

WSU Spokane Grant and Contract Award Summary

April 1 – June 30, 2016

NEW & TRANSFER AWARDS

Salah-Uddin Ahmed (PI) – College of Pharmacy

National Institutes of Health

“Novel Targeted Therapeutics for Regulating Synovial Hyperplasia in RA”

This new grant funds a study focused on unraveling the molecular mechanisms involved in rheumatoid arthritis (RA), a chronic inflammatory disease in which the body’s immune system attacks normal joint tissues. In particular, the study will look at synovial hyperplasia—an increase in cells inside the inner lining of the joints (synovium) observed in RA patients—as well as RA fibroblast-like synoviocytes (RA-FLS), cells found in the synovium that resist normal, programmed cell death. This study will test the hypothesis that ursolic acid—a substance found in the peels of apples and other fruits—can help increase the expression of the protein Noxa and that this this will reduce synovial hyperplasia and make RA-FLS more sensitive to programmed cell death.

Celestina Barbosa-Leiker (PI); Michele Shaw (co-PI) – College of Nursing

Spokane Regional Health District/Washington State Department of Health

“ESD 101 Alternatives to Suspension Project”

This grant funds a subproject of a seven-county regional effort to reduce marijuana and e-cigarette use among youth 12 to 23 years old through the use of best and promising practices. Working with the Spokane Regional Health District—the community lead organization for the effort—WSU will summarize current online alternative to suspension programs and gather stakeholder input to propose next steps in developing and implementing an online alternative to suspension program throughout Educational Service District 101.

Celestina Barbosa-Leiker (PI); Michele Shaw (co-PI); Allison Matthews – College of Nursing/College of Arts and Sciences

Washington State Department of the Superintendent for Public Instruction (OSPI)

“OSPI Alternatives to Suspension Project”

This grant funds a subproject of a statewide effort to reduce marijuana and e-cigarette use among youth 12 to 23 years old through the use of best and promising practices. As part of this project, WSU will assist the Office of the Superintendent of Public Instruction in developing and implementing an online alternative to suspension program throughout Washington State.

Dedra Buchwald (PI) – Elson S. Floyd College of Medicine/Community Health

Western Carolina University/National Institutes of Health

“Mental Health and Diabetes among Older American Indians”

This is funding transferred from the PI’s previous institution for a subcontract of an NIH-funded study on mental health and diabetes among older American Indians. The subcontract provides funding for staff at WSU’s Initiative for Research and Education to Advance Community Health (IREACH) to help with statistical analyses for the project, which explores the relationship between mental health variables and diabetes complications among older American Indians and the impact of social support on that relationship.

Dedra Buchwald (PI); Ka’imi Sinclair – Elson S. Floyd College of Medicine/College of Nursing/Community Health

U.S. Department of Health and Human Services/Agency for Healthcare Research and Quality

“Biobanking in Native Communities: Culturally-Driven Deliberations and Consensus”

This is funding transferred from the PI’s previous institution for a project that uses deliberation to gather the points of view of American Indians and Alaska Natives regarding biobanking—the storage of biological samples for use in medical research—and arrive at mutually acceptable solutions between Native tribes and scientists. This project has the potential to reduce cancer-related and other health disparities in American Indians and Alaska Natives and could be used as a model to solve other contentious issues in native populations.

Dedra Buchwald (PI) – Elson S. Floyd College of Medicine/Community Health

National Institutes of Health

“Regional Native American Community Networks Program”

This is funding transferred from the PI's previous institution for a program aimed at addressing cancer-related health disparities in Native American communities. Of all U.S. racial/ethnic groups, American Indians and Alaska Natives have the poorest 5-year survival rates from all cancers combined. The goals of this program include increasing cancer education, outreach, health promotion, and prevention efforts among urban and rural Native Americans; conducting research and training projects using community-based participatory methods; training Native American junior faculty members to conduct research; and increasing access to and interventions among Native Americans to reduce cancer health disparities.

