERI) includes an integrated suite of implementation projects that synergistically support VHA goals of improving access, spreading best practices, achieving a high-performing health network, and enhancing trust in our healthcare system. The purpose of this program is to improve coordination, quality, equity, and outcomes of team-based care for Veterans with behavioral health conditions. Foci of program projects include: 1) creating a tele-mental health (TMH) implementation tool and establishing TMH in 3 west coast clinics; 2) implementing Behavioral Health Interdisciplinary Program teams in 9 sites based on the evidence-based Collaborative Care Model; 3) increasing implementation of Measurement-Based Care for mental health conditions in 6 Primary Care clinics; and 4) implementing peer specialists in 25 Patient Aligned Care Teams. Implementation facilitation (IF) is the core implementation strategy applied across the projects, guided and informed by the i-PARIHS framework and our extensive experience. To date, over 12,500 Veterans in more than 40 implementation sites throughout 15 of the 18 VA regions have access to evidence based interventions provided by BH QUERI. Further, 150 clinical leaders, providers and investigators across all 18 VISN's have received IF training, reflecting sustainment and spread of IF within VA.

Poster #4

***Division of Health Services Research  
Organizational Structure***



Teresa Hudson, PharmD, PhD and Bridgette Larkin-Perkins, DBA

The UAMS Division of Health Services Research (DHSR) focuses on health services research for mental health and illness, with an emphasis on substance abuse. DHSR includes three distinct VA research centers (HSR&D Center of Innovation, Behavioral Health QUERI, and the South Central MIRECC) all designed to be developmental centers stimulating further research in health services for mental health and substance abuse. The Division has well established, collaborative relationships with many state organizations. For more than two decades, the Department of Psychiatry's DHSR has been recognized as one of the largest and more innovative health services research centers in the nation. The mission of DHSR is to improve the lives of individuals with mental health and substance abuse use disorders by conducting scientifically rigorous research in close partnership with clinical and community stakeholders. The investigative team works in close partnership with stakeholders, including individuals with mental health and substance use disorders, as well as with community members, informal caregivers, organizational leaders, and providers dedicated to delivering high quality, empirically-supported treatments.

Poster #5

***Balancing Appropriate Pain Management and Stemming Diversion/Abuse: Themes Associated with Pharmacists' Decision-Making Around Opioid Dispensing***



Geoffrey M. Curran, PhD, Mark Edlund, MD PhD, Patricia R. Freeman, PhD, Bradley C. Martin, PharmD, PhD, Katharine Bradley, MD, Karen Drummond, PhD, and Nancy Schoenberg, PhD

Since 1980, use of chronic opioid therapy for chronic non-cancer pain has increased dramatically, paralleled by increased rates of opioid use disorders and overdose deaths. Training, policies, and interventions are needed to decrease opioid abuse, diversion, and deaths. Programs must be based on a thorough understanding of providers' and pharmacists' decision making as they prescribe or dispense opioids. These processes are poorly understood. Our team is conducting in-depth, qualitative interviews with prescribers (n=60) and community pharmacists (n=60) across 4 states—Kentucky, Arkansas, Idaho, and Washington (R01 DA034627). Based on ongoing pharmacist interviews (n=54), we are developing decision models for opioid dispensing that involve the following domains—*pharmacy context* (e.g., chain/independent, formal/informal policies around opioid dispensing, store/peer culture), *pharmacist factors* (e.g., beliefs/philosophy around opioids, beliefs on the “role” of pharmacists in the healthcare system, experiences with dispensing opioids), *characteristics of the opioid “request”* (e.g., numerous potential “red flags” around patient behavior and the prescription itself, beliefs about the prescriber), and *formal/informal “diagnostic” processes* followed the pharmacists based in part on the above factors to assist them with the decision to dispense/not. Of note, current findings indicate that *prescription drug monitoring programs* are key tools used in dispensing decision-making.

Poster #12

***Short-term effects of a smartphone application plus brief motivational intervention in reducing substance use and sexual risk behaviors among homeless young adults: Results from a randomized controlled trial***



Ronald G. Thompson, Jr., Ph.D. and Deborah S. Hasin, Ph.D.

This study evaluated the feasibility and preliminary effectiveness of OnTrack, a smartphone application to self-monitor substance use and sexual risk behaviors, plus a brief motivational intervention (BMI) in reducing alcohol use, marijuana use, and sexual risk behaviors among homeless young adults.

A randomized controlled pilot trial (N=60) compared OnTrack+BMI to treatment as usual (TAU) at an inner-city crisis shelter for homeless young adults (18 to 21 years). Kruskal-Wallis tests determined differences between baseline and post-intervention assessments. Logistic regression models examined treatment effect on change in outcomes between baseline and post-intervention assessments, controlling for baseline levels.

