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Signature

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Current Track: Associate Professor, Researcher and Educator
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EDUCATION

ScD, Industrial Hygiene, Harvard University School of Public Health, Boston, MA 1994-1997
MS, Environmental Health, Harvard University School of Public Health, Boston, MA 1992-1994
PhD Candidate, Environmental Epidemiology, University of Hawaii School of Public Health, Honolulu, HI 1990-1992
MPH, Environmental Health Sciences, Peking University School of Public Health, Beijing, China 1983-1987
MD, Preventive Medicine, Nanjing Medical University, Nanjing, China 1978-1983

POSTGRADUATE TRAINING

Industrial Hygiene and Environmental and Occupational Epidemiology and Medicine, Yale University School of Medicine, New Haven, CT 1997-1999

FACULTY APPOINTMENTS

Assistant Director and Faculty Member, Preventive Medicine Residency Program 11/01/2018-present
Faculty Member, Bachelor of Science in Public Health (BSPH) Program 10/01/2017-present
Faculty Member, Master of Public Health (MPH) Program 10/01/2017-present

Associate Professor of Public Health Sciences 10/01/2017-present
Wayne State University School of Medicine and College of Liberal Arts and Sciences, Detroit, MI

Associate Professor of Environmental Health Sciences 07/15/2010-08/31/2017
University of North Texas Health Science Center, Fort Worth, TX

Assistant Professor of Preventive Medicine and Environmental Health 07/01/2006-06/30/2010
University of Kentucky College of Public Health, Lexington, KY
Associate Faculty Member
University of Kentucky Graduate School, Lexington, KY

Adjunct Assistant Professor of Medicine 07/01/2006-12/31/2006
Assistant Professor of Medicine 07/01/2003-06/30/2006
Associate Research Scientist of Industrial Hygiene and Epidemiology 07/01/1999-06/30/2003
Yale University School of Medicine, New Haven, CT

Assistant Professor of Environmental Health Sciences 07/01/2004-06/30/2006
Yale University School of Public Health, New Haven, CT

Teaching and Research Assistants of Environmental Health 07/01/1987-06/24/1990
Peking University School of Public Health, Beijing, China

HOSPITAL OR OTHER PROFESSIONAL APPOINTMENTS

Research Assistant and Research Associate of Environmental Health 1994-1997
Harvard University School of Public Health, Boston, MA

Consultant of Environmental Health 1993-1994
Massachusetts Department of Public Health, Boston, MA

Research Assistant of Environmental Health 1992-1993
Environmental Health, Inc., Newton, MA

Research Assistant of Biostatistics 1992-1993
Massachusetts General Hospital, Boston, MA

Research Assistant of Environmental Health 1992-1993
Harvard Risk Analysis Center, Boston, MA

Research Assistant of Environmental Health 1983-1987
Peking University School of Public Health, Beijing, China

Clinical Intern 1981-1982
Nanjing Medical University, Nanjing, China

MAJOR PROFESSIONAL SOCIETIES

International Society of Exposure Analysis 2000-present

American Thoracic Society 1999-present

American Conference of Governmental Industrial Hygienists 1998-present

American Industrial Hygiene Association 1997-present

International Society of Indoor Air Quality and Climate 1997-present

HONORS AND AWARDS

Best Student Poster Award for “Okafor C, Gohil V, Liu Y (Faculty Mentor for Okafor C and Gohil V), Sterling DA, Pearce R, Biswas S, Prince TS, Davis G, Carol M, Reed D, Klingner T, Tokarski M, Stinchcomb A. Determinants of Nicotine Exposure in Tobacco Harvesting Workers: A Pilot Study” 2016
American Industrial Hygiene Association (AIHA) Protective Clothing Committee
This award recognizes a student’s research excellence and achievement by the committee. One award annually.

Appreciation for a Significant Contribution to Technical Knowledge in Areas of Social Concern in the Field of Occupational Safety and Health for “Okafor C, Gohil V, Liu Y (Faculty Mentor for Okafor C and Gohil V), Sterling DA, Pearce R, Biswas S, Prince TS, Davis G, Carol M, Reed D, Klingner T, Tokarski M, Stinchcomb A. Determinants of Nicotine Exposure in Tobacco Harvesting Workers: A Pilot Study” 2016
AIHA Social Concerns Committee

This appreciation recognizes a student's research excellence and achievement by the committee. One appreciation annually.

Best Student Poster Award for “Gohil V, Okafor C, Liu Y (Faculty Mentor for Gohil V and Okafor C), Sterling DA, Pearce R, Prince TS, Davis G, Carol M, Reed D, Biswas S, Stinchcomb A. Tobacco Harvesting Work, Exposure To Nicotine, Vital Signs and Nicotine Poisoning” 2016

AIHA Biological Monitoring Committee

This award recognizes a student's research excellence and achievement by the committee. One award annually.

Appreciation for a Significant Contribution to Technical Knowledge in Areas of Social Concern in the Field of Occupational Safety and Health for “Gohil V, Okafor C, Liu Y (Faculty Mentor for Gohil V and Okafor C), Sterling DA, Pearce R, Prince TS, Davis G, Carol M, Reed D, Biswas S, Stinchcomb A. Tobacco Harvesting Work, Exposure To Nicotine, Vital Signs and Nicotine Poisoning” 2016

AIHA Social Concerns Committee

This appreciation recognizes a student's research excellence and achievement by the committee. One appreciation annually.

Best Paper Award for the article entitled “Bello D, Sparer JA, Redlich CA, Ibrahim K, Stowe MH, Liu Y (Faculty Mentor for Bello D and Ibrahim K). Slow Curing of Aliphatic Polyisocyanates Paints in Automotive Refinishing: A Potential Source for Skin Exposure. Journal of Occupational and Environmental Hygiene 2006; 4(6):406-11”. 2007

Michigan Industrial Hygiene Society (MIHS)

This award recognizes research excellence and achievement by MIHS. One award annually.

Outstanding Project Team Award for the Exposure Assessment Strategies Committee Dermal Exposure Assessment Group 2007

AIHA

This award recognizes a committee's excellence and achievement in research project activities. One award annually. Dr. Liu is a key member of the committee and group receiving the award.

Third-place Achievement Award for Advances in Science and Technology for the research project entitled "Indoor Formaldehyde and Smoke Pollution and Control Strategies in Beijing Areas" 1994

Ministry of Health, China

This award recognizes research excellence and achievement.

Special Student Travel Award to Attend the Annual Minority Environmental Career Conference at Oak Ridge National Laboratory 1993

Environmental Careers Organization, Boston

This award recognizes academic excellence of students in environmental science in U.S. Universities. Approximately 25 awards annually.

Third-place Achievement Award for Advances in Science and Technology for the research project entitled " Indoor Air Pollution and Human Health in Beijing Areas " 1988

Ministry of Health, China

This award recognizes research excellence and achievement.

Second-place award on the Environmental Health Knowledge Contest 1987
 Ministry of Health and China Central Television (CCTV), Beijing, China
This was a national environmental health knowledge contest using newspaper first and then on CCTV.

First-place award on a University Wide English Contest 1982
 Nanjing Medical University, Nanjing, China
This award was based on a university wide written test. A total of ten awards were given out.

SERVICE

Wayne State University

Department /Divisional

Member, MPH Director Search Committee	2019-2020
Member, Preventive Medicine Residency Program Application Review Committee	2019-2020
Member, Faculty Member Search Committee	2019-2019
Member, Preventive Medicine Residency Program Review Committee	2018-present
Coordinator and Member, MPH Admissions Preview Event Committee	2018-present
Member, MPH Curriculum Committee	2018-present
Member, MPH Essay Review Committee	2018
Member, MPH Admission Committee	2017-2018
Member, MPH Faculty Meeting	2017-present

University

Member, Pharmacology Faculty Search Committee, Office of Equal Opportunity	2020-present
Member, Community Health/Public Health Faculty Search Committee, Provost Office	2019-2020
Member, Chair Search Committee, College of Liberal Arts and Sciences (CLAS)	2019-2020
Member, Faculty Search Committee, Center for Urban Responses to Environmental Stressors (CURES)	2018-2020

University of North Texas Health Science Center

Departmental/Divisional

Member, MPH Comp Exam Committee	2010-2016
Member, Curriculum Committee	2010-2016

School of Public Health

Member, Research Committee	2013-2016
Alternate Member, MPH Admission and Curriculum Committee	2010-2016
Member, MPH Admission and Curriculum Committee	2010-2011

University

Member, Bylaw Committee	2015-2017
Safety Coordinator	2011-2017
Member, Faculty Senate	2013-2014
Chair, Sustainability Committee	2013-2014
Co-Chair, Sustainability Committee	2012-2013
Alternate Member, Faculty Senate	2010-2012

University of Kentucky

Division and/or Department

Member, Occupational Medicine Residency Advisory Board 2006-2010

College of Public Health

Member, Global Health Certificate Program 2008-2010

Member, Faculty Council 2008-2010

Member, Research Committee 2008-2009

Professional

Research Board Member, Occupational and Environmental Medicine, Faculty of 1000
Medicine Research 2012-present

Faculty Member, Occupational and Environmental Medicine, Faculty of 1000
Medicine Prime 2007-present

Member, Exposure Assessment Committee, Dermal Exposure Assessment Group,
American Industrial Hygiene Association 2000-present

Member, Advisory Board for the NIOSH-funded Education and Research Center
(ERC), University of Cincinnati College of Medicine 2006-2010

Member, Committee for Developing Reusable Facemasks for Use during an Influenza
Pandemic, Institute of Medicine/National Academy of Science 2006-2006

Member, Committee for the Assessment of the NIOSH Head-and-Face Anthropometric
Survey of U.S. Respirator Users, Institute of Medicine/National Academy of
Science 2005-2006

Member, Advisory Board for the NIOSH-funded ERC, Harvard University School of
Public Health 2004-2006

Consulting

Member, Advisory Board for Exquisite Water, Inc., Denton, TX 2015– 2017

Consultant, Oak Ridge National Laboratory, Oak Ridge, TN 2011-2014

Dallas Children's Hospital School Ozone Flag Program, Dallas, TX 2012

Community Service

Troy, MI High School Health Science Competition Judge 2020

Scholarly Service

Grant Review Committees

National/International

US Army Medical Research and Materials Command, ad hoc 2017

DOD - Defense Medical Research and Development Program, ad hoc 2016

Ontario Ministry of Labor, ad hoc 2015

Beijing City Science Foundation, ad hoc 2015

Canadian Foundation of Innovation, ad hoc 2014

Swiss National Science Foundation, ad hoc 2010

China National Natural Science Foundation, ad hoc 2009

NIOSH/CDC External Review Panel: FY07 Intramural new National Occupational Research Agenda (NORA) projects, ad hoc	2006
NIOSH/CDC External Review Panel: FY06 Intramural NORA: Program Project (Big NORA) Supplements and Small Grant Program, ad hoc	2005
<i>Regional/Local</i>	
University of Kentucky Southeast Center for Agricultural Health and Injury Prevention Pilot Project Program Grant Review Panel	2006-2008
<u><i>Service for Peer-Reviewed Journals</i></u>	
<i>Editorial Board Membership</i>	
Editorial Board Member, Journal of International Society for Respiratory Protection	2018-present
Senior Editor, BMC Public Health Journal	2020-present
Occupational Health Section Editor, BMC Public Health Journal	2015-2020
Associate Editor, BMC Public Health Journal	2007-2015
<i>Review of Manuscripts</i>	
Journal of Hospital Infection	2020
Journal of International Society for Respiratory Protection	2016-present
BMC Public Health Journal	2007-present
American Journal of Infection Control	2015
Archives of Environmental Contamination and Toxicology	2014
Annals of Occupational Hygiene	2012
Journal of Exposure Science and Environmental Epidemiology	2011
Journal of Environmental Monitoring	2010
Journal of Occupational and Environmental Hygiene	2008
Journal of Travel Medicine	2008
Respiratory Research	2007
Thorax	2007
American Industrial Hygiene Association Journal (discontinued)	1997-1998
<i>Other Scholarly Review Service</i>	
National Institute for Occupational Safety and Health (NIOSH) Skin Notation Profiles on 60 chemicals	2013-2014
NIOSH Research Protocol: Exposure Assessment Tools for Airborne Sensitizers	2009
NIOSH Current Intelligence Bulletin: A Strategy for Assigning the New NIOSH Skin Notations for Chemicals	2008
NIOSH Publication: Skin Exposure Resource Guide	2007

TEACHING

Wayne State University College of Liberal Arts and Sciences, 2018-present

Undergraduate Students

Course Section Director, PH 3500 Environmental Health, 3 credit hours, a lecture- based required course for BSPH program in College of Liberal Arts and Sciences	Jan-Apr 2020
Course Section Director, PH 4300 Environmental Health, 3 credit hours, a lecture- based elective course for BSPH program in College of Liberal Arts and Sciences	Jan-Apr 2019

Guest Lecturer, FPH 4300, Environmental Health, 3 credit hours, a lecture-based course required for BSPH, Course Director, Stephanie Osborn, Topic presented: Environmental exposure to heavy metals and health impacts Fall 2018

Wayne State University School of Medicine, 2017-present

Continuing Education

Global Health Research Collaborative Summer Workshop: 1. Presented a lecture on “Epidemiological developments on air pollution and COPD: from research to Regulation” Jul 2020
2. Presented another lecture on “Epidemiological developments on isocyanate asthma Research”. 3. Led a one-hour synchronous class of 48 students to discuss 5 case studies.

