

GERIATRIC MEDICINE

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Message from the Chief

Before introducing this latest edition, I wanted to share an **exciting new opportunity**: We are **seeking a Clinical Director!** She/he should be an excellent clinician, able to convey the joy of caring for older adults, and excited to work with dozens of our passionate geriatricians to build on our current programs and develop new innovations. It's also an opportunity to further incorporate geriatrics into UPMC's 3.2 million member Health Plan, post-acute services, PACE, hospitals, home health, and thousands of physicians' practices. One of the nation's largest academic integrated health care delivery organizations, UPMC is based in one of the nation's oldest demographics. Inquiries should be directed to mia6@pitt.edu.

Second, we're pleased to again offer our popular, award-winning course in Geriatric Medicine in April. Designed by a committee of practitioners, academics, and leaders, the *Clinical Update in Geriatric Medicine* features speakers selected by both their ability to convey practical pearls and their ability to do so in a compelling manner. Its multiple breakout sessions also facilitate crafting an individually tailored experience. More details can be found on Page 7 of this newsletter.

Now to the *Update!* We begin with **Shachi Tyagi, MD**, whose research has shown that the falls risk posed by insomnia seems to emanate more from sleep disruption than the drugs used to treat it. She has also identified an interaction between insomnia and nocturnal polyuria, in which each exacerbates the other and also interferes with therapy. Her work could lead to a new therapeutic approach to insomnia, obviating the need for soporifics. Next, **Shuja Hassan, MD**, describes a new collaboration with cardiology to improve outcomes for older patients with advanced heart failure or aortic valve disease.

David Nace, MD, MPH, describes his efforts to improve antibiotic stewardship in one of the highest risk yet most neglected settings, the nursing home. Strategies proven in acute care do not necessarily apply well in long-term care, where the nature, presentation, and etiology of symptoms can differ from those seen in hospitals, and where the extent and availability of testing differ as well. Thus, he and his colleagues have been devising innovative ways to overcome these barriers. His work also contributes to and benefits from other Division initiatives in this setting, such as Dr. Steven Handler's efforts to create a safety culture and reduce adverse drug reactions, Dr. Susan Greenspan's research to reduce fractures, our Division-wide endeavors to reduce unplanned readmissions through our CMS-funded RAVEN project, and our work to improve the quality of nursing home and end-of-life care. These initiatives also have paved the way for our basic science colleagues' studies of the mechanisms underlying frailty and immunosenescence, and new approaches to mitigate both. Meanwhile, **Rollin Wright, MD, MA, MPH**, is tying much of this together with her innovations in teaching trainees a new approach to caring for nursing home patients with dementia.



With kind regards,

Neil M. Resnick, MD

Division Chief and Thomas Detre Professor of Medicine

Associate Director, Aging Institute of UPMC Senior Services

and the University of Pittsburgh

Director, Hartford Center of Excellence in Geriatrics



Affiliated with the University of Pittsburgh School of Medicine, UPMC Presbyterian Shadyside is ranked among America's Best Hospitals by U.S. News & World Report.

UPMC LIFE
CHANGING
MEDICINE

Insomnia and Nocturia: Causes and Connections

Shachi Tyagi, MD, is a geriatrician-scientist whose research centers on nocturia (nighttime waking to void) and insomnia. She's interested in understanding the overlap in pathophysiology of these two prevalent and comorbid conditions among the elderly, as well as their role in increasing the risk of falls and fractures. In addition, she is investigating whether treatment for one may be beneficial to both.



"Nocturia is one of the most common reasons for falls and fractures in older adults."

Shachi Tyagi, MD

Searching for the Causes of Nocturia — A New Study

In March 2017, Dr. Tyagi and colleagues from the Division embarked upon a new study.¹ It is designed to investigate the causes of nocturia and nocturnal polyuria. Each is a common and costly condition in older adults, with significant impacts on quality of life and risk for serious complications such as falls and fractures, depression, and increased rates of mortality. In fact, nocturia is one of the most common reasons for falls and fractures in older adults. At night, individuals are not fully awake, their blood pressure is lower, and rushing to the bathroom to urinate provides the perfect scenario for a fall and possibly a fracture," says Dr. Tyagi.

