

PS 3259 SOT's Undergraduate Diversity Program: 35 Years of Promoting Diversity and Inclusion within SOT

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Background and Purpose: The 2024 SOT Annual Meeting marks the 35th anniversary of the annual Undergraduate Diversity Program (UDP). The UDP funds about 30 promising undergraduate science majors from underrepresented groups and several non-SOT member faculty to attend the SOT Annual Meeting each year and provides mentorship, deepened understanding of toxicology, and career development opportunities. The SOT Committee on Diversity Initiatives coordinates the program and over 80 SOT member volunteers assist every year as presenters and mentors. Since its inception in 1989, 1,407 undergrads and about 170 advisors have been funded to attend SOT, and 18 current SOT members are UDP alumni. Thanks primarily to the generous efforts of Dr. Marion Ehrich, the National Institutes of Health has been providing support for the UDP since 1991 when the UDP became the first NIH-supported diversity program. The mission of the UDP is to: 1) increase awareness of career choices and opportunities in toxicology among undergraduate students majoring in science and science advisors at undergraduate institutions, and 2) increase interest of undergraduate students in graduate education and motivate students to obtain research experience, especially that pertinent to toxicology. **Methods:** Participant information and program feedback are collected at the time of attendance, and follow-up information are collected via survey after the meeting and at 2 years post-UDP. **Results:** Between 2005-2015, 40% of surveyed UDP attendees had gone on to pursue their PhD, and an additional 22% had pursued other graduate degrees including clinical training. Data from the onsite exit survey show that 50% of the 2022 and 2023 students had no or limited exposure to, or experience in, toxicology. After the program, 60% of both 2022 and 2023 participants indicated they were "likely" or "very likely" to apply to a toxicology graduate program. **Conclusions:** The UDP has been central to the diversity and inclusion mission of SOT, predating the formation of the Special Interest Groups, which began in 2002. As of 2020, the newest SOT members (joining since 2015) have reflected the diversity of the international SOT community, with increased racial, ethnic, and gender diversity compared to previous decades.

PS 3260 New College Environmental Health Science Scholars: Summer research experience for place-bound undergraduates interested in Environmental Health Science

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Background and Purpose: Lack of diversity is missed talent. The well-documented lack of diversity in scientists is an ongoing issue that has not made any real progress on the part of the nation and scientific leadership. If we are to include the best and the brightest in science careers, we must establish a diverse scientific workforce, which is the key to engaged problem solving in the 21st century. The New College Environmental Health Science Scholars (NCEHSS) program supports place-bound undergraduates in their journey toward an environmental health science career. Place-bound students are those with perceived difficulty in leaving the immediate geographic area due to, for example, family or financial constraints. This is a summary of results from four student cohorts in the NCEHSS program. **Methods:** Students were recruited from the Greater Phoenix Metro Area using program flyers emailed to faculty colleagues within ASU, and at local community colleges. Applications were managed through a Google Form that asked questions about education and career goals, science and math courses taken, previous laboratory research experiences, limitations and challenges that prevent participation in summer research programs outside of Maricopa County, and expectations about how this experience would impact their education and career plans. Upon acceptance students committed to participating full time in the summer program (10 weeks in summer 2019; 9 weeks for summers 2021–2023). Students were paired with a faculty mentor for research every afternoon, and professional development classes were held in the mornings. These classes included Environmental Health Sciences, Responsible Conduct in Research, professional soft skills, and a field-based project. The summer program culminated in a family night poster session where scholars' friends and family, and instructors gathered to view student presentations. Program evaluation was performed by ASU's College Research and Evaluation Services Team. **Results:** Over four cohorts, 45 students participated in the NCEHSS program. Most of our scholars were traditionally underrepresented in STEM, including ethnic minorities (16 self-identified), low socioeconomic status, documented disability, etc. and all were place-bound. Many of the participants entered with little to no research skills and or lab experience and at the time of this submission at least 19 students continued as undergraduate researchers in a faculty member's lab after the NCEHSS program. Students participated in the program because it was close to home and they faced challenges financially, with transportation and home/apartment obligations. Participant satisfaction with the overall program is high; between 95 and 100% across the different cohorts. **Conclusions:** There is a need for more programs that serve undergraduates who cannot travel in the summer for an undergraduate research experience. These students are often from groups

underrepresented in STEM, who are working full-time or part-time while attending college, and/or have family obligations. To diversify the STEM workforce we must not forget that being able to travel to a distant location for a summer research experience is a privilege, and not an option for all students who may be interested in toxicology or environmental health science related research.