Curricular Development

Worked as Assistant Director to develop training curriculum for a Residency Program in Preventive Medicine that was accredited in 2018r Oct 2018

Graduate Students

Environmental Health Panelist, FPH 7120 001, Global Public Health, 3 credit hours, a lecture-based elective course for MPH, Course Director, Julie Gleason-Comstock, Topic presented: Indoor Air Pollution in Low and Medium Income Countries Jul 2019

Guest Lecturer, FPH 7420 001, Principles of Environmental Health, 3 credit hours, a lecture-based course required for MPH, Course Director, Samson Jamesdaniel, Topic presented: Workplace Health and Safety and Risk Assessment, Characterization, Communication and Control Oct 2018
Apr 2019,
Feb, 2020

Course Section Director, FPH 7420 002, Principles of Environmental Health, 3 credit hours, a lecture-based course required for MPH students Jan-Apr, 2018,
Sept-Dec,
2018, 2019,
2020

University of North Texas Health Science Center School of Public Health, 2010-2017

Graduate Students

Course Director, EOHS 5330, Evaluation and Control of Chemical and Physical Hazards, 3 credit hours, a lecture-based course required for both MPH and PhD students majored in environmental health Jan-May 2017

Course Director, EOHS 5330, Recognition, Evaluation and Control of Environmental Hazards, 3 credit hours, a lecture-based course required for both MPH and PhD students majored in environmental health Jan-May 2011-2016

Course Director, EOHS 5331, Environmental and Occupational Sampling and Analysis Methods, 3 credit hours, a laboratory-based course required for both MPH and PhD students majored in environmental health Aug-Dec 2010-2016

Course Director, EOHS 6391, Advanced Topic in Environmental and Occupational Health. 1-3 credit hours; journal club type of course for PhD students, but MPH students are also eligible to take it Aug-Dec 2011,
Jan-May 2012-2015 and 2017

Course Director, EOHS 6395, Doctoral Dissertation. Directed a PhD student’s dissertation research Aug-Dec 2013 and 2014

Course Director, EOHS 6399, Doctoral Independent Study in EOHS, a directed reading course for my Ph.D. student in conducting literature research on isocyanates and health	Jan-Aug 2012
Guest Lecturer, HMAP 5320, Health Services Management. Course Director: Dr. Joyce Hood. Topic presented: Medical and health services in China	Nov 2016
Guest Lecturer, BIOS 6320, Biostatistical Research & Consulting. Course Director: Dr. Swati Biswas. Topic presented: Air pollution in school children in China (2011) and Environmental Exposures to Endocrine Disruptors and Overweight in Children: A Cross-sectional Study (2012)	Jan 2011 and Jan 2012
Guest Lecturer, EOHS 5360, Environmental Data Analysis. Course Director: Dr. Kyung-Mee Choi. Topic presented: Respiratory protection from isocyanate exposure in the auto body repair and refinishing industry	Mar 2011
Guest Lecturer, EOHS 6300, Environmental Determinants of Health. Course Director: Dr. David Sterling. Topic presented: Exposure assessment methods	Nov 2010
Article Discussant with my PhD Student, Dr. Gillian Franklin, PHED 6118, Seminar and Grand Rounds in Public Health Research, Course Director, David Sterling. Article topic presented and discussed: isocyanates and asthma	Aug 2012
Course Director, EOHS 5000, MPH Comprehensive Exam, 3 credit hours, prepared, administered and graded the departmental exam to graduating MPH students majored in EOHS.	Apr and Oct 2011- 2015
Academic Adviser (for advisees) or Site Supervisor (for non-advisees), EOHS 5397 Practicum Experience in Public Health, 3 credit hours. Guided 18 MPH students their research and practicum for 10 weeks each and the final preparation and delivery of oral and poster presentations	Jan-Dec 2011-2017
Course Director, EOHS 5399 Independent Study in EOHS, 3 credit hours. Supervised one MPH student in each semester in conducting literature research and preparing a publishable manuscript on nanotechnology and health, air pollution and diabetes and air pollution and COPD	Jan-Aug 2013 Aug-Dec 2014
<u><i>University of Kentucky College of Public Health, 2006-2010</i></u>	
<i>Graduate Students (Including Occupational Medicine Residents)</i>	
Course Director, CPH 620, Occupational and Environmental Health II, 3 credit hours, an introductory industrial hygiene course for MPH students majored in environmental health	Jan-May 2007-2010
Course Director, PM 661, Occupational and Environmental Sampling, 3 credit hours, for MPH students majored in environmental health	Jan-May 2007-2010
Course Director, CPH 728 (PM 651), Workplace Ventilation, 3 credit hours, an elective course for MPH students majored in environmental health or industrial hygiene; taught online	Aug-Dec 2007-2009
Guest Lecturer, TOX 680, Biochemical and Environmental Toxicology. Course Director: Dr. Hsin-Sheng Yang, 3 credit hours, a lecture-type of course for PhD	Mar 2009 and 2010

students in Toxicology. Topics presented: Outdoor and indoor air pollution and health

- Guest Lecturer, CPH 921, Advanced Environmental Health. Course Director: Dr. T. Scott Prince. 3 credit hours. Topic presented: Exposure Assessment for Occupational Epidemiologic Studies Apr 2008-2010
- Guest Lecturer, CPH 601, Occupational and Environmental Health I. Course Director: Dr. David Mannino. 3 credit hours, an introductory course for all MPH students. Topic presented: Indoor air pollution and health Feb 2009
- Guest Lecturer, TOX 509, Biochemical and Environmental Toxicology. Course Director: Dr. Mary Vore and Dr. Davy Jones. 3 credit hours, a lecture-type of course for PhD students in Toxicology. Topic presented: Toxicants in occupational environments: exposure, risk and exposure control Oct 2008 and 2009
- Guest Lecturer, CPH 601, Occupational and Environmental Health I. Course Director: Dr. Larry Figgs. 3 credit hours, an introductory course for all MPH students. Topic presented: Workplace: exposure to chemicals, health effects and exposure control Apr and Nov 2008; Nov 2007
- Course Director, CPH 729, Independent Studies in Occupational and Environmental Health, 3 credit hours. Used PM 651, Workplace Ventilation, as an Independent Study course for one part-time MPH student majored in environmental health Jan-May 2008
- Course Director, CPH 729, Independent Studies in Occupational and Environmental Health, 3 credit hours. Developed a new course: Advanced Exposure Assessment for Doctoral Students. Used it for one DrPH student Jan-May 2008
- Guest Lecturer, CPH 920, Advanced Environmental Health. Course Director: Dr. Gail Brion. 3 credit hours. Topic presented: Isocyanates in the auto body industry: exposure, health effects and exposure control. Oct 2006 and 2007
Sep 2006
- Guest Lecturer, CPH 601, Occupational and Environmental Health I. Course Director: Dr. Kiyong Lee. 3 credit hours, an introductory course for all MPH students. Topic presented: Workplace: exposure to chemicals, health effects and exposure control Feb 2007
- Guest Lecturer, CPH 921, Professional Seminar in Environmental Health. Course Director: Dr. Kiyong Lee. 3 credit hours. Topic presented: Isocyanates in the auto body industry: exposure, health effects and exposure control Apr 2007

Yale University Schools of Medicine and Public Health, 1997-2006

Graduate Students (Including Environmental and Occupational Medicine Fellows)

- Course Director, EHS 510b: Fundamentals of Environmental Health and Risk Assessment, 3 credit hours, for MPH students; course substantially revised; enrollment was about 150-200 students each year Jan-May 2005, and 2006
- Guest Lecturer, EHS 573b: Introduction to Occupational Epidemiology. Course Director: Dr. Mark Cullen. Topic presented: Exposure assessment and modeling in epidemiologic studies Feb 1998-2006

Guest Lecturer, EHS 575b: Introduction to Occupational Medicine. Course Director: Dr. Mark Russi. Topic presented: Industrial hygiene	Mar 1998-2006
Guest Lecturer, EHS 505b: Introduction to Industrial Hygiene. Course Director: Ms. Judy Sparer. Topic presented: Personal protective equipment	Apr 2003
<i>Residents in Yale Affiliated Hospital Teaching Program (Bridgeport Hospital, CT)</i>	
Guest Lecturer, Seminar type. Topics presented: Introduction to occupational and environmental health; Disability and work compensation; Noise and hearing loss	Mar 2002, Oct 2003, Mar 2005
<i>Yale Physician Assistant Teaching Program</i>	
Guest Lecturer, Seminar type. Topics presented: Health hazards in the workplace: exposure assessment and modeling	Jan 2002 and Jan 2003
<u><i>Harvard University School of Public Health, Boston, MA, 1992-1997</i></u>	
<i>Graduate Students</i>	
Teaching Assistant, EH262 Introduction to Occupational Hygiene, 3 credit hours, a required course for Doctor and Master of Science students in industrial hygiene	Sep-Dec 1996
Teaching Assistant, EH263 Analytical Methods and Exposure Assessment, 3 credit hours, a required course for Doctor and Master of Science students in environmental health	Jan-May 1994
Teaching Assistant, ID204 Principles of Toxicology, 3 credit hours, a required course for Doctor and Master of Science students in environmental health	Sep-Dec 1993
Teaching Assistant, EH201 Introduction to Environmental Health, 3 credit hours, a required course for all MPH students	Jan-May 1993
<i>Environmental and Occupational Health Professionals' Continuing Education</i>	
Laboratory Assistant, Testing and Certification of Biological Safety Cabinets, a one-week course including laboratory testing sessions	Oct 1995
Laboratory Assistant, In-Place Filter Testing Workshop, a one-week course including laboratory filter testing sessions	Nov 1994
<u><i>Peking University School of Public Health, Beijing, China, 1987-1990</i></u>	
<i>Undergraduate Preventive Medicine/Public Health and Nursing Students</i>	
Course Director, Introduction to Environmental Health, 1 credit hour, a required course for nursing students	Mar-Apr 1988 and 1989
Lab Instructor, Laboratory Techniques in Environmental Health Sciences for students in preventive medicine and public health, 3 credit hours	Sep-Jan 1985, 1987-1989

