

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
AOHC	American Occupational Health Conference
FQHCs	Federally Qualified Health Centers
I-CASH	Iowa Center for Agricultural Safety and Health
MCHS	Migrant and Community Health Center
NCFH	National Center for Farmworker Health
NIOSH	National Institute for Occupational Safety and Health
OMR	Occupational Medicine Residency
SW Ag Center	Southwest Center for Agricultural Health, Injury Prevention and Education
TPG	Training Project Grant
TX COEM	Texas College of Occupational and Environmental Medicine
TX DSHS	Texas Department of State Health Services
UTHSCT	University of Texas Health Science Center at Tyler

Abstract

Despite centuries of recognition of the contribution of workplace factors to human health, disease, injury, disability, and death, occupational medicine remains an obscure specialty within the health care community. Little emphasis is given to educating physicians at both the undergraduate and post-graduate levels concerning occupational history-taking and little focus is placed in clinical encounters on discerning and reducing work-related risk factors. Following passage of the Occupational Safety and Health Act of 1970, there was a rise in the number of accredited residency training programs in occupational medicine, reaching a peak in the mid-90s. Since then, the number of such programs has declined steadily by 35 percent in spite of a recognized shortfall of physicians with formalized training in this area. Remaining programs struggle for funding to sustain their educational efforts.

In many specialty areas of medical practice, there is also little attention given to the special needs of non-urban populations. Small employers (e.g., those with fewer than 100 employees) are not unique to rural communities. However, 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 and construction where the hired and/or migrant workforce may constitute the majority of employees.

Over the past five years, funds from the Training Project Grant (TPG) have helped to support, sustain and increase the number of occupational medicine trained physicians who have broad experience and sufficient competence to enter practice without direct supervision. The TPG has made it possible for 12 resident graduates to receive support through this funding during this cycle. In addition, the grant has allowed the University of Texas Health Science Center (UTHSCT) Occupational Medicine Residency (OMR) Program to include a dimension of training that emphasizes the occupational health needs of the rural workforce with special attention to agriculture. This includes identifying related competencies within the six general competency domains established by the Accreditation Council for Graduate Medical Education (ACGME) and those outlined in the Preventive Medicine/Occupational Medicine program requirements. Relevant learning activities designed to help the resident gain experience with these competencies and reach target milestones also established by the ACGME are a part of the experience. Such learning activities have included formal didactic training in an Agromedicine conference, multiple worksite walk-through experiences in agriculture, forestry, and fishing operations, and a supervised rotation in a Migrant and Community Health Center setting.

Over the past cycle, the TPG has made it possible for UTHSCT to integrate agricultural occupational safety and health into the residency training experience by implementing a multi-faceted training approach that relies upon a multi-disciplinary educational team effort, while also leveraging the strengths of the existent NIOSH supported Agricultural Center (the Southwest Center for Agricultural Health, Injury Prevention, and Education). In addition to the learning activities outlined collaboration with the Building Capacity Project at the Great Plains Center for Agricultural Health (University of Iowa) and with the National Center for Farmworker Health (Buda, Texas), have been important to success of the project. The impact of this effort has been to build capacity in Occupational Medicine, a specialty with a recognized shortfall of physicians. Moreover, training emphasis has been placed on workers in the agriculture, forestry, and fishing industries who are up to 32 times more likely to die on the job than workers in other industries.

Section I

Highlights/Significant Results

The highlights and significant results from this cycle are outlined in detail in the final technical report. Opportunities created through a project such as this one, help to sustain the number of occupational medicine graduates while providing residents with experience(s) in special populations (rural/agricultural), valuable to several who have gone to practice in locations serving these workers. The TPG has made it possible for 12 resident graduates to receive support through this funding during this cycle. Relevant learning activities designed to help the resident gain experience with related competencies and reach target milestones also established by the ACGME are a part of the experience. Such learning activities have included formal didactic training in an Agromedicine conference, multiple worksite walk-through experiences in agriculture, forestry, and fishing operations, and a supervised rotation in a Migrant and Community Health Center setting.