Treatment of nocturia, especially in the elderly, is challenging because the underlying causes are not well understood. Building upon her past research²⁻⁶ into how insomnia and nocturia are intertwined, Dr. Tyagi's new NIH grant is funding a first-of-its-kind study to examine the roles that sleep and circadian rhythm — and their dysfunction and disruption — play in nocturnal urine production in older adults.

Urine production follows a circadian pattern that is typically established by age 3 to 5 years and results in less volume (and higher concentrations of waste products) being produced at night. However, in most older adults this pattern can become disrupted, causing urine production to increase at night. Thus, Dr. Tyagi's study will examine the role of key hormones in urine production and how sleep dysfunction and consequent disruption of circadian patterns alter their regulation.

"We know that the rhythm of these hormones is somewhat blunted among older adults as a consequence of the natural aging process. So, if they already have some compromise of these rhythms, how do sleep and sleep disruption further impact their nocturnal urine production? This is the basis of the study," says Dr. Tyagi.



Dr. Tyagi's study will recruit healthy older adults who are 60 years of age or older and who do not suffer from insomnia or lower urinary tract dysfunction. Participants will take part in a battery of two 24-hour measurements designed to assess the diurnal variation in secretion of the hormones responsible for regulating salt and water excretion. Circadian rhythms will be assessed for phase and amplitude, allowing for an examination of diurnal variation in the secretion of the renal regulatory hormones and how sleep influences this process. "We may be able to uncover the existence of different phenotypes of nocturnal polyuria that would then point us to other lines of research and possibly to more targeted approaches to treatment," says Dr. Tyagi.

Insomnia and Nocturia — Treatments and Causes

Past research by Dr. Tyagi and colleagues has focused on a number of contributing causal factors to nocturia, as well as the efficacy of certain behavioral treatment approaches to insomnia and their effectiveness for nocturia. Dr. Tyagi has also examined the role of sleep quality and the amount of time spent in bed on the presence and severity of nocturnal polyuria in older women with urge urinary incontinence.⁴

She has also examined, for instance, the applicability of behavioral treatments for insomnia to treatments of nocturia. For example, she found that an offshoot of Cognitive Behavioral Therapy for Insomnia (CBTI) known as Brief Behavior Treatment

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Transitional Rehabilitation for Cardiac Patients

UPMC has been at the forefront of the transitional rehabilitation wave. For patients requiring intensive but short-duration (typically two weeks or less) rehabilitation after a hospital discharge, but who are not able to transition directly home or who need the advanced services of a long-term care facility, the advent of TRUs is bridging the gap.

The number of these Transitional Rehabilitation Units (TRUs) has steadily grown over the last five years, with TRUs in operation at most of the skilled nursing and rehabilitation facilities within the UPMC Senior Communities network.

In October 2016, the first cardiac-specific TRU began accepting patients at Canterbury Place. **Shuja Hassan, MD**, medical director of Canterbury Place and assistant professor in the Division of Geriatric Medicine, helped to spearhead this new initiative with colleagues from the UPMC Heart and Vascular Institute (HVI) and the UPMC Rehabilitation Institute. The HVI-TRU is a 17-bed unit that was remodeled prior to opening and consists entirely of private rooms for patients. "Our patient population typically consists of individuals with complex heart failure, those who have had MIs or catheterization procedures, valve replacement surgeries — TAVRs — and individuals with cardiomyopathy. However, we can handle the care and rehabilitation of just about any cardiac patient, be it medical or surgical, regardless of age," says Dr. Hassan.

Collaborative, Multidisciplinary Care

As the medical director of Canterbury Place, Dr. Hassan oversees the care of most of the HVI patients who make their way to the unit, and he collaborates closely with several individuals from the UPMC HVI on patient



"The collaboration between geriatrics, cardiology, and rehabilitation really affords our patients the best quality of care possible."