PS 3261 Identifying Key Data Gaps and Promoting Intervention in Work-related Chronic Disease: the NIOSH Chronic Disease Program

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Background and Purpose: In 2016, the National Occupational Research Agenda (NORA) entered its third decade in efforts to reduce occupational injury and disease through innovative research and workplace interventions. As a steward of NORA, the National Institute for Occupational Safety and Health (NIOSH) embraced this research framework by creating 10 economic sectors and 7 cross sectors focused on major health areas for research goals in its strategic plan through FY26. The NIOSH Cancer, Reproductive, Cardiovascular, and Other Chronic Disease Prevention Program (CRC) provides leadership by working with industry, labor, trade, professional, and academic partners to reduce and prevent occupational cancer, adverse reproductive outcomes (ARO), cardiovascular disease (CVD), neurological, and renal diseases associated with work. The CRC listed 36 research activity goals with 75% of these focused on workplace chemical exposures and resulting chronic disease. The main objective of the current study was to conduct a review of CRC-focused projects, outputs, and NORA Council dissemination activities to ascertain CRC program performance and assist informing the next round of research goals. **Methods:** To accomplish this, a review of CRC-focused projects across each major economic sector through NIOSH was conducted for FY17–FY22. The number of projects, peer-reviewed published studies, citations, and known intermediate outcomes citing CRC research were tabulated and summarized. To improve dissemination efforts, the external NORA CRC Council formed disease-focused working groups to provide expertise, insight, and guidance to inform workplace intervention strategies to key stakeholders. **Results:** As of December 2022, 289 projects were funded across 35 activity goals within 7 industry sectors, with 20% of projects through the Office of Extramural Program. Cancer-related projects represented 39% of activity goals with CVD, ARO, and Neuro/Renal taking 20% each. Manufacturing and Public Safety Sectors represented 33% and 20% of funded projects with remaining sectors ranging 3–13%. NIOSH CRC affiliated researchers published 539 peer-reviewed papers with 273 covering CRC topic areas. Papers primarily focused on cancer (33%), CVD (32%), and neurological (30%) disease. From 2012 to 2022, IARC cited at least one NIOSH study 78.2 ±6.3 % of the time per evaluation with 21.3 ±9.1 evaluations per year. NORA CRC Council work groups produced several webinars with archiving on CDC Youtube. A webinar on the Buffalo Cardio-Metabolic Occupational Police Stress Study gained >2,490 views in 20 months with most views occurring in first 6 months. A webinar on occupational physical activity paradox and cardiovascular disease received >2000 views in 3 months. Translation of several blogs and NIOSH infographics into Spanish, Korean, and Vietnamese for underserved worker populations with high chronic disease burden resulted in 143–1,115 page views in 2022. Updates to the Occupational Cardiovascular Disease Wikipedia website produced an increase in views to 1,513 in the first 9 months over 1,300 in 2022. Key data gaps with significant high burden remain including work organization impacts on cancer and CVD in healthcare workers, AROs in service workers, and CVD in service workers. Emerging issues of concern were identified including exposure to novel halogenated products and resulting bioeffects, future of work issues, neurologic and renal diseases, welding fumes without exposure limits, reproductive outcomes in manufacturing workers, effects of stress, shift, and gig work, improved exposure assessments, and impacts of climate change. **Conclusions:** Review of the CRC Program identified positive gains in addressing occupational chemical exposures and associated cancer and CVD burden and knowledge gaps, while ARO, neurological, and renal disease issues remain as research challenges to address. Furthermore, opportunities for further research in service, healthcare, and transportation/warehouse sectors that include future of work issues was evident. NIOSH encourages project officers to improve study designs and to consider diversity, equity, and inclusion factors. Lastly, implementation of NORA CRC Council disease working groups improved dissemination of intervention strategies to key stakeholders. This exercise serves to inform development of the next priority research goals, assist in refining dissemination techniques to increase intermediate outcomes, and promote intervention and prevention strategies to reduce work-related chronic disease.



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