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 SW Ag Center was established at roughly the same time. Both programs have collaborated over the years to offer training experiences for residents. The photographs below illustrate TPG-supported residents observing activities in agriculture, forestry, and commercial fishing worksites (left to right – Iowa, logging cut site, shrimper/US Coast Guard officer/3 residents). Additional photos can be found in Appendix A (See Appendix B for list of walkthroughs accomplished in the last TPG cycle.)



Outcomes/Relevance/Impact

1. Sustained and increased the supply of qualified occupational medicine residency trained physicians, particularly in U.S. Public Health Region 6.
2. Expanded service capacity by increasing the number of occupational medicine resident graduates who develop knowledge and awareness of rural/agricultural occupational health, through a range of didactic, experiential, and practicum learning activities.
3. Nurtured interdisciplinary collaborations between an accredited occupational medicine residency program, the SW Ag Center, and multiple other regional stakeholders including the Southwest Center for Occupational and Environmental Health NIOSH ERC located in Houston at The University of Texas School of Public Health.

SECTION II

Technical Report

This technical report is for the grant entitled INNOVATIVE TRAINING FOR OCCUPATIONAL MEDICINE RESIDENTS IN NON-URBAN AND AGRICULTURAL SETTINGS (9221).

Background

Despite centuries of recognition of the contribution of workplace factors to human health, disease, injury, disability, and death, occupational medicine remains an obscure specialty within the health care community. Little emphasis is given to educating physicians at both the undergraduate and post-graduate levels concerning occupational history-taking and little focus is placed in clinical encounters on discerning and reducing work-related risk factors. Following passage of the Occupational Safety and Health Act of 1970, there was a rise in the number of accredited residency training programs in occupational medicine, reaching a peak in the mid-90s. Since then, the number of such programs has declined steadily by 35 percent in spite of a recognized shortfall of physicians with formalized training in this area. Remaining programs struggle for funding to sustain their educational efforts.

In many specialty areas of medical practice, there is also little attention given to the special needs of non-urban populations. Small employers (e.g., those with fewer than 100 employees) are not unique to rural communities. However, 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 and construction where the hired and/or migrant workforce may constitute the majority of employees.

In the five states comprising U.S. Public Health Region 6 (Arkansas, Louisiana, New Mexico, Oklahoma, Texas), there is considerable diversity of production agriculture, forestry, and fishing. There are presently only two accredited residency training programs in Occupational Medicine, both located in Texas, and one in a more rural part of the state (Tyler in Northeast Texas). The OMR at UTHSCT received provisional accreditation by the ACGME in 1994, and has enjoyed full accreditation since 1997. The program was first awarded a NIOSH TPG in 2007.

In 2010, the program was only able to report on completion of two years of training as a TPG (beginning in July of 2007 through renewal submission date in August of 2009). At the time, the full resident complement for UTHSCT (combination of both PG2 and PG3) was 3. Therefore, an average of <2 supported residents per year were graduated from the program. The first cycle proposal made training possible for residents of at least two other accredited residency programs. However, these residents could not be reported as trainees of UTHSCT. This was consistent with the original proposal to reach a larger audience of residency trainees and programs. As a way to address this weakness, UTHSCT received approval from the ACGME to expand resident complement from three (3) residents to four (4) on November 9, 2009. As a result of the funding made available through the TPG, an average of two residents have graduated from the program each year. This is on par with the relatively stable number of residents presently entering and graduating from OMR programs each year in the U.S.

Objectives and Aims (grant cycle 2010 – 2015)

One main objective of this proposal was to seek support for sustaining and increasing the number of occupational medicine trained physicians who have broad experience and sufficient competence to enter practice without direct supervision. The second main objective was to

bring a dimension of training which concentrates on the occupational health needs of the rural workforce with special emphasis on agriculture.

