Youcheng Liu, M.D., D.S., M.S.

Goucheng Liu

09/27/2023

Office Address: Department of Family Medicine and Public Health Sciences

3939 Woodward Avenue

Detroit, MI 48201

Office Telephone: 3135776861 Candidate Cellphone: 7342164363

E-mail Address: gn9147@wayne.edu; rockeast@gmail.com

https://clasprofiles.wayne.edu/profile/gn9147; https://familymedicine.med.wayne.edu/profile/gn9147

Faculty Appointments

Faculty Appointments at Wayne State

10/2017 - Present Associate Professor - Research Educator (tenure track), Tenure Track, School of Medicine, Department

of Family Medicine and Public Health Sciences (Primary)

Faculty Appointments at Other Institutions

| 07/2010 - 08/2017 | Associate Professor, Department of Environmental and Occupational Health Sciences and Department of Biostatistics and Epidemiology, University of North Texas Health Science Center, Fort Worth, TX, United States of America |
|-------------------|---|
| 07/2006 - 06/2010 | Assistant Professor, Department of Preventive Medicine and Environmental Health, University of Kentucky College of Public Health, Lexington, KY, United States of America |
| 07/2006 - 06/2010 | Associate Faculty Member, Department of Preventive Medicine and Environmental Health, University of Kentucky Graduate School, Lexington, KY, United States of America |
| 07/2006 - 12/2006 | Adjunct Assistant Professor, Department of Internal Medicine Section of General Medicine Occupational and Environmental Medicine Program, School of Medicine, New Haven, CT, United States of America |
| 07/2004 - 06/2006 | Assistant Professor, Department of Environmental Health, Yale University School of Public Health, New Haven, CT, United States of America |
| 07/2003 - 06/2006 | Assistant Professor, Department of Internal Medicine Section of General Medicine Occupational and Environmental Medicine Program, Yale University School of Medicine, New Haven, CT, United States of America |
| 07/1999 - 06/2003 | Associate Research Scientist (Research Faculty Member), Department of Internal Medicine Section of General Medicine Occupational and Environmental Medicine Program, Yale University School of Medicine, New Haven, CT, United States of America |
| 07/1987 - 06/1990 | Assistant Professor, Department of Environmental Health, Peking University, Health Sciences Center, School of Public Health, Beijing, China |
| | United States of America |

Hospital or Other Professional Appointments

| 12/01/2018 - Present | Medicine and Public Health Sciences, Wayne State University School of Medicine, Detroit, MI, United States of America |
|----------------------|--|
| 09/1997 - 06/1999 | Postdoctoral Research Associate, Department of Internal Medicine, Division of General Medicine, Occupational and Environmental Medicine Program, Yale University School of Medicine, New Haven, CT, United States of America |

| 07/1994 - 09/1997 | Research Assistant and Research Associate of Environmental Health, Environmental Health, Harvard University, School of Public Health, Boston, MA, United States of America |
|-------------------|--|
| 07/1993 - 06/1994 | Consultant of Environmental Health, Tuberculosis Prevention, Massachusetts Department of Public Health and Cambridge Hospital, Boston, MA, United States of America |
| 12/1992 - 11/1993 | Research Assistant of Environmental Health, Indoor Air Quality, Environmental Health, Inc., Newton, MA, United States of America |
| 10/1992 - 09/1993 | Research Assistant of Biostatistics, Surgery Nursing, Massachusetts General Hospital, Boston, MA, United States of America |
| 09/1992 - 08/1993 | Research Assistant of Environmental Health, Risk Assessment and Analysis, Harvard Risk Analysis Center, Boston, MA, United States of America |
| 06/1990 - 08/1992 | Research Assistant, Environmental Health, University of Hawaii School of Public Health, Honolulu, HI, United States of America |
| 09/1983 - 08/1987 | Teaching Assistant, Environmental and Occupational Health Sciences, Peking University, Health Science Center, School of Public Health, Beijing, China |
| 09/1983 - 06/1987 | Research Assistant of Environmental Health, Environmental Health, Peking University, Health Science Center, School of Public Health, Beijing, China |
| 11/1981 - 05/1982 | Clinical Intern, Liuhe Affiliated Hospital, Nanjing Medical University, Nanjing, China |

Education

Education

| 09/12/1992 - 09/30/1997 | D.S., Industrial Hygiene and Epidemiology Harvard University, School of Public Health, Boston, MA, United States of America Major in environmental Health Sciences with focus on industrial hygiene and environmental epidemiology. |
|----------------------------|---|
| 09/12/1992 - | M.S., Environmental Health Sciences |
| 06/30/1994 | Harvard University, School of Public Health, Boston, MA, United States of America |
| 06/24/1990 - | Ph.D., Environmental Epidemiology |
| 08/31/1992 | University of Hawaii, School of Public Health, Honolulu, HI, United States of America <i>Ph.D. candidate (passed the oral qualifying examination and conducted the dissertation project, but did not finish to earn the degree)</i> |
| 09/01/1983 - | M.P.H., Environmental Health Sciences |
| 07/01/1987 | Peking University, School of Public Health, Beijing, China |
| 10/13/1978 - | M.D., Preventive Medicine |
| 07/01/1983 | Nanjing Medical University, Nanjing, China |

Postgraduate Training

| 10/01/1997 - | Postdoctoral Fellowship (Occupational and Environmental Medicine Program), Internal |
|--------------|---|
| 06/30/1999 | Medicine/General Medicine/Occupational and Environmental Medicine/Industrial Hygiene, |
| | Environmental Health and Occupational Epidemiology |
| | Yale University School of Medicine, New Haven, CT, United States of America |

Additional Training

| 10/11/2004 - | Michigan Industrial Hygiene Certification Training Workshop |
|--------------|---|
| 10/15/2004 | University of Michigan School of Public Health, Ann Arbor, MI, United States of America |
| | One-week workshop training on industrial hygiene, epidemiology, toxicology, environmental and |
| | occupational health Sciences |

Professional Society Memberships

2000 - Present International Society of Exposure Analysis 1999 - Present American Thoracic Society 1998 - Present American Conference of Governmental Industrial Hygienists 1997 - Present American Industrial Hygiene Association 1990 - Present International Society of Indoor Air Quality and Climate Honors / Awards 05/2016 Appreciation for a Significant Contribution to Technical Knowledge in Areas of Social Concern in the Field of Occupational Safety and Health, American Industrial Hygiene Association Social Concerns Committee 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 This award recognizes a student's research excellence and achievement by the committee. * = Trainee 05/2016 Appreciation for a Significant Contribution to Technical Knowledge in Areas of Social Concern in the Field of Occupational Safety and Health, American Industrial Hygiene Association Social Concerns Committee 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. This award recognizes a student's research excellence and achievement by the committee. * = Trainee 05/2016 Best Student Poster Award, American Industrial Hygiene Association Biological Monitoring Committee 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 This award recognizes a student's research excellence and achievement by the committee. * = Trainee 05/2016 Best Student Poster Award, American Industrial Hygiene Association Protective Clothing Committee 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 This award recognizes a student's research excellence and achievement by the committee. * = Trainee 05/2007 Best Paper Award, Michigan Industrial Hygiene Society Bello D*, Sparer JA, Redlich CA, Ibrahim K*, Stowe MB, 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 This award recognizes research excellence and achievement by MIHS. One award annually. * = Trainee 05/2007 Outstanding Project Team Award for the Exposure Assessment Strategies Committee Dermal Exposure Group, American Industrial Hygiene Association This award recognizes a committee's excellence and achievement in research project activities. Dr. Liu

is a key member of the committee and group receiving the award.

08/1994 Third-place Achievement Award for Advances in Science and Technology, Ministry of Health, China Indoor Formaldehyde and Smoke Pollution and Control Strategies in Beijing Areas. This award

recognizes research excellence and achievement.

03/1993 Special Student Travel Award to Attend the Annual Minority Environmental Career Conference at Oak

Ridge National Laboratory, Environmental Careers Organization, Boston, MA

This award recognizes academic excellence of students in environmental science in US Universities.

10/1988 Third-place Achievement Award for Advances in Science and Technology, Ministry of Health, China

Indoor Air Pollution and Human Health in Beijing Areas. This award recognizes research excellence

and achievement.

| 05/1987 | Second-place award on the Environmental Health Knowledge Contest, Ministry of Health and China Central Television (CCTV), Beijing, China <i>This was a national environmental health knowledge context using newspaper first and then on CCTV</i> . |
|---------|---|
| 05/1987 | Second-place award on the Environmental Health Knowledge Contest, Ministry of Health and China Central Television (CCTV), Beijing, China <i>This was a national environmental health knowledge contest using newspaper first and then on CCTV.</i> |
| 09/1982 | First-place award on a University Wide English Contest, Nanjing Medical University, Nanjing, China <i>This award was based on a university wide written test. A total of ten awards were given out.</i> |

Teaching

Teaching at Wayne State University

| F | a | cu | lty | |
|---|---|----|-----|--|
| | | | | |

| 06/2022 - 08/2022 | Global Health Research Consortium - An annual 4-week training workshop with international faculty members from around the world, Lectures, Online Instruction, Small Group Instruction, Lecturer |
|-------------------|--|
| 06/2020 - 08/2020 | Global Health Research Consortium - An annual 4-week training workshop with international faculty members from around the world, Lectures, Online Instruction, Small Group Instruction, Lecturer |

Graduate (Masters, Ph.D., Pharm.D., etc.)

| 09/2023 - Present | FPH7420/Principles of Environmental Health, 3 credit hours, a classroom, lecture-based elective |
|-------------------|--|
| 03/2023 Tresent | course for MPH program students, Course Direction, Lectures, Online Instruction, Course Director |
| 09/2023 - Present | Janel Lynn, MPH-PHP, Academic Advisory, Mentoring / Advising, Academic Advisor / Mentor |
| 09/2023 - Present | Dominique Pace/MPH-PHP, Academic Advisory, Mentoring / Advising, Academic Advisor / Mentor |
| 01/2023 - 05/2023 | FPH7420/Principles of Environmental Health, 3 credit hours, a classroom, lecture-based elective course for MPH program students, Course Direction, Didactic / Traditional Course Teaching, Online Instruction, Course Director |
| 01/2023 - 05/2023 | BMS Essay Committee/Sarah Ibrahim, Mentoring / Advising, Academic Advisor / Mentor, Research Advisor / Mentor |
| 09/2022 - Present | Nikita Ashok Patil, MPH-PHPA Academic Advisory, Mentoring / Advising, Academic Advisor / Mentor |
| 09/2022 - 12/2022 | FPH7420/Principles of Environmental Health, 3 credit hours, a classroom, lecture-based elective course for MPH program students, Course Direction, Didactic / Traditional Course Teaching, Online Instruction, Course Director |
| 08/2022 - Present | Kaylee Elizabeth Caniff, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 08/2022 - Present | Paul Joe Kurian, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 01/2022 - 05/2022 | FPH7420/Principles of Environmental Health, 3 credit hours, a classroom, lecture-based elective course for MPH program students, Course Direction, Didactic / Traditional Course Teaching, Lectures, Course Director |
| 09/2021 - Present | Stefanie Kasteley, MPH-PHP, Academic Advisory, Mentoring / Advising, Mentor |
| 09/2021 - Present | Ashlan Kunz, MPH-PHA, Academic Advisory, Mentoring / Advising, Mentor |
| 09/2021 - Present | George Schwenkel, BGC-PHP, Academic Advisory, Mentoring / Advising, Academic Advisor / Mentor |
| 09/2021 - 12/2021 | FPH7420/Principles of Environmental Health, 3 credit hours, a classroom, lecture-based elective course for MPH program students, Course Direction, Didactic / Traditional Course Teaching, Course Director |
| 08/2021 - Present | Nathan Lucas Meram, Mentoring / Advising, Academic Advisor / Mentor |

| 02/2021 | Guest Lecturer, FPH 7420 001, Principles of Environmental Health, 3 credit hours, a lecture-based course required for MPH, Course Director, Samson Jamesdaniel, Topics presented: Workplace Health |
|-------------------|---|
| | and Safety; Exposure and Risk Assessments, Lectures, Lecturer |
| 01/2021 - 08/2022 | Jaboro, Jacqueline, MPH Student Academic Advisory and Practicum Project, Mentoring / Advising, Mentor |
| 09/2020 - Present | Afsana Rinky, MPH-PHP, Academic Advisory, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 09/2020 - Present | Froogh Sadry, MPH, PHP, Academic Advisory, Mentoring / Advising, Mentor |
| 09/2020 - 08/2022 | Khalaff, Amera Gamela, MPH Student Academic Advisory and Practicum Project, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 09/2020 - 08/2022 | Raslan, Kareem, MPH Student Academic Advisory and Practicum Project, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 09/2020 - 08/2022 | Ashley Lava, MPH-PHP, Academic advisory, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 09/2020 - 08/2022 | Nicholas Rebold , MPH-PHM, Academic Advisory, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 09/2020 - 08/2022 | Joseph Nardolillo, MPH-PHP, Academic Advisory, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 09/2020 - 12/2021 | Morrisette, Taylor, MPH Student Academic Advisory and Practicum Project, Mentoring / Advising, Academic Advisor / Mentor, Mentor |
| 09/2020 - 12/2020 | Course Section Director/FPH 7420 001/Principles of Environmental Health/3 credit hours, a classroom, lecture-based course required for MPH program students, Course Direction, Course Director |
| 09/2020 - 12/2020 | FPH7420/Principles of Environmental Health, 3 credit hours, a classroom, lecture-based elective course for MPH program students, Course Direction, Didactic / Traditional Course Teaching, Lectures, Course Director |
| 02/2020 | Guest Lecturer, FPH 7420 001, Principles of Environmental Health, 3 credit hours, a lecture-based course required for MPH, Course Director, Samson Jamesdaniel, Topics presented: Workplace Health and Safety; Exposure and Risk Assessments, Lectures, Lecturer |
| 09/2019 - 08/2022 | Tanzeela Jafri, MPH-PHP from GC, Academic Advising, Mentoring / Advising, Academic Advisor / Mentor |
| 09/2019 - 08/2021 | Bahzad, Aliaa, MPH Student Academic Advisory and Practicum Project, Mentoring / Advising, Academic Advisor / Mentor |
| 09/2019 - 08/2021 | Hayhes, Maurekha, MPH Student Academic Advisory and Practicum Project, Mentoring / Advising, Academic Advisor / Mentor |
| 09/2019 - 08/2021 | Kiama, Keith, Mentoring / Advising, Academic Advisor / Mentor |
| 09/2019 - 12/2019 | Course Section Director/FPH 7420 001/Principles of Environmental Health/3 credit hours, a classroom, lecture-based course required for MPH program students, Course Direction, Course Director |
| 07/2019 | FPH 7120 001,/Global Public Health/3 credit hours, a classroom, lecture-based elective course for MPH students, Course Director, Julie Gleason-Comstock, Topic presented: Indoor Air Pollution in Low and Medium Income Countries, Made a video with other panelists to discuss global environmental health in China, Presenter |
| 04/2019 | 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, Lectures, Lecturer |
| 01/2019 - 05/2019 | Datu-On, Daryl; mentored him on doing his thesis "Assessing Solid Cooking Fuel Use & Adverse Birth Outcomes: A Narrative Synthesis", Mentoring / Advising, Mentor, Research Advisor/Mentor |
| 09/2018 - Present | Mui-Blackmon, Jazmine. MPH Student Academic Advisory and Practicum Project; she also works with me as my Research Assistant on the respirator training clinical trial at Sinai-Grace Hospital, Mentoring / Advising, Research Advisor/Mentor |

| 09/2018 - 06/2021 | Mahasi, Grace. MPH Student Academic Advisory and Practicum Project; also mentoring her as my Research Assistant in doing the respirator clinical trial study at Sinai-Grace Hospital, Mentoring / Advising, Mentor, Research Advisor/Mentor |
|-------------------|---|
| 09/2018 - 05/2020 | MacNeil, Anne. MPH Student Academic Advisory and Practicum Project, Mentoring / Advising, Academic Advisor / Mentor |
| 09/2018 - 12/2018 | Course Section Director/FPH 7420 001/Principles of Environmental Health/3 credit hours, a classroom, lecture-based course required for MPH program students, Course Direction, Course Director |
| 04/2018 | Hoyer, Mitchell: On-site sewage system regulation: a policy evaluation for Wayne County, MI. MPH Student Thesis Independent Reviewer, Independent Reviewer |
| 02/2018 | 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, Lectures, Presenter |
| 01/2018 - 05/2018 | Course Section Director, FPH 7420 002, 001, Principles of Environmental Health. 3 credit hours, A lecture-based course required for MPH Program students, Course Direction, Course Director |

Elementary, Middle, or High School

| 06/01/2020 - 12/31/2020 | Saif Juma, Ankith Alluri, and Megana Guntur, 3 local high school students - Reviewed their innovative design of their new SARS-CoV-2 virus test kit as part of Health Science Innovation Competition hosted by Oneiro and selected them as the winner team. Guided them to do a research on "Risk Factors of COVID-19 in Michigan", Mentoring / Advising, Mentor, Research Advisor / Mentor |
|----------------------------|---|
| 05/2020 - 08/2021 | Esha Nair- Guided her to conduct a literature research and a laboratory testing, and prepare a review paper on "Efficacy of decontamination of respirator devices" and a report to satisfy her high school class requirements. Mentoring / Advising, Mentor, Research Advisor / Mentor |

Laboratory Staff (non-student)

| 08/2022 - 06/2023 | Dr. Beza Sahlie/Guided her on field research on a respirator study at Sinai-Grace Hospital. She helped me complete the focus group meeting research as part of a CDC contract study and presented the results at the Department Research Day in April 2023 and at the American Industrial Hygiene Conference and Exposition May 22 to 24, 2023 in Phoenix, AZ and also, Mentoring / Advising, Academic Advisor / Mentor, Mentor, Research Advisor / Mentor |
|-------------------|---|
| 01/2020 - Present | Research Assistantship Mentoring/Preti Chowdhury, Laboratory Precepting / Instruction, Mentoring / Advising, Laboratory Supervisor / Instruction, Mentor |
| 01/2020 - 08/2022 | Research Assistantship Mentoring/Hafsa Usman, Laboratory Precepting / Instruction, Mentoring / Advising, Academic Advisor / Mentor, Laboratory Supervisor / Instruction, Mentor |
| 08/2019 - 08/2021 | Grace Mahasi/Guided her on laboratory management and field research on a respirator study at Sinai-Grace Hospital. She helped me complete the first project of a CDC study, produced two posters in 2020 to present at the Department's Research Day and at AIHCE 2020 virtual. She also produced two manuscripts which are being reviewed by CDC researchers. Grace left my research team in 2021 and is now a PhD student at Drexel University School of Public Health., Laboratory Precepting / Instruction, Mentoring / Advising, Field Research, Academic Advisor / Mentor, Laboratory Supervisor / Instruction, Research Advisor / Mentor |
| 06/2019 - 02/2023 | Jazmine Mui-Blackmon - Guided her on laboratory management and field research on a respirator |

study at Sinai-Grace Hospital. She helped me complete the first project of a CDC study, produced two posters in 2020 to present at the Department's Research Day and at AIHCE 2020 virtual. She also produced two manuscripts which are being reviewed by CDC researchers. She continued to work with me as a full-time Research Assistant; She presented our study results from the first project of a CDC study to a national audience in a webinar organized by CDC. She has also helped me conduct the second project of the CDC study and an air pollution intervention study in the Detroit disadvantaged community, Laboratory Precepting / Instruction, Mentoring / Advising, Laboratory Supervisor / Instruction, Mentor, Research Advisor / Mentor

Medical Student

Trainee (Resident / Fellow / Intern)

