

Innovative Training Experiences for Occupational Medicine Residents in Non-Urban and Agricultural Settings

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List of Terms and Abbreviations

ACGME	Accreditation Council for Graduate Medical Education
ACOEM	American College of Occupational and Environmental Medicine
AOEC	Association of Occupational and Environmental Clinics
AOHC	American Occupational Health Conference
DSHS	Texas Department of State Health Services
EOC	Emergency Operations Center
FQHCs	Federally Qualified Health Centers
GME	Graduate Medical Education
MHA	Master of Health Administration
MPH	Master of Public Health
MS	Master of Science
NCFH	National Center for Farmworker Health
NIOSH	National Institute for Occupational Safety and Health
OEHS	Occupational and Environmental Health Sciences
OEM	Occupational and Environmental Medicine
OHC	Occupational Health Clinic
OMR	Occupational Medicine Residency
SACSCOC	Southern Association of Colleges and Schools Commission on Colleges
SCRH	School of Community and Rural Health
SWAG	Southwest Center for Agricultural Health, Injury Prevention and Education
TIOSH	Texas Institute if Occupational Health and Safety
TPG	Training Project Grant
TX COEM	Texas College of Occupational and Environmental Medicine
UT	University of Texas
UTHSCT	University of Texas Health Science Center at Tyler
WOHC	Western Occupational Health Conference

Abstract

Non-urban populations are given little attention in many aspects of medical practice. Rural communities often lack the infrastructure for developing and sustaining a preventive approach to occupational disease and injury, particularly for specific work sectors such as agriculture, where the hired and/or migrant workforce may constitute the majority. Northeast Texas, home to about 1.5 million people spanning 35 counties, is considered the largest rurally distributed population in the state and is also one of the unhealthiest. There is a considerable need to train medical students and graduates in general, and occupational medicine residents in particular, to be competent in knowledge and skills pertaining to rural and migrant populations, who have special cultural needs and considerations.

As the region's only university medical center, the University of Texas Health Science Center at Tyler (UTHSCT) is home to some of the latest developments in patient care and community health, medical and health education, and biomedical and clinical research. There is a physician shortage in rural counties throughout Northeast Texas, and UTHSCT has the responsibility of training the future generation of physicians. The Occupational Medicine Residency Program at Tyler (OMR) is one of seven ACGME-accredited graduate medical education (GME) programs sponsored by the institution. The overall objective and mission of the program is; 'to increase the number of occupational medicine physicians who have adequate experience and sufficient competence to enter the practice without direct supervision, while adding a special focus on training in the occupational health needs of the rural workforce, to help serve the population of Northeast Texas and beyond'. This is in alignment with the overall mission of the institution.

Specific aims of the program are to: 1. Increase the number of board certified occupational medicine graduates able to engage in evidence based and independent practice in various settings including the proportion remaining in Texas and rural areas, 2. Enhance a robust residency experience in rural / agricultural occupational health, safety, protection and promotion.

There remains a recognized **burden** of occupational injury and illness in general and in agriculture specifically. This training project addresses a critical gap in Occupational Medicine Residency (OMR) trained physician workforce **needs** (core discipline). The program integrates agricultural safety and health by implementing a multi-faceted training approach that relies upon an inter-professional educational team effort, while also leveraging the strengths of the NIOSH-supported Southwest Center for Agricultural Health, Injury Prevention and Education to achieve a significant **impact** on continued workforce expansion.

Significant Results / Impact

The specific aims of the current cycle have been achieved as demonstrated by the many outputs outlined below. The training and educational opportunities made possible by this Grant helped sustain the number of occupational medicine graduates while providing an additional focus in training in the medical care of special vulnerable populations (rural/agricultural). This kind of training is valuable to several graduates who have gone to practice in locations serving these workers. This initiative began even before the TPG was first awarded in 2007. The UTHSCT OMR was initially accredited by ACGME in 1994, and the NIOSH Southwest Center for Agricultural Health, Injury Prevention, and Education (SW Ag Center) was established at roughly the same time. Both programs have collaborated over the years to offer training experiences for residents.