The specific aims were to:

1. Sustain and increase the supply of qualified occupational medicine residency trained physicians.
2. Expand service capacity by increasing the number of occupational medicine resident graduates who develop specific competencies and receive didactic training in rural/agricultural occupational health.
3. Enhance occupational medicine resident understanding of effective outreach/education and responsible and culturally appropriate research activities through close interaction with a NIOSH Agricultural Health and Safety Center.
4. Nurture partnerships for interdisciplinary clinical experience between an accredited occupational medicine residency program and migrant/community health centers through collaboration with the National Center for Farmworker Health (NCFH).
5. Develop a range of field experiences in the agricultural sector through which residents can improve skills in worksite walk-through.

Results and Discussion

Over the past five years, trainees have had the opportunity to participate in a variety of both required and elective practicum rotations. In addition to training opportunities here at UTHSCT, there are also several off site practicum electives. As expected, the elective rotations selected differ among residents in keeping with their varied backgrounds and educational planning as required by the ACGME. Such rotations include American Airlines, Texas Eastman, orthopedics, physical medicine and rehabilitation, Chevron, several other occupational medicine clinics and consultants, poison center, OSHA, B-reader, NIOSH, etc. The majority of block practicum site rotations are of one month duration. Longitudinal rotations (e.g., UTHSCT Occupational Health Clinic and Employee Health) extend throughout the course of training and residents typically participate 6-8 times per month when not engaged in a block rotation off campus. All residents participate in components of the agricultural occupational health activities which were made available due to funding received from the TPG.

The rural/agricultural experiences are designed to allow the resident to gain exposure to competencies such as occupational/environmental history taking and review of workplaces and work practices in rural/agricultural settings in order to safeguard employees. The didactic, practicum, experiential, and, in some instances research elements were integrated to achieve the specific aims of the project. It is recognized that the training occurs over a cumulative period (approximately six to eight weeks) and that, as with most educational components of a training curriculum, added time might be beneficial to trainees, but is limited. Nonetheless, given available opportunities and curricular limits of time a resident can expend on a focal area, the training received in rural/agricultural occupational health is considered to be robust, in comparison to most occupational medicine residencies. During this cycle, all UTHSCT OM residents participated in the didactic Agromedicine course, practicum rotation, time spent with NCFH, and a majority of the walk-through experiences as outlined. A detailed list of many of these activities follows.

The following resident activities were accomplished during Year 1 of this cycle (07/01/2010 – 06/30/2011):

- Two residents graduated on June 30, 2011, Dr. **Philip Head** and Dr. **Marek Greer**. Dr. **Head** received his MS degree in Environmental Science. Dr. **Greer** came to the program with an MPH degree.
- Dr. **Head** and Dr. **Kevin Nelson** attending agricultural medicine training at I-CASH in June, 2011.
- Dr. **Greer** rotated to Vida Y Salud Health Systems and Nuestra Clinica del Valle in October 2010 with orientation at NCFH, Buda, on September 27, 2010.
- Dr. **Greer** presented his project, “Developing an Emergency Preparedness Model for Cattle Producers and Community-Based Responders” at the Texas College of Occupational and Environmental Medicine’s annual conference on May 14, 2011 in Houston, TX.

The following resident activities were accomplished during Year 2 of this cycle (07/01/2011 – 06/30/2012):