Shuja Hassan, MD

care. Patient rounds are conducted every Thursday and typically include Dr. Hassan and nurse practitioners assigned to the unit, Lauren Dornin, CRNP, and Jill Braver, CRNP. Joining them are clinicians from the HVI, Michael Mathier, MD, and Ravi Ramani, MD, in addition to, Jennifer Kliner, CRNP, MSN, ACNP-BC. "We collectively discuss the new admissions, their care plans, and the continuing care of patients on the unit. The collaboration between geriatrics, cardiology, and rehabilitation really affords our patients the best quality of care possible, and a high degree of continuity of care not only between everyone at Canterbury Place, but at the hospital prior to their admission to the unit," says Dr. Hassan.

The HVI-TRU at Canterbury Place generally runs at full capacity, pointing to the need for this kind of care and what is sure to be a growing patient population as individuals are living longer with chronic cardiac conditions, and more and more individuals undergo such interventions as valve replacements at increasing years of age.

A Continuing Evolution

Even though the HVI-TRU has only been operational for a little more than a year, Dr. Hassan and his colleagues have worked to adapt the administration of care to better align with the patient population and their needs. "Several months ago, we instituted a process whereby physician assistant and nurse practitioner members from the HVI cardiothoracic surgery team at UPMC Shadyside now visit the unit three days a week to see, and discuss with me, the care of postsurgical patients. Again, this leads to better coordinated care for the patient through enhanced communications and planning," says Dr. Hassan.

Furthermore, plans are in place at Canterbury Place to outfit a dedicated floor purely for long-term heart and vascular residents. "The nature of our patient population is always evolving. So too is the broader world of health care. It is incumbent upon us as providers and institutions to evolve to meet these changing needs, and to meet and exceed the benchmarks of care that we hold for ourselves and our patients," says Dr. Hassan.

Antibiotic Resistance and Stewardship in Long-Term Care

Decades of suboptimal prescribing patterns and misuse of antibiotics by health care providers and agricultural producers have produced multidrug resistant organisms (MDROs) at a quickening pace — and faster than our progress in developing replacement agents. Thus, the rise of MDROs is largely a self-inflicted casualty born of a cavalier approach to their use. **David A. Nace, MD, MPH,** and his team are working on ways to help.



“What works for acute-care hospitals or in an outpatient setting does not necessarily translate well into the unique setting of the LTC facility.”

David A. Nace, MD, MPH

While bacterial organisms will develop resistance over time, a judicious, evidence-based approach to antibiotic use will slow and sometimes reverse resistance patterns, as well as other adverse outcomes. Changes to how, when, and why antibiotics are used is a global health imperative. To maintain the efficacy of antimicrobial agents for the long term, these changes in usage must occur now.

The misuse of antibiotics has consequences beyond the rise of MDROs, particularly in frail, older adult populations, especially those who reside in long-term care facilities (LTCs). A full 20 percent of adverse drug events (ADEs) in long term care residents are related to antibiotic use. Inappropriate or unwarranted courses of antibiotics can also lead to *Clostridium difficile* infections. “Research by Dr. Nick Daneman’s group in Canada has actually shown that in facilities with high antibiotic use, there is a 24 percent increase in ADEs, and the risk extends even to residents who do not receive the antibiotics. In the LTC environment, the overuse of antibiotics affects everyone, whether they receive an antibiotic or not. This is something that providers and facilities must come to understand,” says Dr. Nace, associate professor and director of Long-Term Care and Influenza Programs at UPMC.

A Stewardship Template for LTCs

Dr. Nace leads the antibiotic stewardship efforts for the Division of Geriatric Medicine, and he has been an active researcher into antibiotic use and misuse and the consequences for many years. He is also part of a work group for the Society for Post-Acute and Long-Term Care Medicine (AMDA) that has developed a template to assist LTCs with developing their own antibiotic stewardship program.¹ These programs are required for phase II implementation of the Centers for Medicare and Medicaid Services (CMS) participation requirements that went into effect on November 28, 2017.

The new CMS guidelines mandate that stewardship programs be developed and

implemented by LTCs, and include use protocols and monitoring systems, among other requirements. Ostensibly, these systems will facilitate visibility of patterns of resistance, monitoring of usage patterns, the development of facility antibiograms, and other key metrics. This should allow for greater transparency and characterization of the use of antibiotic medications, theoretically leading to reduction of inappropriate uses, lower infection rates, lower rates of MDRO infections, and fewer adverse drug events attributable to antibiotics.