Notable strengths of this Training Program include; an outstanding faculty with extensive experience in occupational medicine; the program's innovative focus on rural workers, particularly agricultural workers; collaboration with the National Center for Farmworker Health (NCFH); enrollment of a diverse group of trainees; and innovative use of distance learning technology.

Main highlight achievements during the last 5-year cycle include: the creation of the new School of Community and Rural Health (SCRH), accredited through SACSCOC, which offers an MPH and MHA degrees. Even though the OEHS Department transitioned to be one of the School's four departments, it maintains a strong presence in the hospital and the clinical enterprise, largely through the OHC (Occupational and Employee Health Clinic), an AOEC member. The inaugural class of MPH students included OM residents Dr. Marco Britton and Dr. Paul Scanlan, who graduated the program in June 2019. Other highlighted achievements include a Board pass rate of 100% during the last 5 years, continued annual accreditation by ACGME, and an increase of our complement from four to six residents.

Other features include increase of the core faculty. Clinical core faculty are now six (all board certified in OEM). Non-clinical faculty are three, and with the new ACGME requirement changes, they are now considered as core faculty.

The program graduates 2 residents each year, with a total of 10 graduates in this cycle. Considerable efforts are made to recruit from minority and diverse populations. Graduates are employed in a wide variety of work settings including, but not limited to, corporate settings, academic and university settings, governmental agencies, and clinical and urgent care practices (see Tables 1 and 2). In a survey administered to the program's alumni in the self-study process; 70-80% of the alumni rated the program 'excellent' in most of the questions, including training in professionalism and providing care to diverse patient populations.

During the course of their training, the residents presented their work at national and regional conferences, received various awards for their presentations, participated in volunteer community activities and training, and stepped up lately during the COVID-19 Pandemic helping the Institution and the surrounding community response to the Pandemic.

Some Highlighted Presentations at Regional and National Conferences:

- Dr. **Burris** presented his resident research project, "Is There a Difference in Well-Being Between Healthcare Personnel in Small Psychiatric Wards and Small Medical/Surgical Wards?" at the annual TxCOEM Conference, April 30, 2016 in Dallas, Texas. Dr. **Harris** presented his research, "Case Series: Readily Observable Signs of Impending Heat Stroke" at the same Conference.
- Dr. **Burris** presented a poster titled "Is There a Difference in Well-Being Between Healthcare Personnel in Small Psychiatric Wards and Small Medical/Surgical Wards?" and Dr. **Harris** presented a poster titled "Case Series: Readily Observable Signs of Impending Heat Stroke" at the 2016 AOHC held in Chicago, Illinois, April 10-13, 2016.
- Dr. **Furo** presented her research, "Toxic metal exposures in Occupational / Environmental Medicine" as a poster at AOHC in April 2017 and as an oral presentation at UTHSCT Grand Rounds in June 2017.