- Two residents graduated on June 30, 2012, Dr. **Kareematulai Arogundade** and Dr. **Nelson**. Both were awarded the MS degree in Environmental Science. Dr. **Nelson** also came to the program with an MPH.
- Dr. Lillian Ringsdorf, a Preventive Medicine/Public Health resident from the TX DSHS residency program in Austin, TX, spent a month rotation with the UTHSCT Occupational Medicine Residency Program for occupational medicine skills, specifically rural/non-urban training. Her experiences included a presentation on the NIOSH SW Ag Center’s ongoing research and outcomes, and a day long site visit to a local ranch and slaughterhouse with the DSHS Region 4/5 veterinarian, Dr. James Wright.
- Dr. **Nelson** spent one month at the Birth Defects Epidemiology and Surveillance Branch of the TX DSHS in Austin, TX, gathering information for his residency project entitled “Association of the Incidence of Birth Prevalence of Select Congenital Heart Defects with Aquatic Biomarker Levels of Agricultural-Related Contaminants in Two River Basin Regions in Texas during 1999-2008.”
- All four residents, Dr. **Arogundade**, Dr. **Patty Bilhartz**, Dr. **ShaMarick Blue**, and Dr. **Nelson**, attended an orientation day at the NCFH headquarters in Buda, TX on August 19, 2011.
- Dr. **Arogundade** participated in the rotation at Vida Y Salud Health Systems (MCHC) in Crystal City, TX and Nuestra Clinica del Valle in the Lower Rio Grande Valley of Texas (MCHC, San Juan, TX) in October, 2011.
- Bobbi Ryder, CEO of NCFH, accompanied Dr. Levin on site visits to the Vida Y Salud Health Systems in Crystal City, TX and the Nuestra Clinica del Valle on October 10 – 11, 2011.
- Dr. James Wright, Dr. David Douphrate, Dr. Jeffrey Levin, and Chief Resident Dr. **Arogundade** attended the on-site Iowa Center for Agricultural Safety and Health (I-CASH) training at the University of Iowa (UI) the week of June 11, 2012 to gain experience in instruction and understanding the requirements for organizing the training for the Texas agricultural community. Dr. Levin successfully completed the written certification exam offered by I-CASH.

The following resident activities were accomplished during Year 3 of this cycle (07/01/2012 – 06/30/2013):

- Two resident graduates: Dr. **Bilhartz** and Dr. **Blue** graduated from the program in June 2013. Dr. **Blue** received his MS degree in Environmental Science while in the program. Dr. **Bilhartz** entered the program with her MPH degree. Both residents have gone to practice in settings with agricultural/rural worker populations: Dr. **Bilhartz** in Modesto, CA and Dr. **Blue** in Longview, TX.
- Dr. **Blue** presented his research project, “Trends in Screening Obstructive Sleep Apnea in Commercial Drivers” at the Four State On The Grow Conference, April 24 – 27, 2013 in Texarkana, TX. In addition to Dr. **Blue**, Dr. Levin delivered a presentation on heat stress, Dr. Helen Miner on hearing conservation and Dr. Douphrate on agricultural ergonomic safety. Dr. Matthew McBroom, an associate professor at Stephen F. Austin University, presented on best practices for water management and quality. The annual conference, hosted by Ouachita Mountains Resource Conservation and Development Council, targeted timberland owners, investors and managers in the 13 southeastern (pine belt) states.
- NCFH conducted an expanded orientation for OM residents to prepare the residents for their rural /agricultural rotation. NCFH will also participate in future Texas Agromedicine training opportunities.
- Dr. **Bilhartz** participated in a rotation at Vida Y Salud Health Systems in Crystal City, TX in November, 2013. The two migrant health clinics who participate in the OM rotations both implemented electronic medical records (EMR) in 2012. Due to the change in recordkeeping and the increased learning curve required to familiarize the resident with the software, NCFH and Dr. Levin adjusted the rotation schedule to one site for 4 weeks, rather than 2 weeks at 2 individual clinics.
- The Occupational Medicine Residency presented an Occupational and Environmental Health conference in June, 2012. The full day conference held on campus at UTHSCT featured Dr. Rosemary Sokas, the former Director of OSHA as the keynote speaker. Dr. Sokas also addressed the OM residents at the graduation dinner later that evening. The conference is held biennially and has included rural and agricultural topics such as health disparities, border occupational health, ergonomics, pandemic response and heat stress.
- Dr. **Arogundade**, Dr. **Nelson**, and Dr. **Bilhartz** presented their research projects at the American Occupational Health Conference in Los Angeles, CA in April 2012. Dr. **Arogundade**’s research on “Impact of Smoking Ban on Birth Weight in Selected Small to Medium Size Towns in Texas”, Dr. **Nelson**’s research titled, “Association of Birth Prevalence of Select Congenital Heart Defects with Aquatic Biomarker Levels of Agriculture-Related Contaminants in Two River Basin Regions in Texas during 1999-2008”, and Dr. **Bilhartz**’s topic, “Work Stress Makes a Difference: Occupational Classification and Hypertensive Disorders in Pregnancy” were all accepted for the poster presentation and display at the national health conference.
- Dr. **Arogundade** and Dr. **Nelson** presented their research presentations to the Texas College of Occupational and Environmental Medicine (TxCOEM), May 18, 2012 in Dallas, TX. The meeting was held in conjunction with the annual Texas Medical Association conference. As part of the TxCOEM meeting, a field walkthrough was conducted at the Dallas Cowboy stadium.