The impetus for Dr. Nace and his colleagues to develop such templates is an understanding that facilities have long struggled with antibiotic stewardship. The reasons are multifactorial — limited expertise, insufficient resources and training, and a lack of evidence on what good models of stewardship look like in the LTC setting. “What works for acute-care hospitals or in an outpatient setting does not necessarily translate well into the unique setting of the LTC facility with its two major populations: post-acute patients and long-term care residents,” says Dr. Nace.

The template that Dr. Nace and his colleagues have produced is meant to be tailored by, and adapted to, the individual needs of a facility. “Our intent is to provide facilities with an understanding of what actions and plans make strategic sense, along with the rationale for their adoption. This includes things like the formation and function of antibiotic stewardship committees, creation of antibiotic use and monitoring protocols, measuring resistance rates and developing facility antibiograms, implementing antibiotic ‘time-outs,’ and training to promote best practices,” says Dr. Nace.

Better Antibiotic Use in UTIs, Bladder Infections, and Beyond

Urinary tract infections (UTIs) are a particularly problematic area in the use of antibiotics. Mistreatment and over-treatment are common and lead to all manner of complications. An international project led from the Netherlands has been



working to develop better guidelines for the diagnosis of UTI, an initiative that Dr. Nace has been part of locally. The guidelines are currently in draft form and will be published in the near future.

Related work by Dr. Nace has involved a multiyear study, the IOU project — Improving Outcomes in UTI Management. Funded by the AHRQ, this \$1.5 million cluster randomized controlled trial started in June 2015. Its goal is to improve treatment and reduce antibiotic use in suspected urinary tract infections. UTI (or suspected UTI) is the poster child for poor antibiotic use. Research indicates that many suspected UTIs are in fact instances of asymptomatic bacteriuria, for which treatment with antibiotics is generally not needed and may in cases prove harmful. Increasing the appropriateness of antibiotic use through an effective, multifaceted intervention

will lessen the risk of adverse drug events, help reduce the growing threat of antimicrobial resistance, and diminish the risk of *Clostridium difficile* infection.

Influenza Vaccine Response and Sarcopenia

Dr. Nace's clinical and research work also focuses on influenza prevention and management. Currently, Dr. Nace is collaborating with Richard Zimmerman, MD, MPH, who leads the Pittsburgh Vaccine Research Group, on a study investigating markers of immune response in frail, pre-frail, and non-frail older adults. The Pittsburgh Vaccine Research Group is one of five centers that make up the Centers for Disease Control and Prevention's (CDC) Influenza Vaccine Effectiveness Network, which evaluates influenza vaccine effectiveness. Dr. Nace and other colleagues in the

Division of Geriatric Medicine have received additional funding to conduct a related pilot study, the first such study to assess the relationship between sarcopenia and vaccine response.

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Insomnia and Nocturia (Continued from Page 2)

of Insomnia (BBTI) was efficacious not only for insomnia but also in reducing the number of episodes of nocturia over a two-week period.²

Another study,³ conducted with **Daniel J. Buysse, MD**, from the Sleep and Chronobiology Center at Western Psychiatric Hospital and Clinic of UPMC, suggests that treatment of individuals with insomnia may be negatively impacted by concurrent nocturia — suggesting that nocturia impairs the effectiveness of behavioral treatment for insomnia.

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Improving Dementia Care — Assessment and Communications Training for Clinicians and Students

Rollin Wright, MD, MA, MPH, has worked extensively over the last five years not only to improve the ability of clinicians to assess patients for dementia, but also to provide them with the communication skills needed to better connect them to, and develop therapeutic relationships with, demented individuals who have lost language skills along with memory.



"Helping families prepare for and cope with these behavior changes is crucial to managing the disease progression. It is really at the heart of the curriculum we are developing."