01/2021 - 05/2021

| 09/2022 - Present | Preventive Medicine Residency Journal Club, Course Direction, Didactic / Traditional Course Teaching, Mentoring / Advising, Associate / Co-Course Director, Facilitator, Mentor |
|----------------------|--|
| 08/2022 - 06/2023 | Resident Research Training/Dr. Beza Sahlie, Mentoring / Advising, Academic Advisor / Mentor, Mentor, Research Advisor / Mentor |
| 07/01/2021 - Present | Preventive Medicine Residency Program Didactics, Clinical Instruction, Course Direction, Didactic / Traditional Course Teaching, Lectures, Associate / Co-Program Director, Associate / Co-Course Director, Facilitator, Instructor, Lecturer |
| <u>Undergraduate</u> | |
| 07/2023 - Present | Mona Alashkar /Guided her on field research on a study to reduce air pollution to lower blood pressure, Laboratory Precepting / Instruction, Mentoring / Advising, Laboratory Supervisor / Instruction, Mentor, Research Advisor / Mentor |
| 07/2023 - Present | Bilal Mustaquim /Guided her on field research on a study to reduce air pollution to lower blood pressure, Laboratory Precepting / Instruction, Laboratory Supervisor / Instruction, Mentor, Research Advisor / Mentor |
| 06/2023 - Present | Nicarle Moreta/Guided her on field research on a study to reduce air pollution to lower blood pressure, Laboratory Precepting / Instruction, Mentoring / Advising, Laboratory Supervisor / Instruction, Mentor, Research Advisor / Mentor |
| 06/2023 - Present | Mohamed El-Souri /Guided her on field research on a study to reduce air pollution to lower blood pressure, Laboratory Precepting / Instruction, Mentoring / Advising, Laboratory Supervisor / Instruction, Mentor, Research Advisor / Mentor |
| 06/2023 - Present | Dania Jadallah /Guided her on field research on a study to reduce air pollution to lower blood pressure, Laboratory Precepting / Instruction, Mentoring / Advising, Laboratory Supervisor / Instruction, Mentor, Research Advisor / Mentor |
| 06/2023 - Present | Fleming Zakiya /Guided her on field research on a study to reduce air pollution to lower blood pressure, Laboratory Precepting / Instruction, Laboratory Supervisor / Instruction, Mentor, Research Advisor / Mentor |
| 06/2023 - 09/2023 | Gloria Mshana/Guided her on field research on a study to reduce air pollution to lower blood pressure, Laboratory Precepting / Instruction, Mentoring / Advising, Laboratory Supervisor / Instruction, Mentor, Research Advisor / Mentor |
| 01/2022 - 08/2022 | Zainab Khatib - Continue to guide her to conduct a literature research and prepare a review paper on "Efficacy of decontamination of respirator devices"; also helped and guide her to submit an abstract to Research Day April 2022 in the Department of Family Medicine and Public Health Sciences; From May to August, she also helped with a CDC respirator study, Mentoring / Advising, Research Advisor / Mentor |
| 01/2022 - 05/2022 | PH 3500/Environmental Health, a 3-credit lecture-based required course for undergraduate public health students and an elective for students in other majors, Course Direction, Lectures, Online Instruction, Course Director |
| 01/2022 - 05/2022 | Merna Zoma and Preti-Chowdhury - Guided them as part of the Honors Option in PH3500 class to conduct a literature research and prepare a review paper on "Efficacy of decontamination of respirator devices", Mentoring / Advising, Mentor |
| 01/2021 - Present | Volunteer Research Assistants, Hafsa Usman, Preti Chowdhury and Olma Tadesse, train them to |

settings, Mentoring / Advising, Research Advisor / Mentor

Instruction, Course Director

conduct air pollution intervention study and elastomeric respirator reuse and evaluation in healthcare

PH 3500/Environmental Health, a 3-credit lecture-based required course for undergraduate public health students and an elective for students in other majors, Course Direction, Lectures, Online

| 01/2021 - 05/2021 | Simrun Jassal, Honors Program - guided her to conduct a literature research and prepared a review paper on "Air pollution and health impacts in children under the age of 18 in Southeast Asia", Mentoring / Advising, Mentor, Research Advisor / Mentor |
|-------------------|--|
| 05/2020 - 08/2022 | Zainab Khatib - Guided her to conduct a literature research and prepare a review paper on "Efficacy of decontamination of respirator devices", Mentoring / Advising, Academic Advisor / Mentor, Research Advisor / Mentor |
| 01/2020 - 05/2020 | PH3500/Environmental Health,/Classroom, a 3-credit hour lecture based required for undergraduate public health students and students in other majors such as engineering as an elective., Course Direction, Course Director |
| 06/2019 - 07/2019 | Gayathri Mudali; advised her on her course project "Systematic Literature Review on Monochloramine disinfection for Legionella prevention in Building Water Systems", Mentoring / Advising, Research Advisor/Mentor |
| 01/2019 - 05/2019 | PH 4300/Environmental Health/3 credit hours. a classroom, lecture-based elective course for BSPH program students., Course Direction, Course Director |
| 01/2019 - 05/2019 | Amira Haidar; Advised her as her Honor Porgram Adviser and also worked to mentor her on a research study data analysis; she presented a poster at the Department's Research Day, Mentoring / Advising, Mentor, Research Advisor/Mentor |
| 01/2019 - 05/2019 | Amanda Larsen, Honors Program - guided her to conduct a literature research and prepared a review paper on "The Lasting Health Effects of Herbicides in Vietnam", Mentoring / Advising, Mentor, Research Advisor / Mentor |
| 01/2019 - 05/2019 | Dunya Al-Souri, Honors Program - guided her to conduct a literature research and prepared a review paper on "Recycling Waste and Its Effect on Environment and Human Health", Mentoring / Advising, Mentor, Research Advisor / Mentor |
| 08/2018 - 12/2018 | 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, Lectures, Lecturer, Presenter |

Physicians and Other Health Professionals

| 04/27/2020 - | Nimish Sudan, MD Guided him to conduct a literature research and prepare a review paper on |
|--------------|--|
| 12/31/2020 | "Respiratory protection from SARS_CoV-2 exposure" which we will try to publish. Due to his work |
| | with me, he was successfully matched with a family medicine residency program in Georgia in 2021., |
| | Mentoring / Advising, Academic Advisor / Mentor, Mentor, Research Advisor / Mentor |

Teaching at Other Institutions

Graduate (Masters, Ph.D., Pharm.D., etc.)

| 05/2017 | University of North Texas Health Science Center, School of Public Health, EOHS 6391, Advanced Topic in Environmental and Occupational Health, Small Group Instruction, Course Director |
|-------------------|--|
| 11/2016 | University of North Texas Health Science Center, School of Public Health, HMAP 5320, Health Services Management. Topic presented: Medical and health services in China, Lectures, Lecturer |
| 08/2014 - 12/2014 | University of North Texas Health Science Center, School of Public Health, EOHS 5399 Independent Study in EOHS, Course Direction, Course Director |
| 08/2014 - 12/2014 | University of North Texas Health Science Center, School of Public Health, EOHS 6395, Doctoral Dissertation, Mentoring / Advising, Research Advisor/Mentor |
| 08/2013 - 12/2013 | University of North Texas Health Science Center, School of Public Health, EOHS 6395, Doctoral Dissertation, Mentoring / Advising, Research Advisor/Mentor |
| 08/2013 | University of North Texas Health Science Center, School of Public Health, EOHS 5399 Independent Study in EOHS, Course Direction, Course Director |
| 08/2013 | University of North Texas Health Science Center, School of Public Health, EOHS 5399 Independent Study in EOHS, Course Direction, Course Director |

| 2013 - 2014 | University of North Texas Health Science Center, Franklin, Gillian Andrea, Ph.D. Student and Research Assistant, worked on isocyanate exposure in neonates at Cook Children's Hospital, Mentoring / Advising, Research Advisor/Mentor |
|----------------------|--|
| 08/2012 | University of North Texas Health Science Center, School of Public Health, EOHS 6399, Doctoral Independent Study in EOHS, Course Direction, Research Advisor/Mentor |
| 08/2012 | University of North Texas Health Science Center, School of Public Health, PHED 6118, Seminar and Grand Rounds in Public Health Research. Article topic presented and discussed: isocyanates and asthma, Lectures, Facilitator |
| 05/2012 | University of North Texas Health Science Center, School of Public Health, EOHS 6391, Advanced Topic in Environmental and Occupational Health, Small Group Instruction, Course Director |
| 2012 | University of North Texas Health Science Center, School of Public Health, BIOS 6320, Biostatistical Research & Consulting. Topic presented: Environmental Exposures to Endocrine Disruptors and Overweight in Children: A Cross-sectional Study, Lectures, Lecturer |
| 08/2011 - 12/2011 | University of North Texas Health Science Center, School of Public Health, EOHS 6391, Advanced Topic in Environmental and Occupational Health, Small Group Instruction, Course Director |
| 04/2011 - 10/2015 | University of North Texas Health Science Center, School of Public Health, EOHS 5000, MPH Comprehensive Exam, Didactic / Traditional Course Teaching, Course Director |
| 03/2011 | University of North Texas Health Science Center, School of Public Health, EOHS 5360, Environmental Data Analysis. Topic presented: Respiratory protection from isocyanate exposure in the auto body repair and refinishing industry, Lectures, Lecturer |
| 2011 - 2017 | University of North Texas Health Science Center, School of Public Health, EOHS 5397 Practicum Experience in Public Health, Course Direction, Academic Adviser (for advisees) or Site Supervisor (for non-advisees) |
| 2011 - 05/2016 | University of North Texas Health Science Center, School of Public Health, EOHS 5330, Recognition, Evaluation and Control of Environmental Hazards, Didactic / Traditional Course Teaching, Course Director |
| 2011 - 2013 | University of North Texas Health Science Center, Ahsan, Samavi, Research Assistant, worked on isocyanate exposure in neonates at Cook Children's Hospital, Mentoring / Advising, Research Advisor/Mentor |
| 2011 | University of North Texas Health Science Center, School of Public Health, BIOS 6320, Biostatistical Research & Consulting. Topic presented: Environmental Exposures to Endocrine Disruptors and Overweight in Children: A Cross-sectional Study, Lectures, Lecturer |
| 2011 | University of North Texas Health Science Center, School of Public Health, BIOS 6320, Biostatistical Research & Consulting. Topic presented: Air pollution in school children in China, Lectures, Lecturer |
| 11/2010 | University of North Texas Health Science Center, School of Public Health, EOHS 6300, Environmental Determinants of Health. Topic presented: Exposure assessment methods, Lectures, Lecturer |
| 08/2010 - 12/2016 | University of North Texas Health Science Center, School of Public Health, EOHS 5331, Environmental and Occupational Sampling and Analysis Methods, Laboratory Precepting / Instruction, Course Director |
| <u>Undergraduate</u> | |
| 05/2020 - Present | University of Washington, Pamela Chan - Guided her to conduct a literature research and prepare a review paper on "Efficacy of decontamination of respirator devices", Mentoring / Advising, Mentor, Research Advisor / Mentor |
| Other | |
| 05/2017 | University of Kentucky College of Public Health, Course Director, EOHS 5330, Recognition, Evaluation and Control of Environmental Hazards, a lecture-based course required for both M.P.H. and Ph.D. students majored in environmental health, Course Direction, Course Director |

| 2017 | University of North Texas Health Science Center, School of Public Health, Nnaka, TonyChris, Research Assistant (MPH Student), working on assessing barriers of PAPRs at Cook Children's Hospital. Research Mentorship, Mentoring / Advising, Mentor |
|-------------------|--|
| 2017 | University of North Texas Health Science Center, School of Public Health, Okereke, Orji, Research Assistant (MPH Student), working on assessing barriers of powered air-purifying respirators (PAPRs) at Cook Children's Hospital. Research Mentorship, Mentoring / Advising, Mentor |
| 2017 | University of North Texas Health Science Center, School of Public Health, Trivedi, Shrunjal Mahesh, Research Assistant (MPH Student), working on assessing barriers of PAPRs at Cook Children's Hospital. Research Mentorship, Mentoring / Advising, Mentor |
| 11/2016 | University of North Texas Health Science Center, Mehta, Pooja, Volunteer Research Assistant., Mentoring / Advising, Mentor |
| 2016 - 2017 | Cook Children's Hospital, He, Xiaoyi, Research Assistant (MPH Graduate)., Mentoring / Advising, Mentor |
| 2016 | University of North Texas Health Science Center, School of Public Health, Singh, Karanvir, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 06/2015 - 08/2015 | University of North Texas Health Science Center, School of Public Health, Langat, Charles: An evaluation of mosquito vectors and potential exposure risk to West Nile Virus infection in the City of Fort Worth parks. MPH Student Site Supervisor and Practicum Project, Mentoring / Advising, Mentor |
| 05/2015 - 06/2015 | University of North Texas Health Science Center, School of Public Health, Orimoloye, Helen: Assessing the current status of malaria control in Nigeria. MPH Student Site Supervisor and Practicum Project, Mentoring / Advising, Mentor |
| 2015 - 2016 | University of North Texas Health Science Center, Gohil, Vedant, Research Assistant. Worked on assessing the efficacy of a barrier cream on reducing nicotine exposure in migrant tobacco harvesting workers., Mentoring / Advising, Mentor |
| 2015 - 2016 | University of North Texas Health Science Center, Iyioriobhe, Emaehi, Research Assistant, Worked on the effect of air pollution guidelines on COPD sufferers, Mentoring / Advising, Mentor |
| 2015 - 2016 | University of North Texas Health Science Center, Okafor, Caleb, Research Assistant. Worked on assessing the efficacy of a barrier cream on reducing nicotine exposure in migrant tobacco harvesting workers., Mentoring / Advising, Mentor |
| 2015 | University of North Texas Health Science Center, School of Public Health, Singh, Karanvir, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 05/2014 - 06/2014 | University of North Texas Health Science Center, School of Public Health, Taylor, Hunter: Effect of excess clutter on particle leakage form within a chemical fume hood: presented as a poster at American Industrial Hygiene Conference and Exposition at San Antonio . MPH Student Site Supervisor and Practicum Project, Mentoring / Advising, Mentor |
| 2014 - 2017 | University of North Texas Health Science Center School of Public Health, Okekumata, Isimenmen T: Analysis of catheter associated urinary tract infection case review collection tool. MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 - 2017 | University of North Texas Health Science Center School of Public Health, Pearce, Rebekah, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 - 2017 | University of North Texas Health Science Center, School of Public Health, Shinde, Trupti, Creating a West Nile Virus (WNV) map of Tarrant County, TX using Geographical Information System (GIS). MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 - 2017 | University of North Texas Health Science Center School of Public Health, Synghal, Aditya. MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 - 2017 | University of North Texas Health Science Center, School of Public Health, Taylor, Erin L. MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 - 2016 | University of North Texas Health Science Center School of Public Health, Ukpaka, Kelechi Lilian, Improving University of Texas Southwestern Medical Center guide to Sustainability. MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |

| 2014 - 2015 | University of North Texas Health Science Center, School of Public Health, Opara, Chienyem U; Exposure to organic solvents and neurotoxicity in general and in auto body repair industry in particular, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
|-------------------|--|
| 2014 - 2015 | University of North Texas Health Science Center, School of Public Health, Otubanjo, Oreoluwa Adebanke, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 - 2015 | University of North Texas Health Science Center, School of Public Health, Patel, Jay Tusharbhai, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 - 2015 | University of North Texas Health Science Center, School of Public Health, Sanchez, Marco A: Conducting job safety analysis for assembly lines at Atrium Windows and Doors, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 | University of North Texas Health Science Center, Poh, Karen, Volunteer Research Assistant, Worked on the effect of air pollution guidelines on COPD sufferers, Mentoring / Advising, Mentor |
| 2014 | University of North Texas Health Science Center, School of Public Health, Singh, Karanvir, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2014 | University of North Texas Health Science Center, Uzoeghelu, Ugochuckwu, Volunteer Research Assistant, Conducted a nanoparticle exposure and health literature review, Mentoring / Advising, Mentor |
| 08/2013 - 12/2013 | University of North Texas Health Science Center, School of Public Health, 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. MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2013 - 2015 | University of North Texas Health Science Center, 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, Mentoring / Advising, Mentor |
| 2013 - 2014 | University of North Texas Health Science Center, Uche, Uloma Igara, Volunteer Research Assistant, Worked to critically review 60 NIOSH skin notation documents, Mentoring / Advising, Mentor |
| 05/2011 - 07/2011 | University of North Texas Health Science Center, Jones, Cheyenne, Summer Undergraduate Student, May 25th - July 29, 2011, Mentoring / Advising, Mentor |
| 2011 - 2013 | University of North Texas Health Science Center, School of Public Health, Gohlke, Garrett: Respirable dust monitoring at a construction site; currently working as an Officer at the United States Army Corps of Engineers, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2011 - 2013 | University of North Texas Health Science Center, School of Public Health, Njesada, Ndolembai Sade: currently a PhD Student at eh University of North Texas Health Science Center School of Public Health, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2011 - 2013 | University of North Texas Health Science Center, School of Public Health, 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 if North Texas Health Science Center School of Public Health, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2011 - 2013 | University of North Texas Health Science Center, School of Public Health, Selvera, Tonya: Cryptosporidum and recreational waters: filling in the informational gaps, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 05/2010 - 07/2010 | University of Kentucky College of Public Health, Baker, Tiffany Johnson, Member, Mentoring / Advising, Mentor |
| 05/2010 - 07/2010 | University of Kentucky College of Public Health, McGuire, Patrick, Member, Mentoring / Advising, Mentor |
| | |

| 05/2010 - 07/2010 | University of Kentucky College of Public Health, Webb, Delena, Member, Mentoring / Advising, Mentor |
|-------------------|---|
| 03/2010 | University of Kentucky College of Public Health, Guest Lecture, TOX 680, Biochemical and Environmental Toxicology, Lectures, Lecturer |
| 2010 - 2012 | University of North Texas Health Science Center, School of Public Health, Butcher, Jessica: Rabies in Tarrant County, TX, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2010 - 2012 | University of North Texas Health Science Center, School of Public Health, Harrison, Jada: Evaluating hazards of waste anesthesia gases in the hospital setting: currently working at Lockheed Martin Corporation, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2010 - 2012 | University of North Texas Health Science Center, School of Public Health, Magalhaes, Richelle: Assessing the safety needs of an airline maintenance base: currently working at the U.S. Navy, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2010 - 2011 | University of North Texas Health Science Center, School of Public Health, Ebiuwhe, Joseph: The potential impact on workforce planning of the proposed federal railroad administration (FRA) hearing acuity medical standard, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2010 - 2011 | University of North Texas Health Science Center, School of Public Health, Patil, Nirav, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2010 - 2011 | University of North Texas Health Science Center, Patil, Nirav, Research Assistant, Worked on indoor air pollution study in Guangzhou, China, Mentoring / Advising, Mentor |
| 2010 - 2011 | University of North Texas Health Science Center, School of Public Health, Pradhan, Archana: Pool safety and recreational water illness education program in Tarrant County, TX; currently working at Workplace Safety and Prevention Services, Canada, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2010 - 2011 | University of North Texas Health Science Center, School of Public Health, Rotimi, Beatrice: Occupational Health and safety hazards associated with the use of ethylene oxide in the healthcare setting: A case study at Cook Chioldren's Hospital, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 2010 | University of Kentucky College of Public Health, Course Director, EOHS 5331, Environmental and Occupational Sampling and Analysis Methods, a lecture-based course required for both M.P.H. and Ph.D. students majored in environmental health, Course Direction, Course Director |
| 2010 | University of Kentucky College of Public Health, Course Director, EOHS 6391, Advanced Topic in Environmental Occupational Health, Journal club type of course for Ph.S students, but MPH. students are also eligible to take it, Course Direction, Course Director |
| 2010 | University of North Texas Health Science Center, School of Public Health, Brantley, Richard, MPH Student Academic Advisory, Practicum Project and Current Position., Mentoring / Advising, Mentor |
| 10/2009 | University of Kentucky College of Public Health, Guest Lecture, TOX 509, Biochemical and Environmental Toxicology, Lectures, Lecturer |
| 03/2009 | University of Kentucky College of Public Health, Guest Lecture, TOX 680, Biochemical and Environmental Toxicology, Lectures, Lecturer |
| 02/2009 | University of Kentucky College of Public Health, Guest Lecture, CPH 601, Occupational and Environmental Health I., Lectures, Lecturer |
| 2009 - 2010 | University of Kentucky College of Public Health, Lackman, Dorothy, Occupational Medicine Resident, Mentoring / Advising, Mentor |
| 11/2008 | University of Kentucky College of Public Health, Guest Lecture, CPH 601, Occupational and Environmental Health I. an introductory course for all MPH Students. Topic presented: Workplace: Exposure to chemicals, health effects and exposure control, Lectures, Lecturer |
| 10/2008 | University of Kentucky College of Public Health, Guest Lecture, TOX 509, Biochemical and |