The following resident activities were accomplished during Year 4 of this cycle (07/01/2013 – 06/30/2014):

- Dr. **William Curry** (October 31, 2014), Dr. **Uchechukwu Elendu**, Dr. **Meghan Hampton**, Dr. **Alina Rouk**, and Dr. **Sharon Huff** attended Diversity Training/Orientation at NCFH in Buda on April 11, 2014
- Two resident graduates: Dr. **Curry** and Dr. **Elendu**. Both received their MS degree in Environmental Science in May of 2014.
- Dr. **Curry** and Dr. **Elendu** attended agricultural medicine training provided by I-CASH in June, 2014.
- Dr. **Curry** presented his resident research project, “Hearing Loss and Noise Exposure Among Commercial Fishermen” at the annual TxCOEM conference on May 3, 2014 in Ft. Worth. Dr. **Elendu** presented his research, “Does Seasonal Allergy Affect QFT (quantiferon) Results?”
- Dr. **Sharon Huff’s** feasibility study (funded by the SW Ag Center) on “Reaching South Texas Agriculture Workers through Lower Rio Grande Valley FQHCs” is in progress. The project will improve resident experiences and ability to reach agricultural workers in the clinical setting and to participate in rural community outreach with community health workers (CHWs) during their MCHC rotation.
- Dr. **Curry** and Dr. **Elendu** rotated to NCFH and the Nuestra Clinica del Valle in San Juan, Texas.
- The Occupational Medicine Residency collaborated with the Southwest Center for Occupational and Environmental Health (a NIOSH ERC) to present an Occupational and Environmental Health conference in June, 2014. The full day conference held on campus at UTHSCT, featured Dr. Kay Kreiss, NIOSH Chief, Field Studies Branch as the keynote speaker. Dr. Kreiss also addressed the residents at their graduation.
- Dr. **Curry** and Dr. **Elendu** participated in the newly organized UTHSCT Resident Research Forum at UTHSCT, 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 are given to the top three presentations. Dr. **Elendu** won 1st Prize for his research presentation, “Does Seasonal Pollen Allergy or the Common Cold Increase False-Positive Quantiferon Test Results for Diagnosis of Latent TB in Healthcare Workers?”

The following resident activities were accomplished during Year 5 of this cycle (07/01/2014– 06/30/2015):

- Dr. **Benjamin Burris** and Dr. **Ryan Harris** attended Diversity Training/Orientation at NCFH in Buda on February 27, 2015.
- Two resident graduates: Dr. **Rouk** and Dr. **Hampton**. Both received their MS degree in Environmental Science in May of 2015.
- Dr. **Hampton**, Dr. **Rouk**, Dr. **Harris**, and Dr. **Burris** attended part one of an agricultural medicine training provided by the SW Ag Center in November, 2014. This training was partially funded by the Training Project Grant.
- Dr. **Hampton** presented her resident research project, “Heat-Related Illness Among Workers of the Great Smoky Mountains National Park” at the annual TxCOEM conference

on May 1, 2015 in Austin, Texas. Dr. **Rouk** presented her research, "Tyler Asbestos Workers: Mortality Experience Update in a Cohort Exposed to Amosite."