Rollin Wright, MD, MA, MPH



In the third year of a Health Resources and Services Administration (HRSA) Geriatric Workforce Enhancement Program (GWEP) grant (1U1QHP28736-D1-00), Dr. Wright and collaborators have been designing and testing curricula for medical students, residents, and geriatric fellows to teach these trainees not only how to communicate with people with dementia, but how to educate families about the disease and likely trajectories. "One of our aims is to give students and clinicians the ability to provide anticipatory guidance to patients and families about its likely trajectories as the disease progresses," says Dr. Wright.

Providers do not receive much specialized training to work with dementia patients who have language deficits, and families of patients at the outset simply do not understand how a person's brain changes as a consequence of the disease and how these changes may result in significant behavior changes — changes that will likely evolve as time goes on.

Families and even a large proportion of primary care physicians often do not recognize that dementia is developing until it progresses sufficiently to cause readily apparent deficits and behavioral changes. Since dementia-related behavior changes will occur in 60 to 96 percent of

demented individuals, and since family members play such a big role in caring for their loved ones with dementia, the caregiver burden can be enormous. "Helping families prepare for and cope with these behavior changes is crucial to managing the disease progression. It is really at the heart of the curriculum we are developing," says Dr. Wright.

Dementia Simulation Training

Dr. Wright is also the author of two interactive training simulation modules available to physicians for CME credit via the American College of Physicians (<http://vp.acponline.org/virtualpatients>). The modules are divided into the early and latter stages of dementia. The modules begin by having the physician work through an understanding of the disease via a virtual case, which forces the learner to make decisions about the patient's assessment and ultimate care, and the case unfolds in a variety of directions depending upon the choices made. "Every decision has a consequence for the patient, but ultimately the training leads the user back to the appropriate or answer for a given situation. Quizzes are built into the case at intervals to reinforce the learning," says Dr. Wright.

The second training module went live in September 2017. This module proposes to the user a comprehensive dementia care strategy from the beginning to the end of the disease. "We built the module so that the case unfolds with a template for how a clinician would attempt to manage the disease as the person transitions from one phase to the next, through the various stages of care needs and milestones in a case of progressive dementia," says Dr. Wright.

Geriatric and Interprofessional Training for Medical School Students

Dr. Wright's educational leadership efforts also include her role as course director for the geriatrics course that is required of all medical students at the University of Pittsburgh. This innovative one-week

course during the third year delves into all aspects of geriatric medicine and is the only required offering for medical students that teaches how to function in interprofessional teams. Roughly 150 medical students take the course each year, and another 60-70 students from other disciplines — physical medicine and rehabilitation, dentistry, advance practice providers, etc. — also take part in the course. The 200-plus member group is divided into 24 teams that pursue team-based learning activities focused on geriatrics.

"Only three to four hours of the course are spent in lectures. The rest of the time is devoted to immersive, interactive, and

experiential learning," says Dr. Wright. One of the activities entails students working in pairs or trios at nine different health fairs and providing geriatric assessments at a number of UPMC Senior Communities independent and assisted living facilities. Students prepare for the assessments by taking part in a type of skills fair at the beginning of the course, where they learn 12 types of geriatric assessments in 15 minute sessions over three and a half hours.

Students are immersed in other activities that cover a wide range of necessary skills and knowledge when dealing with older adult health care. The 2017 edition of the course featured case discussions

about geriatric syndromes, multimorbidity, geriatric pharmacology, the pathophysiology and everyday living with changes in the brain, advance care planning, and visits to long-term care facilities with resident and provider interactions.

"2017 was my third year as course director. It is a very intense process to plan and execute, and it is equally intense, if not more so, for the students who take it. A huge interprofessional team effort is necessary to its success, but we have an outstanding committee that is incredibly invested in making every activity applicable and relevant for the students."

Geriatric CME Courses

The following free CME courses are now available. To view these, and the full list of current courses, please visit UPMCPHYSICIANRESOURCES.COM/Geriatrics.