- Dr. **Khademi** presented her project; “Assessment of Sun-Safety Behaviors and Knowledge in the Farmworker Population of South Texas” as a poster at the AOHC in Denver, CO, April 2017 and through an oral presentation at the TxCOEM Annual Conference in Houston, TX same year.
- Dr. **Winter** presented her research; “Trends in Immunity to Vaccine Preventable Diseases (in a population of hospital employees with an active employee health service) at the TxCOEM Conference and the UTHSCT Residents’ Quality Improvement Research Day in May 2018.
- Dr. **Meek** presented his research project; “Public Health through mobile gaming” as a poster at the AOHC in April 2018, and as an oral presentation at the TxCOEM Conference in San Antonio, and at our institution’s Residents’ Quality Improvement Research Day, both in May 2018.
- Dr. **Britton** presented his research; “Association of Obesity & D.O.T. Certification Reduction: Risk stratification based on BMI” at the TxCOEM Conference and the UTHSCT Residents’ Quality Improvement Research Day in May 2019, winning a second-place award. He also presented a poster for this research at the AOHC in Anaheim, CA in April 2019.
- Dr. **Scanlan** presented his research (oral presentation); “Examining Ear Protection Fit Tests and Audiograms Among Workers Enrolled in an Employer Hearing Conservation Program” at the TxCOEM Conference in May 2019.
- Dr. **Zaman** presented a proposal of his project in a poster at the Western Occupational Health Conference (WOHC) in San Diego in September 2019. The title was; ‘Educational Module on Prevention of Fentanyl Exposure in Emergency Medical Services Workers in the UT Health East Texas System’.
- Dr. **Wirsching** presented his research project; “Improvement of Current Medical Surveillance of Coumaphos Exposure in TAHC in Fever Tick Eradicators in TxCOEM, Tyler, June 2020. Dr. **Zaman** presented his research; “Development and Implementation of a Production Line to Retrofit Expired Stock N95 Respirators” in the same Conference.
- Dr. **Lowry** (faculty) presented the poster; “The case scenario comprehensive oral exam” at the University of Texas System Kenneth I. Shine, M.D., Academy of Health Science Education Annual Meeting in February 2020. This was a synopsis of the case scenarios oral exam that the residents used to have for the MS Degree at Stephen. F Austin State University.
- Dr. **Nessim** (TPG PI) presented the innovative educational approach that’s made possible by the TPG in the University of Texas System Kenneth I. Shine, M.D., Academy of Health Science Education Annual Meeting in February 2019 (Innovations in Health Science Education). The title of the presentation was: “Role of the NIOSH Training Project Grant (TPG) in adding a rural/agricultural dimension to undergraduate and graduate medical education”.
- Drs. **Zaman**, **Khademi** and **Nessim** had an accepted abstract; “Development and Assessment of a Computer-Based Training Module to educate first responders on Fentanyl Exposure Prevention. for presentation at the International Conference on Occupational Health and Safety, Miami, Fl, in March 2020. Unfortunately. the Conference was cancelled due to the Pandemic.
- Drs. **Wirsching**, **Nessim** and **Rowlett** had an accepted abstract; “Surveillance of Organophosphate Pesticide Workers; Lessons Learned from “Tick Eradicators” in Texas” for presentation at the Texas Public Health Association Annual Education Conference, Irving, TX, in March 2020. Unfortunately. the Conference was cancelled due to the Pandemic.

Resident Publications:

- **Nessim, D, Khademi, S, Ball, C, Moore, K:** One residency program’s response to the COVID-19 Pandemic and educational experiences gained. In press; *Texas Public Health Journal, Fall Issue, 2020.*

- **Zaman A**, Ball C, Levin J. The development of a reactive airways dysfunction syndrome (RADS)-like disorder following a second exposure to concentrated paint or paint thinner fumes. Abstract accepted for CHEST 2020 meeting (acceptance notice June 30, 2020).
- Levin J, **Curry W**, Shepherd S, Nalbhone J, Nonnenmann M. Hearing loss and noise exposure among commercial fishermen in the gulf coast. *Journal of Occupational and Environmental Medicine*. 58(3): 306-313, 2016. PubMed PMID: 26949882. (**William Curry**, M.D., M.S. was a TPG resident who graduated in 2014.)
- Levin J, **Rouk A**, Shepherd S, Hurst G, McLarty, J. Tyler asbestos workers: A mortality update in a cohort exposed to amosite. *Journal of Toxicology and Environmental Health, Part B Critical Reviews*. 19(5-6): 190-200. Published online: October 5, 2016. PubMed PMID: 27705550. (**Alina Rouk**, M.D., M.S. was a TPG resident who graduated in 2015.)

Other Related Faculty Publications:

- **Casanova, V.** and Hamilton, J. 2019. Non-Timber Forest Products in the Southeastern United States: Implications for Worker Safety and Health. *The Journal of Agromedicine*, Volume 24:2.
- Berumen-Flucker, B., Rodriguez, A., Cienega, L., **Casanova, V.**, Pompeii, L., Gimeno, D., Douphrate, D. 2019. Evaluation of Safety Management and Leadership Training Using Mobile Technologies among Logging Supervisors. *The Journal of Agromedicine*, Volume 24:2.
- Rodriguez, A., **Casanova, V.**, **Levin, J.**, Gimeno, D., Douphrate, D. 2019. Work-related Musculoskeletal Symptoms among Loggers in the Ark-La-Tex Region. *The Journal of Agromedicine*, Volume 24:2.
- **Levin J**, Philips Jr. B. Improving health in hard-to-reach communities. *Texas Medicine*. 114(2):28-32, 2018. PubMed PMID: 29393963.
- **Casanova V**, Vance N, Wickman A, **Levin J**. Response of the Southwest Center for Agricultural Health, Injury Prevention, and Education to Hurricane Harvey. *Texas Public Health Journal*. 70(1):6-7, Winter 2018.
- Wickman A, **Levin J**. Healthier Texas communities through agricultural medicine training. *Texas Public Health Journal*. 69(2):7, Spring 2017.

Community Education and Outreach:

- Dr. **Meek** collaborated with the Fort Bend County Health Department to design an educational game app for elementary school children about mosquito-borne illnesses and methods of their prevention. The game app is called "Mosquito Mayhem".
- Dr. **Zaman** led the program; **Hard Hats for Little Heads**, a competitive grant from the Texas Medical Association (TMA). This is an annual bicycle safety program that provides bicycle safety training and donates thousands of bicycle helmets to underprivileged children in Texas. He worked with institutional outreach administration to identify a nearby community to UTHSCT and landed on the small town of Winona, TX, less than five miles from the UTHCT campus. In October 2019, 25 deserving students from Winona schools received bicycle helmets, a brand-new bicycle, and education on bike safety at a program held on the UTHCT campus during a Winona ISD board meeting.
- Dr. **Rohani** led the effort in developing a video that explained the difference between masks and respirators and demonstrated proper donning and doffing.

- The residents participated in the department's efforts to help businesses safely re-open during the COVID-19 Pandemic. They participated in a dental clinic (for low-income families) walk through and made recommendations for environmental safety measures. They also participated in respirator fit testing for the clinic employees.

Honors and Awards – Residents:

- Dr. **Furo** was awarded an ACOEM resident's scholarship to participate in the AOHC, Chicago, 2016.
- Dr. **Khademi** was awarded a feasibility study through the SW AG Center to complete her research on Assessment of Sun-Safety Behaviors and Knowledge of Sun Protection and Skin Cancer in the Farmworker Population of South Texas. This was presented at our institution's Annual Research / Quality Improvement Day in 2017 where she won third place.
- Dr. **Britton** was awarded second place for his oral presentation at our institution's Annual Research / Quality Improvement Day in 2019.
- Dr. **Zaman** was awarded a WOEMA scholarship to participate in the WOHC, San Diego, CA, September 2019.
- Dr. **Zaman** was awarded first place for his presentation at our institution's Annual Research / Quality Improvement Day in 2020.
- Dr. **Zaman** was selected as a resident representative in the ACGME Milestones 2.0 Working Group for Occupational Medicine milestones development and supplemental guide.
- Dr. **Zaman** was nominated for the AAMC ORR Community Service Recognition Award for 2020 due to his great community work in retrofitting and distributing N95 respirators during the pandemic.

Honors and Awards – Faculty: (examples, and not an all inclusive list)

- Dr. **Levin** was awarded the UT System Regents' Outstanding Teaching Award, 2016, the TxCOEM Marcus Key Award, 2018, the W.T. "Doc" Ballard Award, NET Health, 2018 and 2020, the ISASH Research Achievement Award, International Society for Agricultural Safety and Health (ISASH), 2019, and was a Distinguished Alumni Award Recipient, Austin College, Austin, TX, 2019.
- Dr. **Rowlett** received the TxCOEM Marcus Key Award, 2016, and the TIOSH® Award of Excellence, 2017.
- Dr. **Lowry** received the TIOSH® Award of Excellence, 2015, and the UT System Regents' Outstanding Teaching Award, 2017.
- Dr. **Casanova** was awarded the Student Senate, Outstanding MPH Faculty Award, 2019, and the UT System Regents' Outstanding Teaching Award, 2019.