Environmental and Occupational Health Professionals' Continuing Education

Guest Lecturer, Professionals' Continuing Education in Public Health, a year-round seminar course; topic presented: Indoor Environment and Health	Apr 1988
Mentorship	
<u><i>Wayne State University School of Medicine, 2017- present</i></u>	
<i>MPH Student Final Thesis Project Advisory</i>	
Gayathri Mudali Systematic Literature Review on Monochloramine disinfection for Legionella prevention in Building Water Systems	Summer 2019
Datu-On, Daryl Assessing Solid Cooking Fuel Use & Adverse Birth Outcomes: A Narrative Synthesis	Spring 2019
<i>MPH Student Academic Advisory and Practicum Project</i>	
Morrisette, Taylor	2019-present
Bahzad, Aliaa	2019-present
Hayhes, Maurekha	2019-present
Kiama, Keith	2019-present
MacNeil, Anne	2018-2020
Mahasi, Grace	2018-present
Mui-Blackmon, Jazmine	2018-2020
<i>MPH Student Thesis Independent Reviewer</i>	
Hoyer, Mitchell: On-site sewage system regulation: a policy evaluation for Wayne County, MI	2017
<i>Research Mentorship</i>	
Juma, Sali, Alluri, Ankith and Guntur, Megana, MI High School students, working on "Risk factors for COVID-19".	Aug 2020-present
Chan, Pamela, Wayne State undergraduate student, working on "Effectiveness of decontamination and disinfection of respirators".	Aug 2020-present
Khatib, Zainab, Wayne State undergraduate student, working on "Effectiveness of decontamination and disinfection of respirators".	Aug 2020-present
Esha Nair, Troy, MI High School student, working on "Respirator decontamination and reuse during COVID-19 pandemic – a systematic review and meta-analysis".	Jun-Aug 2020
Nimish Sudan, MD, Working on "Respiratory protection of healthcare workers during COVID-19 pandemic – a systematic review and meta-analysis"	Apr 2020-present
Mui-Blackmon, Jazmine, Research Assistant (MPH Student), working on "Just-in-time Elastomeric Training and Fit Testing (JET FIT)" on a CDC/NIOSH-funded study	May 2019-present
Mahasi, Grace, Research Assistant (MPH Graduate), working on "Just-in-time Elastomeric Training and Fit Testing (JET FIT)" with CDC/NIOSH-funded study	Aug 2019-present

Haidar, Amira, Research Assistant (BSPH Student), working on “Assessing Facial, Thermal and Eye Discomfort, Acceptability and Perceived Protective Efficiency of Powered Air-Purifying Respirators (PAPRS) in Simulated Healthcare Settings: Verbal User Feedback” with CDC/NIOSH as her Honor Program in PH 4300 course Jan-Apr 2019

University of North Texas Health Science Center School of Public Health, 2010-2017

MPH Student Academic Advisory, Practicum Project, and Current Position

Pearce, Rebekah	2014–2017
Shinde, Trupti: Creating a West Nile Virus (WNV) map of Tarrant County, TX using Geographical Information System (GIS)	2014–2017
Synghal, Aditya	2014–2017
Okekumata, Isimenmen T: Analysis of catheter associated urinary tract infection case review collection tool	2014–2017
Taylor, Erin L	2014–2017
Singh, Karanvir	2015-2015
Ukpaka, Kelechi Lilian: Improving University of Texas Southwestern Medical Center guide to sustainability	2014-2016
Patel, Jay Tusharbhaj	2014-2015
Opara, Chienyem U: Exposure to organic solvents and neurotoxicity in general and in auto body repair industry in particular	2014-2015
Otubanjo, Oreoluwa Adebanye	2014-2015
Sanchez, Marco A: Conducting job safety analysis for assembly lines at Atrium Windows and Doors	2014-2015
Gohlke, Garrett : Respirable dust monitoring at a construction site; currently working as an Officer at the United States Army Corps of Engineers	2011-2013
Njesada, Ndolembai Sade: currently a PhD student at the University of North Texas Health Science Center School of Public Health	2011-2013
Phipps, Laura: Utilization of a fluorescent marker to evaluate the terminal cleaning of patient rooms in a pediatric hospital; currently a DrPH student at the University of North Texas Health Science Center School of Public Health	2011-2013
Selvera, Tonya: Cryptosporidium and recreational waters: filling in the informational gaps	2011-2013
Butcher, Jessica: Rabies in Tarrant County, TX	2010-2012
Harrison, Jada: Evaluating hazards of waste anesthesia gases in the hospital setting; currently working at Lockheed Martin Corporation	2010-2012
Magalhaes, Richelle: Assessing the safety needs of an airline maintenance base; currently working at the U.S. Navy	2010-2012
Ebiuwhe, Joseph: The potential impact on workforce planning of the proposed federal railroad administration (FRA) hearing acuity medical standard	2010-2011
Rotimi, Beatrice: Occupational health and safety hazards associated with the use of ethylene oxide in the healthcare setting: a case study at Cook Children’s Hospital, Fort Worth, TX	2010-2011
Patil, Nirav	2010-2011
Pradhan, Archana: Pool safety and recreational water illness education program in Tarrant County, TX; currently working at Workplace Safety and Prevention Services, Canada	2010-2011
Brantley, Richard	2010-2010

MPH Student Site Supervisor and Practicum Project

Langat, Charles: An evaluation of mosquito vectors and potential exposure risk to West Nile Virus infection in the City of Forth Worth parks Summer 2015

Orimoloye, Helen: Assessing the current status of malaria control in Nigeria	Spring 2015
Taylor, Hunter: Effect of excess clutter on particle leakage from within a chemical fume hood; presented as a poster at American Industrial Hygiene Conference and Exposition at San Antonio in 2014	Spring 2014
Perry, Heidi: Workplace health risk assessments of active pharmaceutical ingredients (APIs); presented as a poster at American Industrial Hygiene Conference and Exposition at San Antonio in 2014	Fall 2013

Research Mentorship

Okereke, Orji, Research Assistant (MPH Student), working on assessing barriers of powered air-purifying respirators (PAPRs) at Cook Children’s Hospital, a study funded by CDC/NIOSH	2017
Trivedi, Shrunjal Mahesh, Research Assistant (MPH Student), on assessing barriers of PAPRs at Cook Children’s Hospital, a study funded by CDC/NIOSH	2017
Nnaka, TonyChris, Research Assistant (MPH Student), working on assessing barriers of PAPRs at Cook Children’s Hospital, a study funded by CDC/NIOSH	2017
He, Xiaoyi, Research Assistant (MPH Graduate), working on assessing barriers of PAPRs at Cook Children’s Hospital, a study funded by CDC/NIOSH; published a book chapter: Liu Y, Liu S, He X, Sterling DA. Respiratory protection against exposure to isocyanates. In: Rob Eninger R, Yamamoto D, Racz L, editors. Handbook of Respiratory Protection: Safeguarding Against Current and Emerging Hazards. Abingdon, UK: Taylor and Francis, pp.--, 2017 (in press)	2016-2017
Mehta, Pooja, Volunteer Research Assistant, worked on the racial disparities and mortality rates for ovarian cancer in Texas, 1999-2009. Presented as a poster at the 24 th Annual Research Appreciation Day (RAD), University of North Texas Health Science Center, Fort Worth, TX, April 18, 2016 and prepared a manuscript with the same title.	2016
Okafor, Caleb, Research Assistant, worked on assessing the efficacy of a barrier cream on reducing nicotine exposure in migrant tobacco harvesting workers; presented a poster at the American Industrial Hygiene Conference and Exposition, Baltimore, MD, May 21 - 26, 2016: Okafor C, Gohil V, Liu Y, Sterling DA, Pearce R, Biswas S, Prince TS, Davis G, Carol M, Reed D, Klingner T, Tokarski M, Stinchcomb A. Determinants of nicotine exposure in tobacco harvesting workers: a pilot study; received best student poster and appreciation awards	2015-2016
Gohil, Vedant, Research Assistant, worked on assessing the efficacy of a barrier cream on reducing nicotine exposure in migrant tobacco harvesting workers; presented a poster at the American Industrial Hygiene Conference and Exposition, Baltimore, MD, May 21 - 26, 2016: Gohil V, Okafor C, Liu Y, Sterling DA, Pearce R, Prince TS, Davis G, Carol M, Reed D, Biswas S, Stinchcomb A. Tobacco harvesting work, exposure to nicotine, vital signs and nicotine poisoning; received best student poster and appreciation awards	2015-2016
Iyioribhe, Emanehi, Research Assistant, worked on the effect of air pollution guidelines on COPD sufferers; published an article: Liu Y, Yan S, Poh K, Liu S, Iyioribhe E, Sterling DM. Impact of air quality guidelines on COPD sufferers. International Journal of COPD 2016;11(1): 839-72	2015-2016

Poh, Karen, Volunteer Research Assistant, worked on the effect of air pollution guidelines on COPD sufferers; published an article: Liu Y, Yan S, Poh K, Liu S, Iyioribhe E, Sterling DM. Impact of air quality guidelines on COPD sufferers. International Journal of COPD 2016;11(1): 839-72; currently a PhD student at Texas A&M University	2014-2014
Uzoeghelu, Ugochukwu, Volunteer Research Assistant, conducted a nanoparticle exposure and health literature review	2014-2014
Akintunde, Kikelomo, Volunteer Research Assistant, worked on air pollution and birth defects in 6 Texas counties project and also trained on critically reviewing post-publication articles and publishing the comments online at F1000 Medicine Prime	2013-2015
Franklin, Gillian Andrea, Ph.D. Student and Research Assistant, worked on isocyanate exposure in neonates at Cook Children's Hospital; completed a dissertation and published an article: Franklin G, Harari H, Ahsan S, Bello D, Sterling D, NedreLOW J, Raynaud S, Biswas S, Liu Y. Residual isocyanates in medical devices and products: a qualitative and quantitative assessment. Environmental Health Insights 2016;10:175–90; presented several posters at local and national conferences and received the President's Award in Academic Excellence at graduation in 2014	2013-2014
Uche, Uloma Igara, Volunteer Research Assistant, worked to critically review 60 NIOSH skin notation documents	2013-2014
Ahsan, Samavi, Research Assistant, worked on isocyanate exposure assessment in neonates at Cook Children's Hospital study; published an article: Franklin G, Harari H, Ahsan S, Bello D, Sterling D, NedreLOW J, Raynaud S, Biswas S, Liu Y. Residual isocyanates in medical devices and products: a qualitative and quantitative assessment. Environmental Health Insights 2016;10:175–90 and presented several posters at local and national conferences	2011-2013
Jones, Cheyenne, Summer Undergraduate Student, May 25, 2011 – July 29, 2011: conducted a literature review on solvent exposure and health and presented a poster at the University	2011-2011
Patil, Nirav, Research Assistant, worked on indoor air pollution study in Guangzhou, China; presented a poster on the 19 th Annual Research Appreciation Day (RAD), University of North Texas Health Science Center, Fort Worth, TX, April 1, 2011: Patil N, Burton M, Raines J, Biswas S, Tan, Q, Chen B, Song H, Guo X, Liu Y. Indoor-home, indoor-office and outdoor exposures to hazardous air pollutants in Guangzhou, China: a pilot study	2010-2011
<u>University of Kentucky College of Public Health, 2006-2010</u>	
<i>MPH Students Capstone Committee</i>	
Member, McGuire, Patrick , capstone thesis title: Tobacco in prisons: the effect of tobacco-free policy in Kentucky prisons on exposure to PM _{2.5}	Spring 2010
Member, Baker, Tiffany Johnson, capstone thesis title: Characterization of Appalachia vs. non-Appalachia highway and street construction workers' injuries in Kentucky	Spring 2010
Member, Webb, Delena, capstone thesis title: Evaluation on laboratory safety practices of a university	Spring 2010

Member, Moore, Kristi Lynn, capstone thesis title: Occurrence of bacterial and viral indicators among private ground water wells in Hickman County, Kentucky Spring 2008

DrPH Student Capstone Committee

Member, Pressley, Sheila, Capstone dissertation title: A comparison of tax parcel data and the targeted zip codes identified by the Kentucky Lead Prevention Risk Index using GIS to determine childhood lead screening rates; currently Interim Dean in the College of Health Sciences, Eastern Kentucky University 2008-2010

Students Advised and Mentored

Lackman, Dorothy, Occupational Medicine Resident: trained on critically reviewing post-publication articles and publishing the comments online at F1000 Medicine Prime 2009-2010

