



Undergraduate Research Symposium May 17, 2019 Mary Gates Hall

Online Proceedings

POSTER SESSION 2

Commons West, Easel 37

1:00 PM to 2:30 PM

Wildfire Smoke Risk Communication Symposium: The Importance of Academic Practice Partnerships to Improve Health of Impacted Communities in Washington State

Kim Anh (Kim) Tran, Senior, Public Health-Global Health UW Honors Program

Mentor: Nicole Errett, Environmental and Occupational Health Sciences

Over the past several summers, Washington state has faced high levels of wildfire smoke exposure. Significant research has indicated that wildfire smoke is a public health hazard. Public health professionals require evidence-based communication and intervention methods for use in exposed communities. It is valuable for researchers to understand current practice-based risk communication and management challenges to inform their research strategy and priorities. In response, the University of Washington’s School of Public Health faculty and students convened a wildfire smoke risk communication symposium on October 30th, 2018, to foster academic-practice partnerships among regional stakeholders, identify existing risk reduction and communication challenges, and identify research needs. We conducted pre and post symposium surveys to collect information on participants’ goals, demographic characteristics, and symposium satisfaction. Descriptive statistics were calculated and displayed on graphs and tables. The registration survey identified the most common participant goals for the symposium which were to learn about lessons learned from public health practitioners related to wildfire smoke and to identify collaboration opportunities. Participants had a variety of roles related to risk communication and research. The evaluation survey revealed that over half of participants reported knowledge increases on wildfire risk communication, the future of wildfires in the Pacific Northwest, and practice-based responses to wildfire smoke. Over three-quarters of participants reported developing new connections that could lead to new collaborations in the future. Our findings suggest that there is an interest in working collaboratively to improve risk communication during wildfire events to address knowledge gaps and challenges impacted communities may face. We recommend engaging stakeholders and participants to identify

the best communication methods and work with multidisciplinary partnerships that will be crucial to prepare for future wildfire seasons.

SESSION 2C

ASSESSING THE SOURCES: WOMEN, IDENTITY, AND PRACTICES OF EMPIRE

Session Moderator: Mira Green, History MGH 231

3:30 PM to 5:15 PM

* Note: Titles in order of presentation.

”White Supremacy, Protection of Womanhood, and Defense of the Flag”: White Women as Active Participants in the 1920’s Ku Klux Klan Movement

Catarina Papagni Terrill, Senior, History: United States History (Tacoma)

Mentor: Julie Nicoletta

This project looks to understand the role of women in the second rise of the Ku Klux Klan in the 1920s to understand why this manifestation has been categorized as the largest right-wing movement in the history of the United States. I argue that the addition of women as active participants in Klan activity, unlike the first rise during Reconstruction which was a strictly fraternal society, transformed the movement from a domestic terrorist organization into a political club with immense social influence on the white Protestant population in America. Primary sources used to build this argument came from Klan documents such as pamphlets and newsletters as well as local and national newspapers from across the U.S between 1918-1927. Women in this time period were emboldened to participate in politics after their victory with the suffrage movement, and those who employed racist and nativist ideology easily transitioned into the white supremacy of the Klan, who desperately sought to recruit blocs of voters. Using coded language such as ”100% American” to describe themselves, the Women’s Ku Klux Klan (WKKK) utilized issues such as poor education, alcoholism, and immigration as a silk screen to vilify their ever-growing list of ”enemies” (a tool used to recruit membership from a larger base) among them Catholics, Jews, Bolsheviks, blacks, labor unions in the North, and immigrants. The addition of women

allowed the Klan to become an organization that supported nuclear family structure and encouraged all to be involved, including children, which served to develop “Klan culture” to recruit and retain members by building community. While Klanswomen were different from their male counterparts, they worked within social networks that maintained consistent growth, starting chapters in almost every state and amassing political and social influence on a local and national level.

POSTER SESSION 3

Commons West, Easel 40

2:30 PM to 4:00 PM

Establishing an Air Monitoring Network in the Methow Valley

Amanda Durkin, Senior, Environmental Health

Mentor: Nicole Errett, Environmental and Occupational Health Sciences

Mentor: Tania Busch Isaksen, DEOHS

The Methow Valley is a community located in Okanogan County, WA that has experienced wildfires in 4 of the past 5 years. The Methow Valley Clean Air Project (MVCAP) is a local volunteer group that promotes air quality awareness through outreach and programming. MVCAP’s Purple Air Network was designed to provide access to spatial air quality information to help community members make decisions about protective actions, to identify relatively clean air spaces, and to serve as a public health intervention for wildfire smoke. In collaboration with MVCAP, we worked to install a network of 20 purple air monitors in the summer of 2018. The monitors were placed in homes of “Clean Air Ambassadors” who committed to maintain and promote the monitor. For calibration, each monitor was placed according to federal guidelines and two were collocated with nephelometers maintained by Washington Department of Ecology. During the summer of 2018, two wildfires burned nearby which allowed the monitors to be utilized in a wildfire smoke event. The data from the monitors was downloaded and compared to the nephelometer data using linear regression. I worked to establish a correction factor by analyzing the data and found that the Purple Air monitor over reported the PM_{2.5} concentration by a factor of 0.53 and even more at high concentrations. The network proved the importance of high spatial concentration monitoring by capturing the air quality variation. In some areas, the air quality was good while in others it was hazardous. Having the network is a tool for individuals to know what the air quality is near their homes and other places in their community. It allowed individuals to access local air quality data and make choices about poor air quality. The next step for MVCAP is designing an online interface that applies the correction factor directly to accurately communicate risk.