- Dr. **Sharon Huff's** feasibility study (funded by the SW Ag Center) on "Reaching South Texas Agriculture Workers through Lower Rio Grande Valley FQHCs" is in progress. The project will improve resident experiences and ability to reach agricultural workers in the clinical setting and to participate in rural community outreach with community health workers (CHWs) during their MCHC rotation.
- Dr. **Hampton**, Dr. **Rouk**, Dr. **Burris**, and Dr. **Harris** rotated to NCFH and the Nuestra Clinica del Valle in Hidalgo and Starr Counties in the Rio Grande Valley, Texas.
- Dr. **Hampton** and Dr. **Rouk** participated in the UTHSCT Resident Research Forum at UTHSCT, May 8, 2015, 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. **Rouk** won 1st Prize for her research presentation, "Tyler Asbestos Workers: Mortality Experience Update in a Cohort Exposed to Amosite."
- Dr. **Hampton** presented a Grand Rounds presentation at UTHSCT on June 26, 2015, titled "Crystalline Silica Exposure from Hydraulic Fracturing."
- Dr. **Hampton** presented a poster titled "Heat-Related Illness among Workers of the Great Smoky Mountains National Park" and Dr. **Rouk** presented a poster titled "Occupational Zoonotic Exposure to *Mycobacterium Tuberculosis* in an Urban Zoo" at the 2015 AOHC Conference held in Baltimore, Maryland, May 4-6, 2015.

In order to ensure improved evaluation efforts for the rural/agricultural component of training, the focus was predominantly on process and intermediate outcomes, documenting resident participation in and successful completion of didactic coursework and the practicum experience. Traditional pre/post testing tools and written preceptor evaluations of occupational medicine competencies that emphasize rural/agricultural considerations were used respectively. The latter evaluation is a competency-based, rural/agricultural rotation specific form for completion by the preceptor (*form included as Appendix C*). This tool was a more focused assessment for use in the Migrant and Community Health Center (MCHC) setting, and served as an empiric assessment of how the learning objectives of the rotation were being met and the aims of the project were being accomplished. The preceptor provided this evaluation of the resident upon completion of the rotation. Additionally, a "Checklist of Community Involvement" outlined specific learning objectives and related activities the resident engaged in during the MCHC rotation (*Appendix D*). This served as another measurement tool for completion of learning activities. At the conclusion of each walk-through in which residents participated, a de-briefing to explore lessons learned and to reinforce related competencies was completed. Other resident outputs were documented such as presentations given to community health workers in the MCHC setting and research projects where applicable. Finally, the program continues to conduct periodic surveys of resident alumni with questions that focus on the rural/agricultural health component (*Appendix E*). There are also a series of questions regarding participation in rural/agricultural healthcare, and perceived benefit of the program and its learning experiences. The most recent survey for TPG graduates from 2008-2013 (n=9, 78% response rate) revealed that 4/7 (57%) of respondents had participated in this type of care and 5/7 (71%) found the knowledge or skills to be of benefit. The greatest benefit occurred from the MCHC rotation (6/9) and Agricultural/Rural Walkthroughs (6/9).

Conclusions

The funding cycle ending June 30, 2015, was considered a success based on the project's multiple strengths as follows: a) the region's needs and the program's training objectives and aims; b) the amount of stakeholder integration/coordination; c) a multidisciplinary approach to training; d) a strong record of graduating successful physicians (many of whom remain in the region); e) the use of distance-based tools to deliver educational content; and f) an emphasis on educating physicians in the social and cultural aspects of caring for agricultural and rural workers.

Publications

- Bilhartz, TD, **Bilhartz, P.** Occupation as a Risk Factor for Hypertensive Disorders. *J Womens Health*. 2013;25. DOI:10.1089/jwh.2012.3975.
- **Huff S**, Stocks JM, Saito R, **Bilhartz P**, Levin J, Glazer C, Bailey R, Cummings K, Kreiss K, McCague A. Obliterative Bronchiolitis in Workers in a Coffee-Processing Facility – Texas, 2008-2012. *Morbidity and Mortality Weekly Report (MMWR)*. 62(16): 305-307, 2013.

