PURPOSE

To provide instructions on use of U.S. Army Public Health Center’s (APHCs) coronavirus disease 2019 (COVID-19) Environmental Health Risk Assessment and Risk Mitigation for in-person events.

BACKGROUND

Based on Centers for Disease Control and Prevention (CDC) guidance for event planning during the COVID-19 pandemic, APHC has maintained a guide for Environmental Health Risk Assessment and Risk Mitigation (https://ephc.amedd.army.mil/HIPECatalog/viewItem.aspx?id=1863) (Figure 1). Event planners should complete this assessment to evaluate the risk of their event, and apply the recommended mitigations wherever possible before, during, and after the event. Throughout this document, “risk assessment” is speaking specifically to risk associated with COVID-19.

Figure 1. Environmental Health Risk Assessment and Risk Mitigation Tool
In applying this tool to the standardized Army Risk Assessment Matrix (Figure 2), the risk level given in the Risk Assessment portion of the document reflects the probability level (i.e., the likelihood that an event will happen (in this context, the “event” refers to SARS-CoV-2 transmission and infection)). The severity or expected consequence of transmission/infection depends largely on individual attendee factors (e.g., age, body mass index, medical conditions).

**INPUTS**

To conduct a thorough risk assessment, there is a variety of inputs to be considered. Inputs are used to determine the outputs of initial risk of specific activities at an event; the residual risk of the activities based on proposed countermeasures; and the overall risk for the event. Some of these inputs include, but are not limited to the—

- Size of the room(s) in which an indoor event is held
- Ventilation system of the facility for indoor events
- Number of attendees (not only participants, but also facility and catering staff)
- The activities that will be conducted during the event (e.g., meeting, live band, eating, physical activities)
- Countermeasures that will be in place (e.g., masks, distancing, limited duration, hybrid approach (virtual and in-person), vaccination status of attendees)
- Seating arrangement
- Current incidence rate and test positivity rate of COVID-19 in the jurisdiction surrounding the event

**OUTPUTS**

Risk estimates are derived from the inputs to the assessment and are based on severity and probability. The concepts of Army risk assessment methodology are described in Army Techniques Publication (ATP) 5-19, “Risk Management” (https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/atp5_19.pdf). The following are the three types of risk that were determined during the health risk assessment for an event with regard to COVID-19:

- Initial Risk: The initial risk of an activity for the event if it occurs in the absence of any countermeasures.
- Residual Risk: The risk remaining for an activity, after controls have been implemented. Controls are altered until the residual risk is at an acceptable level or until it cannot practically be further reduced.
- Overall Risk: Overall risk after all controls are implemented.
ADDITIONAL RISK ASSESSMENT TOOLS

There are two COVID-19-specific publicly available tools to aid in the risk assessment process. These tools have various inputs and provide specific outputs.

The Georgia Tech (GT) “COVID-19 Event Risk Assessment Planning Tool” requires the sole input of the number of attendees at the event (Figures 3 and 4). Using the incidence rate of the county where the event will occur, it outputs the estimated chance (0-100%) that at least one COVID-19 positive individual will be present at an event. This tool does not incorporate the incidence rate of the location from which each attendee is traveling. If individuals are traveling to an event from an area of high COVID-19 incidence, this tool may underestimate risk of infection at the event. The GT tool is available at https://covid19risk.biosci.gatech.edu/.
In contrast, the MIT “COVID-19 Indoor Safety Guideline” tool uses multiple event characteristics as inputs (Figures 5–7). Using a theoretical model to calculate safe exposure times and occupancy levels for indoor spaces, the tool outputs the necessary mitigating measures. By adjusting room specifications; ventilation and filtration rates; facemask usage; level of respiratory activities; and risk tolerance (located in the other tabs), the user can see which mitigations should be applied to minimize risk of COVID-19 transmission in different indoor spaces. The MIT tool is available at https://indoor-covid-safety.herokuapp.com/
COVID-19 Indoor Safety Guideline

Figure 5. MIT “COVID-19 Indoor Safety Guideline” tool

Figure 6. MIT “COVID-19 Indoor Safety Guideline” Tool Room Specifications Inputs
A description of each control, including who and how it will be implemented, should be clearly explained in the risk assessment. If certain event factors cannot be changed and/or appropriate controls cannot be implemented, APHC’s recommendation will likely be to not conduct the event in an in-person format.

The DD Form 2297 “Deliberate Risk Assessment Worksheet” (available at https://www.nec.belvoir.army.mil/dol/documents/DRAW.pdf) should be used when completing your COVID-19 risk assessment for an event. This standard form walks the user through the various steps of the risk assessment.

**APHC SUPPORT**

APHC has developed the APHC “General Health Risk Assessment Guidance,” which is available via request to the APHC COVID-19 Task Force (usarmy.apg.medcom-aphc.mbx.covid-19-task-force@mail.mil). This can assist in the COVID-19 health risk assessment process, particularly when determining countermeasures and high-risk activities.

APHC is available to review completed risk assessments—preferably in the DD Form 2297—with event planners and offer additional guidance. However, event planners should first seek assistance for the risk assessments from their Regional Health Command (RHC). Current COVID incidence rates and HPCONs remain elevated at a point where most gatherings of individuals present significant risk of transmission and infection. APHC has limited capacity to
conduct risk assessments on behalf of event planners, but is able to provide consultative support during the planning process.

Please provide a completed “Environmental Health Risk Assessment and Risk Mitigation” form to the APHC Task Force (usarmy.apg.medcom-aphc.mbx.covid-19-task-force@mail.mil) when requesting assistance to interpret the risk of your planned event: https://ephc.amedd.army.mil/HIPECatalog/viewItem.aspx?id=1863.