The OEM Residents' Participation in the COVID-19 Pandemic Response:

As the current pandemic evolved from a cluster of pneumonia cases in Wuhan, China last year, to a WHO declared pandemic in March 2020, almost every aspect of life has been impacted. This residency training program is no different, and while initially, the resident's education and training seemed disrupted due to cancelled rotations, cancelled conferences and widespread lock-downs, their participation in the UTHSCT and the region's response to the pandemic provided unique learning opportunities from theory to practice. Below are some of the highlighted activities in this regard.

- Dr. Zaman led a team of volunteers to retrofit a stockpile of expired N95 respirators according to the U.S. Food and Drug Administration (FDA) emergency use authorization (EUA). They developed an innovative process where defective elastic bands were replaced with commonly available materials after trialing multiple products. In just under two months, they produced approximately 80,000 retrofitted N95

respirators. Fit testing a random sample of each production batch resulted in a 100 percent pass rate. Multiple deliveries were made to local first responders, as well as to regional institutions and healthcare workers, including the Northeast Texas Public Health District (NET Health) and a local low-income children's dental clinic. Upon request, the protocols and experiences were shared with an out-of-state hospital association which had the same brand of expired stockpile.

- When travel restrictions were implemented in early March 2020, the OHC became overwhelmed with phone calls from employees with travel questions. This expanded to return-to-work questions for illness and COVID-related exposures. Employees who had undergone COVID-19 testing contacted the clinic for guidance. Standardized protocols and algorithms had to be developed to effectively manage the sudden influx of calls. Dr. Nguyen (who has a strong computer science background), with the help of the OHC medical director, developed these processes, which eventually led to the creation of electronic surveys to reduce the number of calls. Over time, these surveys were automated to further reduce the time spent contacting employees and making determinations.
- The OEM residents participated in the region's Emergency Operations Center (EOC) calls with the Local County Health Authority and local government representatives and elected officials. As part of their collaboration with the Texas Department of State Health Services (DSHS), they were also involved in the investigation of work site outbreaks and contact tracing.
- The residents also worked together in developing guidance materials. Dr. Rohani led the effort in developing a video that explained the difference between masks and respirators and demonstrated proper donning and doffing.
- As the stay at home orders expired in the region, the residents participated in worksite walkthroughs to assess risk, and offer recommendations for workplace safe reopening.

Appendix – Trainee’s detailed activities and achievements in each year of the cycle

The following resident activities were accomplished during Year 1 of this cycle (07/01/15– 06/30/16):

- Two resident graduates: Drs. **Burris** and **Harris**. Both received their MS degree in Environmental Science from Stephen F. Austin University in May of 2016.
- Drs. **Khademi** and **Furo** attended Diversity Training/Orientation at NCFH in Buda, TX, May 17-18, 2016.
- Drs. **Burris**, **Harris**, **Khademi**, and **Furo** attended part two of an agricultural medicine training provided by the SW Ag Center in October 2015. This training was partially funded by the Training Project Grant.
- Dr. **Khademi** participated in part two of an agricultural medicine training by presenting a lecture titled “Occupational Skin Diseases in Agriculture” during the October 2015 training.
- Drs. **Khademi** and **Furo** rotated in NCFH and the Nuestra Clinica del Valle in Hidalgo and Starr Counties in the Rio Grande Valley, Texas.
- Drs. **Burris**, **Harris**, **Khademi**, and **Furo** participated in the following worksite field experiences/walk-throughs: US Coast Guard (Galveston, TX), UT Health Northeast power plant (Tyler, TX), 7 P Cattle Ranch (Tyler, TX), Brookshire’s Grocery Company Dairy, Grocery Warehouse and Distribution Center (Tyler, TX), Ingersoll Rand-Trane (Tyler, TX), and North East Texas Public Health District (Tyler, TX).
- Dr. **Burris** presented his resident research project, “Is There a Difference in Well-Being Between Healthcare Personnel in Small Psychiatric Wards and Small Medical/Surgical Wards?” at the annual Texas College of Occupational and Environmental Medicine (TxCOEM) conference on April 30, 2016 in Dallas, Texas. Dr. **Harris** presented his research, “Case Series: Readily Observable Signs of Impending Heat Stroke.”
- Dr. **Burris** presented a poster titled “Is There a Difference in Well-Being Between Healthcare Personnel in Small Psychiatric Wards and Small Medical/Surgical Wards?” and Dr. **Harris** presented a poster titled “Case Series: Readily Observable Signs of Impending Heat Stroke” at the 2016 American Occupational Health Conference (AOHC) held in Chicago, Illinois, April 10-13, 2016.
- Dr. **Burris** and Dr. **Harris** participated in the 2016 UTHSCT Residents’ Quality Improvement Research Day, May 20, 2016, conducted by the Graduate Medical Education department. The forum provides a platform for all UTHSCT post-graduate trainees to present their research to faculty and peers. Awards were given to the top three presentations.
- Dr. **Khademi** was approved for a feasibility study (funded by the SW Ag Center), an “Assessment of Sun-Safety Behaviors and Knowledge in the Farmworker Population of South Texas”. The project proposed to assess the farmworker population in the Rio Grande Valley with respect to their ideas about sun safety, sun-protective behaviors, and their use of protective clothing/personal protective equipment.