Dedra Buchwald (PI); Lonnie Nelson – Elson S. Floyd College of Medicine/College of Nursing/Community Health

National Institutes of Health

“Innovative Multigenerational Household Intervention to Reduce Stroke and CVD Risk”

This is funding transferred from the PI's previous institution for a study to test the effectiveness of the “Family Intervention in the Spirit of Motivational Interviewing” (FITSMI) to reduce the risk of stroke and cardiovascular disease in American Indians. American Indians experience much higher prevalence and incidence of stroke than the general U.S. population. The FITSMI intervention was developed in response to results from the Strong Heart Study to encourage lifestyle changes that transform the home environment and reduce stroke risk for all residents. The clinical trial will recruit 360 households where Strong Heart Family Study members aged 45 and older reside. Half will receive the FITSMI intervention, which uses a talking circle format in which facilitators guide participants to identify goals for change and create a tailored plan for sustainable implementation; the other half will be assigned to a control condition that receives educational brochures.

Dedra Buchwald (PI); Ka'imi Sinclair – Elson S. Floyd College of Medicine/College of Nursing/Community Health

University of Colorado at Denver/National Institutes of Health

“Native Elder Research Center”

Native elders are at greater risk for numerous acute as well as chronic illnesses, have less access to needed care, and are slower to seek care, leading to complications. This grant funds WSU's efforts to collaborate with the University of Colorado at Denver (UCD) to close these gaps and increase the participation of Native people in related research through UCD's Native Elder Research Center.

Dedra Buchwald (PI) – Elson S. Floyd College of Medicine/Community Health

National Institutes of Health

“WSU Urologic Chronic Pelvic Pain Syndromes Discovery Center”

This is a transfer of funding from the PI's previous institution for a discovery center to study the underlying causes of urologic chronic pelvic pain syndromes. The center will collaborate in the Multi-Disciplinary Approach to the Study of Chronic Pelvic Pain (MAPP) Research Network. The goal of the center is to conduct multidisciplinary, multi-site, basic, translation, and clinical research on urologic chronic pelvic pain syndromes.

Electra Enslow (PI) – Spokane Academic Library

University of Washington/National Institutes of Health

“Supporting Clinical Care: An Institute in Evidence-based Practice for Medical Librarians”

This professional development award funds Electra Enslow's attendance at a three-day intensive course that teaches medical librarians evidence-based clinical practice concepts. The goal of the course is for librarians to better be able to support and teach evidence-based practice at their institutions. The award is funded by the National Network of Libraries of Medicine, Pacific Northwest Region.

Ben Liu (PI) – Elson S. Floyd College of Medicine

WSU Office of Research

“Use Single-Cell RNA Sequencing to Study Neural-Immune Communication in *C. elegans*”

This is a new faculty seed grant for a project aimed at broadening our knowledge of the interaction between the nervous system and the immune system. In an earlier discovery, Liu and co-investigators found that ASH and ASI sensory neurons reduce the immune response to infection in a roundworm known as *Caenorhabditis elegans*. However, the underlying mechanism is unclear. Liu will use single-cell RNA sequencing to identify differentially expressed genes in ASH and ASI neurons during infection and determine the roles of these genes in the regulation of immune responses.

Kimberly McKeirnan (PI) – College of Pharmacy

National Association of Chain Drug Stores

“NACDS Faculty Scholars Program”

In Washington State, pharmacists can get the authority to identify and prescribe treatment for minor ailments and conditions by working with a physician to create Collaborative Drug Therapy Agreements (CDTA). This makes care for these types of conditions more accessible to patients, especially in rural settings. This grant funds a study aimed at getting the opinions of pharmacists, physicians, and pharmacy patients on pharmacists who have this prescriptive authority. This could lead to a streamlined development and implementation process of CDAs in the future.

Sterling McPherson (PI) – Elson S. Floyd College of Medicine

Providence Medical Research Center

“Staff Assignment Providence – McPherson”

This is a staff assignment contract for Sterling McPherson to serve as Providence Medical Research Center’s associate director of analytics and discovery at 50 percent time.