McGuire, Patrick, MPH student 2008-2010

Stanfield, Kara, MPH student 2007-2010

Wright, Sophia, DrPH student 2006-2009

Holsinger, Hannah, Research Assistant 2007-2008

Yale University School of Medicine, 1997-2006

Research Assistants Mentored

Collin-Hansen, Ingwill: worked on assessing dermal exposure to organic solvents; presented orally a study at the American Industrial Hygiene Conference and Exposition, Chicago, IL, May 13-18, 200: Collin-Hansen I, Stowe MH, Ibrahim K, Youngs F, Vo E, Boeniger MF, Woskie SR, Redlich CA, **Liu Y.** Field evaluation of gloves and protective clothing against organic solvents during auto body spray painting 2005-2006

Ibrahim, Karim; worked on the isocyanate intervention study in auto body shops; Presented orally a study at the American Industrial Hygiene Conference and Exposition, Chicago, IL, May 13-18, 2006: Ibrahim K, Sparer J, Stowe MH, Fleming CE, Collin-Hansen I, Redlich CA, **Liu Y.** NCO group availability within polyurethane auto body paint – Isocyanate curing times 2004-2006

Daly, Chris: worked on the isocyanate intervention study in auto body shops 2003-2006

Fleming, Courtney: worked on assessing dermal exposure to organic solvents and wo the isocyanate intervention study in auto body shops 2003-2006

Lutgendorf, Claire: worked on the isocyanate intervention study in auto body shops 2004-2005

Essays/Theses/Dissertations

<u>Student</u>	<u>Level</u>	<u>Role</u>	<u>Status</u>
Hoyer, Mitchell	MPH Professional	Thesis reader	Degree in Progress 2017
Franklin, Gillian	PhD Environmental Health Sciences	Major Professor	PhD awarded 2014

Pressley, Sheila	DrPH Environmental Health	Faculty committee member	DrPH awarded 2010
McGuire, Patrick	MPH Environmental Health	Faculty committee member	MPH awarded 2010
Johnson, Tiffany	MPH Environmental Health	Faculty committee member	MPH awarded 2010
Webb, Delena	MPH Environmental	Faculty committee member	MPH awarded 2010
Moore, Kristi	MPH Environmental Health	Faculty committee member	MPH awarded 2008

Course or Curriculum Development

*University of North Texas Health Science Center School of
Public Health*

Course Director, EOHS 5330, Recognition, Evaluation and Control of Environmental Hazards, 3 credit hours, a lecture-based course required for both M.P.H. and Ph.D. students majored in environmental health; newly designed and taught since 2010

Course Director, EOHS 5331, Environmental and Occupational Sampling and Analysis Methods, 3 credit hours, a laboratory-based course required for both M.P.H. and Ph.D. students majored in environmental health; newly designed and taught since 2010

Course Director, EOHS 6391, Advanced Topic in Environmental and Occupational Health. 1-3 credit hours; journal club type of course for PhD students, but MPH students are also eligible to take it; newly designed and taught since 2010

Course Director, CPH 729, Independent Studies in Occupational and Environmental Health, 3 credit hours. Developed a new course: Advanced Exposure Assessment for Doctoral Students; Us newly designed independent study course

Course Director, CPH 728 (PM 651), Workplace Ventilation, 3 credit hours, an elective course for MPH students majored in environmental health or industrial hygiene: newly designed online course

GRANTS, CONTRACTS, AND OTHER FUNDING:

Pending National/International Grants and Contracts

Active National/International Grants and Contracts

Role: Principal-Investigator, 18%, 75D30118C02647

PI: Y Liu

Title: "Assessing elastomeric respirators in healthcare delivery organizations." The major goal of this study is to assess the feasibility of training and fit testing healthcare workers and incorporating elastomeric respirators in routine healthcare delivery tasks.

Source: Centers for Disease Control and Prevention (CDC)/NIOSH

09/01/2018-08/31/2023

Total Direct Costs: \$254,640

Grants and Contracts Submitted at Wayne State University, 2017 - present

Role: Principal-Investigator, 28%, R01 OH011808

PI: Y Liu

Title: "Assessment of powered air-purifying respirators in healthcare delivery settings." The major goal of this study is to assess the effectiveness of an intervention program on powered air-purifying respirators in protecting healthcare workers from infectious agents

Funding Source: Centers for Disease Control and Prevention (CDC)/NIOSH

Date submitted: 10/07/2019

Total Direct Costs: \$1,598,389

Duration of the Study: 07/01/2020-06/30/2024

Total Indirect Costs: \$306,580

Total Costs: \$1,904,969

Outcome: Pending

Role: Principal-Investigator, 28%, R01 OH011808

PI: Y Liu

Title: "Assessment of powered air-purifying respirators in healthcare work settings." The major goal of this study is to assess the effectiveness of powered air-purifying respirators in protecting healthcare workers from infectious agents

Funding Source: Centers for Disease Control and Prevention (CDC)/NIOSH

Date submitted: 10/05/2018

Total Direct Costs: \$1,600,000

Duration of the Study: 07/01/2019-06/30/2023

Total Indirect Costs: \$407,575

Total Costs: \$2,007,575

Outcome: Not funded

Role: Principal-Investigator, 18%

PI: Y Liu

Title: "Assessing elastomeric respirators in healthcare delivery organizations."

Objectives: The major goal of this study is to assess the feasibility of training and fit testing healthcare workers and incorporating elastomeric respirators in routine healthcare delivery tasks.

Funding Source: Centers for Disease Control and Prevention (CDC) /National Institute for Occupational Safety and Health (NIOSH)

Date submitted: 07/31/2018

Total Direct Costs: \$254,640

Duration of the Study: 09/01/2018 – 08/31/2020

Total Indirect Costs: \$137,490

Total Costs: \$392,130

Outcome: Funded

Role: Principal-Investigator, 10% (Institutional shared)

PI: Y Liu

Title: "Isocyanate Exposure and Asthma Exacerbation in Detroit Children: A Pilot Study."

Objectives: The major goal of this study is to evaluate the relationship between environmental exposure to persistent organic compounds and the risk of diabetes.

Funding Source: Michigan Diabetes Center

Date submitted: 07/18/2018

Total Direct Costs: \$35,000

Duration of the Study: 04/01/2019 – 03/31/2020

Total Indirect Costs: \$0

Total Costs: \$35,000

Outcome: Not funded

Role: Principal-Investigator, 10% (Institutional shared)

PI: Y Liu

Title: "Exposure to Organic Pollutants, Inflammatory Markers, DNA Methylation and Diabetes in African American Women".

Objectives: The objective of this pilot study is to explore interrelationships among exposure to POPs, inflammatory markers, DNA methylation and diabetes.

Funding Source: Michigan Diabetes Research Center 2018-19 Regional Pilot/Feasibility (P/F) Grant Application

Date submitted: 08/06/2018

Total Direct Costs: \$70,000

Duration of the Study: 09/01/2017 – 12/31/2019

Total Indirect Costs: \$0

Total Costs: \$70,000

Outcome: Not funded

Grants and Contracts Submitted at the University of North Texas Health Science Center, 2016 - 2017

Role: Principal-Investigator, 58% (Institutional shared)

PI: Y Liu

Title: "Intervention study to reduce nicotine exposure in tobacco harvesting workers".

Objectives: The major goal of this project is to assess the effectiveness of an integrated intervention program to reduce nicotine exposure and green tobacco sickness in tobacco harvesting workers in Kentucky.

Funding Source: CDC/NIOSH

Duration of the Study: 09/01/2017 – 8/31/2021

Total Direct Costs: \$1,648,151

Total Indirect Costs: \$628,473

Total Costs: \$2,276,624

Outcome: Not funded

Previously Funded Grants and Contracts

Role: Principal-Investigator, 20%, 200-2015-M-63768

PI: Y Liu

Title: "Assessing user barriers of PAPRs in healthcare work settings." The major goal of this study was to identify potential user barriers of 4 models of powered air-purifying respirators (PAPRs) used in healthcare setting.

Source: Centers for Disease Control and Prevention (CDC)/NIOSH

07/15-03/18

Total Direct Costs: \$97,373

Role: Principal-Investigator, 10%, 1R03OH009815

PI: Y Liu

Title: "Efficacy Study of a Nicotine Barrier Cream." The major goal of this study was to assess the effectiveness of a barrier cream in reducing the skin absorption of nicotine in an *in vitro* testing and in an *in vivo* testing with tobacco farmers and farm workers.

Source: CDC/NIOSH

09/13-08/16 (one-year no-cost extension)

Total Direct Costs: \$100,000

Role: Co-Principal-Investigator, 10%, AG-13-1032

PI: J NedreLOW and Y Liu

Title: "Isocyanate Exposure in Infants." The major goal of this study was to conduct a prospective study to evaluate skin exposure of newborn babies to isocyanates from medical devices and products used in a neonatal intensive care unit at Cook Children's hospital in Fort Worth, TX.

Source: Cook Children's Healthcare System Clinical Scholars Program

06/12-05/16 (two-year no-cost extension)

Total Direct Costs: \$50,000

Role: Consultant, 11%, 1R01CA170508-0

PI: G Tourassi and S Xu

Title: "A Cyber Informatics Approach to Studying Migration and Environmental Cancer Risk." The major goal of this study was to develop cyberinformatics tools to leverage the power of online contents, including user-generated contents on social network sites, for knowledge discovery regarding complex migration patterns and their effect on environmental cancer risk.

Source: National Institutes of Health (NIH)/National Cancer Institute (NCI)

09/12-06/16

Total Direct Costs: \$410,454

Role: Principal-Investigator, 13%, 13IPA1313352

PI: Y Liu

Title: "NIOSH Skin Notation Documents Review and Evaluation." The major goal of this project was to critically evaluate NIOSH skin notation documents to ensure their scientific merit, accuracy and creditability.

Source: CDC/NIOSH

08/12-08/14

Total Direct Costs: \$14,440

Role: Co-Investigator, 10%, OPPT-2006-0648

PI: L Figgs

Title: "Regional CLOUT (Consortium for Leadership, Outreach and Training)." The major goal of this project was to conduct an educational outreach program on the potential health risk associated with lead exposure.

Source: United States Environmental Protection Agency (EPA)

10/07-09/09

Total Direct Costs: \$249,750

Role: Co-Investigator, 5%, OPPT-2006-0619

PI: L Figgs

Title: "Kentucky Regional Lead Screening Consortium: A Multi-county Approach to Blood Lead Poisoning Risk Reduction in Kentucky's Pediatric Medicaid Population." The major goal of this project was to identify and reduce lead poisoning in understudied areas with a high probability for undocumented elevated blood.

Source: EPA

07/07-06/09

Total Direct Costs: \$100,000

Role: Principal-Investigator, 0%,

PI: Y Liu

Title: "The Efficacy of a Barrier Cream to Reduce Skin Exposure to Nicotine: a Laboratory Testing." The major goal of this pilot study was to assess the effectiveness of a barrier cream in reducing absorption of nicotine in an *in-vivo* testing.

Source: University of Cincinnati Education and Research Center, Pilot Research Program

07/08-06/09

Total Direct Costs: \$8,668

Role: Co-Investigator, 0%,

PI: T Bunn

Title: "Fuel Solvent Exposure Assessment in the Repair and Maintenance of Farm Machinery in Kentucky Farmers: A Pilot Study." The major goal of this pilot study was to evaluate Kentucky farmers and farm workers' exposure to fuel solvents during farm machinery repairs and maintenance.

Source: University of Kentucky Vice President for Research – Research Support Grant

02/07-06/08

Total Direct Costs: \$20,000

Role: Co-Investigator, 0%,

PI: T Chambers

Title: "Inactivation of Influenza Virus via Gamma Irradiation and Reusability of N95 Respirators." The major goal of this pilot study was to conduct a pilot study to examine the efficacy of Gamma irradiation on equine influenza virus and the physical and functional integrity of N95 respirators after irradiation.

Source: University of Kentucky Vice President for Research – Research Support Grant

11/06-10/07

Total Direct Costs: \$18,400

Role: Co-Investigator, 40%, R01OH034506

PI: M Cullen

Title: "Longitudinal Study of Isocyanate Asthma in Auto Body Shops." The major goal of this study was to examine the incidence and etiology of isocyanate asthma in auto body shop workers in Connecticut longitudinally.