The following resident activities were accomplished during Year 2 of this cycle (07/01/16– 06/30/17):

- Two resident graduates: Drs. **Furo** and **Khademi**. Both received their MS degree in Environmental Science in May of 2017 from Stephen F. Austin University.
- Drs. **Furo**, **Khademi**, **Meek**, and **Winter** attended sessions for an agricultural medicine training provided by the SW Ag Center in November 2016 and April 2017.
- Dr. **Khademi** participated in both sessions of an agricultural medicine training by presenting a lecture titled “Special Populations in Agriculture”.
- Drs. **Furo**, **Khademi**, **Meek**, and **Winter** participated in the following worksite walkthroughs: Caldwell Zoo (Tyler, TX), US Silica Plant (Hawkins, TX), and a series of zoonosis focused walkthroughs at an animal clinic, animal shelter, and slaughterhouse (East TX Area).
- Drs. **Furo**, **Khademi**, **Meek**, and **Winter** participated in the following didactics: Occupational Lung Disorders, Dermatological Disorders and Skin Allergy, Zoonosis and Rabies, Medical Examinations and

Related Issues, Social and Ethical Issues, Travel Medicine, Musculoskeletal Disorders, Board Exam Review, and Spirometry.

- Dr. **Furo** presented her research, “Toxic metal exposures in Occupational / Environmental Medicine” as a poster at AOHC in April 2017 and as an oral presentation at UTHSCT Grand Rounds in June 2017.
- Dr. **Khademi** completed a project; “Assessment of Sun-Safety Behaviors and Knowledge in the Farmworker Population of South Texas” and presented as a poster at the AOHC in April, 2017 and through an oral presentation at the TxCOEM Annual Conference and the 2017 UTHSCT Residents’ Quality Improvement Research Day in May. Awards were given to the top three presentations and she was presented with a **third-place award** for her oral presentation. Her work with an agricultural community to identify their present knowledge base, as well as resources available to them, and potential barriers related to prevention is the type of work our program aims to achieve through this Training Project Grant.

The following resident activities were accomplished during Year 3 of this cycle (07/01/17– 06/30/18):