Lindsey Miller (PI) – Program in Nutrition and Exercise Physiology

Bergstrom Nutrition

“Methylsulfonylmethane mediated protection against cardiac fibrosis”

This grant funds a study that looks at a compound known as methylsulfonylmethane (MSM) as a way of preventing cardiac fibrosis and subsequent heart failure. Stressors such as hypertension and high blood sugar can cause chronic inflammation and oxidative stress that may lead to cardiac fibrosis. MSM has been shown to have antioxidant and anti-inflammatory effects in non-cardiac cells. The goal of this study is to use a cell culture model of cardiac pathology to determine whether MSM decreases inflammation, oxidative stress, and cardiac fibrosis.

Lonnie Nelson (PI); Dedra Buchwald – College of Nursing/Elson S. Floyd College of Medicine/Community Health

University of New Mexico/National Institutes of Health

“Rhythm and Timing Exercises for Cerebrovascular Disease in American Indians”

This project involves a study to determine whether culturally adapted interactive metronome therapy can improve cognitive function among older American Indians with cerebrovascular disease. Interactive metronome is a form of behavioral therapy that attempts to improve cognitive functioning through mass-practice of simple, repetitive millisecond timing motor tasks—such as clapping hands or tapping feet—in time with a set beat. Through visual and auditory feedback, interactive metronome addresses processing speed, attention, and immediate and delayed memory, all of which can be affected by cerebrovascular disease.

Lonnie Nelson (PI); Dedra Buchwald – College of Nursing/Elson S. Floyd College of Medicine/Community Health

National Institutes of Health

“Caring Texts: A Strength-based, Suicide Prevention Trial in 4 Native Communities”

This is a transfer of funding from the PI’s previous institution for a study of the effectiveness of the Caring Contacts approach as a way of reducing suicidal ideation, suicide attempts, and suicide-related hospitalizations among Native American young adults. A recent study has found that suicide rates for Native American young adults in the Northern Plains and Alaska are much higher than those for white Americans in the same regions. The Caring Contacts approach uses text messages expressing care, concern, and interest to supplement standard suicide prevention. In a randomized, controlled trial, this study will compare the use of the Caring Contacts approach as a supplement to usual suicide prevention care versus usual care only in at-risk Native American young adults.

Lonnie Nelson (PI) – College of Nursing/Community Health

National Institutes of Health

“Oral Health Equity in Alaska (OHEAL): Implementation and Evaluation of Delivery System Changes to Reduce Oral Health Disparities for Native American Children”

This grant funds a study aimed at designing, implementing, and evaluating a series of dental care delivery system changes to eliminate racial disparities in pediatric oral health in Alaska. American Indian and Alaska Native children are particularly affected by disparities in oral health, with rates of caries that are double that in white children and untreated caries rates that are two to three times higher. Geographical isolation, dentist shortages, and community mistrust of health care systems exacerbate the inequity. This study will use community-based participatory research to arrive at a culturally competent, population-, risk- and evidence-based dental care delivery system.

Jonathan Potter (PI) – Spokane Academic Library
University of Washington/National Institutes of Health

“Be Boundless: Regional Medical Library NN/LM PNR (region 6)”

This grant provides funds for the WSU Spokane Academic Library to partner with the Regional Medical Library to further the goals of the National Network of Libraries of Medicine to advance the progress of medicine and improve public health. It helps to establish the library as an outreach library in Washington for the Pacific Northwest Region of the National Network of Libraries of Medicine, helping to strengthen health care and advancing the health, safety, and well-being of the American people by improving access to health and biomedical information in Washington.

Jingru Sun (PI) – Elson S. Floyd College of Medicine
National Institutes of Health

“Neural Regulation of Innate Immunity to Pathogen Infection in *C. elegans*”

This is a grant that funds a project aimed at getting a better understanding on how the nervous system and the immune system interact. Recent studies indicate that the nervous system plays a critical role in the regulation of immune responses, but the precise mechanisms remain unclear. In previous studies that have used the nematode (roundworm) *Caenorhabditis elegans*, the researcher has found a gene known as OCTR-1 that functions in two sensory neurons, ASH and ASI, to suppress innate immunity by inhibiting immune signaling pathways. This new study will attempt to uncover molecules and cells involved in the activation and mediation of the signaling process between OCTR-1 and the ASH and ASI neurons. This research may contribute to the future development of more effective treatments for innate immune disorders, such as chronic inflammatory diseases and autoimmune diseases.