Update in Heart Failure for Clinicians of Older Patients

Presented by: Daniel Forman, MD

More Tips on How to Live Long and Prosper: The Geriatrics 2016 Year in Review

Presented by: Rollin Wright, MD, MA, MPH

Incomplete Response in Late-Life Depression: Getting to Remission

Presented by: Charles F. Reynolds III, MD

Breaking Falls

Presented by: Rollin Wright, MD, MA, MPH

Negotiating Diabetes Management in the Elderly

Presented by: Mary Korytkowski, MD

Supporting the Patient With Dementia

Presented by: Michelle Rossi, MD

Save the Date

26th Annual Clinical Update in Geriatric Medicine

April 5-7, 2018

Marriott Pittsburgh City Center

This three-day conference features speakers selected not only on the basis of their nationally recognized expertise, but also their ability to share it in a succinct and practical fashion that is easy to immediately incorporate into your practice.

Course Highlights Include:

"Year in Review," covering recent advances and controversies in the literature

State-of-the-art updates on most common geriatric conditions, tailored to each setting, i.e., office, hospital, home, nursing home

Symposium on the latest updates in geriatric cardiovascular conditions, including TAVR, CHF, and lipids; and a review of the evolving understanding of geriatric hypertension

Special topics:

- New Approaches to Chronic Pain in the Elderly
- Practical Incorporation of the Beers List
- The "Geriatric" ER
- Geriatric Trauma Consultation
- How to *Practically* Elicit Goals of Care
- De-prescribing
- Case-based Solutions to End-of-Life Issues



Board Review — for Clinicians

Numerous breakout sessions, allowing attendees to design their own course and affording close interactions with experts on challenging topics and real-world cases

"Ask the Expert" sessions: Ask specific questions about problems in your own practice

Keynote talk on the "Biology of Aging" by an international expert

Dinner talk: "Past, Present, and Future of Geriatrics" by Bill Applegate, MD, editor of *Journal of the AGS (JAGS)*, former President of the American College of Physicians, and investigator in the SHEP study of systolic hypertension and the landmark SPRINT trial

Registering online is the quickest and easiest way to reserve your space at CCEHS conferences.

Visit our online registration site at <http://ccehs.upmc.com>.

ABOUT THE UPMC DIVISION OF GERIATRIC MEDICINE

Ranked among the nation's top hospitals for geriatric care by *U.S. News & World Report*, UPMC Presbyterian Shadyside offers older adult patients access to a multidisciplinary network of comprehensive clinical care. Our geriatricians, all specialists in internal medicine, have additional subspecialty training in geriatrics.

- We focus on the prevention, diagnosis, and treatment of geriatric syndromes, including:
 - Memory loss/dementia
 - Falls or unsteadiness
 - Decreased appetite or weight loss
 - Multiple medical issues
 - Osteoporosis
 - Depression or agitation
 - Incontinence
 - Generalized weakness
 - Multiple medications with possible side effects
 - Functional decline
- Our physicians provide integrated care to patients in acute care, ambulatory care, home and community-based care, and long-term care.
- Each year, the Division hosts the Clinical Update in Geriatric Medicine, a three-day seminar featuring timely, relevant topics from a range of experts in geriatric medicine.

To learn more about the UPMC Division of Geriatric Medicine, please visit
UPMCPhysicianResources.com/Geriatrics.

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For consults and referrals, please call UPMC's 24-hour physician OnDemand service at **1-866-884-8579**.

A \$17 billion world-renowned health care provider and insurer, Pittsburgh-based UPMC is inventing new models of patient-centered, cost-effective, accountable care. UPMC provides more than \$900 million a year in benefits to its communities, including more care to the region's most vulnerable citizens than any other health care institution. The largest nongovernmental employer in Pennsylvania, UPMC integrates 80,000 employees, more than 30 hospitals, 600 doctors' offices and outpatient sites, and a more than 3.2 million-member Insurance Services Division, the largest medical insurer in western Pennsylvania. As UPMC works in close collaboration with the University of Pittsburgh Schools of the Health Sciences, *U.S. News & World Report* consistently ranks UPMC Presbyterian Shadyside on its annual Honor Roll of America's Best Hospitals. UPMC Enterprises functions as the innovation and commercialization arm of UPMC, and UPMC International provides hands-on health care and management services with partners on four continents. For more information, go to UPMC.com.