

► DIRECT FROM CDC ENVIRONMENTAL HEALTH SERVICES

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Using Games to Foster Collaboration and Inclusivity in Emergency Preparedness

Editor's Note: The National Environmental Health Association strives to provide up-to-date and relevant information on environmental health and to build partnerships in the profession. In pursuit of these goals, we feature this column on environmental health services from the Centers for Disease Control and Prevention (CDC) in every issue of the *Journal*.

In these columns, authors from CDC's Water, Food, and Environmental Health Services Branch, as well as guest authors, will share tools, resources, and guidance for environmental health practitioners. The conclusions in this column are those of the author(s) and do not necessarily represent the views of CDC.

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Emergency preparedness can be challenging as it often involves multiple components including planning, coordination, partnership, training, and exercises. Working together and understanding population needs are crucial for saving as many lives as possible. The more prepared we are for an emergency, the better we can respond.

A key element to emergency preparedness is training and exercise, or practicing how you might respond during an actual emergency. There are various methods to this practice—ranging from discussion-based to operations-based exercises (Federal Emergency Management Agency, 2024). While there are many benefits to each type of exercise, participant engagement and cross-

collaboration can be challenging (Cooper et al., 2020). These challenges can lead to less knowledge retention of lessons learned or siloed response structures (Savoia et al., 2012). Traditional discussion-based exercises often do not allow for the exploration of the impact that cascading decisions could have. Exercises can also be limited in how population needs and health equity are considered and integrated (Finklea et al., 2024). Therefore, it is important to design exercises that are geared toward collaboration, engagement, and inclusion.

Opportunity for Innovation

In spring 2022, the Radiation Studies Program within the Centers for Disease Control

and Prevention (CDC, 2024) developed a cooperative board game called *This is a TEST* (Training and Exercise Simulation Tool), or *TEST* for short. It was designed to foster partnership and collaboration among state and local radiation response agencies during a large exercise in Texas (Hess, 2022). The focus of the game was operating a community reception center (CRC), where monitoring the impacted population following a radiation emergency would take place.

It was important for the game to highlight population needs that are both present during any disaster and specific to radiation. The game needed to be complex enough to represent an actual response while keeping it easy to follow for players who might not have extensive radiation knowledge. It also needed to engage players in critical thinking and decision-making that felt important and meaningful. With these design requirements, CDC designed its first collaborative board game.

Designing Collaborative Games

At the beginning of the design process, CDC staff members outlined the audience for the game and the overall objectives that playing the game would serve. This step helped make sure that the game would meet the needs of users.

The goal was to develop a game that highlighted how all participating agencies played a role in operating a CRC as each agency brings something different and important to the table. This goal was achieved through creating unique player actions (Figure 1). By creating unique player actions, participants need to rely on each other and discuss what each can do.

FIGURE 1

Example of a TEST (Training and Exercise Simulation Tool) Community Reception Center (CRC) Player Mat

Public Health (PH)

Public health in this game includes multiple roles including decision-makers, epidemiologists, and public health nurses. While you may not perform all actions at a CRC, this gives a good overview of the types of actions public health may take.

Specialty Actions

Public health specializes in gaining registration desks, increasing registration capacity, reducing some Hazard and Anxiety.

Round Order

- Arrival** Take Meeple From Staging Area and place them in line outside CRC.
- Processing** Select Meeple to process at each station based on resource capacity. Leave unprocessed Meeple in line.
- Funds and Resources** Gain funds from Staging Area and resources from injects or actions. Place resources immediately.
- Injects** Current Incident Commander draws 1 Major and 3 Minor Inject cards and passes out to group to read aloud and make choices as a group.
- Player Action** Perform a job action as long as there are funds and the group agrees. If skipping turn, perform no action.
- Prepare** Draw Meeple from the bag and gather fund tokens based on round number, Status Tracker and card adjustments. Place Meeple and funds on Staging Area. Pass IC token to the right. Proceed to next round and move round token on Round Tracker.

Job Actions: Perform any action below and pay cost as long as team agrees.

 SELF-CARE Take care of yourself through fatigue and anxiety reducing behaviors. Twice per game, you may perform self-care. -2 Self-Fatigue	 PSYCHOLOGICAL FIRST AID Assist another staff member by offering PFA to reduce their distress caused by this incident. Twice per game, reduce another player's fatigue. Other Player -2 Fatigue	 MENTAL HEALTH COUNSELING Assist someone in line who is showing signs of mental and emotional distress with mental health counseling. Choose One: Immediately: -1 Anxiety Spend a little longer with Meeple: Next Round, -2 Anxiety. exchange 1 yellow for 1 green meeple.
 PERFORM FIRST AID Public health nurses perform minor first aid. -2 Anxiety -1 Hazard	 SHORTEN FORM LENGTH Epidemiologists decide to shorten the form to only priority questions. Registration will now process 4MP per desk. Flip all Registration resources over. For the rest of the game, reduce Funds gained by 2.	 TRAIN INTERNS Perform just-in-time training for public health interns, teaching them how to use the registration system. Gain 2 Registration resources and place at Registration. PH +1 Fatigue

Note. The player mat highlights what actions the player can take from the perspective of the specified role.