Environmental Toxicology, Lectures, Lecturer

| 05/2008 - 07/2010 | University of Kentucky College of Public Health, Pressley, Sheila, Member, Mentoring / Advising, Mentor |
|-------------------|--|
| 05/2008 - 07/2008 | University of Kentucky College of Public Health, Moore, Kristi Lynn, Member, Mentoring / Advising, Mentor |
| 05/2008 | University of Kentucky College of Public Health, Course Director, CPH 729, Independent Studies in Occupational and Environmental Health. Used PM 651, Workplace Ventilation, as an Independent Study Course for one part-time MPH student majored in environmental health, Course Direction, Course Director |
| 05/2008 | University of Kentucky College of Public Health, Guest Lecture, CPH 729, Independent Studies in Occupational and Environmental Health. Developed a new course: Advanced Exposure Assessment for Doctoral Students. Used it for one DrPH Student., Lectures, Lecturer |
| 04/2008 - 12/2010 | University of Kentucky College of Public Health, Guest Lecturer, CPH 921, Advanced Environmental Health, Topic Presented: Exposure Assessment for Occupational Epidemiologic Studies, Lectures, Lecturer |
| 04/2008 | University of Kentucky College of Public Health, Guest Lecture, CPH 601, Occupational and Environmental Health I. an introductory course for all MPH Students. Topic presented: Workplace: Exposure to chemicals, health effects and exposure control, Lectures, Lecturer |
| 2008 - 2010 | University of Kentucky College of Public Health, McGuire, Patrick, MPH Student, Mentoring / Advising, Mentor |
| 11/2007 | University of Kentucky College of Public Health, Guest Lecture, CPH 601, Occupational and Environmental Health I. an introductory course for all MPH Students. Topic presented: Workplace: Exposure to chemicals, health effects and exposure control, Lectures, Lecturer |
| 10/2007 | University of Kentucky College of Public Health, Guest Lecturer, CPH 920, Advanced Environmental Health, Topic Presented: Isocyanates in the auto body industry: exposure, health effects and exposure control., Lectures, Lecturer |
| 08/2007 - 12/2009 | University of Kentucky College of Public Health, Course Director, CPH 728, Workplace Ventilation, an elective coursefor MPH students majored in environmental health or industrial hygiene, taught online, Course Direction, Course Director |
| 04/2007 | University of Kentucky College of Public Health, Guest Lecture, CPH 921, Professional Seminar in Environmental Health., Lectures, Lecturer |
| 2007 - 05/2010 | University of Kentucky College of Public Health, Course Director, CPH620, Occupational and Environmental Health II, an introductory industrial hygiene course for MPH students majored in environmental health, Course Direction, Course Director |
| 2007 - 05/2010 | University of Kentucky College of Public Health, Course Director, PM 661, Occupational and Environmental Sampling, for MPH students majored in environmental health, Course Direction, Course Director |
| 2007 - 2010 | University of Kentucky College of Public Health, Stanfield, Kara, MPH Student, Mentoring / Advising, Mentor |
| 2007 - 2008 | University of Kentucky College of Public Health, Holsinger, Hannah, Research Assistant, Mentoring / Advising, Mentor |
| 10/2006 | University of Kentucky College of Public Health, Guest Lecturer, CPH 920, Advanced Environmental Health, Topic Presented: Isocyanates in the auto body industry: exposure, health effects and exposure control., Lectures, Lecturer |
| 09/2006 - 02/2007 | University of Kentucky College of Public Health, Guest Lecture, CPH 601, Occupational and Environmental Health I, an introductory course for all MPH students., Lectures, Lecturer |
| 05/2006 | Yale University School of Medicine and Public Health, Course Director, EHS 510b: Fundamentals of environmental Health and Risk Assessment, for MPH Students. Graduate Students (Including Environmental and Occupational Medicine Fellows), Course Direction, Course Director |
| 2006 - 2009 | University of Kentucky College of Public Health, Wright, Sophia, DrPH Student, Mentoring / Advising, Mentor |

| 05/2005 | Yale University School of Medicine and Public Health, Course Director, EHS 510b: Fundamentals of environmental Health and Risk Assessment, for MPH Students. Graduate Students (Including Environmental and Occupational Medicine Fellows), Course Direction, Course Director |
|-------------------|---|
| 03/2005 | Yale University School of Medicine and Public Health, Guest Lecture, Seminar type: Introduction to Occupational and environmental Health: Disability and work compensation; Noise and hearing loss, Lectures, Lecturer |
| 02/2005 - 12/2006 | Yale University School of Medicine and Public Health, Collin-Hansen, Ingvill: worked on assessing dermal exposure to organic solvents, Mentoring / Advising, Mentor |
| 02/2004 - 12/2006 | Yale University School of Medicine and Public Health, Ibrahim, Karim; worked on the isocyanate intervention study in auto body shops, Mentoring / Advising, Mentor |
| 2004 - 2005 | University of Kentucky College of Public Health, Lutgendorf, Claire: worked on the isocyanate intervention study in auto body shops, Mentoring / Advising, Mentor |
| 10/2003 | Yale University School of Medicine and Public Health, Guest Lecture, Seminar type: Introduction to Occupational and environmental Health: Disability and work compensation; Noise and hearing loss, Lectures, Lecturer |
| 04/2003 | Yale University School of Medicine and Public Health, Guest Lecture, EHS 505b: Introduction to Industrial Hygiene. Topic Presented: Personal Protective Equipment. Graduate Students (Including Environmental and Occupational Medicine Fellows)., Lectures, Lecturer |
| 2003 - 2006 | University of Kentucky College of Public Health, Daly, Chris: worked on the isocyanate intervention study in auto body shops, Mentoring / Advising, Mentor |
| 2003 - 2006 | Yale University School of Medicine, Fleming, Courtney: worked on assessing dermal exposure to organic solvents and wo the isocyanate intervention study in auto body shops, Mentoring / Advising, Mentor |
| 2003 | Yale University School of Medicine and Public Health, Guest Lecture, Seminar type: Health hazards in the workplace: exposure assessment and modeling. Yale Physician Assistant Teaching Program., Lectures, Lecturer |
| 03/2002 | Yale University School of Medicine and Public Health, Guest Lecture, Seminar type: Introduction to Occupational and environmental Health: Disability and work compensation; Noise and hearing loss. Residents in Yale Affiliated Hospital Teaching Program (Bridgeport Hospital, CT), Lectures, Lecturer |
| 2002 | Yale University School of Medicine and Public Health, Guest Lecture, Seminar type: Health hazards in the workplace: exposure assessment and modeling. Yale Physician Assistant Teaching Program., Lectures, Lecturer |
| 03/1998 - 12/2006 | Yale University School of Medicine and Public Health, Guest Lecture, EHS 575b: Introduction to Occupational Medicine. Topic Presented: Industrial Hygiene. Graduate Students (Including Environmental and Occupational Medicine Fellows), Lectures, Lecturer |
| 02/1998 - 12/2006 | Yale University School of Medicine and Public Health, Guest Lecture, EHS 573b: Introduction to Occupational Medicine. Topic Presented: Exposure assessment and modeling in epidemiology studies. (Including Environmental and Occupational Medicine Fellows)., Lectures, Lecturer |
| 09/1996 - 12/1996 | Harvard University School of Public Health, Boston, MA, Teaching Assistant, EH262 Introduction to Occupational Hygiene, a required course for Doctor and Master of Science students in industrial hygiene. Graduate Students., Teaching Assistant |
| 10/1995 | Harvard University School of Public Health, Boston, MA, Laboratory Assisstant, Testing and Certification of Biological Safety Cabinets, a one-week course including laboratory testing sessions. Environmental and Occupational Health Professionals Continuing Education., Laboratory Assistant, Laboratory Supervisor / Instruction |
| 11/1994 | Harvard University School of Public Health, Boston, MA, Laboratory Assisstant, In-Place Filter Testing Workshop, a one-week course including laboratory filter testing sessions. Environmental and Occupational Health Professionals Continuing Education., Laboratory Assistant, Laboratory Supervisor / Instruction |
| 05/1994 | Harvard University School of Public Health, Boston, MA, Teaching Assistant, EH263, Analytical Methods and Exposure Assessment, a required course for Doctor and Master of Science Students in environmental health. Graduate Students. Teaching Assistant |

environmental health. Graduate Students., Teaching Assistant

| 09/1993 - 12/1993 | Harvard University School of Public Health, Boston, MA, Teaching Assistant, ID 204, Principles of Toxicology, a required course for Doctor and Master of Science students in environmental health. Graduate Students., Teaching Assistant |
|-------------------|---|
| 05/1993 | Harvard University School of Public Health, Boston, MA, Teaching Assistant, EH201, Introduction to Environmental Health, a required course for all MPH students. Graduate Students., Teaching Assistant |
| 03/1989 - 04/1989 | Peking University School of Public Health, Beijing, China, Course Director, Introduction to Environmental Health, a required course for nursing students. Undergraduate Preventive Medicine/Public Health and Nursing Students, Course Direction, Course Director |
| 04/1988 | Peking University School of Public Health, Beijing, China, Guest Lecture, Professional's Continuing Education in Public Health, a year-round seminar course: topic presented: Indoor Environment and Health., Lectures, Lecturer |
| 03/1988 - 04/1988 | Peking University School of Public Health, Beijing, China, Course Director, Introduction to Environmental Health, a required course for nursing students. Undergraduate Preventive Medicine/Public Health and Nursing Students, Course Direction, Course Director |
| 09/1987 - 01/1989 | Peking University School of Public Health, Beijing, China, Lab Instructor, Laboratory Techniques in Environmental Health Science for students in preventive medicine and public health., Clinical Instruction, Clinical Instruction |
| 09/1985 - 01/1986 | Peking University School of Public Health, Beijing, China, Lab Instructor, Laboratory Techniques in Environmental Health Science for students in preventive medicine and public health., Clinical Instruction, Clinical Instruction |

Essays / Theses / Dissertations

| 2017 | Hoyer, Mitchell, Other, Youcheng Liu |
|-------------|--|
| 2010 - 2015 | Franklin, Gillian, Doctoral, Isocyanate in medical devices and related skin exposures, Youcheng Liu (Advisor / Mentor) 2015, University of Buffalo Bioinformatics Fellow |
| 2010 | Webb, Delena, Other, Youcheng Liu (Committee Member) |
| 2008 - 2010 | Johnson, Tiffany, Masters, Characterization of Appalachia vs. non-Appalachia highway and street construction workers' injuries in Kentucky, Youcheng Liu (Committee Member), Unknown |
| 2008 - 2010 | Pressley, Sheila, Doctoral, 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;, Youcheng Liu (Committee Member) 2010, currently Interim Dean in the College of Health Sciences, Eastern Kentucky University |
| 2008 | Moore, Kristi, Other, Youcheng Liu (Committee Member) |
| 2007 - 2009 | McGuire, Patrick, Masters, Tobacco in prisons: the effect of tobacco-free policy in Kentucky prisons on exposure to PM2.5, Youcheng Liu (Committee Member) 2009, U.S. Navy |

| | 2007, C.S. Hary |
|----------------------------------|--|
| Course or Curriculum Development | |
| 06/2019 - 08/2020 | Online Course in Principles of Environmental Health, Graduate (Masters, Ph.D., Pharm.D., etc.), Wayne State University, Detroit, MI, United States of America Since last summer, I have been working to develop an online course as part of the online MPH Program for MPH students and public health/clinical professionals that will be offered in the fall of 2020. |
| 09/2018 - 12/2018 | PH4300/Environmental Health, Other, Wayne State University, Detroit, MI, United States of America Developed a new environmental health course for the undergrduate public health students using a new textbook that further evolved in the winter semester of 2020 with a new course number PH3500 |

08/2018 - Present Developed training and didactics curriculum for the Preventive Medicine Residency Program, Trainee

(Resident / Fellow / Intern), Wayne State University, Detroit, MI, United States of America

As the Associate Program Director, worked with Residency Program Director, Dr. James Blessman, developed an application and training curriculum, obtained approval by the accreditation agency. I am refining the training curriculum now. In the past 3 years, we had 4 preventive medicine residents

and we give them weekly didactic lectures for 2 to 3 hours.

10/2017 - 12/2017

Principles of Environmental Health, Graduate (Masters, Ph.D., Pharm.D., etc.), Wayne State University, Detroit, MI, United States of America

Developed the new environmental health course section using a new textbook and my prior experience

in teaching this course.

Course Materials (Unpublished)

08/01/2020 - 12/31/2020

FPH 7780 – Emerging Topics in Public Health: Occupational Health, Safety and Medicine: an elective course, Graduate (Masters, Ph.D., Pharm.D., etc.), Wayne State University, Detroit, MI, United States of America

Current occupational health issues; interplay between work environment and worker health and injuries. Through case studies and research article discussion, students employ integrative approaches to ensure worker safety and to optimize worker health.

Research

Funded Research

Completed

Role: Principal Investigator, Percent Effort: 0 % Not applicable

Thomas Klingner (Co-Investigator)

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.

Sponsor Name: University of Cincinnati Education and Research Center, Pilot Research Program

07/01/2008 - 06/30/2009

Total Award: \$8,668, Educational Institutions

Role: Co-Principal Investigator, Percent Effort: 0% % Not applicable

Terry Bunn (Principal Investigator)

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

Sponsor Name: University of Kentucky Vice President for Research - Research Support Grant

02/01/2007 - 06/30/2008

Total Award: \$ 20,000, Educational Institutions

Role: Co-Investigator, Percent Effort: 0% % Not applicable

Thomas Chambers (Principal Investigator)

Title: Inactivation of Influenza Virus via Gamma Irradiation and Reisability of N95 Resporators , 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.

Sponsor Name: University of Kentucky Vice President for Research - Research Support Grant

11/01/2006 - 10/31/2007

Total Award: \$18,400, Educational Institutions

Role: Principal Investigator, Percent Effort: 18% % 200-2015-M-63768

David Sterling (Co-Investigator), Scott Raynaud (Co-Investigator), Shande Chen (Co-Investigator), Suneet Batra (Co-Investigator)

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

Sponsor Name: CDC/National Institute for Occupational Safety and Health

01/31/2017 - 03/31/2018 Total Award: \$ 49,618, Federal

Role: Principal Investigator, Percent Effort: 13% % 200-2015-M-63768

Sumeet Batra (Co-Investigator), David Sterling (Co-Investigator), Shande Chen (Co-Investigator), Scott Raynaud (Co-Investigator)

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

Sponsor Name: CDC/National Institute for Occupational Safety and Health

07/01/2015 - 01/31/2017 Total Award: \$ 91,986, Federal

Role: Principal Investigator, Percent Effort: 10% % 1R03OH009815

David Sterling (Co-Investigator), Swati Biswas (Co-Investigator), Robert Pearce (Principal Investigator)

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

Sponsor Name: CDC/National Institute for Occupational Safety and Health

09/01/2013 - 08/31/2016

Total Award: \$ 140,932, Federal

Role: Consultant, Percent Effort: 11% % 1R01CA170508-0 S Xu (Principal Investigator), G Tourassi (Principal Investigator)

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

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

09/01/2012 - 06/30/2016

Total Award: \$615,681, Federal

Role: Principal Investigator, Percent Effort: 13% % 13IPA1313352

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

Sponsor Name: CDC/National Institute for Occupational Safety and Health

08/01/2012 - 08/31/2014 Total Award: \$ 14440, Federal

Role: Co-Principal Investigator, Percent Effort: 10% % OPPT-2006-0648

Larry Figgs (Co-Investigator)

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.

Sponsor Name: United States Environmental Protection Agency (EPA)

10/01/2007 - 09/30/2009

Total Award: \$249,750, Federal

Role: Co-Principal Investigator, Percent Effort: 5% % OPPT-2006-0619

Larry Figgs (Co-Investigator)

Title: Kentuckey 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.

Sponsor Name: US EPA 07/01/2007 - 06/30/2009

Total Award: \$ 100,000, Federal

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

Carrie Redlich (Co-Investigator)

Title: Efficacy Study of 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.

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

10/01/2003 - 09/30/2005 Total Award: \$ 99,985, Federal

Role: Principal Investigator, Percent Effort: 60% % R01OH004246

Meredith Stowe (Co-Investigator), Carrie Redlich (Co-Investigator), Mark C Cullen (Co-Investigator), Judy Sparer (Co-Investigator)

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 evalute its effectiveness in reducing workers' exposures to isocyanates and organic solvetns and the risk of developing isocyanate immunologic markers.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

09/01/2002 - 10/31/2006

Total Award: \$1,893,930, Federal

Role: Co-Investigator, Percent Effort: 40% % R01OH034506

Carrie Redlich (Co-Investigator), Susan Woskie (Co-Investigator), Mark C Cullen (Principal Investigator), Judy Sparer (Co-Investigator)

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.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

08/01/2002 - 09/30/2007

Total Award: \$3,560,959, Federal

Role: Co-Principal Investigator, Percent Effort: 40% % R01HL62932

Carrie Redlich (Co-Investigator), Judy Sparer (Co-Investigator), Mark Cullen (Principal Investigator), Meredith Stow (Co-Investigator)

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.

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

09/01/1998 - 08/31/2002

Total Award: \$364,929, Federal

Role: Co-Principal Investigator, Percent Effort: 40% % Not applicable

Hansheng Hu (Co-Principal Investigator)

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.

Sponsor Name: China Ministry of Health

09/01/1987 - 08/31/1990

Total Award: \$62,500, Foreign

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

Jonathan Nedrelow (Co-Principal Investigator)

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

Sponsor Name: Cook Children's Healthcare System Clinical Scholars Program

06/01/2012 - 05/31/2016

Total Award: \$50,000, Healthcare Institutions

Funded

Role: Principal Investigator, Percent Effort: 18% % 75D30118C02647

Liying Zhang (Co-Investigator), Jingping Xu (Co-Investigator), Marc S Rosenthal (Co-Investigator), Robert L Sherwin (Co-Investigator), Robert L Sherwin (Co-Investigator), Inspired to the control of the

Investigator)

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 to use an elastomeric respirator in routine healthcare delivery work settings.

Sponsor Name: CDC/National Institute for Occupational Safety and Health (NIOSH)

09/01/2018 - 08/31/2023

Total Award: \$392,130, Federal

Role: Principal Investigator, Percent Effort: 4% % 2021040045 Robert Brook (Co-Investigator), Phillip Levy (Co-Investigator)

Title: Reducing air pollution exposure to lower blood pressure (AIR PRESSURE study), The main objective of this study is to determine if compared to sham, active PAC use during longer periods (weeks) can provide sustained reductions in home blood pressure levels (over 21 days) by reducing personal-level PM2.5 air pollution exposures in patients with mild high BP residing in vulnerable disadvantaged communities across Detroit

Sponsor Name: BCBSM Foundation

02/01/2022 - 12/31/2023

Total Award: \$44,500, Healthcare Institutions

Role: Principal Investigator, Percent Effort: 4% % ACHIEVE GreatER Pilot Grant Application Program

Dr. Pablo Ortiz (Co-Investigator)

Title: Urinary transcriptomics focusing on hypertension (HTN)-related genes to explain the mechanisms by which portable air cleaners (PACs) mitigate particulate matter air pollution-induced blood pressure (BP) elevations in a vulnerable African American population in Detroit, Leveraging the AIRPRESSURE study design, this pilot study has the following specific aims:

1) To evaluate the changes in urinary cellular RNA expression profile focusing on renal hypertension-related pathways following active vs sham PAC intervention. 2) To explore the potential for baseline and changes in RNA expression as a biomarker of blood pressure responses to portable air cleaner intervention. 3) To explore the mediating effect of changes in RNA expression as a mechanism of PM2.5 exposure-induced blood pressure changes.

Sponsor Name: ACHIEVE GreatER Pilot Grant Application Program

03/01/2022 - 12/31/2023

Total Award: \$34,285, Institutional (Wayne State University)

Pending Funding

Role: Principal Investigator, Percent Effort: 30% % NIH 10858802

Jinping Xu (Co-Investigator), April Carcone (Co-Investigator), Samantha Bauer (Co-Investigator), Robert Sherwin (Co-Investigator), Teena Chopra (Co-Investigator)

Title: Reusable Elastomeric Half-Mask Respirator Intervention Study (REMRIS) in Healthcare Settings, The objectives of this study are to develop a comprehensive intervention program, implement it in Sinai-Grace Hospital, Detroit Receiving Hospital and Harper Hospital and assess its effectiveness in increasing the use of a reusable elastomeric half-mask respirator in healthcare workers.