Appendix A

TPG-supported residents participating in agriculture and commercial fishing worksite initiatives



Residents and SW Ag Center staff touring a commercial fishing vessel lead by the US Coast Guard



Residents, Faculty & SW Ag Center staff touring a dairy at Tarleton State University in Stephenville, TX

Appendix B-

List of Agriculture/Forestry/Fishing (AFF) OMR Worksite Walkthroughs During TPG Cycle

The following resident worksite walkthroughs were accomplished during Year 1 of this cycle (07/01/2010 – 06/30/2011):

- Texas Department of State Health Services – Texas Department of Corrections slaughterhouse and veterinary clinic, Dr. James Wright on December 14, 2010
- East Texas Independent Cattleman's Association meeting, Marie Reed, R.N. on February 8, 2011
- SFASU Broiler Barn, Dr. Sheryl Jerez on February 11, 2011
- Priefert Ranch Equipment, Jim Dyal, Director of Human Resources hosted the residents on March 3, 2011
- East Texas Independent Cattlemen's Association provided an onsite working tour of a member ranch on April 1, 2011
- Tarleton State University Dairy Production, Dr. Barry Lambert, on April 8, 2011
- SFASU Beef and Swine Barn, Dr. Erin Brown, on June 10, 2011
- SYSCO Foodservice, corporate farm visits hosted by Craig Watson, VP of Agricultural Sustainability, on June 14, 2011. A special row crop farm in Frankston, TX and a blueberry farm in Edom were toured by the residents, guided by Mr. Watson, the owners and farmworkers.
- Arkansas Timber Producers' Association, George Lease, on June 17, 2011; visit to timber production and processing sites
- Pilgrim's Pride, Karen McEntire, RN, Corporate Nurse Manager, introduced the residents to a working poultry facility on June 20, 2011

The following resident worksite walkthroughs were accomplished during Year 2 of this cycle (07/01/2011 – 06/30/2012):

- The residents boarded a commercial fishing vessel for inspection with the US Coast Guard in Galveston, TX on December 5, 2011
- Local grocery distribution center and dairy processing plant walkthrough with Dr. Peter Sanfelippo (preceptor and RAC member) on January 11, 2012

The following resident worksite walkthroughs were accomplished during Year 3 of this cycle (07/01/2012 – 06/30/2013):

- Priefert Ranch Equipment, Jim Dyal, Director of Human Resources hosted the residents for a walkthrough in April, 2013
- Sysco Foodservice Corporation conducted farm visits to local corporate farms in April, 2013
- The residents toured the Domtar Pulp and Paper Mill in Ashdown, AR, April 25, 2013

The following resident worksite walkthroughs were accomplished during Year 4 of this cycle (07/01/2013 – 06/30/2014, summer 2014):

- East Texas Independent Cattleman's Association meeting, Marie Reed, R.N. on September 10, 2013
- Caney Creek Ranch (a working cow-calf operation) hosted the residents on a work-site walkthrough in Palestine, TX on October 22, 2013
- Faculty and residents toured the Cattle and Poultry barns at SFASU on January 17, 2014
- Arkansas Timber Producers' Association, George Lease, on April 24, 2014; visit to timber harvesting/cut sites at time of Four States Conference
- Southwest Dairy – local grocery distribution center and dairy processing plant walkthrough with Dr. Peter Sanfelippo (preceptor and RAC member) on April 30, 2014

The following resident worksite walkthroughs were accomplished during Year 5 of this cycle (07/01/2014 – 06/30/2015):

- New Birmingham Resources Inc. -- open pit mine tour in Tyler, TX, on July 29, 2014
- Texas Department of State Health Services – Texas Department of Corrections slaughterhouse and veterinary clinic, Dr. James Wright on July 30, 2014
- The US Coast Guard conducted onboard vessel inspections with the residents at docks near their headquarters in Texas City, TX on September 5, 2014
- Dairy Research Center tour at Tarleton State University in Stephenville, TX, on December 5, 2014
- UT Health Northeast new construction walk through in Tyler, TX, on May 7, 2015
- Northeast Texas Public Health District Leadership Council meeting in Tyler, TX, on May 12, 2015

Appendix C
Resident Evaluation Tool

Appendix D
Rural Community Involvement Checklist

Appendix E
Resident Alumni Survey