- Two resident graduates: Drs. **Meek** and **Winter**. Both received their MS degree in Environmental Science in May of 2018 from Stephen F. Austin University and completed their occupational medicine residency training at the University of Texas Health Science Center at Tyler in June of 2018.
- Drs. **Britton, Meek, Scanlan** and **Winter** attended sessions for an agricultural medicine training provided by the SW Ag Center in November 2017 and April 2018 in conjunction with the Rural Osteopathic Medical Education program at the University of North Texas College of Osteopathic Medicine. All 4 residents also attended an orthopedic workshop hosted by Texas Mutual Insurance Company in February 2018.
- Dr. **Britton** participated in the Spring session of an agricultural medicine training by presenting a lecture titled “Cancer in Agricultural Populations”, which was met by very positive feedback.
- Drs. **Meek** and **Winter** rotated with the UT-Rio Grande Valley Preventive Medicine Residency Program coordinated through NCFH in South Texas in July 2017, where they participated in a ‘Lifestyle Medicine’ course.
- Drs. **Britton, Meek, Scanlan** and **Winter** participated in the following worksite walkthroughs: Public Health of East Texas Lab, Trinity Industries, Brookshire’s Warehouse, Ward Timber sawmill and logging site, and Coast Guard shrimp and oyster vessels.
- Drs. **Britton, Meek, Scanlan** and **Winter** participated in the following didactics: Research methods, clinical toxicology, musculoskeletal disorders, health care economics, and neuropsychologic and behavioral issues.
- Dr. **Winter** presented her research (oral presentation) “Trends in Immunity to Vaccine Preventable Diseases (in a population of hospital employees with an active employee health service) at the TxCOEM Conference and the UTHSCT Residents’ Quality Improvement Research Day in May 2018.
- Dr. **Meek** presented his research project; “Public Health through mobile gaming” done in collaboration with the Department of Health and Human Services for Fort Bend County, where he helped design a mobile game application focusing on educating elementary school aged children on ways of preventing mosquito-borne illnesses, mainly Zika virus. His project was presented as a poster at the AOHC in April 2018, and as an oral presentation at the TxCOEM Conference in San Antonio, and at our institution’s Residents’ Quality Improvement Research Day, both in May 2018. His work with a public health agency to address a public health need, that is relevant to rural populations, is the type of work our program aims to achieve through this Training Project Grant.

The following resident activities were accomplished during Year 4 of this cycle (07/01/18– 06/30/19):

- Two resident graduates: Drs. **Britton** and **Scanlan**. Both received their MPH degree in May 2019 from UTHSCT (the MPH inaugural class) and completed their occupational medicine residency in June 2019.

- Drs. **Britton, Scanlan, Wirsching, and Zaman** attended sessions for an agricultural medicine training provided by the SW Ag Center in November 2018 and April 2019 in conjunction with the Rural Osteopathic Medical Education program at the University of North Texas College of Osteopathic Medicine. Topics covered at the November workshop included: health effects of agricultural pesticides, agricultural respiratory diseases, as well as a tour of the dairy plant and milking operations at Tarleton State University. Topics covered at the April workshop included: Agricultural skin diseases, zoonotic diseases, and behavioral health. All 4 residents also attended an orthopedic workshop hosted by Texas Mutual Insurance Company in February 2019.
- Drs. **Britton** and **Scanlan** both worked with the National Center for Farmworker Health (NCFH) in April 2018 to receive cultural and diversity training prior to their Training Project Grant/agricultural rural health rotation.
- Drs. **Britton** and **Scanlan** completed a rotation in August 2018 in the Rio Grande Valley (RGV) through a partnership with the University of Texas RGV. While at UTRGV, the residents were able to attend several didactics and walkthroughs as part of the South Texas Environmental Education and Research (STEER) Program. They were able to participate in several activities aimed at connecting medicine and public health such as visits with the Border Health Coalition, Touring Community Health Centers, and community outreach programs aimed at addressing various health concerns this region is faced with addressing. Other site visits included US Homeland Security, International Boundary and Water Commission, Environment Protection Agency, and many more. The residents also completed research projects during this rotation and gave presentations at the end on their experience.
- Drs. **Britton, Scanlan, Wirsching, and Zaman** participated in the following worksite walkthroughs: construction site on campus for the new School of Community and Rural Health, US Silica (silica mining and processing operation), Caldwell Zoo, Trane (HVAC manufacturing/assembly plant), and a series of zoonosis focused walkthroughs at an animal clinic, animal shelter, and slaughterhouse (East TX Area).
- Drs. **Britton, Scanlan, Wirsching, and Zaman** participated in the following didactics: Research methods, indoor air quality, dermatological disorders and skin allergy, spirometry, B-Reading, infectious disease, recruitment strategies, zoonosis, QI Curriculum, Occupational Health as a Specialty, Medical Exams and Related Issues, and Occupational Lung Diseases to include agricultural respiratory disease.
- Dr. **Britton** presented his research (oral presentation); “Association of Obesity & D.O.T. Certification Reduction: Risk stratification based on BMI” at the TxCOEM Conference and the UTHSCT Residents’ Quality Improvement Research Day in May 2019, winning a **second-place award**. He also presented a poster for this research at the AOHC in April 2019.
- Dr. **Scanlan** presented his research (oral presentation); “Examining Ear Protection Fit Tests and Audiograms Among Workers Enrolled in an Employer Hearing Conservation Program” at the TxCOEM Conference in May 2019.