Building in Inclusivity

Along with collaboration, fostering awareness of population needs was a major objective. This focus was done in several ways throughout the game. One way was to acknowledge that different people have different needs and accommodations—both visible and invisible. Players would draw problem cards that provided short narrative text about the situation and then offer choices on how to respond (Figure 2). This process showed players the potential negative impact of not helping others. Scenarios and prompts were drawn from real-world responses and stories from the field.

Evaluation and Improvements

TEST received positive praise during the large exercise in Texas. Due to its success, CDC

continued to refine and develop it, piloting it around the country to ensure it continued to meet the needs of state and local response organizations (Photo 1).

When evaluating the game, CDC brought together representatives of different professions including public health, emergency management, and environmental health, and with people who had varying levels of comfort with board games. Evaluation data showed that regardless of profession or enjoyment of board games, players found TEST to be engaging and would highly recommend it to a colleague.

Looking Ahead

Due to the success of TEST CRC Edition, CDC has since developed another version. The second version focuses on vaccine administra-



Photo 1. Public health professionals playing TEST (Training and Exercise Simulation Tool) Community Reception Center. Photo courtesy of the National Association of County and City Health Officials.

tion and pill dispensing at points of dispensing. CDC plans to continue to grow the TEST game series with new subjects and expansions to current games. CDC is currently developing templates so that state and local agencies can adapt the game and modify the content to further meet their individual needs.

For more information on This is a TEST, visit www.cdc.gov/readiness/php/testgame/index.html or contact testgame@cdc.gov.

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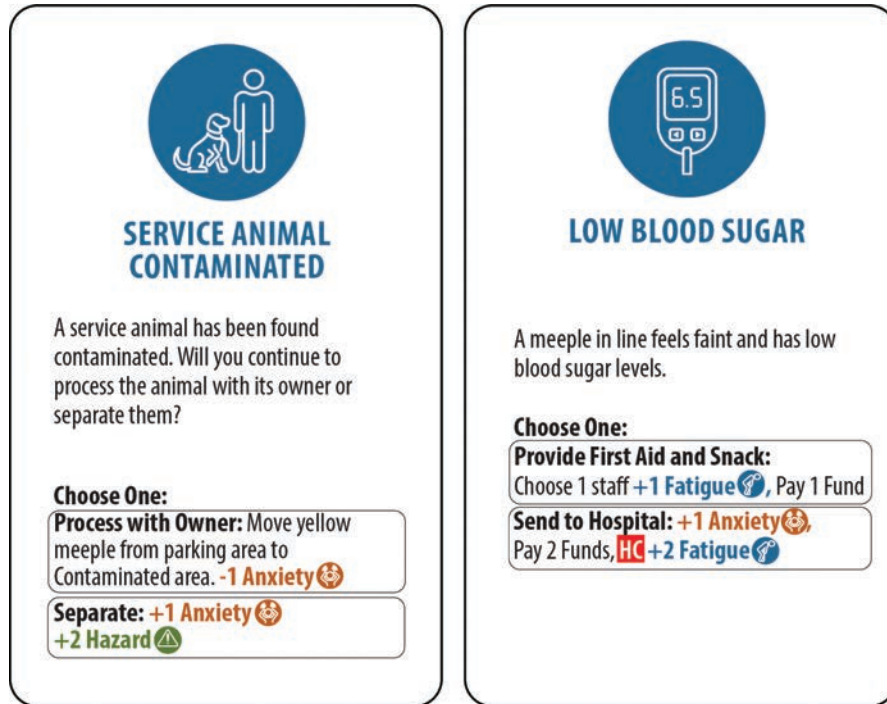
Email: lna8@cdc.gov

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FIGURE 2

Examples of Minor Inject Cards From TEST (Training and Exercise Simulation Tool) Community Reception Center (CRC)



Note. The inject card presents a scenario that could take place at a CRC and possible actions to respond to the scenario.

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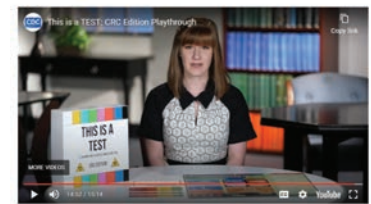
Using Inclusive Teaching Strategies

The Centers for Disease Control and Prevention provides multiple pathways to learning the game. Examples include a rulebook with instructions on how to play the game and a playthrough video (Figure 3), which visually walks players step-by-step through gameplay.

FIGURE 3

Video Overview of the TEST (Training and Exercise Simulation Tool) Community Reception Center (CRC)

Learning to play



to promote organizational and systems learning in emergency preparedness. *International Journal of Environmental Research and Public Health*, 9(8), 2949–2963. <https://doi.org/10.3390/ijerph9082949>

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