Sponsor Name: CDC/NIOSH 04/01/2024 - 03/31/2028

Total Award: \$ 2,461,157, Federal

Role: Principal Investigator, Percent Effort: 0 % DMC Foundation - Research

Pablo Ortiz (Principal Investigator)

Title: Reducing air pollution to lower blood pressure, The main objective was to obtain additional funding to support an

ongoing study to reduce indoor particle exposure and lower blood pressure

Sponsor Name: Detroit Medical Center Foundation

06/2023 - 12/2023

Total Award: \$42,277, Foundations / Associations / Societies

Submitted - Not Funded

Role: Principal Investigator, Percent Effort: 30 % 1 R01 OH012544-01

Robert Sherwin (Co-Investigator), Jinping Xu (Co-Investigator), Katharine Balint (Co-Investigator), Erik Carter (Co-Investigator)

Investigator)

Title: Reusable Elastomeric Respirators in Healthcare Settings - Assessment, Best Practices and Preferred Uses , The main goal for this study was to assess multiple elastomeric half-mask respirator models for their comforts/discomforts and use barriers in simulated and actual healthcare settings.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

02/2023 - 01/2027

Total Award: \$2,441,479, Federal

Role: Principal Investigator, Percent Effort: 30% % 75D30122 R72138

Dr. Robert Sherwin (Co-Investigator), Dr. Jinping Xu (Co-Investigator), Dr. Liying Zhang (Co-Investigator), Dr. Katharine Balint (Co-Investigator), Dr. Erik Carter (Co-Investigator)

Title: Reusable Elastomeric Respirators in Healthcare Settings - Assessment, Best Practices, and Preferred Uses , This study is to evaluate comforts, discomforts, user barriers and perceived protection of multiple reusable elastomeric half-mask respirator models in both actual and simulated healthcare worker settings. The results will fill the knowledge gap, help CDC to improve its recommendations of these respirators as alternate respirators during N95 respirator shortage caused by pandemics and public health disasters. The study will also help health organizations better prepared for current and future pandemics.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

09/01/2022 - 02/28/2026

Total Award: \$1,065,628, Federal

Role: Principal Investigator, Percent Effort: 30% % 1 R01 OH012226-01A

Dr. Robert Sherwin (Co-Investigator), Dr. Karen MacDonell (Co-Investigator), Dr. Claire Pearson (Co-Investigator), Dr. Teena Chopra (Principal Investigator), Dr. Liying Zhang (Co-Investigator)

Title: Just-in-time training, use and decontamination of PAPRs in healthcare settings in COVID-19 times, The major goal of this study is to assess the effectiveness of a clinical trial intervention program on powered air-purifying respirators and assess its effectiveness in protecting healthcare workers from infectious agents. Impact score: 28; percentile: 14+

Sponsor Name: CDC/National Institute for Occupational Safety and Health

07/2022 - 06/2026

Total Award: \$2,459,583, Federal

Role: Principal Investigator, Percent Effort: 33% % 1 R01 OH012339-01

Audra Stinchcomb (Co-Principal Investigator), James Janisse (Co-Investigator), James Blessman (Co-Investigator), Stephen Hoag (Co-Investigator)

Title: Nicotine barrier cream efficacy study, The main goal of this study is to 1) develop a nicotine barrier cream, and 2) evaluate its efficacy in vitro and in vivo in volunteer smokers.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

10/2021 - 09/2025

Total Award: \$2,011,301.00, Federal

Role: Principal Investigator, Percent Effort: 34% % 1 R01 OH012226-01

Marc Rosenthal (Co-Investigator), Robert Sherwin (Co-Investigator), Claire Pearson (Co-Investigator), Karen MacDonell (Co-Investigator), Living Zhang (Co-Investigator)

Title: Just-in-time training, use and decontamination of PAPRs in healthcare settings in COVID-19 times, The major goal of this study is to assess the effectiveness of a clinical trial intervention program on powered air-purifying respirators and assess its effectiveness in protecting healthcare workers from infectious agents. Impact score: 29; percentile: 19%

Sponsor Name: CDC/National Institute for Occupational Safety and Health

07/01/2021 - 06/30/2025

Total Award: \$2,459,589, Federal

Role: Principal Investigator, Percent Effort: 34% % 1 R01 OH012033-01

Dr. Robert Sherwin (Co-Investigator), Dr. Marc Rosenthal (Co-Investigator), Dr. Liying Zhang (Co-Investigator)

Title: Assessment of powered air-purifying respirators in healthcare delivery settings, The goal of this study was to implement a powered air-purifying respirator intervention program in healthcare workers and evaluate its effectiveness.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

07/01/2020 - 06/30/2024

Total Award: \$1,904,969, Federal

Role: Principal Investigator, Percent Effort: 28% % 1 R01 OH011808-01

Samiran Ghosh (Co-Investigator), Robert L Sherwin (Co-Investigator), Marc Rosenthal (Co-Investigator)

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

Sponsor Name: CDC/NIOSH 07/01/2019 - 06/30/2023

Total Award: \$2,007,575, Federal

Role: Principal Investigator, Percent Effort: 49% % 1 R01 OH011521-01

David Sterling (Co-Investigator), Shande Chen (Co-Investigator), Robert Pearce (Co-Investigator), Wayne Sanderson (Co-Investigator)

Title: Intervention study to reduce nicotine exposure in tobacco harvesting workers, The major goal of this study was to implement a comprehensive intervention program to reduce tobacco harvesting workers' exposure to nicotidine and green tobacco sickness

Sponsor Name: CDC/National Institute for Occupational Safety and Health

09/01/2017 - 08/31/2021

Total Award: \$2,197,526, Federal

Role: Principal Investigator, Percent Effort: 58% % 1 R01 OH011419-01

David Sterling (Co-Investigator), Shande Chen (Co-Investigator), Robert Pearce (Co-Investigator)

Title: Intervention study to reduce nicotine exposure in tobacco harvesting workers, The main goal of this study was to implement an intervention study to reduce skin exposure to nicotine from tobacco harvesting work in migrant farm workers.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

09/01/2017 - 08/31/2021

Total Award: \$2,276,824, Federal

Role: Principal Investigator, Percent Effort: 41% % 1 U01 OH010975-01

David Sterling (Co-Investigator), Audra Stinchcomb (Co-Investigator), Shande Chen (Co-Investigator)

Title: Efficacy Study of a Nicotine Barrier Cream (Phase II), The main goal of this study was to conduct a Phase II efficacy study to evaluate a nicotine barrier cream in reducing skin exposure to nicotine in tobacco harvesting workers

Sponsor Name: CDC/National Institute for Occupational Safety and Health

07/01/2015 - 06/30/2018

Total Award: \$824,346, Federal

Role: Principal Investigator, Percent Effort: 20% % 1 R21 ES024980-01

David Sterling (Co-Investigator), Shande Chen (Co-Investigator), Shuang Yan (Co-Investigator)

Title: Air Pollution and Diabetes in Traffic Policemen, The main goal of this study was to evaluate the effect of air pollution on diabetes in traffic policemen in Harbin, China

Sponsor Name: National Institute of Environmental Health Sciences

10/01/2014 - 09/30/2016

Total Award: \$380,976, Federal

Role: Principal Investigator, Percent Effort: 40% % 1 R01 OH010594-01

David Sterling (Co-Investigator), Shande Chen (Co-Investigator), Susan Franks (Co-Investigator)

Title: Organic Solvents and Neurotoxicity in Auto Body Workers, The major goal of this study was to assess the

neuropsychological impacts of exposure to organic solvents in auto body shop workers

Sponsor Name: CDC/National Institute for Occupational Safety and Health

01/01/2014 - 12/31/2017

Total Award: \$2,237,045, Federal

Role: Principal Investigator, Percent Effort: 25% % 1 R21 ES022376-01

David Sterling (Co-Investigator), Swati Biswas (Co-Investigator), Carrie Redlich (Principal Investigator)

Title: Isocyanat Exposure in Neonatal Infants, The main goal of this study was to assess dermal exposure to isocyanates from

medical devices and consumer products used on neonatal infants

Sponsor Name: National Institute of Environmental Health Sciences

10/01/2012 - 09/30/2014

Total Award: \$417,250, Federal

Role: Principal Investigator, Percent Effort: 14% % 1 R21 ES020985-01

David Sterling (Co-Investigator), Swati Biswas (Co-Investigator), Carrie Redlich (Co-Investigator), Dhimiter Bello (Co-Investigator), Co-Investigator), Co-Investigator), Carrie Redlich (Co-Investigator), Co-Investigator), Co-Investigator, Co-Investigat

Investigator), Adam Wisnewski (Co-Investigator), Jie Li (Co-Investigator)

Title: Isocyanate Exposure in Children, The main goal of this study was to assess children's indoor exposure to isocyanates

from consumer products.

Sponsor Name: National Institute of Environmental Health Sciences

10/01/2011 - 09/30/2013

Total Award: \$405,942, Federal

Role: Principal Investigator, Percent Effort: 35% % 1 R01 OH009423-01

Steven Browning (Co-Investigator), Heather Bush (Principal Investigator), Kiyoung Lere (Co-Investigator), Jie Li (Co-Inves

Investigator)

Title: Exposure to Organic Solvents and Neurotoxic Effects in Auto Body Shop Workers, The goal of this study was to assess auto body shop workers' exposure to organic solvents and neurological impacts in Jinan city, Shandong province, China.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

07/01/2008 - 06/30/2013

Total Award: \$2,603,872, Federal

Role: Principal Investigator, Percent Effort: 25% % 1 R21 ES016616-01

Kiyoung Lee (Co-Investigator), Heather Bush (Co-Investigator), Jie Li (Co-Investigator)

Title: Isocyanate Exposure and Asthma in Schoolchildren, The main goal of this study was to evaluate the relationships between exposures to isocyanates in house paints and consumer products and the risk of asthma in schoolchildren in Jinan city, Shandong province, China

Sponsor Name: National Institute of Environmental Health Sciences

06/01/2008 - 05/31/2010

Total Award: \$382,930, Federal

Role: Principal Investigator, Percent Effort: 40% % 1 R01 OH009070-01

Terry Bunn (Co-Investigator), Pei Liu (Co-Investigator), Jiang Jiang (Co-Investigator), Hong Song (Co-Investigator)

Title: Protection from Airborne Infections in Healthcare Settings in China, The main goal of the study was to conduct an interventional study in three hospitals (Beijing, Nanjing and Guangzhou) in China to implement an infection control program including increased use of N95 respirators and evaluate its effectiveness in reducing the risk of SARS, tuberculosis and seasonal

Sponsor Name: CDC/National Institute for Occupational Safety and Health

07/01/2006 - 06/30/2011

Total Award: \$1,922,478, Federal

Role: Co-Principal Investigator, Percent Effort: 15% % Not applicable

Jinping Xu (Principal Investigator), Bing Yang (Co-Principal Investigator), Charlotte Yang (Co-Investigator)

Title: Efficacy of Hydroxychloroquine and Pegylated Interferon Alpha-2b in Treating and Preventing COVID-19: A Randomized Double-Blinded Placebo-Controlled Clinical Study, The main goal of this randomized double-blinded placebo controlled clinical trial is to evaluate the efficacy of prophylaxis and early treatment of COVID-19 with hydroxychloroquine and interferon alpha-2b in 400 participants.

Sponsor Name: COVID-19 Early Treatment Fund (CETF)

09/01/2020 - 08/31/2020

Total Award: \$ 421,400, Foundations / Associations / Societies Role: Principal Investigator, Percent Effort: 5 % Not applicable

Jinping Xu (Co-Investigator)

Title: Exposure to Persistent Organic Pollutants (POPs), Inflammatory Markers, DNA Methylation and Diabetes in African American Women, The major goal was to to explore interrelationships among exposures to persistent organic polluttants (POPs), inflammatory markers, DNA methylation and diabetes.

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

09/01/2017 - 12/31/2019

Total Award: \$ 70000, State / Local

Clinical Trials

Pending

Role: Principal Investigator, Percent Effort: 0 % DMCF -Research

Title: Reducing air pollution to lower blood pressure, The main objective was to obtain additional funding to support an ongoing study to reduce indoor particle exposure and lower blood pressure., Investigator Initiated.

Sponsor Name: Detroit Medical Center Foundation

06/01/2023 - 12/31/2023 Total Award: \$ 42,277

Open to Enrollment

Role: Principal Investigator, Percent Effort: 4% % ACHIEVE GreatER Pilot Grant Application Program

Title: Urinary transcriptomics focusing on hypertension (HTN)-related genes to explain the mechanisms by which portable air cleaners (PACs) mitigate particulate matter air pollution-induced blood pressure (BP) elevations in a vulnerable African American population in Detroit, Leveraging the AIRPRESSURE study design, this pilot study has the following specific aims:

1) To evaluate the changes in urinary cellular RNA expression profile focusing on renal hypertension-related pathways following active vs sham PAC intervention. 2) To explore the potential for baseline and changes in RNA expression as a biomarker of blood pressure responses to portable air cleaner intervention. 3) To explore the mediating effect of changes in RNA expression as a mechanism of PM2.5 exposure-induced blood pressure changes., Investigator Initiated.

Sponsor Name: ACHIEVE GreatER Pilot Grant Application Program

03/2022 - 08/2023 Total Award: \$ 34.285

Role: Principal Investigator, Percent Effort: 4% % Not applicable

Title: Reducing air pollution to lower blood pressure (AIR PRESSURE) study, The main objective of this study is to determine if compared to sham, active PAC use during longer periods (weeks) can provide sustained reductions in home blood pressure levels (over 21 days) by reducing personal-level PM2.5 air pollution exposures in patients with mild high BP residing in vulnerable disadvantaged communities across Detroit, Investigator Initiated.

Sponsor Name: Blue Cross Blue Shield Michigan Foundation)

02/01/2022 - 07/31/2023 Total Award: \$ \$44,500

Closed to Patient Accrual

Role: Principal Investigator, Percent Effort: 10% % 75D30118C02647

Title: Assessment of Elastomeric Respirators in Healthcare Delivery Settings -Option A Project: Routine Elastomeric Use and Evaluations in Healthcare (REUSE), Assessment of Elastomeric Respirators in Healthcare Delivery Settings -Base Project: Just in Time Elastomeric Training and Fit Testing (JET FIT).

Sponsor Name: CDC/National Institute for Occupational Safety and Health

02/2021 - 08/2023 Total Award: \$ 392,130

Role: Principal Investigator, Percent Effort: 10% % 75D30118C02647

Title: Assessment of Elastomeric Respirators in Healthcare Delivery Settings -Base Project: Just in Time Elastomeric Training and Fit Testing (JET FIT), To evaluate the feasibility and effectiveness of a just-in-time training on using a reusable elastomeric half-mask respirator at Sinai-Grace Hospital as one of the three-site study.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

09/01/2018 - 08/31/2021 Total Award: \$ 392,130

Completed

Role: Principal Investigator, Percent Effort: 10% % 1R03OH009815

Title: Efficacy Study of a Nicotine Barrier Cream. This study was considered a Phase 1 Clinical trial and approved by FDA.,

Investigator Initiated.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

09/01/2013 - 08/31/2016 Total Award: \$ 140,932

Role: Principal Investigator R01OH004246

Title: Isocyanate Exposure Intervention Study in Auto Body Shops, Investigator Initiated.

Sponsor Name: CDC/National Institute for Occupational Safety and Health

09/01/2012 - 08/31/2016 Total Award: \$ 1,893,930

Publications

Peer Reviewed

Key: CV Holder, Corresponding Author^, Equal Contributor~, Junior Faculty, Student*, Trainee

Original Observations

- 1. Andar AU, Liu Y[^], Hammel D, Sterling DA, Klingner T, Tokarski M, Boeniger M, Stinchcomb A[^]. Barrier cream formulations to reduce skin permeation of nicotine as a preventive measure against green tobacco sickness. Toxicology in Vitro. 03/01/2021. PubMed PMID: Under review. *Submitted and is being reviewed by the journal*.
- 2. Gillian Franklin*, Homero Harari*, Samavi Ahsan*, Scott Raynaud, Jonathan Nedrelow, Swati Biswas, Dhimiter Bello, D A Sterling, *Youcheng Liu*. Residual Isocyanates in Medical Devices and Products: A Qualitative and Quantitative Assessment. Environmental health insights. 02/2016;10(eCollection 2016):175-190. doi: 10.4137/EHI.S39149. *Dr. Franklin was Dr. Liu's PhD student. This is part of her dissertation Dr. Liu mentored on.*
- 3. M. F. Faramawi, R. Delongchamp, Y.-S. Lin, Y. Liu, S. Jadhav, S. Abouelenien, L. Fischbach. Environmental lead exposure is associated with visit-to-visit systolic blood pressure variability in the US adults. International Archives of Occupational and Environmental Health. 01/2015;88(3):381-388. doi: 10.1007/s00420-014-0970-5.
- 4. S. Wu*, F. Deng, Y. Liu, Q. Huang, M. Shima, J. Niu, X. Guo. Temperature, traffic-related air pollution, and heart rate variability in a panel of healthy adults. Environmental Research. 01/2013;120:82-89. doi: 10.1016/j.envres.2012.08.008. *Dr. Liu guided Dr. Wu's research along with Dr. Guo*.
- 5. M. F. Faramawi, Y. Liu, S. Gandhi, J. L. Caffrey, Y.-S. Lin, K. P. Singh. The Association between Urinary Cadmium and Frontal T Wave Axis Deviation in the US Adults. International Journal of Hygiene and Environmental Health. 01/2012;215(3):406-410. doi: 10.1016/j.ijheh.2011.11.013.

- 6. S. Wu*, F. Deng, J. Niu, Q. Huang, Y. Liu, X. Guo. Exposures to PM2.5 components and heart rate variability in taxi drivers around the Beijing 2008 Olympic Games. Science of the Total Environment. 01/2011;409(13):2478-2485. doi: 10.1016/j.scitotenv.2011.03.034.
 - Dr. Liu guided Dr. Wu's research along with Dr. Guo.
- 7. S. Wu, F. Deng, J. Niu, Q. Huang, Y. Liu, X. Guo. 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. 01/2011;23(5):289-303. doi: 10.3109/08958378.2011.568976.

 Dr. Liu guided Dr. Wu's research along with Dr. Guo.
- 8. S. Wu, F. Deng, J. Niu, Q. Huang, Y. Liu, X. Guo. Association of heart rate variability in taxi drivers with marked changes in particulate air pollution in Beijing in 2008. Environmental Health Perspectives. 01/2010;118(1):87-91. doi: 10.1289/ehp.0900818.
 - Dr. Liu guided Dr. Wu's research along with Dr. Guo.
- 9. T. L. Bunn, Y. Liu, K. Lee, M. Robertson, L. Yu. Farmer exposure to organic solvents during the maintenance and repair of farm machinery: A pilot study. American Journal of Industrial Medicine. 01/2009;52(12):973-981. doi: 10.1002/ajim.20773. Dr. Liu's 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.
- 10. Y. Liu, M. H. Stowe, J. Sparer, R. J. Gore, D. Bello, M. R. Cullen, C. A. Redlich, S. R. Woskie. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: III. A personal exposure algorithm. Annals of Occupational Hygiene. 01/2009;53(1):33-40. doi: 10.1093/annhyg/men070.
- 11. S. R. Woskie, D. Bello*, M. H. Stowe, R. J. Gore, E. A. Eisen, Y. Liu, J. A. Sparer, M. R. Cullen, C. A. Redlich. Comparison of task-based exposure metrics for an epidemiologic study of isocyanate inhalation exposures among autobody shop workers. Journal of Occupational and Environmental Hygiene. 01/2008;5(9):588-598. doi: 10.1080/15459620802275429.
 - Dr. Liu's role: Study design, method development, exposure assessment manager, field data collection, laboratory support, and manuscript writing.
- 12. D. Bello*, M. H. Stowe, J. Sparer, S. R. Woskie, R. P. Streicher, M R Cullen, C. A. Redlich, Y. Liu. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: II. A quantitative assessment. Annals of Occupational Hygiene. 01/2008;52(2):117-124. doi: 10.1093/annhyg/mem066.
- 13. Y. Liu, D. Bello, J. A. Sparer, M. H. Stowe, R. J. Gore, S. R. Woskie, M. R. Cullen, C. A. Redlich. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: A qualitative assessment. Annals of Occupational Hygiene. 01/2007;51(5):429-439. doi: 10.1093/annhyg/mem021.
- 14. D. Bello*, J. Sparer, C. A. Redlich, K. Ibrahim, M. H. Stowe, Y. Liu. Slow curing of aliphatic polyisocyanate paints in automotive refinishing: A potential source for skin exposure. Journal of Occupational and Environmental Hygiene. 01/2007;4(6):406-411. doi: 10.1080/15459620701341199.