Hans Van Dongen (PI); Paul Whitney; John Hinson; Matt Layton ; Kimberly Honn – Elson S. Floyd College of Medicine/College of Arts and Sciences

Congressionally Directed Medical Research Program/U.S. Department of Defense

“Sleep Deprivation Effects on Cognitive Flexibility in Dynamic Decision Making Environments”

This grant funds a three-year project to develop and test a new cognitive flexibility training to combat the effects of sleep loss on decision-making under rapidly changing circumstances. The research has the potential to reduce decision-making error that may lead to failed military missions, industrial accidents, workplace injuries, financial losses and other serious consequences. It will benefit anyone working in fast-moving circumstances involving high stakes, such as military members, emergency responders, politicians, and politicians.

Hans Van Dongen (PI) – Elson S. Floyd College of Medicine
Institute for Behavior Resources

“Institutes for Behavior Resources SOW # 1 & 2”

This contract provides funding for the Sleep and Performance Research Center to provide mathematical modeling expertise related to fatigue prediction to the Institutes for Behavior Resources, an independent nonprofit research institute located in Baltimore, Md. The institute’s activities focus on operational fatigue and performance, among other fields of research interest.

Linda Ward (PI) – College of Nursing
National League of Nursing

“Implementation of a Cyberhub to Support Genomic Nursing Education”

This project provides funding to implement a cyberhub to create a community of practice to support nursing education research and collaboration. The project will involve migrating a standardized test of genomic literacy for nurses to a dedicated Web site, or cyberhub, and recruiting faculty to assign the test as a classroom assignment. Data will be collected, and study findings will inform the development of educational resources to be shared via the cyberhub. The study will reveal how nursing programs are implementing genomic education; measure genomic literacy in a large, diverse sample of nursing students; generate data to contribute to the validation of a standardized tool to measure genomic literacy among nurses; and test the feasibility of a cyberhub to streamline multisite research and support nursing education.

AWARDS FOR ONGOING WORK

(Renewal, continued, and supplemental funding for projects awarded previously)

Lori Brown (PI) – College of Nursing

US Department of Human and Health Services – Health Resources and Services Administration, Bureau of Health Professions

“Washington State University Nurse Faculty Loan Program 2016”

This is renewal funding for a federal loan program that helps the WSU College of Nursing prepare graduate nurses for careers as nurse educators. The funds support the WSU College of Nursing’s Nurse Faculty Loan Program, which helps meet the financial needs of graduate nurse educator students for tuition, fees, and books.

Dedra Buchwald (PI); Ka’imi Sinclair – Elson S. Floyd College of Medicine/College of Nursing/Community Health National Institutes of Health

“Culturally Adapted Strategies to Enhance Kidney Donation in Native Communities”

This is continued funding for a grant that funds a project to conduct a multi-level intervention to increase kidney donation among American Indians at three rural sites in Washington and Montana. American Indians are 3.5 times more likely than white Americans to have treated end-stage renal disease and the mean age of onset is 6 years younger. This study follows up on an earlier study done by the investigators to understand beliefs about and barriers to kidney donation among American Indians, which revealed that they are willing to donate organs to family members and other Native recipients. This project will seek to increase both deceased donation and living donor kidney transplants, as well as improve the completion of transplantation evaluations and survey dialysis patients in the Northwest Renal Network to increase the knowledge of kidney donation and transplantation in American Indians.

Patricia Butterfield (PI); Janessa Graves; Julie Postma; Lois James – College of Nursing

Oregon Health and Sciences University/National Institute for Occupational Safety and Health

“Nursing Students’ 1st Entree into Clinical Rotations: Initial Behaviors Addressing Shift Work, Sleep, and Safe Practice”

This is supplemental grant funding from the Oregon Healthy Workforce Center at Oregon Health and Sciences University under its Total Worker Health research program, which is supported by the National Institute for Occupational Safety and Health. It helps to fund a study aimed at describing students’ sleep patterns and perceptions of safe practice during their first semester of evening clinical rotations. Practicing nurses are known to report a number of sleep-associated problems—such as difficulty sleeping and excessive sleepiness—which can increase the likelihood of patient medication errors, needle-stick injuries, and other health and safety issues. Understanding student nurses’ initial behavior patterns in response to shift work can yield insights into opportunities for occupational interventions, both at the university and hospital level.