Participants in OnTrack+BMI significantly reduced their past two-week number of drinks (p=.023), times used marijuana (p=.046), times engaged in unprotected sex (p=.012), and times used drugs before sexual activity (p=.019) between baseline and post-intervention. After adjusting for baseline levels of substance use and sexual risk, participants in OnTrack+BMI had significantly lower odds than those in TAU for drinking alcohol (AOR=0.14; p=0.01) and having unprotected sex (AOR=0.151; p=0.032).

Findings suggest that OnTrack+BMI is feasible and effective in reducing past two-week substance use and sexual risk behaviors among homeless young adults. A larger randomized trial is warranted to replicate and extend present results.

Poster #11

***A mixed-method pilot study using the Moving Forward app to enhance Problem Solving Therapy (PST) in Veterans with anxiety and depression***



Traci H. Abraham, Kathleen M. Grubbs, Carolyn J. Greene, John Fortney and Jeff M. Pyne

Smartphone applications have the potential to increase access to mental healthcare. However, app development has outpaced research on their utility and clinical benefit. This pilot study tested the Moving Forward app which was designed to support Problem Solving Therapy (PST). Thirty-three veterans diagnosed with an anxiety or depressive disorder seeking mental healthcare in VA primary care clinics were recruited into the study. Participants received 6-sessions of PST and were given an iPhone 4S, then randomized to receive either the Moving Forward app (n = 17) or a workbook (n = 16) with identical content. Participants were assessed at baseline, six-week, and 12-week follow-up for anxiety, depression, stress, problem solving style, satisfaction, and skills use. A larger proportion of the app group reported using the Problem Solving Style at 6-weeks (93% vs. 75%) and 12-weeks (57% vs. 30%). There were no between group differences in any of the measures at 6- or 12-weeks. Both groups showed a 1-category reduction (from moderate-mild) in depression, anxiety and stress symptoms from baseline to 6-weeks. Qualitative data indicated that patients viewed the app as a valuable adjunct to therapy, and that the technology holds potential in reducing some barriers to mental health treatment. This study provides preliminary evidence to support the use of the Moving Forward app in the delivery of brief psychotherapy in primary care clinic settings. Qualitative data suggest that Moving Forward is a promising therapeutic augmentation to PST for patients with mild to moderate anxiety or depression.

Poster #6

***Adaptation of a Motivational Interviewing Intervention during Implementation in Four Community Pharmacies***



Benjamin Teeter, PhD, Jeremy Thomas, PharmD, Geoffrey Curran, PhD, and Appathurai Balamurugan, MD

This research aimed to determine the contextual modifications, content modifications, and level at which modifications occurred during the implementation of a brief Motivational Interviewing (MI) intervention in community pharmacies. Previous research by Wiltsey Stirman and colleagues (2013) identified four types of contextual modifications, 12 types of content modifications, and 7 levels at which modifications occur. These modifications have the potential to impact interventions' desired benefits. In a 4 site demonstration project, pharmacists were trained to provide a brief MI intervention to at least 50 patients who were non-adherent to antihypertensive medications. Training included a three-hour online course in MI and in-pharmacy training on identifying eligible patients and documenting the intervention. Observations and semi-structured interviews took place in the community pharmacies that implemented the MI intervention. Interviews covered modifications to the process of identifying eligible patients, MI interventions, and documenting the intervention. Data was coded using the Wiltsey Stirman framework.

Poster #7

*Adaptations in the Age of Technology in Seniors*



Stephen Foster, Amy Schrader, Jeanne Wei, Gohar Azhar

The deployment of technology in today's environment has led to significant advancements in communication, socialization, and information sharing. We hypothesized that these technologies might be underutilized in the geriatric population. Previous methods of assessing the capacity for independent living relied on tools such as the Instrumental Activities of Daily Living. Because of a recent proliferation of common devices now requiring technology, there exists a need for new instruments to evaluate the functional capacity of older individuals. We developed a structured survey to investigate the frequency of technology utilization (cell phones, computers, etc.) and the application and understanding of these technologies by older patients at a geriatric out-patient university clinic. Our results indicated that while >95% of individuals surveyed possessed a cell phone, less than 34% utilized text messaging. Nevertheless, >60% of seniors were interested in learning more about their cell phones and how to use the different features. In summary, our results showed that although older individuals were underutilizing technology, they were still interested in advancing their technological skills. It is important to test the ability of older adults in their understanding and use of technology as it may be helpful for monitoring health, security, communication and maintaining an independent lifestyle.

Poster #10

*Health Interest Areas Among 3,500 Diverse ARresearch.org Registrants Reflect Arkansas' Major Health Challenges*



Jean McSweeney, Ph.D., R.N.; David Robinson, B.A.; Anthony McGuire; Pamela Christie, B.A.; Sandra Hatley, M.H.A.; Martha Rojo, Ph.D., R.N.; and Laura P. James, M.D.