 Dr. Liu and Judy Sparer guided the study design and data collection.
- 15. <u>D. Bello</u>, T. J. Smith, S. R. Woskie, R. P. Streicher, M. F. Boeniger, C. A. Redlich, Y. Liu. An FTIR investigation of isocyanate skin absorption using in vitro guinea pig skin. Journal of Environmental Monitoring. 01/2006;8(5):523-529. doi: 10.1039/b517948c.
- 16. Y. Liu, M. H. Stowe, D. Bello, S. R. Woskie, J. Sparer, R. Gore, F. Youngs, M. R. Cullen, C. A. Redlich. Respiratory protection from isocyanate exposure in the autobody repair and refinishing industry. Journal of Occupational and Environmental Hygiene. 01/2006;3(5):234-249. doi: 10.1080/15459620600628704.
- 17. D. Bello, S. R. Woskie, R. P. Streicher, M. H. Stowe, J. Sparer, M. R. Cullen, C. A. Redlich, Y. Liu. A laboratory investigation of the effectiveness of various skin and surface decontaminants for aliphatic polyisocyanates. Journal of Environmental Monitoring. 01/2005;7(7):716-721. doi: 10.1039/b503807c.
- 18. Y. Liu*, M. A. Woodin, R. Hauser, P. L. Williams, R. F. Herrick, D. C. Christiani, T. J. Smith. Estimation of personal exposures to particulate matter and metals in boiler overhaul work. Journal of Occupational and Environmental Medicine. 01/2005;47(1):68-78. doi: 10.1097/01.jom.0000147212.93183.7e.
- 19. Y. Liu*, M. A. Woodin, T. J. Smith, R. F. Herrick, P. L. Williams, R. Hauser, D. C. Christiani. Exposure to fuel-oil ash and welding emissions during the overhaul of an oil-fired boiler. Journal of Occupational and Environmental Hygiene. 01/2005;2(9):435-443. doi: 10.1080/15459620591034529.

- 20. S. R. Woskie, J. Sparer, R. J. Gore, M. Stowe, D. Bello, Y. Liu, F. Youngs, C. Redlich, M. Cullen. Determinants of isocyanate exposures in auto body repair and refinishing shops. Annals of Occupational Hygiene. 01/2004;48(5):393-403. doi: 10.1093/annhyg/meh021.
 - Dr. Liu's role: Study design, method development, exposure assessment manager, field data collection, laboratory support, and manuscript writing.
- 21. J. Sparer, M. H. Stowe, D. Bello, Y. Liu, R. J. Gore, F. Youngs, C. A. Redlich, S. R. Woskie, M. R. Cullen. Isocyanate exposures in autobody shop work: The SPRAY study. Journal of Occupational and Environmental Hygiene. 01/2004;1(9):570-581. doi: 10.1080/15459620490485909.

 Dr. Liu's role: Study design, method development, exposure assessment manager, field data collection, laboratory support, and manuscript writing.
- 22. Y. Liu, M. Berode, M. H. Stowe, C. T. Holm, F. X. Walsh, M. D. Slade, M. F. Boeniger, C. A. Redlich. Urinary hexane diamine to assess respiratory exposure to hexamethylene diisocyanate aerosol: A human inhalation study. International Journal of Occupational and Environmental Health. 01/2004;10(3):262-271. doi: 10.1179/oeh.2004.10.3.262.
- 23. D. Bello*, R. P. Streicher, Y. C. Liu, J. Sparer, F. Youngs, S. R. Woskie. Field comparison of impingers and treated filters for sampling of total aliphatic isocyanates with the map reagent. American Industrial Hygiene Association Journal. 01/2002;63(6):790-796. doi: 10.1080/15428110208984769.
- 24. Y. Liu, J. Appiah-Pippim, M. R. Cullen, M. H. Karol, M. H. Stowe, C. T. Holm, J. S. Chung, C. A. Redlich, A. V. Wisnewski, R. Gore, J. Sparer, S. R. Woskie, E. A. Eisen, R. Lemus. Nested case-control study of lung cancer among pulp and paper workers in relation to exposure to dusts. American Journal of Industrial Medicine. 01/2001;39(6):547-556. doi: 10.1002/ajim.1053.
- 25. CA Redlich, MH Stowe, AV Wisnewski, EA Eisen, MH Karol, R Lemus, CT Holm, JS Chung, J Sparer, Youcheng Liu, SR Woskie, J Appiah-Pippim, R Gore, MR Cullen. Subclinical immunologic and physiologic responses in hexamethylene diisocyanate-exposed auto body shop workers. American Journal of Industrial Medicine. 01/2001;(587-597).
- 26. M. A. Woodin, Y. Liu, D. Neuberg, R. Hauser, T. J. Smith, D. C. Christiani. Acute respiratory symptoms in workers exposed to vanadium-rich fuel-oil ash. American Journal of Industrial Medicine. 01/2000;37(4):353-363. doi: 10.1002/(SICI)1097-0274(200004)37:4<353::AID-AJIM5>3.0.CO;2-L.
- 27. Y. Liu, J. Sparer, S. R. Woskie, M. R. Cullen, J. S. Chung, C. T. Holm, C. A. Redlich. Qualitative assessment of isocyanate skin exposure in auto body shops: A pilot study. American Journal of Industrial Medicine. 01/2000;37(3):265-274. doi: 10.1002/(SICI)1097-0274(200003)37:3<265::AID-AJIM4>3.0.CO;2-O.
- M. A. Woodin, Y. Liu, R. Hauser, T. J. Smith, D. C. Christiani. Pulmonary function in workers exposed to low levels of fuel-oil ash. Journal of Occupational and Environmental Medicine. 01/1999;41(11):973-980. doi: 10.1097/00043764-199911000-00009.
 Dr. Liu's role: Research design, method development, exposure assessment manager, field data collection, laboratory support and manuscript writing.
- 29. M. A. Woodin, R. Hauser, Y. Liu, T. J. Smith, P. D. Siegel, D. M. Lewis, D. J. Tollerud, D. C. Christiani. Molecular markers of acute upper airway inflammation in workers exposed to fuel-oil ash. American Journal of Respiratory and Critical Care Medicine. 01/1998;158(1):182-187. doi: 10.1164/ajrccm.158.1.9711054. Dr. Liu's role: Research design, method development, exposure assessment manager, field data collection, laboratory support and manuscript writing.
- 30. J Liu, H Hu, Y Liu, B Wei, T Wen, Z Liu, L Hao, T Zhao, M Wu, Q Lu. A study on indoor formaldehyde pollution and sources in rural area in North China. Chinese Journal of Environment and Health. 01/1993.

 Dr. Liu's role: Study conception, Co-Investigator, research design, method development, exposure assessment manager, field data collection, laboratory support and manuscript writing.
- 31. KR Smith, Youcheng Liu, J Revera, E Boy, B Leaderer, CS Johnston, Y Yanagisawa, K Lee. Indoor air Quality and child exposure in Highland Guatemala. 6th International Conference on Indoor Air Quality and Climate (INDOOR AIR 93). 1993:1:441-446.
- 32. Y Liu, J Liu, H Hu. Variations of formaldehyde exposure in residences and public buildings in Beijing. 6th International Conference on Indoor Air Quality and Climate (INDOOR AIR 93). 1993;2:129-34.
- 33. J Liu, Y Liu, H Hu. Characteristics of rural indoor formaldehyde pollution in Northern China. 5th International Conference on Indoor Air Quality and Climate (INDOOR AIR 90). 1990;2:275-280.
- 34. H Hu, Youcheng Liu. Evaluation of indoor air pollution and its effect on human health in Beijing rural areas. Environment International. 1989;15:321-335.

- 35. Y Liu, D Xu. Measures to improve environmental health in rural China. 4th Asian Congress on Rural Medicine and Primary Health Care. 1988:86-87.
- 36. Y Liu, H Hu. Hygoenic evaluation of indoor air pollution and its effect on human health in Beijing's rural areas. 4th International Conference on Indoor Air Quality and Climate (INDOOR AIR 90). 1987;3:15-19.

Key: CV Holder, Corresponding Author^, Equal Contributor~, *Junior Faculty*, Student*, <u>Trainee</u>

Review Articles

- 1. A.C. Yang. Hydroxychloroquine and interferons for the prophylaxis and early treatment of Covid-19-current clinical advances. Journal of Clinical and Cellular Immunology. 09/2020;11(5):596:1-5.

 Dr. Liu made equal contribution as the first author.
- 2. Y. Liu, S. Yan, K. Poh, S. Liu, E. Iyioriobhe, D. A. Sterling. Impact of air quality guidelines on COPD sufferers. International Journal of COPD. 2016;11(1):839-872. doi: 10.2147/COPD.S49378.
- 3. Y. Liu, K. Lee, R. Perez-Padilla, N. L. Hudson, D. M. Mannino. Outdoor and indoor air pollution and COPD-related diseases in high- and low-income countries. International Journal of Tuberculosis and Lung Disease. 2008;12(2):115-127.
- 4. D. Bello*, C. A. Herrick, T. J. Smith, S. R. Woskie, M. R. Cullen, Y. Liu, C. A. Redlich. Skin exposure to isocyanates: Reasons for concern. Environmental Health Perspectives. 2007;115(3):328-335. doi: 10.1289/ehp.9557.
- 5. D. Bello*, S. R. Woskie, R. P. Streicher, Y. Liu, M. H. Stowe, M. J. Ellenbecker, E. A. Eisen, J. Sparer, F. Youngs, M. R. Cullen, C. A. Redlich. Polyisocyanates in occupational environments: A critical review of exposure limits and metrics. American Journal of Industrial Medicine. 2004;46(5):480-491. doi: 10.1002/ajim.20076.
- 6. Y Liu, H Hu. Indoor Formaldehyde pollution and human health. Chinese Journal of Medicine Abroad 1987. 1987;15(4):210-213.

Key: CV Holder, Corresponding Author^, Equal Contributor~, *Junior Faculty*, Student*, <u>Trainee</u>

Editorials / Commentaries

- 1. Ziru Wang, Wendy Huang, Youcheng Liu, Guoxing Ni^. Editorial: Accessible Health Programs Promoting Physical Activity and Fitness Level. Frontiers Public Health Public Health Education and Promotion. 03/08/2023;11, 2023(https://doi.org/10.3389/fpubh.2023.1163686):1-3. PubMed PMID: 10.3389/fpubh.2023.1163686. doi: https://doi.org/10.3389/fpubh.2023.1163686.
 - Overviewed the content of 14 articles published in this issue. The 14 articles were among the many manuscripts the authors reviewed and made a decision on.
- 2. Y. Liu. Where there's smoke there's lung disease. Thorax. 2007;62(10):838-839. doi: 10.1136/thx.2007.081356.

Key: CV Holder, Corresponding Author^, Equal Contributor~, Junior Faculty, Student*, Trainee

Books

- JC Bailar, LM Brosseau, HJ Cohen, AL Hack, SR Lele, Y Liu, JT Rightsmeier, K Ringen, J Rojo, AA Sciarretta. 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; 2007. ISBN#0-309-66888-3
- JC Bailar, LM Brosseau, HJ Cohen, AL Hack, SR Lele, Y Liu, JT Rightsmeier, K Ringen, J Rojo, AA Sciarretta. IOM Committee for the Development of Reusable Facemasks for Use during an influenza Pandemic. Reusability of Facemasks during an Influenza Pandemic. Washington, DC: National Academies Press; 08/2006. ISBN-13: 9780309101820 ISBN-10: 0309101824

Book Chapters

- 1. Y Liu, S Liu, X He, DA Sterling. Respiratory protection against exposure to isocyanates.. In: Handbook of Respiratory Protection: Safeguarding Against Current and Emerging Hazards. Boca Raton, FL: CRC Press, Taylor & Francis Group; 01/2018. p. 273-292.
- 2. Y Liu. Respiratory diseases.. In: Environmental Medicine. Beijing, China: Beijing Medical University Press; 01/2001. p. 231-239.
- 3. Y Liu. Exposure assessment and modeling methods in epidemiologic studies. In: Environmental Medicine. Beijing, China: Beijing Medical University Press; 01/2001. p. 150-162.
- 4. KR Smith, Y Liu. Indoor air pollution in developing countries.. In: Epidemiology of Lung Cancer. New York, NY: Epidemiology of Lung Cancer; 1994. p. 154-163.
- 5. Y Liu. Housing and Health. In: Environmental Health. Beijing, China: Traditional Chinese Medicine Press; 01/1989. p. 139-169.

Key: CV Holder, Corresponding Author^, Equal Contributor~, Junior Faculty, Student*, Trainee

Other

- 1. Youcheng Liu. F1000Prime Recommendation of [Alahmari AD et al., Respir Res 2015, 16(1):71]. F1000 Prime. 08/2015. doi: 10.3410/f.725552277.793508658. F1000Prime.com/725552277#eval793508658. 10.3410/f.725552277.793508658. F1000Prime.com/725552277#eval793508658 Hhttp://f1000.com/prine/725552277
- Youcheng Liu. F1000 Prime Recommendation of [Vizcaino E et al., Environ Health Perspect 2014, 122(8):873-9].. F 1 OOOPrime, 12 May 2014. 05/2014. doi: DOI: 10.3410/. 7183 7173 7. 793494 708. F 1000Prime.com. DOI: 10.3410/. 7183 7173 7. 793494 708. F 1000Prime.com. 8371737#eval793494 708; http://fl OOO.corn/prime/718371737.
- 3. Youcheng Liu. F1000 Prime Recommendation of [Cantley LF et al., Scand J Work Environ Health 2014, 40(1):57-65]. In F1000Prime, 04 Mar 2014. 03/2014. doi: 10.3410/f.718150140.793491587..

 DOI: 10.3410/f.718150140.793491587. F1 OOOPrime.corn/718150140#eval793491587;

 http://f100O.corn/prime/718150140.
- 4. Youcheng Liu. F1000 Prime Recommendation of [Carducci A et al., Ann Occup Hyg 2013, 57(9):1115-27]. FlOOOPrime, 02 Dec 2013. 12/2013. doi: 10.3410/f.718064356.793487359.. F1000Prime.corn/718064356#eval793487359; http://f1000.com/prime/718064356.
- 5. Youcheng Liu. F1000 Prime Recommendation of [Warner Met al., Environ Health Perspect 2013, 121(8):906-11). FlOOOPrime, 29 May 2013. 05/2013. doi: 10.341 O/f.71801_1131.793476911. F1000Prime.corn/7l 801113 l#eval793476911; http://f1000.com/prime/718011131#eval7934769J 1.
- Youcheng Liu. F1000 Prime Recommendation of [Mitchell H et al., Environ Health Perspect 2012, 120(11):1607-12].
 FlOOOPrime, 30 Nov 2012. 11/2012. doi: 10.3410/f.717963684.793465572.
 F1000Prime.com/717963684#eval793465572; http://flOOO.com/prime/717963684#recommendations.
- 7. Youcheng Liu. F1000 Prime Recommendation of (Faiz AS et al., Am J Epidemiol 2012, 176(4):308-16).. FIOOOPrime, 13 Aug 2012. 08/2012. doi: 10.341 O/f.717952722.793458197.. FIOOOPrime.com/717952722#eval793458197; http://fl 000.com/prime/717952722#recommendations.
- 8. Youcheng Liu. F1000 Prime Recommendation of [Silverstone AE et al., Environ Health Perspect 2012, 120(5):727-32]. FlOOOPrime, 21 Jun 2012. 06/2012. doi: 10.3410/f.716997885.792302897. FIOOOPrime.com/716997885#eval792302897; http://fl OOO.com/prime/7 J 6997885#recommendations.
- 9. Youcheng Liu. F1000 Prime Recommendation of [Valvi D et al., Environ Health Perspect 2012, 120(3):451-7]. FI OOOPrime, 20 Apr 2012. 04/2012. doi: 1 0.341 O/f.14264970. I 5777422.. Fl OOOPrime.com/14264970#eval 15777422; http://fl OOO.com/prime/l 4264970#recommendations.
- 10. Youcheng Liu. F1000 Prime Recommendation of [Pierce JS et al., J Occup Environ Hyg 2011, 8(11):686-99].. FlOOOPrime, 14 Nov 2011. 11/2011. doi: 10.3410/f.13362956.14733054.. Fl000Prime.com/13362956#evall4733054; http://flOOO.com/prime/l 3362956#recommendations.

- 11. Youcheng Liu. F1000 Prime Recommendation of [Chiusolo Met al., Environ Health Perspect 2011, 119(9):1233-8). FI OOOPrime, 07 Jun 2011. 06/2011. doi: 10.3410/f. 10971956.11908054. F1000Prime.com/10971956#evall 1908054; http://f1000.com/prime/ I 097 I 956#recommendations.
- 12. Youcheng Liu. F1000 Prime Recommendation of [Hwang BF et al., Environ Health Perspect 2011, 119(9): 1345-9). FlOOOPrime, 14 Apr 2011. 04/2011. doi: 10.3410/f.9691956.10371054. Fl000Prime.com/9691956#eval10371054; http://f1000.com/9691956#evaluations.
- 13. Youcheng Liu. F1000 Prime Recommendation of [Hart JE et al., Am J Respir Crit Care Med 2011, 183(1):73-8).. FJOOOPrime, 21 Jan 2011. 01/2011. doi: 10.3410/f.7753956.8086054.. F1000Prime.com/7753956#eval8086054; https://fl 000.com/prime/contributor/evaluate/article/7 7 5 3 956.
- 14. Youcheng Liu. F1000 Prime Recommendation of [Connor TH et al., J Occup Environ Med 2010, 52(10): 1019-27).. Fl OOOPrime, 21 Oct 2010. 10/2010. doi: 10.3410/f.5627956.5633054..

 F 1000Prime.com/56279 5 6#eval5633 054; https://fl 000.com/primc/contributor/cval uate/artic le/562 79 56.
- 15. Youcheng Liu. F1000 Prime Recommendation of [Hoffman Bet al., J Occup Environ Med 2010, 52(5):473-7].. F1000Prime, 09 Jun 2010. 06/2010. doi: 10.3410/f.3445964.3141065. F1000Prime.com/3445964#eval3141065; http://www. fl OOOmed icine.com/article/id/3445964/eval uation.
- 16. Youcheng Liu. F1000 Prime Recommendation of [Schwartz BS et al., J Occup Environ Med 2010, 52(4):407-14]. FIOOOPrime, 21 Jun 2010. 06/2010. doi: 10.3410/f.3445962.3141063.. Fl 000Prime.com/3445962#eval3 l 41063; http://www.f1OOOmedicine.com/article/id/3445962/evaluation.
- 17. Youcheng Liu. F1000 Prime Recommendation of [Neupane Bet al., Am J Respir Crit Care Med 2010, 181(1):47-53].. F1000Prime, 14 Jan 2010. 01/2010. doi: 10.3410/f.1436956.915054. F1 000Prime.com/1436956#eval915054; http://www. fl 000med icine.com/article/id/ 1436956/evaluation.
- 18. Youcheng Liu. F1000 Prime Recommendation of [Kiinzli N et al., Thorax 2009, 64(8):664-70]. FlOOOPrime, 28 Aug 2009 08/2009. doi: 1 0.341 O/f.1163543 .625286. Fl 000Prime.com/1 l 63543#eval625286; http://www.flOOOmedicine.com/article/id/1163 543/evaluation
- 19. Youcheng Liu. F1000 Prirne Recommendation of [Samet JM et al., Am J Respir Crit Care Med 2009, 179(11): 1034-42). Fl OOOPrime, 09 Jun 2009. 06/2009. doi: 10.341 O/f.1160998.621445. F1000Prime.com/l 1 60998#eval621445; http://www.flOOOmedicine.com/article/id/1160998/evaluation.
- 20. Youcheng Liu. F1000 Prime Recommendation of [Samo Ii E et al., Environ Health Perspect 2008, 116(11): 1480-6].. F1000Prime, 09 Oct 2008. 10/2008. doi: 10.3410/f.1123173.580304. F1000Prime.com/1123173#eval580304; http://www.f1000medicine.com/article/id/1123173/evaluation.
- 21. Youcheng Liu. F1000 Prime Recommendation of [Elliott Pet al., Thorax 2007, 62(12):1088-94].. IOOOPrime, 28 May 2008. 05/2008. doi: 10.3410/f.1097449.553514.. FIOOOPrime.com/1097449#eval553514; http://www. fl OOOmedicine.com/article/id/ I 097 449/evaluation.
- 22. Youcheng Liu. F1000 Prime Recommendation of [Zhong Net al., Am J Respir Crit Care Med 2007, 176(8):753-60].. F1000Prime, 11 Oct 2007. 10/2007. doi: 10.3410/f.1091362.545799. F1000Prime.com/1091362#eval545799; http://f1000.com/prime/1091362.
- 23. Youcheng Liu. F1000 Prime Recommendation of [Liu Set al., Thorax 2007, 62(10):889-97]. Fl OOOPrime, 28 Aug 2007; 08/2007. doi: 10.3410/f.1085975.542621. FlOOOPrime.com/1085975#eva1542621; http://www. fl OOOmedicine.com/article/id/ 108597 5/evaluation.