POSTER SESSION 4

Commons West, Easel 40

4:00 PM to 6:00 PM

N95 Mask Distribution Effectiveness in Okanogan County

Katelyn Lorraine (Katie) Kern, Senior, Environmental Health

Mentor: Tania Busch Isaksen, DEOHS

Mentor: Nicole Errett, Environmental and Occupational Health Sciences

Okanogan County, Washington is known for unpredictable and persistent wildfires. In 2014, it had the largest wildfire known in Washington State history. Over the past few years, N95 masks provided by the Public Health Department have been given out to community members at 72 different distribution locations throughout the county in order to protect against some of the harmful airborne contaminants caused by wildfire smoke. In order to determine the effectiveness of the N95 mask distribution system and the public service announcements regarding N95 masks, a survey was given to residents and visitors of the county. Focus areas of this survey were the availability and use of free N95 masks, knowledge of the N95 mask distribution locations, desired information on the N95 masks, and the awareness of public service announcements regarding N95 masks during wildfire smoke events. Results showed that many are still unaware of the free N95 masks in the county and those who picked them up had unresolved questions about them. Of the total 87 respondents, 34.5% were not aware that there were free masks available to them throughout the county. Of those who were aware, 81.3% wanted to know how long the masks could be worn before disposing and 56.3% wanted to know for who the masks were not appropriate for. The survey also found that 40% of people prefer to receive their information through Facebook. In order to combat the issues found, an N95 mask infographic was created for distribution along with the masks.

POSTER SESSION 4

Commons West, Easel 41

4:00 PM to 6:00 PM

Content Needs Assessment and Evaluation of N95 Mask Video-Based Education for Wildfire Smoke Events

Veda Kalliyaa Ting, Senior, Biochemistry, Environmental Health

Mentor: Tania Busch Isaksen, DEOHS

Mentor: Nicole Errett, Environmental and Occupational Health Sciences

Research has shown that wildfire smoke exposure is associated with various respiratory health effects. To help protect the lungs, respirator masks that are labeled as N95 can be

worn to filter out fine particulate matter produced from wild-fire smoke. Previous studies show that video-based education is effective in increasing knowledge and intervention practices among viewers, and it was hypothesized that an N95 mask instructional video could help educate the lay-public. A video-content needs assessment was conducted using semi-structured key informant interviews. Eight experts knowledgeable in air quality, message communication, N95 respirators, and respiratory and cardiovascular health were interviewed for important content needs. Response themes were identified and used to inform the content and style of the video entitled, *Smoke from Fires: N-95 Respirator Masks*. A Knowledge, Attitude, and Practice (KAP) survey, using a 5-point likert scale, was created to assess the video's knowledge transference, and effect on attitudes and commitment to practice use. The KAP survey was given to undergraduate students before and after viewing the video. The results from our key informant interviews included instruction on proper use, mask limitations, incorrect alternatives, and appropriate use of language, images, and tone. The KAP survey results indicate the video enhanced the participants' knowledge of N95 masks with regards to proper fit, incorrect alternatives, and limitations. Additionally, attitudes of increased ease of use and mask effectiveness were demonstrated. Since this study investigated a video-based intervention, possible future research includes testing the effectiveness of different education methods on N95 mask fit, in addition to knowledge, attitudes, and commitment to practice.

by comparing air quality values registered from both devices. The majority (60%) of organizations responding to the survey reported that they had not received information about the health risks of wildfire smoke. Nearly all organizations (90%) reported that they have the capacity and are willing to communicate the health-risks of wildfire smoke to the people they serve in Clallam County. Analysis of air quality data shows the low-cost monitor may be a useful device in determining air quality conditions. The correlation coefficient for the daily averages (from July 12 to August 24) between the ORCAA nephelometer and the low-cost air monitor was determined to be 0.98, but closer examination of data for hourly averages show a correlation coefficient as low as 0.82. Future wildfire smoke events in Clallam County require public health interventions to address health-risk communication needs of sensitive populations. Implementation of a low-cost air monitor network accessible by the public is a promising prospect to protect sensitive populations in Clallam County.

POSTER SESSION 4

Commons West, Easel 38

4:00 PM to 6:00 PM

Assessment of Wildfire Smoke Health-Risk Communication Needs of Organizations that Serve the Public in Clallam County

Rico J. Gonzalez, Senior, Environmental Health

Mentor: Tania Busch Isaksen, DEOHS

Mentor: Nicole Errett, Environmental and Occupational Health Sciences

Clallam County has recently been experiencing concerning air quality conditions due to smoke drift from wildfire events in nearby areas. The objective of this study was to assess the wildfire smoke health-risk communication needs of organizations that serve the public in Clallam County. Communication needs were assessed by surveying 10 organizations that serve sensitive populations. Surveys were conducted in person or over the phone, and summary statistics were calculated. In addition, a low-cost air monitor was installed to track summer time air quality. The low-cost air monitor was installed adjacent to a nephelometer administered by the Olympic Region Clean Air Agency (ORCAA). This was done to determine the accuracy of the low-cost air monitor