Source: CDC/NIOSH

08/02-09/07

Total Direct Costs: \$2,297,393

Role: Principal-Investigator, 60%, R01OH004246

PI: Y Liu

Title: "Isocyanate Exposure Intervention Study in Body Shops." The major goal of this study was to implement a comprehensive intervention program in auto body shops and evaluate its effectiveness in reducing workers' exposures to isocyanates and organic solvents and the risk of developing immunologic markers.

Source: CDC/NIOSH

09/02-10/06 (one-year no cost extension)

Total Direct Costs: \$1,221,890

Role: Principal-Investigator, 10%, MM-0722-04/04

PI: Y Liu

Title: "Efficacy Study on Skin Protection in Body Shops." The major goal of this study was to evaluate the protection effectiveness of gloves and coveralls used in auto body shops against organic solvents.

Source: Association of American Medical Colleges (AAMC)/CDC/NIOSH Cooperative Agreement

10/03-09/05 (one-year no cost extension)

Total Direct Costs: \$99,985

Role: Co-Investigator (prepared the grant application as a Postdoctoral Associate), 40%, R01HL62932

PI: M Cullen

Title: "Isocyanate Dermal Exposures in Auto Body Shops." The major goal of this study was to assess surface contamination, skin exposure to isocyanates and evaluate the effectiveness of personal protective equipment in auto body shops and determine the systemic absorption and risk of asthma.

Source: NIH/National Heart, Lung and Blood Institute (NHLBI)

09/98-08/02 (one-year no cost extension)

Total Direct Costs: \$235,438

Role: Co-Investigator, 40%

PI: H Hu

Title: "Indoor Exposure to Formaldehyde in Greater Beijing Areas." The major goal of this study was to assess indoor exposures to formaldehyde in residential buildings, furniture shops, office buildings, and evaluate exposure determinants.

Source: China Ministry of Health

09/87-08/90

Total Direct Costs: ¥ 500,000

Clinical Trials Activities

Role: Principal-Investigator, 18%, 75D30118C02647

PI: Y Liu

Title: "Assessing elastomeric respirators in healthcare delivery organizations." The major goal of this study is to assess the feasibility of training and fit testing healthcare workers and incorporating elastomeric respirators in routine healthcare delivery tasks.

Source: Centers for Disease Control and Prevention (CDC)/NIOSH

09/01/2018-08/31/2023

Total Direct Costs: \$254,640

Role: Principal-Investigator, 10%, 1R03OH009815

PI: Y Liu

Title: "Efficacy Study of a Nicotine Barrier Cream." This study was considered a Phase I clinical trial and approved by FDA.

Source: CDC/NIOSH

09/01/2013-08/31/2016 (one-year no-cost extension)

Peer-Reviewed Publications

*Reports of Original Work (*Indicating a Student or Trainee)*

1. Franklin G*, Harari H*, Ahsan S*, Bello D, Sterling D, NedreLOW J, Raynaud S, Biswas S, **Liu Y**. Residual isocyanates in medical devices and products: a qualitative and quantitative assessment. *Environmental Health Insights* 2016;10:175–90.
2. Faramawi MF, Delongchamp R, Lin YS, **Liu Y**, Abouelenien S, Fischbach L, Jadhav S. Environmental lead exposure is associated with visit-to-visit systolic blood pressure variability in the US adults. *Int Arch Occup Environ Health*. 2015; 88(3):381-8.
Role: Study conception and design and manuscript writing.
3. Wu S*, Deng F, **Liu Y**, Shima M, Niu J, Huang Q, Guo X. Temperature, traffic-related air pollution, and heart rate variability in a panel of healthy adults. *Environmental Research* 2013;120:82-9.
Role: Study conception and design, provision of study equipment and maintenance funds, faculty advisory and mentorship to the first author and manuscript writing.
4. El Faramawi M, **Liu Y**, Caffrey JL, Lin Y, Ghandi S*, Singh K. The association between urinary cadmium and frontal T wave axis deviation in the US adults. *International Journal of Hygiene and Environmental Health* 2012;215(3):406-10.
Role: Study conception and design and manuscript writing.
5. Wu S*, Deng F, Niu J, Huang Q, **Liu Y**, Guo X. Exposures to PM_{2.5} components and heart rate variability in taxi drivers around the Beijing 2008 Olympic Games. *Science of the Total Environment*. 2011;409(13):2478-85.
Role: Study conception and design, provision of study equipment and maintenance funds, faculty advisory and mentorship to the first author and manuscript writing.
6. Wu S*, Deng F, Niu J, Huang Q, **Liu Y**, Guo X. The relationship between traffic-related air pollutants and cardiac autonomic function in a panel of healthy adults: a further analysis with existing data. *Inhalation Toxicology* 2011;23(5):289-303.
Role: Study conception and design, provision of study equipment and maintenance funds, faculty advisory and mentorship to the first author and manuscript writing.

7. Wu S*, Deng F, Niu J, Huang Q, **Liu Y**, Guo X. Association of heart rate variability in taxi drivers with marked changes of particulate air pollution in Beijing in 2008. *Environmental Health Perspectives* 2010;118(1):87-91.
Role: Study conception and design, provision of study equipment and maintenance funds, faculty advisory and mentorship to the first author and manuscript writing.
8. Bunn TL, **Liu Y**, Lee K, Robertson M, Yu L. Farmer exposure to organic solvents during the maintenance and repair of farm machinery: a pilot study. *American Journal of Industrial Medicine* 2009; 52:973-81.
Role: Study conception and design, joint grant application to obtain funds from the University, field data collection, laboratory analysis of the organic solvents and manuscript writing.
9. **Liu Y**, Stowe MH, Bello D*, Sparer JA, Gore R, Cullen MR, Redlich CA, Woskie SR. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: III. A personal exposure algorithm. *Annals of Occupational Hygiene* 2009; 53(1):33-40.
10. Woskie SR, Bello D*, Gore RJ, Stowe MH, Eisen E, **Liu Y**, Sparer JA, Redlich CA, Cullen MR. Comparison of task-based inhalation exposure metrics for an epidemiologic study of isocyanate exposed auto body shop workers. *Journals of Occupational and Environmental Hygiene* 2008; 5:588-98.
Role: Study design, method development, exposure assessment manager, field data collection, laboratory support, and manuscript writing.
11. Bello D*, Stowe MH, Sparer JA, Woskie SR, Streicher RP, Cullen MR, Redlich CA, **Liu Y**. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: II. A quantitative assessment. *Annals of Occupational Hygiene* 2008; 52(2):117-24.
12. **Liu Y**, Bello D*, Sparer JA, Stowe MH, Gore RJ, Woskie SR, Cullen MR, Redlich CA. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: a qualitative assessment. *Annals of Occupational Hygiene* 2007; 51(5):429-39.
13. Bello D*, Sparer JA, Redlich CA, Ibrahim K*, Stowe MH, **Liu Y**. Slow curing of aliphatic polyisocyanate paints in automotive refinishing: A potential source for skin exposure. *Journal of Occupational and Environmental Hygiene* 2007; 4(6):406-11.
14. Bello D*, Smith TJ, Woskie SR, Streicher RP, Boeniger MF, Redlich CA, **Liu Y**. An FTIR investigation of isocyanate skin absorption using hairless guinea pig skin. *Journal of Environmental Monitoring* 2006; 8(5):523-9.
15. **Liu Y**, Stowe MH, Bello D*, Woskie SR, Sparer J, Gore R, Youngs F, Cullen MR, Redlich CA. Respiratory protection from isocyanate exposure in auto body repair and refinishing industry. *Journal of Occupational and Environmental Hygiene* 2006; (5):234-49.
16. **Liu Y**, Woodin MA, Smith TJ, Herrick RF, Williams PL, Hauser R, Christiani DC. Exposure to fuel-oil ash and welding emissions during the overhaul of an oil-fired boiler. *Journal of Occupational and Environmental Hygiene* 2005; 2(9):435-43.
17. Bello D*, Woskie SR, Streicher RP, Stowe MH, Sparer J, Redlich CA, Cullen MR, **Liu Y**. A laboratory investigation of the decontamination effectiveness of various skin and surface decontaminants for aliphatic polyisocyanates. *Journal of Environmental Monitoring* 2005; 7(7):716-21.
18. **Liu Y**, Woodin MA, Hauser R, Williams PL, Herrick RF, Christiani DC, Smith TJ. Estimation of personal exposures to particulate matter and metals for workers exposed to fuel-oil ash. *Journal of Occupational and Environmental Medicine* 2005; 47(1):68-78.

19. Woskie SR, Sparer JA, Gore R, Stowe MH, Bello D*, **Liu Y**, Youngs F, Redlich CA, Cullen M. Determinants of isocyanate exposures in autobody repair and refinishing shops. *Annals of Occupational Hygiene* 2004; 48:393-403.
Role: Study design, method development, exposure assessment manager, field data collection, laboratory support, and manuscript writing.
20. Sparer J, Stowe M, Bello D*, **Liu Y**, Gore R, Youngs F, Cullen MR, Redlich CA, Woskie SR. Isocyanate exposures in autobody shop work: The SPRAY study. *Journal of Occupational and Environ Hygiene* 2004; 1(9):570-81.
Role: Study design, method development, exposure assessment manager, field data collection, laboratory support, and manuscript writing.
21. **Liu Y**, Berode M, Stowe MH, Holm CT, Walsh FX, Slade M, Boeniger MF, Redlich CA. Urinary hexane diamines to assess respiratory exposure to hexamethylene diisocyanate aerosol: a human inhalation study. *International Journal of Occupational and Environmental Health* 2004; 10(3):262-71.
22. Bello D*, Streicher RP, **Liu Y**, Sparer J, Youngs F, Woskie SR. Field comparison of impingers and treated filters for sampling of total aliphatic isocyanates with the MAP reagent. *American Industrial Hygiene Association Journal* 2002; 63:790-6.
Role: Study conception, research design, method development, exposure assessment manager, field data collection, laboratory support and manuscript writing.
23. Redlich CA, Stowe MH, Wisnewski AV, Eisen EA, Karol MH, Lemus R, Holm CT, Chung JS, Sparer J, **Liu Y**, Woskie SR, Appiah-Pippim J, Gore R, Cullen MR. Subclinical immunologic and physiologic responses in hexamethylene diisocyanate-exposed auto body shop workers. *American Journal of Industrial Medicine* 2001; 39:587-97.
Role: Research design, method development, field data collection, laboratory support and manuscript writing.
24. **Liu Y**, Sparer JA, Woskie SR, Cullen MR, Chung JS, Holm CT, Redlich CA. Qualitative assessment of isocyanate skin exposure in auto body shops: a pilot study. *American Journal of Industrial Medicine* 2000; 37(3):265-74.
25. Woodin MA*, **Liu Y***, Neuberg D, Hauser R, Smith TJ, Christiani DC. Acute respiratory symptoms in workers exposed to vanadium-rich fuel-oil ash. *American Journal of Industrial Medicine* 2000; 37(4):353-63.
Role: Research design, method development, exposure assessment manager, field data collection, laboratory support and manuscript writing.
26. Woodin MA*, **Liu Y***, Hauser R, Smith TJ, Christiani DC. Pulmonary function in workers exposed to low levels of fuel-oil ash. *Journal of Occupational and Environmental Medicine* 1999; 41(11):973-80.
Role: Research design, method development, exposure assessment manager, field data collection, laboratory support and manuscript writing.
27. Woodin MA*, Hauser R, **Liu Y***, Smith TJ, Siegel PD, Lewis DM, Tollerud DJ, Christiani DC. Molecular markers of acute upper airway inflammation in workers exposed to fuel-oil ash. *American Journal of Respiratory and Critical Care Medicine* 1998; 158(1):182-7.
Role: Research design, method development, exposure assessment manager, field data collection, laboratory support and manuscript writing.
28. Liu J, Hu H, **Liu Y**, Wei B*, Wen T, Liu Z*, Wen T, Hao L, Zhao T, Wu M, Lu Q. A study on indoor formaldehyde pollution and sources in rural area in North China. *Chinese Journal of Environment and Health* 1993; 10(1):10-3 (in Chinese with English abstract).
Role: Study conception, Co-Investigator, research design, method development, exposure assessment manager, field data collection, laboratory support and manuscript writing.