Published Abstracts

- 1. S Wu, F Deng, Youcheng Liu, X Guo. Exposure to traffic-related air pollution in taxi drivers around Beijing 2008 Olympic Games. Epidemiology 22(1); 08/2011. p. S220
- 2. S Wu, F Deng, J Niu, Q Huang, Y Liu, X Guo. Marked changes in particulate air pollution in Beijing in 2008 and heart rate variability in taxi drivers. Epidemiology 22(1); 08/2011. p. S78
- 3. CA Redlich, MH Stowe, S Wang, J Liu, RJ Gore, Youcheng Liu, SR Woskie, AV Wisnewski. IgG Responses to isocyanate in auto body shop workers. American Journal of Respiratory and Critical Care Medicine 2009; 179. American Journal of Respiratory and Critical Care Medicine; 05/2009. p. A367

- 4. MH Stowe, Youcheng Liu, AV Wisnewski, J Spare, CT Holm, MR Cullen, SR Woskie, CA Redlich. Cross-sectional study of auto body workers exposed to diisocyanates: does dermal exposure contribute to sensitization?. American Journal of Respiratory and Critical Care Medicine 173; 05/2006. p. A250
- MH Stowe, AV Wisnewski, CT Holm, J Spare, Youcheng Liu, SR Woskie, MR Cullen, CA Redlich. Cross-sectional study of auto body workers exposed to isocyanates: Immunologic responses. American Journal of Respiratory and Critical Care Medicine 171; 05/2005. p. A816
- DJ Liss, CS Lutgendorf, CM Daly, MH Stowe, AV Wisnewski, M Gulati, Youcheng Liu, J Sparer, CA Redlich. Isocyanate sensitization: a Cross-sectional study of MDI exposure and effects in the production of polyurethane coated fabrics. American Journal of Respiratory and Critical Care Medicine 171; 05/2005. p. A816
- 7. Y Liu, D Bello, CA Redlich, MH Stowe, MR Cullen, F Walsh, F Young, SR Woskie. Comparison of two methods for sampling hexamethylene diisocyanate biuret aerosol: a chamber study. American Journal of Respiratory and Critical Care Medicine 167(7); 05/2003. p. A716
- 8. Y Liu, M Berode, CT Holm, MH Stowe, F Walsh, JA Sparer, CA Redlich. Urinary hexane diamine as a biomarker for assessing respiratory exposure to hexamethylene diisocyanate aerosol. American Journal of Respiratory and Critical Care Medicine 163(5); 05/2001. p. A809
- CA Redlich, MH Stowe, AW Wisenwski, CT Holm, JA Sparer, Youcheng Liu, S Woskie, E Eisen, MK Karol, R Lemus, MR Cullen. Cross sectional study of auto body shop workers exposed to hexamethylene diisocyanate containing paints: Immunologic and physiologic responses. American Journal of Respiratory and Critical Care Medicine 161; 05/2000. p. A761
- 10. Y Liu, JA Spare, SR Woskie, MR Cullen, JS Chung, CT Holm, CA Redlich. Qualitative assessment of isocyanate skin exposure in auto body shops. American Journal of Respiratory and Critical Care Medicine 159(3); 05/1999. p. A234
- 11. MA Woodin, Youcheng Liu, D Newberg, R Hauser, TJ Smith, DC Christiani. Acute respiratory symposium in workers exposed to fuel oil ash. American Journal of Respiratory and Critical Care Medicine 159(3). American Journal of Respiratory and Critical Care Medicine; 04/1999. p. A235
- 12. Youcheng Liu, MA Woodin, TJ Smith, R Hauser, RF Herrick, PL Williams, DC Christiani. Internal dose estimation of occupational exposures to fuel oil ash and metals. American Journal of Respiratory and Critical Care Medicine 157(3); 04/1998. p. A884
- 13. MA Woodin, R Hauser, Y Liu, TJ Smith, DC Christiani. Respiratory symptom incidence in workers overhauling an oil-fired boiler. American Journal of Respiratory and Critical Care Medicine 155(4); 05/1997. p. A811
- 14. MA Woodin, DC Christiani, DM Lewis, R Hauser, TJ Smith, PD Siegel, Youcheng Liu, DJ Tollerud. Nasal lavage inflammatory mediators as biomarkers of upper airway exposure to fuel oil ash. American Journal of Respiratory and Critical Care Medicine 155(4); 05/1997. p. A475

Presentations

Podium

International / National

- 1. Liu, Youcheng^, Mui-Blackmon, Jazmine, Mahasi, Grace, Rosenthal, Marc, Chowdhury Preti*, Usman, Hafsa*, *Zhang, Liying*, Xu, Jinping, Sherwin, Robert, McClain, Caitlin, Fernando, Rohan. Assessment of Elastomeric Respirators in Healthcare Delivery Settings: Routine Elastomeric Use and Evaluations in Healthcare. CDC/MIOSH webinar; 08/08/2023; Pittsburgh, PA, United States of America
 - A CDC/NIOSH (National Institute for Occupational Safety and Health)/NPPTL (National Personal Protective Technology Laboratory) public webinar held for presenting the results of CDC/NIOSH/NPPTL contract study by three study sites: Wayne State University, Emory University and The University of Texas at Houston; NPPTL Researcher, Adam Hornbeck opened the webinar with remarks on their goals and plans, NPPTL Fellow Caitlin introduced the contract study and the second project on reusable respirator use for 3 months in healthcare, and the PI Youcheng Liu presented our research which was well attended by national audience and received excellent comments.

- 2. Liu Y^, Mui-Blackmon J, Mahaci G, Rosenthal M, Zhang L, Xu J, Sherwin R. NIOSH Elastomeric Half Mask Respirator (EHMR) Webinar: Assessment of Elastomeric Respirators in Healthcare Delivery Settings: Just-in-time Elastomeric Training and Fit Testing (JET FIT) Supported by CDC/NIOSH Contract 75D30118C02647(September 1, 2018 July 31, 2023). NIOSH Public Webinar; 02/16/2021; Pittsburg, PA, United States of America A CDC/NIOSH (National Institute for Occupational Safety and Health)/NPPTL (National Personal Protective Technology Laboratory) public webinar held for presenting the results of CDC/NIOSH/NPPTL contract study at our site. NPPTL Director, Maryann D'Alessandro, PhD, opened the webinar with remarks on their goals and plans, NPPTL Fellow Caitlin introduced the contract study, and Jazmine Mui-Blackmon presented our research which was well attended by national audience and received excellent comments
- Y Liu, Z Zhuang, S Raynaud, X He, S Chen, B Southworth, L Jacobs, S Batra, J Hood, E Schultz, S Trivedi, O Okereke, T Nnaka, D Sterling. Assessing facial, thermal and eye discomfort, acceptability and perceived protective efficiency of PARRs in simulated healthcare work settings. 20th Congress IEA; 08/2018; Florence, Italy August 26-30, 2018
- 4. Youcheng Liu, M Stowe, J Sparer, C Redlich. Effectiveness of education and behavioral interventions to reduce isocyanate exposure in the auto body repair and refinishing industry. American Industrial Hygiene Conference and Exposition; 06/2015; Salt Lake City, UT, United States of America May 30-June 4
- G Franklin, S Ahsan, S Raynaud, D Sterling, S Biswas, Youcheng Liu. Isocyanates in medical devices: a qualitative assessment. International Conference on Isocyanates and Health: Past, Present and Future.; 04/2013; Potomac, MD, United States of America April 3-4
- 6. S Wu, F Deng, Y Liu, X Guo. Exposure to traffic-related air pollution in taxi drivers around Beijing 2008 Olympic Games. 2010 Joint Conference of International Society of Exposure Science & International Society for Environmental Epidemiology; 08/2010; Seoul, Korea, South August 28-September 1
- 7. S Wu, F Deng, Youcheng Liu, J Nui, X Guo, Q Huang. Marked changes in particulate air pollution in Beijing in 2008 and heart rate variability in taxi drivers. 2010 Joint Conference of International Society of Exposure Science & International Society for Environmental Epidemiology; 08/2010; Seoul, Korea, South August 28-September 1
- 8. Y Liu, K Lee, J Li. Indoor surface contamination y isocyanates from consumer products as a potential source of skin exposureb for children. International Conference of Occupational and Environmental Exposures of Skin to Chemicals; 06/2009; Edinburgh, United Kingdom

 June 14-17
- CA Redlich, MH Stowe, S Wang, J Liu, RJ Gore, Y Liu, SR Woskie, AV Wisnewski. IgG Responses to isocyanate in auto body shop workers. American Thoracic Society's 105th International Conference; 05/2009; San Diego, CA, United States of America May 15-20
- I Collin-Hansen, MH Stowe, K Ibrahim, F Youngs, E Vo, MF Boeniger, SR Woskie, CA Redlich, Youcheng Liu. Field evaluation of gloves and protective clothing against organic solvents during auto body spray painting. American Industrial Hygiene Conference and Exposition; 05/2006; Chicago,IL, United States of America May 13-18
- 11. K Ibrahim, J Sparer, MH Stowe, CE Fleming, I Collin-Hansen, CA Redlich, Youcheng Liu. NCO group availability within polyurethane auto body paint. American Industrial Hygiene Conference and Exposition; 05/2006; Chicago, IL, United States of America

 May 13-18
- 12. Y Liu, MH Stowe, J Sparer, D Bello, CS Lutgendorf, CM Daly, S Ullman, K Ibrahim, CE Fleming, B Cartmel, I Collin-Hansen, F Youngs, R Gore, SR Woskie, CA Redlich, MR Cullen. Improving the safety and health of Hispanic workers in auto body repair and refinishing industry. American Industrial Hygiene Conference and Exposition; 05/2005; Anaheim, CA, United States of America
 May 21-26
- D Bello, SR Woskie, RP Streicher, MH Stowe, JA Sparer, Youcheng Liu. Surface and skin decontamination of aliphatic isocyanates in an experimental study. American Industrial Hygiene Conference and Exposition; 05/2004; Atlanta, GA, United States of America May 8-13

- 14. M Boeniger, J Stull, SQ Hee, R Phalen, T Buckley, D Anna, Y Liu, E Vo, P Gao. Recent methods developments and informational needs for chemical protective clothing (CPC) being supported by the National Institute for Occupational Safety and Health. ASTM's 8th Symposium on Performance of Protective Clothing; 01/2004; Tampa, FL, United States of America
- Youcheng Liu, J Sparer, D Bello, M Stowe, F Youngs, MR Cullen, C Redlich, FA Walsh, CT Holm, S Woskie. Workplace
 performance assessment of half face-piece respirators in isocyanate-exposed body shop workers. American Industrial
 Hygiene Conference and Exposition; 05/2003; Dallas, TX, United States of America
 May 10-15
- 16. Y Liu, MH Stowe, MR Cullen, F Walsh, JA Sparer, Ch Holm, SR Woskie, CA Redlich, M Boeniger. Effectiveness of decontamination products and nitrile gloves in redcuing isocyanate skin exposure in auto body shops. American Industrial Hygiene Conference and Exposition; 06/2002; San Diego, CA, United States of America *June 1-6*
- 17. D Bello, SR Woskie, F Youngs, R Streicher, Y Liu, JA Sparer. Field comparison of IOM's and impingers for sampling of total aliphatic isocyanates in air with the MAP Reagent. American Industrial Hygiene Conference and Exposition; 06/2001; New Orleans, LA, United States of America

 June 2-7
- 18. Youcheng Liu, MH Stowe, F Walsh, JA Sparer, MR Cullen, CT Holm, F Youngs, D Bello, SR Woskie, M Boeniger, CA Redlich. Surface contamination and skin exposure to aliphatic isocyanates in auto body shops. American Industrial Hygiene Conference and Exposition; 06/2001; New Orleans, LA, United States of America *June 2-7*
- 19. Youcheng Liu, MH Stowe, M Berode, F Walsh, MR Cullen, JA Sparer, M Boeniger, CT Holm, CA Redlich. Biological monitoring to assess exposure to hexamethylene diisocyanate in auto body repair shops. American Industrial Hygiene Conference and Exposition; 06/2001; New Orleans, LA, United States of America

 June 2-7
- Youcheng Liu, M Berode, CT Holm, MH Stowe, F Walsh, JA Sparer, CA Redlich. Urinary hexane diamine as a biomarker for assessing respiratory exposure to hexamethylene diisocyanate aerosol. American Thoracic Society's 97th International Conference; 05/2001; San Francisco, CA, United States of America May 18-23
- 21. CA Redlich, MH Stowe, AV Wisnewski, EA Eisen, MH Karol, R Lemus, CT Holm, JA Sparer, Y Liu, SR Woskie, R Gore, MR Cullen. Subclinical immunologic and physiologic responses in hexamethylene diisocyanate-exposued auto body shop workers. 1st International Symposium on Isocyanates in Occupational Environments; 06/2000; Stockholm, Sweden *June 19-21*
- 22. D Bello, SR Woskie, RP Streicher, F Youngs, Youcheng Liu, JA Sparer. Field comparison of IOM's and impingers for sampling of aliphatic isocyanates using the MAP reagent. 1st International Symposium on Isocyanates in Occupational Environments; 06/2000; Stockholm, Sweden *June 19-21*
- 23. Youcheng Liu, JA Sparer, MR Cullen, MH Stowe, Ch Holm, SR Woskie, CA Redlich. Epicutaneous exposure to isocyanate in auto body shops: a qualitative assessment. American Industrial Hygiene Conference and Exposition; 05/2000; Orlando, FL, United States of America May 20-25
- 24. CA Redlich, MH Stowe, AW Wisenwski, CT Holm, JA Sparer, Youcheng Liu, S Woskie, E Eisen, MK Karol, R Lemus, MR Cullen. Cross sectional study of auto body shop workers exposed to hexamethylene diisocyanate containing paints: Immunologic and physiologic responses. American Thoracic Society's 96th International Conference; 05/2000; Toronto, ON, Canada May 6-11
- 25. Y Liu, TJ Smith, RF Herrick, MA Woodin, PL Williams, R Hauser, DC Christiani. Assessing boilermakers occupational exposure to respiratory hazards. American College of Occupational and Environmental Medicine State-of-the-Art Conference; 10/1998; Phoenix, AZ, United States of America

 October 18-22
- Y Liu, D Xu. Measures to improve environmental health in rural China. 4th Asian Congress on Rural Medicine and Primary Health Care; 10/1988; Beijing, China October 10-16

27. H Hu, Y Liu. Hygienic evaluation of indoor air polution and its effect on human health in Beijing's rural areas. 4th International Conference on Indoor Air Quality and Climate (INDOOR AIR 87); 08/1987; Berlin, Germany *August 20-24*

Regional / Local

- 1. Youcheng Liu. Hazards, exposure, health and exposure control in small business. 23rd Annual Governor's Safety & Health Conference Expo; 05/2007; Louisville, KY, KY, United States of America
- 2. Y Liu, MH Stowe, JA Sparer, D Bello, B Cartmel, K Ibrahim, C Fleming, I Collin-Hansen, C Daly, F Youngs, SR Woskie, MR Cullen, CA Redlich. Intervention research in the auto body repair and refinishing industry. NIOSH NORA Symposium; 04/2006; Washington DC, United States of America
- 3. C Redlich, S Woskie, J Sparer, F Youngs, R Gore, E Eisen, Youcheng Liu, M Stowe, B Bello. Development of a tiered exposure algorithm for isocyanate exposures in autobody repair shops. X2004 Exposure Assessment in a Changing Environment; 06/2004; Utrecht, Netherlands

1. Liu, Youcheng^, Ortiz, Pablo~, Mui-Blackmon, Jazmine, Chowdhury, Preti, Maskey, Puja Shrestha, El-Souri,

Posters

International / National

career mentorship.

- Mohamed*, Mashna, Gloria*, Moreta, Nicarle*, Jadallah, Dania*, Fleming, Zakiya*, Mustaquim, Bilal*, Alashkar, Mona*, Levy, Phillip, Brook, Robert^. Urinary Transcriptomics Focusing on Hypertension (HTN)-related Genes to Explain the Mechanisms by Which Portable Air Cleaners (PACs) Mitigate Particulate Matter Air Pollution-Induced Blood Pressure (BP) Elevations in a Vulnerable African American. Health Equity Action Network (HEAN) Annual Scientific Community Partner Meeting; 09/14/2023; Bethesda, MD, United States of America

 A National Institute of Minority Health and Health Disparity/NIH-sponsored Health Equity Action Network (HEAN) Annual Scientific Community Partner Meeting with scientific and community participants from 11 NIH-funded centers gathered on September 13 to 14, 2023 to report research progress and discuss challenges and solutions as well as to seek research
- 2. Beza Sahlie*, Youcheng Liu^, Jazmine Mui-Blackmon~, Preti Chowdhury*, Liying Zhang, Jinping Xu, Robert Sherwin. Elastomeric Use and Evaluations in Healthcare (REUSE): Perspectives of Focus Group Members on Implementing a Reusable Respirator. AIHceEXP (American Industrial Hygiene Conference and Exposition); 05/22/2023; Phoenix, AZ, United States of America

 This study examined a focus group's perspectives on implementing an reusable elastomeric half-mask respirator and discussion on the advantages, benefits, potential discomforts, and user barriers of the EHMR. It addresses the administrators' view on how to purchase, store, distribute, clean, disinfect and maintain reusable respirators in different hospital units. Training and fit testing in response to pandemics are also addressed.
- 3. Preti Chowdhury*, Youcheng Liu^, Hafsa Usman*, Jazmine Mui-Blackmon~, Liying Zhang, Jinping Xu, Robert Sherwin. Routine Elastomeric USe and Evaluations in Healthcare (REUSE): use barriers in a three-month follow-up study at Sinai-Grace Hospital, Detroit Medical Center. AIHceEXP (American Industrial Hygiene Conference and Exposition); 05/22/2023; Phoenix, AZ, United States of America
 - This 3-month observational study was conducted at Sinai-Grace Hospital to examine the feasibility of reusable elastomeric half-mask respirator wearing in healthcare workers and to assess HCWs' use experience and barriers.
- 4. J Mui-Blackmon, G Mahasi, M Rosenthal, L Zhang, J Xu, R Sherwin, C MaClain, K Zimmerman, S Drummond, M Sietsema, R Fernando, A Hornbeck, P Yorio, E Sinkule, L Radonovich, Y Liu^. Effectiveness of Rapid Training on Using an Elastomeric Half-Mask Respirator (EHMR) for Healthcare Workers in a Simulated Public Health Emergency: A Demonstrative Randomized Clinical Trial. American Industrial Hygiene Conference and Exhibition (AIHCE) 2021; Dallas, TX, United States of America; 05/2021; Dallas, TX, United States of America Presented as a poster at AIHCE 2021. Also presented at the Research Day in the Department of Family Medicine and
 - Presented as a poster at AIHCE 2021. Also presented at the Research Day in the Department of Family Medicine and Public Health Sciences as a poster presentation in April 16, 2021.