Glen Duncan (PI) – Elson S. Floyd College of Medicine/Program in Nutrition & Exercise Physiology University of Washington/National Institutes of Health

“Validation and Application of Portable Particulate Device in the UW Twin Registry”

This is renewal funding for a two-part study to assess the associations between environmental exposures and health outcomes, using a new wearable device for measuring environmental toxicants called the Portable University of Washington Particle Monitor (PUWPM). The study will use pairs of adult twins from the community-based UW Twin Registry to explore the associations between exposures to air pollution, noise, and other environmental factors; physical activity, diet, psychosocial stress, and clinical outcomes such as blood pressure, height, weight, and waist circumference; and biological markers related to inflammation and stress. It may ultimately lead to new insights linking environmental, behavioral, and genetic aspects of chronic disease.

Zachary Hamilton (PI)– College of Arts & Sciences, Dept. of Criminal Justice & Criminology

Spokane County Superior Court/US Department of Health and Human Services, Substance Abuse and Mental Health Services Administration

“Improved Outcomes for Spokane County Drug Court”

This is renewal funding for a three-year project to help Spokane County expand and enhance treatment in its Behavioral Health Adult Felony Therapeutic Drug Court. Drug courts address the need for substance abuse treatment and other recovery support services for chemically dependent defendants who are charged with a felony drug-related offense and are considered to be at high risk of failing in less intensive rehabilitation programs. Programs like these have been shown to increase public safety, reduce recidivism, and save public dollars. This project will provide treatment for 80 additional high-risk, high-needs participants, as well as trauma-informed care training for judicial officers and service providers involved in the Spokane County Drug Court.

**Zachary Hamilton (PI); Amelie Pedneault – College of Arts & Sciences, Dept. of Criminal Justice & Criminology
WA State Office of Financial Management**

“Washington State Sex Offender Contact Standards”

This is renewal funding for a project to review the social science, criminal justice, and public policy research regarding risk assessments for sex and kidnapping offenders who are in the community, as well as the methods used for community notification risk level classification. The PI will also review the research related to the reassessment of an offender’s risk level after some period of time in the community and the existing reassessment protocols of Washington’s Cowlitz, Island, Lewis, Skagit, Snohomish, Spokane, Thurston, and Yakima counties.

James Krueger (PI); Ping Taishi – Elson S. Floyd College of Medicine

National Institutes of Health

“Molecular Mechanisms of Sleep Responses to Viral Infection”

This is continued funding for a project that looks at the effects of influenza on sleep. Influenza has been shown to cause an increase in the duration of non-rapid eye movement sleep (NREMS). The molecular and brain anatomical pathways for this response remain under investigation. This study looks at the potential involvement of the olfactory bulb, the part of the brain that transmits smell information from the nose to the brain.

James Krueger (PI); Ping Taishi – Elson S. Floyd College of Medicine

National Institutes of Health

“Interleukin-1: A promoter of slow wave sleep”

This concerns a five-year competitive renewal of NIH funding for a project to expand the scientific knowledge of interleukin-1 β (IL1), a protein involved in the regulation of sleep that also plays a key role in brain plasticity and repair processes. This study will attempt to elucidate IL1 sleep signaling mechanisms, including the potential role of the neuron-specific IL1 receptor accessory protein (AcPb) in physiological sleep.

Philip Lazarus (PI) - College of Pharmacy

National Institutes of Health

“Role of Pharmacogenetics on Exemestane Metabolism and Toxicity”

This is continued funding for a study that looks at the drug Exemestane (EXE), which has been used as an equally or more effective and less toxic alternative to Tamoxifen in breast cancer patients. As part of the project, the researcher will explore the potential cause for inter-individual variability in the response to EXE by determining the mechanisms used to metabolize the drug.

Philip Lazarus (PI); Ana Vergara – College of Pharmacy

National Institutes of Health

“The UGT2A and 3A metabolizing enzymes and tobacco-related cancer risk”

This is continued funding for a research study to determine whether two enzymes known as UDP-glycosyltransferase (UGT) 2A and 3A could be used to predict tobacco users’ level of risk for lung, head, and neck cancers. UGT enzymes help detoxify many carcinogens abundant in tobacco and/or tobacco smoke. This study will help scientists better understand its role in the development of tobacco-related cancers and help them identify subjects for targeted prevention strategies.