The following resident activities were accomplished during Year 5 of this cycle (07/01/2019–06/30/2020):

- Two resident graduates: Drs. **Wirsching** and **Zaman**. Both received their MPH degree in May 2020 and completed their occupational medicine residency training in June 2020.
- Drs. **Wirsching, Zaman, Nguyen, and Rohani** attended sessions for an agricultural medicine training provided by the SW Ag Center in November 2019 and April 2019 in conjunction with the Rural Osteopathic Medical Education program at the University of North Texas College of Osteopathic Medicine. All 4 residents also attended an orthopedic workshop hosted by Texas Mutual Insurance Company in February 2020.
- Drs. **Wirsching, Zaman, Nguyen, and Rohani** worked with the NCFH in August 2019 to receive cultural and diversity training prior to their Training Project Grant/agricultural rural health rotation. The programs we have previously coordinated with in South Texas for the TPG rotation closed during the past academic year, so NCFH arranged a series of virtual experiences for our residents to see the operations of migrant and community health centers in agricultural work settings across the nation. One experience is located in

rural Colorado, where the residents had a virtual tour of a mobile health unit, saw the relationship with the growers, learned about outreach activities, and acquired knowledge about occupational health risk assessment. The second experience was in rural New York, where the residents virtually observed healthcare services in an on-site work clinic, learned about their voucher program with private providers, telehealth services, and had the opportunity to ask questions of the providers.

- Drs. **Wirsching**, **Zaman**, **Nguyen**, and **Rohani** participated in a series of walkthroughs and didactics throughout the year.
- Drs. **Wirsching** and **Rohani** participated in the second annual Health Disparities Conferences at UTHSCT in September 2019.
- Dr. **Zaman** presented a proposal of his project in a poster at the Western Occupational Health Conference (WOHC) in San Diego in September 2019. The title of his research project was; 'Educational Module on Prevention of Fentanyl Exposure in Emergency Medical Services Workers in the UT Health East Texas System'.
- Drs. **Nguyen** and **Zaman** presented their involvement in quality improvement and research projects as oral presentations at the TxCOEM Conference and the UTHSCT Residents' Quality Improvement Research Day in May 2020. Dr. **Zaman** won **first place award** for his presentation.
- Dr. **Nguyen** began working with Dr. Levin, Dr. Ball, and staff of the SW Ag Center on a new NIOSH commercial fishing two year award aimed at improving crew overboard (COB) recovery in the Gulf of Mexico through distribution of slings to commercial shrimp fishing vessel captains at three selected ports/landing sites along the Texas and Louisiana Gulf coast.
- Dr. **Zaman** was awarded the **Hard Hats for Little Heads Program**, a competitive grant from the Texas Medical Association (TMA), an annual bicycle safety program that provides bicycle safety training and donates thousands of bicycle helmets to underprivileged children in the state of Texas. He then worked with institutional outreach administration to identify a nearby community to UTHSCT and landed on the small town of Winona, TX, less than five miles from the UTHCT campus. In October 2019, 25 deserving students from Winona schools received bicycle helmets, a brand-new bicycle, and education on bike safety at a program held on the UTHCT campus during a Winona ISD board meeting.
- All residents participated in a conversation led by Dr. Levin about the American Factory – a film documentary about a revitalized manufacturing plant.
- The residents led by **Dr. Rohani**, developed an educational video explaining the difference between masks and respirators and demonstrating proper donning and doffing techniques.
- All residents participated in a walk through at a low-income dental clinic and made recommendations for safe-reopening during the COVID-19 Pandemic.
- They also participated in a TX meat-packing walk-through in collaboration with the TX DSHS to provide consultation regarding the COVID-19 Pandemic.