- 5. G Mahasi, J Mui-Blackmon, M Rosenthal, J Xu, L Zhang, R Sherwin, C McClain, K Zimmerman, S Drummond, M Sietsema, R Fernando, A Hornbeck, P Yorio, E Sinkule, L Radonovach, Y Liu^. Fit Test Feasibility in Using an Elastomeric Half-Mask Respirator (EHMR) in Healthcare Workers in Response to a Simulated Public Health Emergency: A Randomized Controlled Trial. American Industrial Hygiene Conference and Exhibition (AIHCE) 2021; Dallas, TX, United States of America; 05/2021; Dallas, TX, United States of America Presented as a poster at AIHCE 2021. Also presented at the Research Day in the Department of Family Medicine and Public Health Sciences as a poster presentation in April 16, 2021.
- S Batra, S Raynaud, Y Liu[^]. Assessing facial, thermal and eye discomfort, acceptability, and perceived protective efficiency of PAPRs in simulated healthcare work settings. AOHC; 04/2019; Anaheim, CA, United States of America April 28-May 1
- V Gohil*, C Okafor*, Y Liu^, DA Sterling, R Pearce, TS Prince, G Davis, M Carol, D Reed, S Biswas, A Stinchcomb.
 Tobacco harvesting work, exposure to nicotin, vital signs and nicotine poisoning. American Industrial Hygiene Conference and Exposition; 05/2016; Baltimore, MD, MD, United States of America
 May 21-26
- 8. C Okafor*, V Gohil*, Y Liu^, DA Sterling, R Pearce, S Biswas, TS Prince, G Davis, M Carol, D Reed, T Klingner, M Tokarski, A Stinchcomb. Determinants of nicotine exposure in tobacco harvesting workers. American Industrial Hygiene Conference and Exposition; 05/2016; Baltimore, MD, United States of America *May 21-26*
- A Andar, Youcheng Liu[^], D Sterling, T Klingner, M Tokaski, M Boeniger, D Hammell, A Stinchcomb[^]. Barrier cream Formulations to reduce skin permeation of nicotine as a preventive measure for Green Tobacco Sickness. American Association of Pharmaceutical Scientists Annual Meeting and Exposition; 11/2014; San Diego, CA, United States of America November 2-6
- 10. Y Liu, D Sterling, J Li. Indoor isocyanate surface contamination as a potential source of skin exposure for children. American Industrial Hygiene Conference and Exposition; 06/2014; San Antonio, TX, United States of America *May 31-June 5*
- 11. G Franklin*, Y Liu^, S Ahsan*, S Biswas, D Sterling, H Harari, D Bello, J Nedrelow, S Raynaud. Medical devices and products as potential sources of isocyanates for skin exposure in neonates: A qualitative and quantitative assessment. American Industrial Hygiene Conference and Exposition; 06/2014; San Antonio, TX, United States of America *May 31-June 5*
- 12. G Franklin, S Ahsan, S Raynaud, D Sterling, S Biswas, Youcheng Liu[^]. Isocyanates in medical devices: a qualitative assessment. International Conference on Isocyanates and Health: Past, Present and Future.; 04/2013; Potomac, MD, United States of America

 April 3-4
- 13. G Franklin, S Ahsan, S Raynaud, J Nedrelow, D Bello, H Harari, D Sterling, S Biswas, Youcheng Liu^. Quantifing isocyanates from medical devices. International Conference on Isocyanates and Health: Past, Present and Future.; 04/2013; Potomac, MD, United States of America *April 3-4*
- 14. TL Bunn, Youcheng Liu, K Lee, M Robertson, L Yu. Farmer exposure to organic solvents during the maintenance and repair of farm machinery. APHA 137th Meeting and Expo; 11/2009; Philadelphia, PA, United States of America *November 7-11*
- CA Redlich, MH Stowe, S Wang, J Liu, RJ Gore, Y Liu, SR Woskie, AV Wisnewski. IgG Responses to isocyanate in auto body shop workers: associations with skin and respiratory exposures. American Thoracic Society's 105th International Conference; 05/2009; San Diego, CA, United States of America May 15-20
- 16. J Sparer, K Ibrahim, CA Redlich, F Youngs, Youcheng Liu^. Comparing solvent airborne exposures, outside PPE depositior and inside PPE exposure during auto body spray painting. American Industrial Hygiene Conference and Exposition; 06/2007; Philadelphia, PA, United States of America

 June 2 to 7
- 17. MH Stowe, AV Wisnewski, D Bello, Y Liu, JA Sparer, RJ Gore, MR Cullen, SR Woskie, CA Redlich. Cross sectional SPRAY study of auto body workers exposed to isocyanates. International Conference of Occupational and Environmental Exposures of Skin to Chemicals 2007; 06/2007; Golden, CO, United States of America

 June 17-20

- 18. D Bello, D Hosgood, MH Stowe, Y Liu, SR Woskie, MR Cullen, CA Redlich. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: II A quantitative measurement. International Conference of Occupational and Environmental Exposures of Skin to Chemicals 2007; 06/2007; Golden, CO, United States of America *June 17-20*
- 19. Y Liu, D Bello, JA Sparer, MH Stowe, RJ Gore, CA Redlich, SR Woskie, MR Cullen. Skin exposure to aliphatic polyisocyanates in the auto body repair and refinishing industry: I. A qualitative measurement. International Conference of Occupational and Environmental Exposures of Skin to Chemicals 2007; 06/2007; Golden, CO, United States of America *June 17-21*
- MH Stowe, Youcheng Liu, AV Wisnewski, J Spare, CT Holm, MR Cullen, SR Woskie, CA Redlich. Cross-sectional study
 of auto body workers exposed to diisocyanates. American Thoracic Society's 105th International Conference; 05/2006; San
 Diego, CA, United States of America
 May 19-24
- 21. Y Liu, MH Stowe, D Bello, JA Sparer, CS Lutgendorf, CM Daly, S Ullman, F Youngs, K Ibrahim, C Fleming, I Collin-Hansen, B Cartmel, RJ Gore, MF Boeniger, SR Woskie, MR Cullen, CA Redlich. Surface and skin decontamination of aliphatic isocyanates: a field study. International Conference of Occupational and Environmental Exposures of Skin to Chemicals 2005; 06/2005; Stockholm, Sweden June 12-15
- 22. DJ Liss, CS Lutgendorf, CM Daly, MH Stowe, AV Wisnewski, M Gulati, Youcheng Liu, J Sparer, CA Redlich. Isocyanate sensitization: a Cross-sectional study of MDI exposure and effects in the production of polyurethane coated fabrics. American Thoracic Society's 101st International Conference; 05/2005; San Diego, CA, United States of America May 20-25
- 23. MH Stowe, AV Wisnewski, CT Holm, J Spare, Y Liu, SR Woskie, MR Cullen, CA Redlich. Cross-sectional study of auto body workers exposed to isocyanates: Immunologic responses. American Thoracic Society's 101st International Conference; 05/2005; San Diego, CA, United States of America May 20-25
- 24. Y Liu, D Bello, CA Redlich, MH Stowe, MR Cullen, F Walsh, F Youngs, SR Woskie. Comparison of two methods for sampling hexamethylene diisocyanate biuret aerosol: a chamber study. American Thoracic Society's 99th International Conference; 05/2003; Seattle, WA, United States of America

 May 16-21
- 25. F Youngs, R Streicher, D Bello, SR Woskie, Y Liu. Quantitative determination of total aliphatic isocyanates on skin and surfaces using the MAP Reagent. American Industrial Hygiene Conference and Exposition; 06/2001; New Orleans, LA, United States of America

 June 2-7
- Youcheng Liu, JA Sparer, MR Cullen, MH Stowe, Ch Holm, SR Woskie, CA Redlich. Respirator subjective assessment in auto body repair shops. American Industrial Hygiene Conference and Exposition; 05/2000; Orlando, FL, United States of America May 20-25
- 27. Youcheng Liu, JA Sparer, SR Woskie, RP Streicher, MK Ernst, GY Williamson, MR Cullen. Field evaluation of two isocyanate sampling methods. American Industrial Hygiene Conference and Exposition; 06/1999; Toronto, ON, Canada *June5-11*
- 28. MA Woodin, Y Liu, D Newberg, R Hauser, TJ Smith, DC Christiani. Acute respiratory symposium in workers exposed to fuel oil ash. American Thoracic Society's 95th International Conference; 04/1999; San Diego, CA, United States of America *April 24-28*
- Y Liu, JA Sparer, S Woskie, MR Cullen, JS Chung, CT Holm, CA Redlich. Qualitative assessment of isocyanate skin exposure in auto body shops. American Thoracic Society's 95th International Conference; 04/1999; San Diego, CA, United States of America April 24-28
- 30. Y Liu, TJ Smith, R Hauser, MA Woodin, PL Williams, RF Herrick, DC Christiani. Estimating boilermakers personal exposure to particles and metals. American College of Occupational and environmental Medicine State-of-the-Art Conference; 10/1998; Phoenix, AZ, United States of America *October 18-22*

- 31. Youcheng Liu, MA Woodin, TJ Smith, R Hauser, RF Herrick, PL Williams, DC Christiani. Internal dose estimation of occupational exposures to fuel oil ash and metals. American Thoracic Society's 94th International Conference; 04/1998; Chicago, IL, United States of America

 April 25-29
- 32. MA Woodin, R Hauser, Youcheng Liu, TJ Smith, DC Christiani. Respiratory symptom incidence in workers overhauling an oil-fired boiler. American Thoracic Society's 93th International Conference; 05/1997; San Diego, CA, United States of America

 May 17-21
- 33. MA Woodin, R Hauser, PD Siegel, DJ Tollerud, DM Lewis, Youcheng Liu, TJ Smith, DC Christiani. Nasal lavage inflammatory mediators as biomarkers of upper airway exposure to fuel oil ash. American Thoracic Society's 92nd International Conference; 05/1996; New Orleans, LA, United States of America *May 11-15*
- 34. KR Smith, Youcheng Liu, J Revera, E Boy, B Leaderer, CS Johnston, Y Yanagisawa, K Lee. Indoor air quality and child exposure in Highland Guatemala. 6th International Conference on Indoor Air Quality and Climate (INDOOR AIR 93); 07/1993; Helsinki, Finland *July 4-8*
- 35. Youcheng Liu, J Liu, H Hu. Variations of formaldehyde exposure in residences and public buildings in Beijing. 6th International Conference on Indoor Air Quality and Climate (INDOOR AIR 93); 07/1993; Helsinki, Finland *July 4-8*
- 36. J Liu, Youcheng Liu, H Hu. Characteristics of rural indoor formaldehyde pollution in Northern China. 5th International Conference on Indoor Air Quality and Climate (INDOOR AIR 90); 08/1990; Toronto, ON, Canada *July 29-August 3*

Regional / Local

- 1. Preti Chowdhury*, Hafsa Usman*, Jazmine Mui-Blackmon~, Liying Zhang, Jinping Xu, Robert Sherwin, Youcheng Liu^. Routine Elastomeric USe and Evaluations in Healthcare (REUSE): use barriers in a three-month follow-up study at Sinai-Grace Hospital, Detroit Medical Center. Research Day conference, Department of Family Medicine and Public Health Sciences at Wayne State School of Medicine; 04/20/2023; Detroit, MI, United States of America This 3-month observational study was conducted at Sinai-Grace Hospital to examine the feasibility of reusable elastomeric half-mask respirator wearing in healthcare workers and to assess HCWs' use experience and barriers.
- 2. Beza Sahlie*, Jazmine Mui-Blackmon~, Preti Chowdhury~, Liying Zhang, Jinping Xu, Robert Sherwin, Youcheng Liu^. Routine Elastomeric Use and Evaluations in Healthcare (REUSE): Perspectives of Focus Group Members on Implementing a Reusable Respirator. Research Day conference, Department of Family Medicine and Public Health Sciences at Wayne State School of Medicine; 04/20/2023; Detroit, MI, United States of America This study examined a focus group's perspectives on implementing an reusable elastomeric half-mask respirator and discussion on the advantages, benefits, potential discomforts, and user barriers of the EHMR. It addresses the administrators' view on how to purchase, store, distribute, clean, disinfect and maintain reusable respirators in different hospital units. Training and fit testing in response to pandemics are also addressed.
- 3. Khatib Z, Chan P, Nair E, Mui-Blackmon J, Liu Y^. Efficacy of Respirator Decontamination and Disinfection. Research Day, Family Medicine and Public Health Sciences, Wayne State School of Medicine; 04/21/2022; Detroit, MI, United States of America
 - A literature research to identify effective methods of cleaning and disinfection of disposable and reusable respirators.
- 4. Mui-Blackmon J, Mahasi G, Rosenthal M, Zhang L, Xu J, Sherwin R, McClain C, Zimmerman K, Sietsema M, Fernando R, Hornbeck A, Yorio P, Sinkule E, Radanovich L, Liu Y[^]. Effectiveness of Rapid Training on Using an Elastomeric Half-Mask Respirator (EHMR) for Healthcare Workers in a Simulated Public Health Emergency: A Demonstrative Randomized Clinical Trial. Research Day, Family Medicine and Public Health Sciences, Wayne State School of Medicine; 04/16/2021; Detroit, MI, United States of America Also presented as a poster at AIHCE 2021.

- 5. Mahasi G, Mui-Blackmon J, Rosenthal M, Xu J, Zhang L, Sherwin R, McClain C, Zimmerman K, Drummond S, Sietsema M, Fernando R, Hornbeck A, Yorio P, Skinkule E, Radanovich L, Liu Y[^]. Fit Test Feasibility in Using an Elastomeric Half-Mask Respirator (EHMR) in Healthcare Workers in Response to a Simulated Public Health Emergency: A Randomized Controlled Trial. Research Day, Family Medicine and Public Health Sciences, Wayne State School of Medicine; 04/16/2021; Detroit, MI, United States of America Also presented at AIHCE 2021.
- 6. A Haidar, Y Liu[^]. Assessing facial, thermal, eye discomfort, acceptability and perceived protective efficiency of powered air-purifying respirators (PAPRs) in simulated healthcare work settings: verbal user feedback. Research Day, Family Medicine and Public Health Sciences, Wayne State School of Medicine; 04/2019; Detroit, MI, United States of America *Presented as a poster*
- 7. P Mehta, Youcheng Liu. Racial disparities and mortality rates for ovarian cancer in Texas, 1999-2009. 24th Annual Research Appreciation Day (RAD); 04/2016; Fort Worth, TX, United States of America
- 8. S Raynaud, G Franklin, H Harari, S Ahsan, J Nedrelow, D Bello, D Sterling, S Biswas, Youcheng Liu. Isocyanates in medical devices: a qualitative and quantitative assessment. 2016 Cook Children's Research Day Conference; 04/2014; Fort Worth, TX, United States of America
- 9. G Franklin, S Ahsan, S Raynaud, J Nedrelow, D Sterling, S Biswas, D Bello, H Harari, Youcheng Liu[^]. Residual isocyanates in medical devices and products: A qualitative assessment. 2014 Pediatrics Conference: Case-based Learning at Cook Children's Hospital; 04/2014; Fort Worth, TX, United States of America
- G Franklin, S Ahsan, S Raynaud, J Nedrelow, S Biswas, D Sterling, Youcheng Liu. Isocyanates in medical devices: a quantitative assessment. 21st Annual Research Appreciation Day (RAD); 04/2013; Fort Worth, TX, United States of America April 12, 2013
- 11. S Ahsan, G Franklin, S Raynaud, J Nedrelow, D Sterling, S Biswas, Youcheng Liu. Isocyanates in medical devices: a qualitative assessment. 21st Annual Research Appreciation Day (RAD); 04/2013; Fort Worth, TX, United States of America
- 12. N Patil, B Chen, H Song, S Biswas, X Guo, M Burton, J Raines, Q Tan, Youcheng Liu. Indoor-home, indoor-office and outdoor exposures to hazardous air pollutants in Guangzhoo, China. 19th Annual Research Appreciation Day (RAD); 04/2011; Fort Worth, TX, United States of America *April 1*
- 13. O Adedoyin, C Strasinger, D Hammell, Youcheng Liu, TS Prince, Tom Klingner, M Boeniger, A Stinchcomb. Combating green tobacco sickness among green tobacco farm workers: an in-vitro transdermal analysis of a barrier cream. University of Kentucky Graduate Student Interdisciplinary Conference; 04/2009; Lexington, KY, United States of America
- 14. Youcheng Liu, TS Prince. Efficacy study of a nicotine barrier cream. 2008 Pilot Research Project (PRP) Symposium of the University of Cincinnati NIOSH Education and Research Center; 10/2008; Cincinnati, OH, OH, United States of America
- 15. MH Stowe, A Wisnewski, JA Sparer, Youcheng Liu, SR Woskie, CA Redlich, MR Cullen. Cross-sectional study of auto body workers exposed to disocyanates. NIOSH NORA Symposium; 04/2006; Washington DC
- 16. Y Liu, MH Stowe, JA Sparer, D Bello, B Cartmel, K Ibrahim, C Fleming, I Collin-Hansen, F Youngs, C Daly, MR Cullen, SR Woskie, CA Redlich. Intervention research in the auto body repair and refinishing industry: The SMASH Study. NIOSH NORA Symposium; 04/2006; Washington DC

Invited Lectures

International / National

- Youcheng Liu. Assessing isocyanate exposures, health effects and control measures in the auto body repair and refinishing industry. Wayne State University School of Medicine; 04/2017; Detroit, MI 11-Apr-17
- 2. Youcheng Liu. Assessing isocyanate exposures, health effects and control measures in the auto body repair and refinishing industry. University of North Texas Health Science Center School of Public Health; 04/2010; Fort Worth, TX 18-Apr-10
- 3. Youcheng Liu. Assessing isocyanate exposures, Health effects and control measures in the auto body repair and refinishing industry. University of Massachusetts Amherst School of Public Health and Health Sciences; 12/2009; Amherst, MA 6-Dec-09

- 4. Youcheng Liu. Statistics applications and challengers in assessing occupational exposures to hazards and resulting health outcomes. Rice University; 11/2006; Houston, TX 20-Nov-06
- 5. Youcheng Liu. isocyanates studies at Yale University: Exposure characterization, modeling and risk assessment. University of Kentucky College of Public Health; 05/2005; Lexington, KY 16-May-05
- 6. Youcheng Liu. Exposure assessment and intervention of isocyanates in the auto body repair and refinishing industry. University of Kentucky College of Public Health; 05/2005; Lexington, KY 17-May-05
- 7. Youcheng Liu. Exposure to isocyanates and subclinical, Physiologic and immunologic changes in auto body shop workers. International Autobody Congress and Exposition (NACE 2000); 12/2000; Orlando, FL 8-Dec-00
- 8. Youcheng Liu. Skin exposures to isocyanates and biological monitoring of urinary hexane diamine in auto body shop workers. NIOSH/Yale University/Labor/Industry Tripartite Diisocyanate Interest Group Meeting; 11/2000; 28-Nov-00 28-Nov-00
- 9. Youcheng Liu. Assessing isocyanate exposures in auto body shops. Harvard University School of Public Health; 03/2000; Boston, MA 20-Mar-00
- Youcheng Liu. Exposures to boiler repair hazards and respiratory and immuinologic effects. University of Texas Health Science Center at Tyler; 05/1998; Tyler, TX May-98
- 11. Youcheng Liu. Respiratory exposures to boiler repair hazards and respiratory and immunologic effects. University of Minnesota School of Public Health; 02/1998; Minneapolis, MN *Feb-98*
- 12. Youcheng Liu. Assessment on exposures to boiler repair hazards. Harvard University School of Public Health Educational Research Center; 09/1997; Boston, MA Sep-97
- Youcheng Liu. Assessing occupational exposures to boiler repair hazards and implications on health outcomes. Yale University School of Medicine; 09/1997; New Haven, CT Sep-97
- Youcheng Liu. Assessing occupational exposures to boiler repair hazards. University of Alabama School of Public Health; 08/1997; Birmingham, AL Aug-97
- Youcheng Liu. Exposures to boiler repair hazards and respiratory and immunologic effects. Purdue University School of Health Sciences; 07/1997; West Lafayette, IN Jul-97
- 16. Youcheng Liu. assessing exposures to boiler repair hazards and evaluating respiratory effects. Columbia University School of Public Health; 05/1997; New York, NY

 .Jun-97
- 17. Youcheng Liu. Exposures to boiler repair hazards and respiratory and immunologic effects. University of California at Davis; 04/1997; Davis, CA *Apr-97*

Invited Seminars / Grand Rounds

International / National

 Y Liu, J Mui-Blackmon, G Mahasi, M Rosenthal, L Zhang, J Xu, R Sherwin, C McClain. Assessment of Elastomeric Respirators in Healthcare Delivery Settings: Just-in-time Elastomeric Training and Fit Testing (JET FIT. A CDC/National Institute for Occupational Safety and Health/National Personal Protective Technology Laboratory public webinar open to the world; 02/16/2021; Online through Zoom

As part of the contract requirements, the research team presented a webinar summarizing the research results from the first project called just-in-time training and fit testing.