**Sterling McPherson (PI); John Roll; Celestina Barbosa-Leiker – Elson S. Floyd College of Medicine/ College of Nursing
University of Washington/National Institutes of Health**

“Clinical Trial Network: Pacific Northwest Node”

This grant provides renewal funding for the Pacific Northwest Node of the NIDA Clinical Trials Network (CTN). It supports a multi-institution, multiple principal investigator effort to continue CTN’s mission to improve the quality of drug abuse treatment throughout the country through science.

Jean-Baptiste Roulet (PI) – College of Pharmacy

University of Nebraska/ National Institutes of Health

“Sterol and Isoprenoid Disease Consortium”

This is supplemental funding for a subcontract for a pilot project of the Sterol and Isoprenoid Diseases (STAIR) consortium, a collaborative group of investigators dedicated to clinical research on disorders related to the metabolism of cholesterol and other sterols and isoprenoids. This project evaluates cell surface biomarkers in patients with Hyper IgD syndrome (HIDS), a periodic fever syndrome resulting from a defect in the cholesterol pathway known as mevalonate kinase deficiency. A mouse model of this disorder developed at WSU has shown immunity abnormalities that could explain the periodic fever and elevation of IgD.

Ka'imi Sinclair (PI) – College of Nursing/Community Health

Confederated Tribes of the Colville Reservation

“A Culturally Tailored Intervention to Prevent Diabetes in American Indian Men”

These are continued grant funds for a mixed methods study to adapt and test an evidence-based diabetes intervention for high-risk reservation-based American Indian men. The study will have an important public health impact by helping to identify variables involved in the initiation of weight reduction and promoting healthy behavior in a hard-to-reach population.

Ka'imi Sinclair (PI) – College of Nursing/Community Health

University of Hawaii/National Institutes of Health

“The Kā-HOLO Project: Preventing Cardiovascular Disease in Native Hawaiians”

This is renewal subcontract funding for a study of 250 Native Hawaiians with hypertension living in Hawai'i and Washington State. The study will compare the systolic and diastolic blood pressure and risk for cardiovascular disease and stroke of a study group that has received a 6-month physical activity intervention called the Kā-HOLO Program with those of a wait-listed control group. The prevalence of hypertension is 70 percent higher in Native Hawaiians than in white Americans. Hypertension is also a well-known major risk factor for coronary heart disease and stroke, which occur in Native Hawaiians at a rate three to four times of that in white Americans and manifest at younger ages in Native Hawaiians. The Kā-HOLO Program comprises hula—a traditional dance and hallmark of Native Hawaiian culture—plus a brief hypertension self-care education program. The study builds on earlier pilot study that found that 60 minutes of hula two days a week reduced systolic blood pressure in Native Hawaiians with confirmed hypertension.

Bryan Vila (PI); Lois James; Stephen James – Dept. of Criminal Justice and Criminology; College of Nursing; Sleep and Performance Research Center

U.S. Department of Defense, Office of Naval Research

“Analyzing Novel Experimental Research Data to Better Understand and Manage Fatigue Across the Range of Military Operations”

These are incremental funds for additional analysis of data from a set of previously completed experiments funded by the Office of Naval Research. The analysis will test 10 new hypotheses that may lead to the identification and development of new ways to manage fatigue and understand its impact on warfighters' safety and health, interactions with civilians, and driving.

Zhenjia Wang (PI) – College of Pharmacy

National Institutes of Health

“Caveolar Transport of Therapeutic Nanoparticles”

These are continued grant funds for a study that will increase the scientific understanding of therapeutic nanoparticles and how they are transported across blood vessel walls to an infection site. This study looks at the potential for targeting nanoparticles to caveolae—small invaginations of the plasma membrane in endothelial cells, which line the vessels. It will examine to what extent and how caveolae could transport therapeutic nanoparticles and whether nanoparticle size makes any difference in the effectiveness of this process.