29. Hu H, **Liu Y**. Evaluation of indoor air pollution and its effect on human health in Beijing rural areas. *Environment International* 1989; 15:321-35.

*Review Articles (*Indicating a Student or Trainee; #Indicating Equal Contributions)*

1. Yang AC, # **Liu Y**,# Shao Y, Yang CZ, Xu J, Yang B. Hydroxychloroquine and interferons for the prophylaxis and early treatment of Covid-19: current clinical advances. *Journal of Clinical & Cellular Immunology* 2020;11(5):596. DOI: 10.35248/2155-9899.20.11:596.
2. **Liu Y**, Yan S, Poh K*, Liu S*, Iyoriobhe E*, Sterling DM. Impact of air quality guidelines on COPD sufferers. *International Journal of COPD* 2016;11(1): 839-72.
1. **Liu Y**, Lee K, Perez-Padilla R, Hudson NL*, Mannino DM. Outdoor and indoor air pollution and COPD related diseases in high- and low-income countries. *International Journal of Tuberculosis and Lung Diseases* 2008; 12(2): 115-27.
2. Bello D*, Herrick CA, Smith TJ, Woskie SR, Cullen MR, **Liu Y**, Redlich CR. Skin exposure to isocyanates: reasons for concern. *Environmental Health Perspective* 2007; 115(3):328-35.
Role: Study conception, article design, literature collection, critical review and comments and manuscript writing.
3. Bello D*, Woskie SR, Streicher RP, **Liu Y**, Stowe MH, Ellenbecker MJ, Eisen EA, Sparer J, Youngs F, Cullen MR, Redlich CA. Polyisocyanates in occupational environments: a critical review on exposure limits and metrics. *American Journal of Industrial Medicine* 2004; 46:480-91.
Role: Study conception, article design, literature collection, critical review and comments and manuscript writing.
4. **Liu Y**, Hu H. Indoor formaldehyde pollution and human health. *Chinese Journal of Medicine Abroad* 1987; 15(4):210-3 (in Chinese).

Editorials/Commentaries

1. **Liu Y**. Where there is smoke, there is lung disease. *Thorax* 2007; 62:838-9.

Book Authorships, Editorships, and Chapters

1. **Liu Y**, Liu S, He X, Sterling DA. Respiratory protection against exposure to isocyanates. In: Racz L, Yamamoto DP, Eninger RM, editors. *Handbook of Respiratory Protection: Safeguarding Against Current and Emerging Hazards*. Boca Raton, FL: CRC Press, Taylor & Francis Group, pp. 273-292, 2018.
2. Bailar JC, Brosseau LM, Cohen HJ, Hack AL, Lele SR, **Liu Y**, Rightsmeier JT, Ringen K, Rojo J, Sciarretta AA: IOM Committee for the Assessment of the NIOSH Head-and Face Anthropometric Survey of the U.S. Respirator Users, John C. Bailar III, Emily Ann Meyer, Robert Pool, Editors. *Assessment of the NIOSH Head-and-Face Anthropometric Survey of U.S. Respirator Users*. Washington, DC: National Academies Press, pp. 1-224. ISBN: 0-309-66888-3, 2007.
3. Bailar JC, Brosseau LM, Cohen HJ, Hack AL, Lele SR, **Liu Y**, Rightsmeier JT, Ringen K, Rojo J, Sciarretta AA: IOM Committee for the Development of Reusable Facemasks for Use during an Influenza Pandemic. *Reusability of Facemasks during an Influenza Pandemic: Facing the Flu*. Washington, DC: National Academies Press, pp. 1-92. ISBN 0-309-10182-4, 2006.

4. **Liu Y.** Exposure assessment and modeling methods in epidemiologic studies. In: Wang Z, editor. Environmental Medicine. Beijing, China: Beijing Medical University Press. pp. 150-62, 2001 (in Chinese).
5. **Liu Y.** Respiratory diseases. In: Wang Z, editor. Environmental Medicine. Beijing, China: Beijing Medical University Press, pp. 231-9, 2001 (in Chinese).
6. Smith KR, **Liu Y.** Indoor air pollution in developing countries. In: Samet JM, editor. Epidemiology of Lung Cancer. New York, NY: Marcel Dekker, Inc., pp. 154-63, 1994.
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Peer-Reviewed Articles Published in Conference Proceedings

1. **Liu Y,** Zhuang Z, Raynaud S, He X, Chen S, Southworth B, Jacobs L, Batra S, Hood J, Schultz E, Trivedi S, Okereke O, Nnaka T and Sterling D. Assessing facial, thermal and eye discomfort, acceptability and perceived protective efficiency of PAPRs in simulated healthcare work settings. To be submitted to 20th Congress IEA, Florence, Italy, August 26th to 30th, 2018.
2. **Liu Y,** Liu J, Hu H. Variations of formaldehyde exposure in residences and public buildings in Beijing. In: Jaakkola JJK, editor. Proceedings of Sixth International Conference on Indoor Air Quality and Climate (INDOOR AIR '93). Helsinki, Finland: University of Technology, Volume 2, pp. 129-34, 1993.
3. Smith KR, **Liu Y,** Revera J, Boy E, Leaderer B, Johnston CS, Yanagisawa Y. Lee K. Indoor air quality and child exposure in Highland Guatemala. In: Jaakkola JJK, editor. Proceedings of Sixth International Conference on Indoor Air Quality and Climate (INDOOR AIR '93). Helsinki, Finland: University of Technology, Volume 1, pp. 441-6, 1993.
4. Liu J, **Liu Y,** Hu H. Characteristics of rural indoor formaldehyde pollution in Northern China. In: Walkinshaw D, editor. Proceedings of Fifth International Conference on Indoor Air Quality and Climate (INDOOR AIR '90). Toronto, Canada: Canada Housing and Mortgage Corporation, Volume 2, pp. 275-80, 1990.
5. **Liu Y,** Xu D. Measures to improve environmental health in rural China. Proceedings of the Fourth Asian Congress on Rural Medicine and Primary Health Care. Beijing, China: Ministry of Health, pp. 86-7, 1988.
6. Hu H, **Liu Y.** Hygienic evaluation of indoor air pollution and its effect on human health in Beijing's rural areas. In: Seifert B, editor. Proceedings of Fourth International Conference on Indoor Air Quality and Climate (INDOOR AIR '87). West Berlin, Germany: Institute of Air, Water and Soil, Volume 3, pp. 15-9, 1987.

Published Abstracts

1. Wu S, Deng F, **Liu Y,** Guo X. Exposure to traffic-related air pollutants in taxi drivers around the Beijing 2008 Olympic Games. Epidemiology 2011; 22 (1):S220.
2. Wu S, Deng F, Niu J, Huang Q, **Liu Y,** Guo X. Marked changes in particulate air pollution in Beijing in 2008 and heart rate variability in taxi drivers. Epidemiology 2011; 22 (1):S78.
3. Redlich CA, Stowe MH, Wang S, Liu, J, Gore RJ, **Liu Y,** Woskie SR, Wisnewski AV. IgG responses to isocyanate in auto body shop workers: associations with skin and respiratory exposures. American Journal of Respiratory and Critical Care Medicine 2009; 179:A367.

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7. **Liu Y**, Bello D, Redlich CA, Stowe MH, Cullen MR, Walsh FX, Young F, Woskie SR. Comparison of two methods for sampling hexamethylene diisocyanate biuret aerosol: a chamber study. *American Journal of Respiratory and Critical Care Medicine* 2003; 167(7):A716.
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11. Woodin MA, **Liu Y**, Newberg D, Hauser R, Smith TJ, Christiani DC. Acute respiratory symptoms in workers exposed to fuel oil ash. *American Journal of Respiratory and Critical Care Medicine* 1999; 159(3):A235.
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13. Woodin MA, Hauser R, **Liu Y**, Smith TJ, Christiani DC. Respiratory symptom incidence in workers overhauling an oil-fired boiler. *American Journal of Respiratory and Critical Care Medicine* 1997; 155(4):A811.
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3. Liu Y and Akintunde K*: F1000Prime Recommendation of [Cantley LF et al., Scand J Work Environ Health 2014, 40(1):57-65]. In F1000Prime, 04 Mar 2014; DOI: 10.3410/f.718150140.793491587. F1000Prime.com/718150140#eval793491587; <http://f1000.com/prime/718150140>.
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7. Liu Y: F1000Prime Recommendation of [Faiz AS et al., Am J Epidemiol 2012, 176(4):308-16]. In F1000Prime, 13 Aug 2012; DOI: 10.3410/f.717952722.793458197. F1000Prime.com/717952722#eval793458197; <http://f1000.com/prime/717952722#recommendations>.
8. Liu Y: F1000Prime Recommendation of [Silverstone AE et al., Environ Health Perspect 2012, 120(5):727-32]. In F1000Prime, 21 Jun 2012; DOI: 10.3410/f.716997885.792302897. F1000Prime.com/716997885#eval792302897; <http://f1000.com/prime/716997885#recommendations>.
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PRESENTATIONS:

Podium Presentations (refereed)

1. **Liu Y**, Zhuang Z, Raynaud S, He X, Chen S, Southworth B, Jacobs L, Batra S, Hood J, Schultz E, Trivedi S, Okereke O, Nnaka T and Sterling D. Assessing facial, thermal and eye discomfort, acceptability and perceived protective efficiency of PAPRs in simulated healthcare work settings. Presented orally at 20th Congress IEA, Florence, Italy, August 26th to 30th, 2018.
2. **Liu Y**, Stowe M, Sparer J, Redlich C. Effectiveness of educational and behavioral interventions to reduce isocyanate exposure in the auto body repair and refinishing industry: a cluster-randomized controlled trial. Presented orally at the American Industrial Hygiene Conference and Exposition, Salt Lake City, UT, May 30-June 4, 2015.
3. Franklin G, Ahsan S, Raynaud S, Nedrelov J, Sterling D, Biswas S and **Liu Y**. Isocyanates in medical devices: a qualitative assessment. Presented as a poster at the International Conference on Isocyanates and Health: Past, Present and Future, Bolger Conference Center, Potomac, MD, USA, April 3 - 4, 2013.
4. Wu S, Deng F, Niu J, Huang Q, **Liu Y**, Guo X. Marked changes in particulate air pollution in Beijing in 2008 and heart rate variability in taxi drivers. Orally presented in a symposium entitled "The Cardiovascular Effect of Air Pollution in East Asia". ISES-ISEE 2010: 2010 Joint Conference of International Society of Exposure Science & International Society for Environmental Epidemiology, Seoul, Korea, August 28 - September 1, 2010.

