Generic Clearance for CDC/ATSDR

Formative Research and Tool Development

Formative Evaluation of an Immersive VRMine Rescue Contest Simulation Exercise

0920-1154

Supporting Statement B

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Contact Information :

Cassandra Hoebbel
NIOSH - PMRD
Centers for Disease Control and Prevention (CDC)
412-386-6133
CHoebbel@cdc.gov

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B. Collections of Information Employing Statistical Methods

The proposed study will involve collecting data from individual mine rescue team members and team trainers participating in an annual International Mine Rescue Competition. U.S. citizens will be recruited from an available sample of underground mine rescue teams assembled for an international mine rescue team competition. The respondent universe for the proposed cross-sectional self-report data collection includes all mine rescue teams participating in this event and, for OMB purposes, it is expected that five U.S mine rescue teams, composed of up to eight team members and a team trainer will be solicited for participation based on availability and convenience. All participants covered under this information collection must be 18 years of age or older and must be able to speak and read English. There are no restrictions for participation based on gender, race, ethnic community, socioeconomic status. Mine rescue team members will be targeted based on their voluntary participation in a mine rescue team competition orientation exercise and formative evaluation activities.

2. Procedures for the Collection of Information

Recruitment scripts (Attachment F) and Informed Consent (Attachment G) will indicate the voluntary nature of the study. Information collection under this generic clearance will use mixed methods for data collection. Data will be collected by using both quantitative and qualitative open-ended survey questions. Semi-structured interviews will also be used to capture mine rescue team trainer reactions to the use of the technology. Information collection instruments and guides are included under this information collection clearance.

3. Methods to Maximize Response Rates and Deal with No Response

No incentive will be offered. NIOSH researchers will work to clearly communicate the objective of the information collection, which is designed to benefit the end-users (mine rescue teams) of this technology. Recent presentations introducing this technology to industry stakeholders has generated a great deal of interest and enthusiasm as a way forward for virtual emergency response training, particularly in the age of COVID-19. Additionally, because this information collection will be offered as one rotational component of an existing structured field period (one week), refusal to participate is expected to be low. Notably, previous research activities utilizing NIOSH's Virtual Immersion and Simulation Laboratory (VISLab) emergency response training technologies (e.g., Mine Emergency Escape Training (MEET), 360^{o} Mine Rescue and Escape Training (MRET), and BG 4 Benching Training) have experienced full participation.

4. Test of Procedures or Methods to Be Undertaken

CDC/NIOSH Pittsburgh Mining Research Division staff and members of the Mine Safety and Health Administration Technical Support team have technically reviewed the data analysis plan and survey and interview protocols to ensure readability and relevance to the U.S mining sector.

Research Instruments

Data Analysis

Survey data will be analyzed through the use descriptive statistics to characterize the sample and scale responses along with measures of the strength and direction of linear relationships between and among them (e.g., correlation coefficients). Considering the necessary use of convenience sampling and depending on the dispersion of sample characteristics, generalized estimating equations may be used to control for mine rescue team membership. All analysis of data will be conducted with the goal of identifying and aggregating participant reactions to the fidelity, usability, and acceptability of this technology for the purposes of mine rescue team training (e.g., trends, counts and severity of problems encountered). Interview data will be content analyzed to identify additional trends in experiences, needs, and other thoughts regarding the use of this technology in this context. While synthesizing the data, these methods will be used along with observational and system generated data to triangulate multiple sources of data to draw conclusions about the fidelity, usability and acceptability of the intervention.

5. Individuals Consulted on Statistical Aspects and Individuals Collecting and/or Analyzing Data

CDC/NIOSH researchers and members of the Mine Safety and Health Administration's Technical Support team reviewed the data analysis plan and all data collection instruments to ensure relevance to the U.S mining sector. Please contact the primary project contacts, Jennica Bellanca (wje9@cdc.gov), 412.386.6445 or Cassandra Hoebbel (whd1@cdc.gov), 412.386.6133, with any questions.

References

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