Service

Wayne State University Service

University

05/01/2019 - Member, Community/Public Health Faculty Search Committee, Provost Office, Wayne State 04/30/2020 University

Conducted an international search for three cross-campus and across-discipline faculty members supported by the Provost Office,; conducted multiple online and campus interviews and selected 4

candidates for the offer who joined Wayne State in 2020.

01/01/2018 - Member, Faculty Search Committee for Center of Urban Responses to Environmental Stressors (

06/30/2020 CURES), Wayne State University

Joined CURES search committees and conducted a few rounds of search for different hires.

School / College

09/21/2020 - Member, Public Health/Environmental Health Faculty Search Committee, College of Liberal Arts and

05/31/2021 Sciences

 $Advertised\ the\ recruitment\ announcement,\ reviewed\ applications,\ interviewed\ 4\ candidates\ and$

discussed to select the final one for making the offer.

10/2019 - Present Member, Preventive Medicine Residency Application Review Committee, School of Medicine

Joins the committee as Associate Program Director to review all applications, conduct campus/online interviews and finalize the candidates for an offer. Over 20 applicants were interviewed in 2019,18 applicants in 2020, 16 in 2021 and 25 interviewed in 2022. 2 residents are in the first year, 2 in second year and another 2 in transitional year. The two first-year residents are graduating and 2 more

are coming to join our program in July 2023.

01/01/2019 - Member, Chair Search Committee, College of Liberal Arts and Sciences

04/30/2020 Reviewed applications for the Chair position in the Department of Public Health Sciences (CLAS),

conducted campus interviews of three final candidates. Selected the final Chair who joined Wayne

State in fall 2020.

11/2018 - Present Member, Preventive Medicine Residency Program Review Committee, School of Medicine

The committee meets regularly to review the curriculum and provide advice to the Program Director as well as provide documents to the School of Medicine's General Medical Education Office for

accreditation purpose.

Department / Division

01/10/2023 - Present Member, Senior Biostatistician Search Committee, School of Medicine

Search for a senior Biostatistician for the Division of Behavioral Health in the Department of Family Medicine and Public Health Sciences in the School of Medicine. Attend committee meetings, review applications, recommend applicants for preliminary and final interviews and join the committee to

make a final offer.

01/2023 - 04/2023 Reviewer / Evaluator, Research Day Organizing Committee, School of Medicine

Peer-reviewed assigned abstract submitted to the committee. Attended committee meeting to discuss

the merit and acceptance.

| 08/2022 - Present | Interviewer, Biostatistician and Epidemiologist Search Committee, Department of Family Medicine and Public Health Sciences Interviewed 2 candidates and had lunch with them |
|----------------------|---|
| 07/2022 - Present | Member, Physician Scientist Search Committee, Department of Family Medicine and Public Health Sciences |
| 11/01/2019 - | To search for a physician scientist to join our department to conduct clinical teaching and research. Member, Faculty and MPH Program Director Search Committee, Department of Family Medicine and |
| 05/31/2020 | Public Health Sciences To conduct a national search and select a faculty member to serve as an MPH Program Director. Dr. Rachel Mahas was selected and joined faculty of Family Medicine and Public Health Sciences as the MPH Program Director in August 2020. |
| 01/2019 - 12/2019 | Member, Faculty Search Committee, Family Medicine and Public Health Sciences, Department of Family Medicine and Public Health Sciences |
| | To review applications for a faculty position in the Department of Family Medicine and Public Health Sciences and select top ones for campus interview. Attended interview sessions and evaluated the final candidates for faculty offers. |
| 09/2018 - Present | Member, MPH Curriculum Committee, Department of Family Medicine and Public Health Sciences To review and approve new courses, to review course outcome reports and plan on course change for reaccreditation. |
| 01/2018 - Present | Member, MPH Admissions Preview Events, Department of Family Medicine and Public Health Sciences To support the organizations and execution of seasonal preview events to explain and advertising the |
| | program to potential applicants. |
| 01/2018 - 04/2018 | Member, MPH Essay Review Committee, Department of Family Medicine and Public Health Sciences To review essays submitted by MPH students and select the best one to receive the award and present at the Department of Family Medicine's Research Day. |
| 10/01/2017 - Present | Member, Public Health Faculty Meeting, College of Liberal Arts and Sciences Meet as required by the Chair to discuss department issues, teaching and research collaborations. |
| 10/2017 - Present | Member, MPH Faculty Meeting, Department of Family Medicine and Public Health Sciences As an MPH faculty member, meet monthly to discuss curriculum changes and program accreditation issues. |
| 10/2017 - 08/2018 | Member, MPH Admission Committee, Department of Family Medicine and Public Health Sciences Evaluate applicants for the admission to the MPH Program |

Other Professionally Related Service

Professional

| 1101033101141 | |
|-------------------|---|
| 09/2015 - 08/2017 | Member, Bylaw Committee, University of North Texas Health Science Center Met regularly to discuss needed changes |
| 09/2013 - 08/2016 | Member, Research Committee, University of North Texas Health Science Center School of Public Health Met regularly to discuss schoolwide research needs and training needed |
| 01/2013 - 09/2014 | Chair, Sustainability Committee, University of North Texas Health Science Center Led the committee and worked with members to achieve annual agendas such as recycling, Earth Day celebration, setup community gardens, save campus water, electricity and toilet paper, etc. |
| 2013 - 2014 | Member, Faculty Senate, University of North Texas Health Science Center Served as alternate and regular member of the university faculty senate to discuss important issues and increase the communication between faculty and the university administration |
| 01/2012 - Present | Other Role - Research Board Member, Occupational and Environmental Medicine, Faculty of 1000 Medicine Research Review online manuscripts and make comments to the authors in improving the quality. |

| 2012 - 2013 | Other Role - Co-Chair, Sustainability Committee, University of North Texas Health Science Center Worked with committee members to achieve annual agenda in recycling, resource saving, community gardens and Earth Day celebration |
|-------------------|--|
| 07/2011 - 08/2016 | Member, Curriculum Committee, University of North Texas Health Science Center School of Public Health Health Science Center Met regularly to discuss course approval and changes. |
| 01/2011 - 08/2017 | Other Role - Safety Coordinator, Safety Coordinator representing the School of Public Health, University of North Texas Health Science Center Met regularly to discuss campus safety issues. Coordinate schoolwide drills for protection from tornados, active shooting on campus and other safety concerns |
| 07/2010 - 08/2016 | Other Role - Alternate Member, MPH Admission and Curriculum Committee, University of North Texas Health Science Center School of Public Health Substitute member when regular member was not available |
| 07/2010 - 08/2016 | Member, Department MPH Comp Exam Committee, University of North Texas Health Science Center School of Public Health Health Science Center Met regularly to prepare exam questions, review student performances and improve the exam method for students in environmental health major |
| 01/2010 - 09/2012 | Other Role - Alternate Member, Faculty Senate, University of North Texas Health Science Center Substitute member when regular member was not available. Represented the school at the university. |
| 2010 - 2011 | Member, MPH Admission Committee, University of North Texas Health Science Center School of Public Health Assessed applicants' credentials and recommended for admission to the MPH program |
| 09/2008 - 08/2010 | Member, Global Health Certificate Program Committee, University of Kentucky College of Public Health Joined regular meetings to discuss curriculum. |
| 09/2008 - 08/2009 | Member, Research Committee, University of Kentucky College of Public Health Met regularly to discuss collegewide research agenda and training |
| 01/2008 - 06/2010 | Member, Faculty Council, University of Kentucky Colleger of Public Health Joined the the Council to discuss Collegewide issues regularly. |
| 01/2007 | Reviewer / Evaluator - Faculty, Occupational and Environmental Medicine, Faculty of 1000 Medicine Prime Select top articles in medicine and public health and publish commentaries on line on these articles. Make recommendations for the medical and public health communities. Trained preventive medicine residents and a doctoral student to do so. |
| 07/2006 - 08/2010 | Member, Occupational Medicine Residency Program Advisory Board, University of Kentucky College of Public Health, Department of Preventive Medicine and Environmental Health Meet regularly to discuss issues with the Program Director and make some recommendations. Interviewed annual applicants to select residents and help train their research skills |
| 2006 - 2010 | Member, Advisory Board for the Education and Research Center (ERC) funded by The National Institute for Occupational Safety and Health (NIOSH), University of Cincinnati College of Medicine Joined annual meeting in the Education and Research Center at the University of Cincinnati and represented the University of Kentucky to advise them on their research and training agendas on occupational safety and health. |
| 2006 | Member, Committee for Developing Reusable Facemasks for Use during an Influenza Pandemic, Institute of Medicine/National Academy of Science Reviewed state of art literature on the options to reuse disposable face masks such as N95 respirators in a pandemic situation. Made recommendations to the National Institute for Occupational Safety and Health and other research communities in doing further research on methods to disinfect face masks. |
| 2005 - 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 Joined the committee to review studies conducted by the National Institute for Occupational Safety and Health (NIOSH) on face size and shape measurement studies and evaluate the respirator face panels made by CDC/NIOSH researchers. |

| 2004 - 2006 | Member, Advisory Board for the NIOSH-funded ERC, Harvard University School of Public Health Joined annual committee meeting in the Education and Research Center at Harvard University to advise them on their research and training agendas on occupational safety and health. |
|-------------------|--|
| 01/2000 - Present | Member, Exposure Assessment Committee, Dermal Exposure Assessment Group, American Industrial Hygiene Association Work as a member to develop annual research agendas on skin exposure to chemicals and control methods. |
| Consulting | |
| 2015 - Present | Member, Advisory Board, Exquisite Water Inc., Denton, TX Provide advice on their drinking water safety research in Nigeria. |
| 2012 - 2012 | Other Role - Consultant, School Ozone Flag Program, Dallas Children's Hospital, Dallas, TX Helped them analyze research data |
| 2011 - 2014 | Other Role - Consultant, Research Consultant, Oak Ridge National Laboratory, Oak Ridge, TN Worked as a Consultant in their R01 research on environmental risk factors contributing to cancer. Provided air pollution data analysis and exposure assessment methods to them. |
| <u>Other</u> | |
| 2013 - 2014 | Skin Notation Profiles on 60 chemicals, National Institute for Occupational Safety and Health (NIOSH) Reviewed the toxicological and epidemiological profiles of many chemicals on their skin toxicity |
| 2009 | Research Protocol: Exposure Assessment Tools for Airborne Sensitizers, National Institute for Occupational Safety and Health (NIOSH) Peer-reviewed a NIOSH researcher's research proposal and using sweat as a biological monitoring medium |
| 2008 | Current Intelligence Bulletin: A Strategy for Assigning the New NIOSH Skin Notations for Chemicals, National Institute for Occupational Safety and Health (NIOSH) Reviewed a CDC/NIOSH document on their strategies to assign a skin notation to chemicals and provide feedback for improvement |
| 2007 | Skin Exposure Resource Guide, National Institute for Occupational Safety and Health (NIOSH) Publication Expert review on the scientific soundness of the guide |

Grant Review Committees

International / National

| 12/2022 - 01/2023 | Reviewer, CDMRP FY22 Toxic Exposures Research Program (TERP), General Dynamics Information Technology <i>Reviewed 2022 applications and attended the review meeting.</i> |
|-------------------|--|
| 03/2022 - 06/2022 | Ad Hoc, Safety and Occupational Health Study Section, NIH/CDC/NATIONAL INSTITUTE FOR OCCUPATIONAL SAFETY AND HEALTH (NIOSH) To review the grant applications submitted in the February 5, 2022 NIH grant cycle to NIOSH/CDC through NIH |
| 08/2021 - 10/2021 | Full Member, DOD/US Army Medical Research and Materials Command, General Dynamics Information Technology Reviewed DOD applications, but missed the meeting. |
| 10/2017 - 12/2017 | Ad Hoc, DOD/US Army Medical Research and Materials Command, CSRA, Inc. Reviewed several applications related to military respiratory exposure to hazardous chemicals and related risk of respiratory diseases. Provided critique and ranking as well as recommendations for funding. |

| 01/2016 - 12/2016 | Ad Hoc, DOD - Defense Medical Research and Development Program Review Committee, CSRA Inc. Reviewed several applications related to military respiratory exposure to hazardous chemicals and related risk of respiratory diseases. Provided critique and ranking as well as recommendations for funding. |
|-------------------|---|
| 01/2015 - 12/2015 | Ad Hoc, Specific Invitation for Grant Review, Ontario Ministry of Labor Reviewed several grants in hazard exposures and occupational diseases in manufacturing, construction and agriculture, forestry, finishing and hunting industrial sectors. Provided comments and recommendations on funding. |
| 01/2015 - 12/2015 | Ad Hoc, Specially invited review, Beijing City Science Foundation Reviewed a few grant applications in environmental health research areas. |
| 01/2014 - 12/2014 | Ad Hoc, Specific Invitation for Grant Review, Canadian Foundation of Innovation Reviewed a grant application on laboratory health and safety. Made comments and recommendations for funding. |
| 01/2010 - 12/2010 | Ad Hoc, Special invitation for review, Swiss National Science Foundation Reviewed a few grant applications in environmental health and public health areas. Made comments and recommendations for funding. |
| 01/2009 - 12/2009 | Ad Hoc, Special invitation for review, China National Natural Science Foundation Reviewed a few grant applications in environmental health areas. Made comments and recommendations on funding. |
| 01/2006 - 12/2006 | Ad Hoc, NIOSH/CDC External Review Panel: FY07 Intramural new National Occupational Research Agenda (NORA) projects review committee, CSRA Inc. Reviewed several research protocols in health, safety and ergonomics for their internal funding. Made comments and recommendations on funding. Went to Washington DC to attend the review meeting and talked to grant applicants. |
| 01/2005 - 12/2005 | Ad Hoc, NIOSH/CDC External Review Panel: FY06 Intramural NORA: Program Project (Big NORA) Supplements and Small Grant Program Review Committee, CSRA Inc. Reviewed several research protocols in health, safety and ergonomics for their internal funding. Made comments and recommendations on funding. Went to Washington DC to attend the review meeting and talked to grant applicants. |
| Regional / Local | |
| 06/2022 - 07/2022 | Invited, Unable to participate, Center for Environmental Genetics Pilot Project Proposal Review, University of Cincinnati |
| 09/2021 - 09/2021 | Reviewer, Center for Environmental Genetics Pilot Project Proposal Review, University of Cincinnati Peer-reviewed the pilot study grant application "Spatiotemporal Monitoring Using Distributed Low- Cost Air Pollution Sensors for Community Engagement and Public Health". |
| 01/2006 - 12/2008 | Full Member, Pilot Project Program Grant Reviewer, University of Kentucky Southeast Center for Agricultural Health and Injury Prevention Reviewed grant applications for the pilot study program and made recommendations for funding. |

Peer-Reviewed Journals

Editorship

| 11/2021 - 12/2022 | Special Issue Editor, Frontiers in Public Health, Accessible health programs promoting physical activity and fitness level Worked as one of the four key editors for this special issue. Invited manuscript submissions, reviewed manuscripts and made a decision on acceptance. Published 14 articles in this issue and published an editorial to overview the content of the 14 articles. |
|----------------------|---|
| 08/01/2020 - Present | Senior Board Member, BMC Public Health Journal, Senior Board Member Coordinate and managing manuscripts in occupational health section. Provide recommendations and comments on journal policies. Help publicize the journal to the professions. |

2015 - 2020

Section Editor, Occupational Health Section, BMC Public Health Journal, Responsible for the quality and quantity of the published articles in this section; work with the other section editor to improve the section quality; work with the journal editor to recruit Associate Editors and advertising the journal. Coordinate all Associate Faculty Members in the section to review all occupational health manuscripts submitted to the section promptly and make a sound decision on publishing them.

Editorial Board Member

2018 - Present Editorial Board Member, Journal of the International Society for Respiratory Protection, Help the

Editor-in-Chief to make the final decision on acceptance of manuscripts.

Review manuscripts the editor assigned and make comments for further revision; then recommend

acceptance for publication.

2007 - 2015 Associate Editor, Associate Editor, BMC Public Health Journal, Reviewed manuscripts and made a

decision on acceptance or denial.

Invited peer reviewers to assess the manuscripts and made decisions on revisions and acceptance for

publications.

acceptance.

Manuscript Review

2007

| Manuscript Review | |
|----------------------------|---|
| 11/21/2021 - 12/31/2022 | Guest Associate Editor, Frontiers in Public Health journal, Special issue editing on physical activity promotion Organized manuscripts, invited peer reviewers to review them and made a decision to accept or reject them. Also published an editorial to overview the main content of 14 articles in this issue. |
| 03/20/2020 - Present | Ad hoc reviewer, Journal of Hospital infection, Nournal of Hospital Infection Regular reviewer for reviewing manuscripts and provide editorial comments and recommendations for further improvement. |
| 2016 - Present | Editorial Board Member, Journal of International Society for Respiratory Protection, Reviewed manuscripts and recommended decisions on acceptance. Reviewed manuscripts and provide editorial comments and recommendations for further improvement. |
| 2015 | Ad hoc reviewer, American Journal of Infection Control, Reviewed one manuscript and recommended decision on acceptance. Reviewed manuscripts and provide editorial comments and recommendations for further improvement. |
| 2014 | Ad hoc reviewer, Archives of Environmental Contamination and Toxicology, Reviewed one manuscript and recommended decision on acceptance. Reviewed manuscripts and provide editorial comments and recommendations for further improvement. |
| 2012 | Ad hoc reviewer, Annals of Occupational Hygiene, Reviewed a couple of manuscripts and recommended decisions on acceptance. Reviewed manuscripts and provide editorial comments and recommendations for further improvement. |
| 2011 | Ad hoc reviewer, Journal of Exposure Science and Environmental Epidemiology, Reviewed a couple of manuscripts and recommended decisions on acceptance. Reviewed manuscripts and provide editorial comments and recommendations for further improvement. |
| 2010 | Ad hoc reviewer, Journal of Environmental Monitoring, Reviewed a couple of manuscripts and recommended decisions on acceptance. Reviewed manuscripts and provided editorial comments and recommendations for further improvement. |
| 2008 | Ad hoc reviewer, Journal of Occupational and Environmental Hygiene, Reviewed several manuscripts and recommended decisions on acceptance. Reviewed manuscripts and provide editorial comments and recommendations for further improvement. |
| 2008 | Ad hoc reviewer, Journal of Travel Medicine, Reviewed one manuscripts and recommended decisions on acceptance. |

Reviewed manuscripts and provide editorial comments and recommendations for further improvement.

Ad hoc reviewer, Respiratory Research, Reviewed several manuscripts and recommended decisions on

Reviewed manuscripts and provide editorial comments and recommendations for further improvement.

Ad hoc reviewer, Thorax, Reviewed manuscripts and recommended decisions on acceptance.

Review manuscripts and provide editorial comments and recommendations for further improvement.

1997 - 1998 Ad hoc reviewer, American Industrial Hygiene Association Journal (discontinued), Reviewed several

manuscripts and recommended decisions on acceptance.

Review manuscripts and provide editorial comments and recommendations for further improvement.

Other

2013 - 2014 Other Scholarly Review Service, National Institute for Occupational Safety and Health (NIOSH) Skin

Notation Profiles, Scientific Reviewer

Critically reviewed numerous scientific review documents prepared by CDC/NIOSH to ensure

accuracy and integrity.

2009 Other Scholarly Review Service, NIOSH Research Protocol: Exposure Assessment Tools for Airborne

Sensitizers, Scientific Reviewer

Peer reviewed a research protocol for a NIOSH research on using sweats as a biological monitoring method for assessing skin exposure to chemicals. Provided edits, comments and suggestions for further

improvements.

2008 Other Scholarly Review Service, NIOSH Current Intelligence Bulletin: A Strategy for Assigning the

New NIOSH Skin Notations for Chemicals, Scientific Reviewer

Reviewed a scientific guideline statement document prepared by a NIOSH researcher. Provided

comments, edits and suggestions for further improvement. This document was later published by

NIOSH as a guideline document.

2007 Other Scholarly Review Service, NIOSH Publication: Skin Exposure Resource Guide, Scientific

Reviewer

Reviewed the skin exposure resource guide prepared by a NIOSH researcher. Provided comments, edits and suggestions for further improvement. This guide was later published by NIOSH as a

guideline document.