5. Wu S, Deng F, **Liu Y**, Guo X. Exposure to traffic-related air Pollutants in taxi drivers around Beijing 2008 Olympic Games. Orally presented at the ISES-ISEE 2010: 2010 Joint Conference of International Society of Exposure Science & International Society for Environmental Epidemiology, Seoul, Korea, August 28 - September 1, 2010.
6. **Liu Y**, Lee K, Li J. Indoor surface contamination by isocyanates from consumer products as a potential source of skin exposure for children: a pilot study. Platform presentation in the International Conference of Occupational and Environmental Exposures of Skin to Chemicals - 2009 (OEESC-2009), Edinburgh, UK, June 14-17, 2009.
7. Redlich CA, Stowe MH, Wang S, Liu J, Gore RJ, **Liu Y**, Woskie SR, Wisnewski AV. IgG responses to isocyanate in auto body shop workers: associations with skin and respiratory exposures. Presented at the American Thoracic Society's 105th International Conference, San Diego, CA, May 15-20, 2009.
8. **Liu Y**, Hazards, exposure, health and exposure control in small businesses: the auto body service industry. The 23rd Annual Governor's Safety & Health Conference & Expo. Louisville, KY, May 10, 2007.
9. Ibrahim K, Sparer J, Stowe MH, Fleming CE, Collin-Hansen I, Redlich CA, **Liu Y**. NCO group availability within polyurethane auto body paint – Isocyanate curing times. Presented orally at the American Industrial Hygiene Conference and Exposition, Chicago, IL, May 13-18, 2006.
10. Collin-Hansen I, Stowe MH, Ibrahim K, Youngs F, Vo E, Boeniger MF, Woskie SR, Redlich CA, **Liu Y**. Field evaluation of gloves and protective clothing against organic solvents during auto body spray painting. Presented orally at the American Industrial Hygiene Conference and Exposition, Chicago, IL, May 13-18, 2006.
11. **Liu Y**, Stowe MH, Sparer JA, Bello D, Cartmel B, Ibrahim K, Fleming C, Collin-Hansen I, Daly C, Youngs F, Woskie SR, Cullen MR, Redlich CA. Intervention research in the auto body repair and refinishing industry: The SMASH Study. Presented both orally and as a poster at the NIOSH NORA Symposium, *Research Makes A Difference*, Washington DC, April 18-21, 2006.
12. **Liu Y**, Stowe MH, Sparer J, Bello D, Lutgendorf CS, Daly CM, Ullman S, Ibrahim K, Fleming C, Cartmel B, Collin-Hansen I, Youngs F, Gore R, Woskie SR, Redlich CA, Cullen MR. Improving the safety and health of Hispanic workers in auto body repair and refinishing industry: a multi-facet approach. Presented orally at the Roundtable Discussion on Alternative Methods to Reach Hispanic Workers of American Industrial Hygiene Conference and Exposition, Anaheim, CA, May 21-26, 2005.
13. Woskie S, Bello B, **Liu Y**, Gore R, Stowe M, Sparer J, Youngs F, Redlich C, Eisen E. Development of a tiered exposure algorithm for isocyanate exposures in autobody repair shops. Presented orally at the X2004 Exposure Assessment in a Changing Environment, Utrecht, The Netherlands, June 16-18, 2004.
14. Bello D, Woskie S, Streicher RP, Stowe MH, Sparer JA, **Liu Y**. Surface and skin decontamination of aliphatic isocyanates in an experimental study. Orally presented at the American Industrial Hygiene Conference and Exposition, Atlanta, GA, May 8-13, 2004.
15. Boeniger M, Stull J, Hee SQ, Phalen R, Buckley T, Anna D, **Liu Y**, Vo E, Gao P. Recent methods developments and informational needs for chemical protective clothing (CPC) being supported by the National Institute for Occupational Safety and Health. Presented orally at the ASTM's Eighth Symposium on Performance of Protective Clothing: Global Needs and Emerging Markets. Tampa, FL, January 2004.
16. **Liu Y**, Sparer JA, Bello D, Stowe MH, Young F, Cullen MR, Redlich CA, Walsh FX, Holm CT, S. Woskie. Workplace performance assessment of half face-piece respirators in isocyanate-exposed body shop workers: the SPRAY study. Orally presented at the American Industrial Hygiene Conference and Exposition, Dallas, TX, May 10-15, 2003.

17. **Liu Y**, Stowe MH, Cullen MR, Walsh F, Sparer JA, Holm CH, Woskie SR, Boeniger M, Redlich CA. Effectiveness of decontamination products and nitrile gloves in reducing isocyanate skin exposure in auto body shops: A pilot assessment. Orally presented at the American Industrial Hygiene Conference and Exposition, San Diego, CA, June 1 - 6, 2002.
18. **Liu Y**, Berode M, Holm CT, Stowe MH, Walsh F, Sparer JA, Redlich CA. Urinary hexane diamine as a biomarker for assessing respiratory exposure to hexamethylene diisocyanate aerosol. Orally presented at the American Thoracic Society's 97th International Conference, San Francisco, CA, May 18-23, 2001.
19. **Liu Y**, Stowe MH, Berode M, Walsh F, Cullen MR, Sparer JA, Boeniger M, Holm CT, Redlich CA. Biological monitoring to assess exposure to hexamethylene diisocyanate in auto body repair shops. Orally presented at the American Industrial Hygiene Conference and Exposition, New Orleans, LA, June 2-7, 2001.
20. **Liu Y**, Stowe MH, Walsh F, Sparer JA, Cullen MR, Holm CT, Youngs F, Bello D, Woskie SR, Boeniger M, Redlich CA. Surface contamination and skin exposure to aliphatic isocyanates in auto body shops: a quantitative assessment. Orally presented at the American Industrial Hygiene Conference and Exposition, New Orleans, LA, June 2-7, 2001.
21. Bello D, Woskie SR, Youngs F, Streicher R, **Liu Y**, Sparer J. Field comparison of IOMs and impingers for sampling of total aliphatic isocyanates in air with the MAP Reagent. Orally presented at the American Industrial Hygiene Conference and Exposition, New Orleans, LA, June 2-7, 2001.
22. Redlich CA, Stowe MH, Wisnewski AW, Holm CT, Sparer J, **Liu Y**, Woskie S, Eisen E, Karol MK, Lemus R, Cullen MR. Cross sectional study of auto body shop workers exposed to hexamethylene diisocyanate containing paints: immunologic and physiologic responses. Orally presented at the American Thoracic Society's 96th International Conference, Toronto, Canada, May 6-11, 2000.
23. Bello D, Woskie SR, Streicher RP, Youngs F, **Liu Y**, Sparer JA. Field comparison of IOMs and impingers for sampling of aliphatic isocyanates using the MAP reagent. Orally presented at Isocyanate 2000 - the First International Symposium on Isocyanates in Occupational Environments, Stockholm, Sweden, June 19 - 21, 2000.
24. Redlich CA, Stowe MH, Wisnewski AV, Eisen EA, Karol MH, Lemus R, Holm CT, Sparer JA, **Liu Y**, Woskie SR, Gore R, Cullen MR. Subclinical immunologic and physiologic responses in hexamethylene diisocyanate-exposed auto body shop workers. Orally presented at Isocyanate 2000 - the First International Symposium on Isocyanates in Occupational Environments, Stockholm, Sweden, June 19 - 21, 2000.
25. **Liu Y**, Sparer JA, Cullen MR, Stowe MH, Holm C, Woskie SR, Redlich CA. Epicutaneous exposure to isocyanate in auto body shops: a qualitative assessment. Orally presented at the American Industrial Hygiene Conference and Exposition, Orlando, FL, May 20-25, 2000.
26. **Liu Y**, Smith TJ, Herrick RF, Williams PL, Woodin MA, Hauser R, Christiani DC. Assessing boilermakers' occupational exposures to respiratory hazards. Orally presented at the American College of Occupational and Environmental Medicine State-of-the-Art Conference, Phoenix, AZ, October 18-22, 1998.
27. **Liu Y**, Xu D. 1988. Measures to improve environmental health in rural China. Orally presented at the Fourth Asian Congress on Rural Medicine and Primary Health Care. Beijing, China, October 10-16, 1988.
28. Hu H, **Liu Y**. 1987. Hygienic evaluation of indoor air pollution and its effect on human health in Beijing's rural areas. Orally presented at the Fourth International Conference on Indoor Air Quality and Climate (INDOOR AIR '87). West Berlin, Germany, August 20-24, 1987.

Poster Presentations (refereed)

1. Haidar A, **Liu Y**, Raynaud S, He X, Chen S, Southworth B, Jacobs L, Batra S, Hood J, Schultz E, Trivedi S and Sterling D. Assessing facial, thermal and eye discomfort, acceptability and perceived protective efficiency of PAPRs in simulated healthcare work settings: verbal user feedback. Presented as a poster on the Research Day Conference, Department of Family Medicine and Public Health Sciences, Detroit, MI, April 17, 2019.
2. Okafor C, Gohil V, **Liu Y**, Sterling DA, Pearce R, Biswas S, Prince TS, Davis G, Carol M, Reed D, Klingner T, Tokarski M, Stinchcomb A. Determinants of nicotine exposure in tobacco harvesting workers: a pilot study (Mentor for the Students Okafor C and Gohil V). Presented as a poster at the American Industrial Hygiene Conference and Exposition, Baltimore, MD, May 21 - 26, 2016.
3. Gohil V, Okafor C, **Liu Y**, Sterling DA, Pearce R, Prince TS, Davis G, Carol M, Reed D, Biswas S, Stinchcomb A. Tobacco harvesting work, exposure to nicotine, vital signs and nicotine poisoning (Mentor for the Students Gohil V and Okafor C). Presented as a poster at the American Industrial Hygiene Conference and Exposition, Baltimore, MD, May 21 - 26, 2016.
4. Raynaud S, Franklin G, Harari H, Ahsan S, NedreLOW J, Bello D, Sterling D, NedreLOW J, Biswas S and **Liu Y**. Residual isocyanates in medical devices and products: A qualitative and quantitative assessment. Presented as a poster at the 2016 Cook Children's Research Day "Innovations", April 2016, Cook Children's Health Care System, Fort Worth, TX, USA.
5. Mehta P, **Liu Y**. Racial disparities and mortality rates for ovarian cancer in Texas, 1999-2009. Presented as a poster at the 24th Annual Research Appreciation Day (RAD), University of North Texas Health Science Center, Fort Worth, TX, April 18, 2016.
6. Andar A, **Liu Y**, Sterling D, Klingner T, Tokarski M, Boeniger M, Hammell D, Stinchcomb A. Barrier cream Formulations to reduce skin permeation of nicotine as a preventive measure for Green Tobacco Sickness. Presented as a poster at the American Association of Pharmaceutical Scientists Annual Meeting and Exposition. Presented as a poster at the American Association of Pharmaceutical Scientists Annual Meeting and Exposition. San Diego, CA, November 2 to 6, 2014.
7. Franklin G, **Liu Y**, Ahsan S, Biswas S, Sterling D, Harari H, Bello D, NedreLOW J, Raynaud S. Medical devices and products as potential sources of isocyanates for skin exposure in neonates: A qualitative and quantitative assessment. Presented as a poster at the American Industrial Hygiene Conference and Exposition, San Antonio, TX, May 31-June 5, 2014.
8. Franklin G, Ahsan S, Raynaud S, NedreLOW J, Sterling D, Biswas S and **Liu Y**. Isocyanates in medical devices: a qualitative assessment. Presented as a poster at the 2014 Pediatrics Conference: Case-based Learning, April 2014, Cook Children's Health Care System, Fort Worth, TX, USA
9. **Liu Y**, Li J, Sterling D. Indoor isocyanate surface contamination as a potential source of skin exposure for children. Presented as a poster at the American Industrial Hygiene Conference and Exposition, San Antonio, TX, May 31-June 5, 2014.
10. Franklin G, Ahsan S, Raynaud S, NedreLOW J, Sterling D, Biswas S and **Liu Y**. Isocyanates in medical devices: a qualitative assessment. Presented as a poster at the 21st Annual Research Appreciation Day (RAD), University of North Texas Health Science Center, Fort Worth, TX, April 12, 2013.
11. **Liu Y**, Harari H, Bello D, Biswas S, Franklin G, Raynaud S, NedreLOW J, Ahsan S, Sterling D. Quantifying isocyanates from medical devices: a pilot study. Presented as a poster at the 21st Annual Research Appreciation Day (RAD), University of North Texas Health Science Center, Fort Worth, TX, April 12, 2013.