The UAMS Translational Research Institute (TRI) launched the online participant registry and website, ARresearch.org, in April 2016 to recruit diverse research participants. Recruited primarily from Arkansas to help researchers at UAMS, the registrants agree to be contacted about research opportunities based on their selected health areas of interest for future participation. TRI used community focus groups and worked with UAMS Communications & Marketing and plain language experts. Our comprehensive promotion plan included local media coverage, video testimonials and materials developed for our Spanish language and Pacific Islander populations. Registrants may select up to 29 health interest areas offered on the registry form. Their selections reveal that they are most interested in research related to weight management, mental health, heart disease and sleep disorders. In 15 months, nearly 3,500 individuals have been recruited from 74 of Arkansas' 75 counties. In addition, as the number of registrants grows, the data show trends that reflect some of Arkansas' biggest health challenges. The UAMS research community should find the information of interest, especially investigators in the fields that were most popular among registrants. Over time, the information will inform future research decisions and help ensure that UAMS is responsive to the state's needs.



## Poster #9

### *Structure and Implementation of a Longitudinal Triple Aim-Focused Interprofessional Curriculum*



Kathryn Neill, Pharm.D. and Wendy L Ward, Ph.D., ABPP

Academic health centers are charged with developing a unified inter-professional education (IPE) student curriculum designed to build collaboration skills across the three missions: academic, clinical, and research. These skills are needed to meet the institutional Triple Aim—improving patient care, population health, and reducing health care costs.

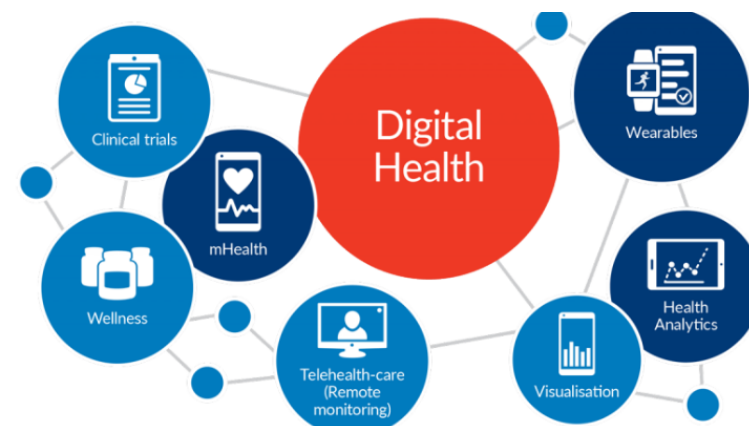
A 12-member Steering Committee of representatives from all 6 colleges worked collaboratively to design a curriculum incorporating IPE as a teaching methodology through a developmental progression of learning activities. A 3-phase curriculum consisting of 7 core activities was developed and approved as a campus-wide graduation requirement for students matriculating Fall 2015 and forward.

More than 2000 students have participated in the Triple Aim IPE curriculum in the first two years of implementation. Quantitative and qualitative results of learning outcomes and student perceptions are presented. Key successes and lessons learned will be highlighted.

A Triple Aim focused framework for IPE activities has focused events on collaboration skill development, enhanced perceived value by faculty and students, facilitated the coordination of learning across degree programs, and shown positive outcomes. This curriculum structure is broadly applicable to health science centers of any size and composition.

## Poster #8

### *The Mobile Health (mHealth) Interest Group - Engagement and Collaboration*



Aaron Kemp, Linda Larson-Prior, Carolyn Greene, and Anita Walden

The advancement of digital technologies provides opportunities to educate, inform and care for patients. Surveys report that more than half of those with smartphones use them to obtain health information from the internet (PEW 2015). In light of this evolution, digital technologies provide a unique opportunity that places the patient at the center of their healthcare.

Mobile Health (mHealth), a rapidly growing area, is the delivery of healthcare, health services and health research using technologies such as wireless devices, phones, wearable or other handheld devices (WHO 2011, Istepanian 2014). It utilizes digital technologies such as electronic devices, cloud resources or systems that generate or manage information directly from a patient.

A primary benefit of using mHealth technology is the ability of the provider to extend care beyond the exam room while also giving those in rural areas access to healthcare services that may not exist within their communities.

The mHealth Interest Group has formed to increase the knowledge and expand use of mHealth at UAMS and across the state of Arkansas. Some of the objectives:

- Identification of mHealth resources across UAMS
- Collaboration with Clinicians, Researchers and Technology Companies
- Education and Training
- Developing an Infrastructure at UAMS to effectively use digital devices