12. Franklin G, Ahsan S, Raynaud S, NedreLOW J, Sterling D, Biswas S and **Liu Y**. Isocyanates in medical devices: a qualitative assessment. Presented as a poster at the International Conference on Isocyanates and Health: Past, Present and Future, Bolger Conference Center, Potomac, MD, USA, April 3 - 4, 2013.
13. **Liu Y**, Harari H, Bello D, Biswas S, Franklin G, Raynaud S, NedreLOW J, Ahsan S, Sterling D. Quantifying isocyanates from medical devices: a pilot study. Presented as a poster at the International Conference on Isocyanates and Health: Past, Present and Future, Bolger Conference Center, Potomac, MD, USA, April 3 - 4, 2013.
14. Patil N, Burton M, Raines J, Biswas S, Tan, Q, Chen B, Song H, Guo X, **Liu Y**. Indoor-home, indoor-office and outdoor exposures to hazardous air pollutants in Guangzhou, China: a pilot study. Presented as a poster on the 19th Annual Research Appreciation Day (RAD), University of North Texas Health Science Center, Fort Worth, TX, April 1, 2011.
15. Bunn TL, **Liu Y**, Lee K, Robertson M, Yu L. Farmer exposure to organic solvents during the maintenance and repair of farm machinery: a pilot study. Presented as a poster in the APHA 137th Meeting and Expo, Philadelphia, PA, November 7-11, 2009.
16. Redlich CA, Stowe MH, Wang S, Liu J, Gore RJ, **Liu Y**, Woskie SR, Wisnewski AV. IgG responses to isocyanate in auto body shop workers: associations with skin and respiratory exposures. Presented at the American Thoracic Society's 105th International Conference, San Diego, CA, May 15-20, 2009.
17. Adedoyin O, Strasinger C, Hammell D, **Liu Y**, Prince TS, Tom Klingner T, Boeniger M, and Stinchcomb A. Combating green tobacco sickness among green tobacco farm workers: an *in-vitro* transdermal analysis of a barrier cream. Presented at the University of Kentucky Graduate Student Interdisciplinary Conference, Lexington, KY, April 3, 2009.
18. **Liu Y**, Prince TS. Efficacy study of a nicotine barrier cream. Presented as a poster at the 2008 Pilot Research Project (PRP) Symposium of The University of Cincinnati NIOSH Education and Research Center, Cincinnati, OH, October 2-3, 2008.
19. **Liu Y**, Bello D, Sparer JA, Stowe MH, Gore RJ, Woskie SR, Cullen MR, Redlich CA. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: I. a qualitative assessment. Presented as a poster in the International Conference of Occupational and Environmental Exposures of Skin to Chemicals – 2007 (OEESC-2007), Golden, CO, June 17-20, 2007.
20. Bello D, Hosgood D, Stowe MH, **Liu Y**, Woskie SR, Cullen MR, Redlich CA. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: II. A quantitative assessment. Presented as a poster in the International Conference of Occupational and Environmental Exposures of Skin to Chemicals - 2007 (OEESC-2007), Golden, CO, June 17-20, 2007.
21. Stowe MH, Wisnewski AV, Bello D, **Liu Y**, Sparer JA, Gore RJ, Cullen MR, Woskie SR, Redlich CA. Cross-sectional SPRAY study of auto body workers exposed to isocyanates: effects of skin and respiratory exposure. Presented as a poster in the International Conference of Occupational and Environmental Exposures of Skin to Chemicals - 2007 (OEESC-2007), Golden, CO, June 17-20, 2007.
22. Sparer J, Ibrahim K, Redlich C, Youngs F, **Liu Y**. Comparing solvent airborne exposures, outside PPE deposition and inside PPE exposure during auto body spray painting. Presented as a poster at the American Industrial Hygiene Conference and Exposition, Philadelphia, PA, June 2-7, 2007.
23. Stowe MH, **Liu Y**, Wisnewski, Spare J, Holm CT, Cullen MR, Woskie SR, Redlich CA. Cross-sectional study of auto body workers exposed to diisocyanates: Does dermal exposure contribute to sensitization? Presented as a poster at the American Thoracic Society's 102nd International Conference, San Diego, CA, May 19-24, 2006.

24. **Liu Y**, Stowe MH, Sparer JA, Bello D, Cartmel B, Ibrahim K, Fleming C, Collin-Hansen I, Daly C, Youngs F, Woskie SR, Cullen MR, Redlich CA. Intervention research in the auto body repair and refinishing industry: The SMASH Study. Presented both orally and as a poster at the NIOSH NORA Symposium, *Research Makes A Difference*, Washington DC, April 18-21, 2006.
25. Stowe MH, Wisnewski, Spare J, **Liu Y**, Woskie SR, Redlich CA, Cullen MR. Cross-sectional study of auto body workers exposed to diisocyanates: Respiratory and dermal exposures contribute to immune response. Presented both orally and as a poster at the NIOSH NORA Symposium, *Research Makes A Difference*, Washington DC, April 18-21, 2006.
26. **Liu Y**, Stowe MH, Bello D, Sparer JA, Lutgendorf CS, Daly CM, Ullman S, Youngs F, Ibrahim K, Fleming C, Collin-Hansen I, Cartmel B, Gore R, Boeniger MF, Woskie SR, Cullen MR, Redlich CA. Surface and skin decontamination of aliphatic isocyanates: a field study. Presented as a poster at the International Conference on Occupational and Environmental Exposures of Skin to Chemicals – 2005 (OEESC-2005), Stockholm, Sweden, June 12 – 15, 2005.
27. Stowe MH, Wisnewski, Holm CT, Spare J, **Liu Y**, Woskie SR, Cullen MR, Redlich CA. Cross-sectional study of auto body workers exposed to isocyanates: Immunologic responses. Presented as a poster at the American Thoracic Society's 101st International Conference, San Diego, CA, May 20 - 25, 2005.
28. Liss DJ, Lutgendorf CS, Daly CM, Stowe MH, Wisnewski AV, Gulati M, **Liu Y**, Sparer J, Redlich CA. Isocyanate sensitization: a cross sectional study of MDI exposure and effects in the production of polyurethane coated fabrics. Presented as a poster at the American Thoracic Society's 101st International Conference, San Diego, CA, May 20 - 25, 2005.
29. **Liu Y**, Bello D, Redlich CA, Stowe MH, Cullen MR, Walsh FX, Young F, Woskie SR. Comparison of two methods for sampling hexamethylene diisocyanate biuret aerosol: a chamber study. Presented as a poster at the American Thoracic Society's 99th International Conference, Seattle, WA, May 16-21, 2003.
30. Youngs F, Streicher R, Bello D, Woskie SR, **Liu Y**. Quantitative determination of total aliphatic isocyanates on skin and surfaces using the MAP Reagent. Presented as a poster at the American Industrial Hygiene Conference and Exposition, New Orleans, LA, June 2-7, 2001.
31. **Liu Y**, Sparer JA, Cullen MR, Stowe MH, Holm C, Woskie SR, Redlich CA. Respirator subjective assessment in auto body repair shops. Presented as a poster at the American Industrial Hygiene Conference and Exposition, Orlando, FL, May 20-25, 2000.
32. **Liu Y**, Sparer JA, Woskie SR, Streicher RP, Ernst MK, Williamson GY, Cullen MR. Field evaluation of two isocyanate sampling methods. Presented as a poster at the American Industrial Hygiene Conference and Exposition, Toronto, Canada, June 5-11, 1999.
33. **Liu Y**, Sparer JA, Woskie SR, Cullen MR, Chung JS, Holm CT, Redlich CA. Qualitative assessment of isocyanate skin exposure in auto body shops. Presented as a poster at the American Thoracic Society's 95th International Conference, San Diego, CA, April 24-28, 1999.
34. Woodin MA, **Liu Y**, Newberg D, Hauser R, Smith TJ, Christiani DC. Acute respiratory symptoms in workers exposed to fuel oil ash. Presented as a poster at the American Thoracic Society's 95th International Conference, San Diego, CA, April 24-28, 1999.
35. **Liu Y**, Woodin MA, Smith TJ, Hauser R, Herrick RF, Williams PL, Christiani DC. Internal dose estimation of occupational exposures to fuel oil ash and metals. Presented as a poster at the American Thoracic Society's 94th International Conference, Chicago, IL, April 25-29, 1998.

36. **Liu Y**, Smith TJ, Hauser R, Woodin MA, Williams PL, Herrick RF, Christiani DC. Estimating boilermakers' personal exposures to particles and metals. Presented as a poster at the American College of Occupational and Environmental Medicine State-of-the-Art Conference, Phoenix, AZ, October 18-22, 1998.
37. Woodin MA, Hauser R, **Liu Y**, Smith TJ, Christiani DC. Respiratory symptom incidence in workers overhauling an oil-fired boiler. Presented as a poster at the American Thoracic Society's 93rd International Conference, San Diego, CA, May 17-21, 1997.
38. Woodin MA, Hauser R, Siegel PD, Tollerud DJ, Lewis DM, **Liu Y**, Smith TJ, Christiani DC. Nasal lavage inflammatory mediators as biomarkers of upper airway exposure to fuel oil ash. Presented as a poster at the American Thoracic Society's 92nd International Conference, New Orleans, LA, May 11-15, 1996.
39. **Liu Y**, Liu J, Hu H. Variations of formaldehyde exposure in residences and public buildings in Beijing. Presented as a poster at the Sixth International Conference on Indoor Air Quality and Climate (INDOOR AIR '93). Helsinki, Finland, July 4-8, 1993.
40. Smith KR, **Liu Y**, Revera J, Boy E, Leaderer B, Johnston CS, Yanagisawa Y, Lee K. 1993. Indoor air quality and child exposure in Highland Guatemala. Presented as a poster at the Sixth International Conference on Indoor Air Quality and Climate (INDOOR AIR '93). Helsinki, Finland, July 4-8, 1993.
41. Liu J, **Liu Y**, Hu H. Characteristics of rural indoor formaldehyde pollution in Northern China. Presented as a poster at the Fifth International Conference on Indoor Air Quality and Climate (INDOOR AIR '90). Toronto, Canada, July 29-August 3, 1990.

Invited Lectures/Presentations

International/national

1. Wayne State University School of Medicine, Department of Family Medicine and Public Health Sciences, "Assessing isocyanate exposures, health effects and control measures in the auto body repair and refinishing industry", Detroit, MI, April 11, 2018.
2. University of North Texas Health Science Center School of Public Health, Department of Environmental and Occupational Health Sciences, "Assessing isocyanate exposures, health effects and control measures in the auto body repair and refinishing industry", Fort Worth, TX, April 18, 2010.
3. University of Massachusetts Amherst School of Public Health and Health Sciences, Division of Environmental Health Sciences, "Assessing isocyanate exposures, health effects and control measures in the auto body repair and refinishing industry", Amherst, MA, December 6, 2009.
4. Rice University Department of Statistics, "Statistical applications and challengers in assessing occupational exposures to hazards and resulting health outcomes", Houston, TX, November 20, 2006.
5. University of Kentucky College of Public Health, Department of Preventive Medicine and Environmental Health, "Exposure assessment and intervention of isocyanates in the auto body repair and refinishing industry", Lexington, KY, May 17, 2005.
6. University of Kentucky College of Public Health, Department of Preventive Medicine and Environmental Health, "Isocyanate studies at Yale University: Exposure characterization, modeling and risk assessment", Lexington, KY, May 16, 2005.
7. International Autobody Congress and Exposition (NACE 2000), "Exposures to isocyanates and subclinical, physiologic and immunologic changes in auto body shop workers", Orlando, FL, December 8, 2000.

8. NIOSH/Yale University/Labor/Industry Tripartite Diisocyanate Interest Group Meeting, “Skin exposures to isocyanates and biological monitoring of urinary hexane diamine in auto body shop workers”, New Haven, CT, November 28, 2000.
9. Harvard University School of Public Health, Department of Environmental Health “Assessing isocyanate exposures in auto body shops”, Boston, MA, March 20, 2000.
10. University of Texas Health Science Center at Tyler, Department of Occupational Health “Exposures to boiler repair hazards and respiratory and immunologic effects”, Tyler, TX, May 1998.
11. University of Minnesota School of Public Health, Division of Environmental Health, “Respiratory exposures to boiler repair hazards and respiratory and immunologic effects”, Minneapolis, MN, February 1998.
12. Harvard University School of Public Health Educational Research Center, “Assessment on exposures to boiler repair hazards”, Boston, MA, September 1997.
13. Yale University School of Medicine, Occupational and Environmental Medicine Program, “Assessing occupational exposures to boiler repair hazards and implications on health outcomes”, New Haven, CT, September 1997.
14. University of Alabama School of Public Health, Department of Environmental Health Sciences, “Assessing occupational exposures to boiler repair hazards”, Birmingham, AL, August 1997.
15. Purdue University School of Health Sciences, Department of Occupational and Environmental Health Sciences, “Exposures to boiler repair hazards and respiratory and immunologic effects”, West Lafayette, IN, July 1997.
16. Columbia University School of Public Health, Division of Occupational and Environmental Health Sciences, “Assessing exposures to boiler repair hazards and evaluating respiratory effects”, New York, NY, June 1997.
17. University of California at Davis, Department of Epidemiology and Preventive Medicine, “Exposures to boiler repair hazards and respiratory and immunologic effects”, Davis, CA, April 1997.