ENHANCING TRAINING DURING PUBLIC HEALTH EMERGENCIES:

AN INCLUSIVE JUST-IN-TIME TRAINING (JITT) APPROACH

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PUBLIC HEALTH EMERGENCY PREPAREDNESS

Local health departments (LHDs) are well prepared to perform routine operations that use existing professional staff. However, even the largest and most sophisticated LHDs can be overwhelmed by large-scale, complex emergency operations. Such operations might stem from:

- natural outbreaks of an existing disease (e.g., plague);
- the emergence of a novel pathogen (e.g., H1N1);
- the intentional release of a bioterrorism agent (e.g., anthrax);
- a chemical or radiologic weapon (e.g., dirty bomb); or
- public health consequences of a natural disaster (e.g., flood, hurricane).

Under emergency conditions, administrators must ensure organizational readiness to quickly obtain and deploy surge staff and volunteers (i.e., reallocate staff from internal programs and obtain personnel from other government, private, and non-profit organizations). These individuals must be trained Just-in-Time to perform work that may differ from their usual duties, may be performed in unfamiliar circumstances, and may involve unfamiliar co-workers and clients. The success of the response will depend, in large part, on the adequacy of this training.

Emergency operations depend on a myriad of successful individual interactions. Staff, volunteers, and community members need to feel valued, informed, prepared, and must be resilient in the face of pressures of emergency operations. Otherwise, even simple functions can be mishandled and may derail the best organizational strategy.

Ideally, training and preparedness activities are conducted well in advance of an event. Thoughtfully designed tabletops, engaging virtual exercises, and carefully scripted presentations can help prepare people for emergency operations. Yet, it is unrealistic to adequately train, or even identify in advance, all of the people who will be needed for an emergency. Further, individuals

cannot be well trained for the great variety of incidents that may occur and the roles that they might serve. Just-in-Time Training (JITT) provided immediately before response operations, is the most practical preparation for many public health surge personnel, especially those coming from organizations outside the LHD.

JUST-IN-TIME TRAINING CHALLENGES

Ideally, training and preparedness activities are conducted well in advance of an event.

The term Just-in-Time Training originated in the business field as a method to increase productivity and eliminate waste and inefficiency.[1] The Center for Biopreparedness Education (Omaha, NE) defines JITT as an approach used to teach a skill that a person doesn't know or has forgotten when there are not enough personnel to conduct one-on-one training and when resources have been exhausted.[2]

JITT is widely used in emergency operations and in training exercises. Within the discipline of public health, JITT is useful when staff and volunteers need to quickly learn how to perform new tasks, such as crowd control/security and screening clinic intake forms at a mass prophylaxis clinic, or identifying potentially exposed individuals during public health investigations. JITT is often supported by position descriptions, video training, or job action cards.

However, JITT is repeatedly misunderstood by LHDs, applied in an ad hoc manner, and is of variable quality. Many such JITT applications do not:

- Offer learners an opportunity to practice and demonstrate what they have learned—a teaching approach that is known to substantially improve retention of new information;[3]
- Tailor instructional methods to different learning styles, experiential backgrounds, and cultural differences;
- Address the fact that adrenaline released in a time of crisis is a barrier to learning and performance (e.g., facing a crowd of worried patients waiting for a scarce medicine).[4] Reactions to adrenaline can produce a fight-flight response, paralyze critical thinking, and result in narrowed or stereotypic judgments and behaviors;
- Recognize that learners have limited capacity to recall and apply all information that they are given. Leaders overwhelmed by too many tasks and too little time are inclined to improvise a quick briefing, hand out a job aide, or quickly highlight procedures in one or more documents;

• Prepare staff to work with individuals from diverse backgrounds and life experiences. This can lead to unintended disparities in communication and client treatment; these, in turn, can result in negative health outcomes; and
• Support the emotional, or affective, needs of learners, potentially leading to a lack of motivation or sense of duty to continue in one's response role.

In summary, JITT is often applied in ways that do not promote high individual and organizational performance. Here are four brief situation descriptions that illustrate challenges that might be addressed through improving the quality of JITT:

Anna, a newly appointed public health response leader, drove anxiously to her first shift at a high-volume vaccination clinic. She wondered,"How will I best use whoever shows up?" "Will the volunteers and the few LHD staff diverted from their normal jobs have the right knowledge and skills to perform their duties when clinic doors open just one hour after their orientation?" "Will I be able to enhance responders' confidence in performing their jobs?" "Will they feel valued and appreciated at the end of the day?"

Susan had been a nurse for over 30 years, but the last 20 were spent as a high level health administrator. She paused before giving a client an intramuscular injection – "What did they say about when to disinfect the vaccine vial, or not?" She tried to recall the content of the 15 minute orientation lecture about procedures. "So much has changed since I last practiced", she thought. She glanced toward the many vaccination procedure handouts she received upon arrival and had stuffed into her bag. Then, she shyly looked from side-to-side to see what other nurses were doing. She felt embarrassed to ask such a basic question.

Jose was performing his seemingly straight-forward task of handing out intake forms to people waiting for preventive medicine. But, those standing in line had been waiting over two hours and were tired, restless, and scared. They pressed him for information, but he had no idea what to tell them. The irritation from the crowd grew around him. Some were critical of the operation. Someone mumbled an insult under their breath. He adjusted his mask, wondered why he had volunteered to help, and thought about going home to his wife and children.

John grasped the wooden clipboard securing the interview protocol. He was a health insurance eligibility specialist – not a disease investigator. He reached to shake the informant's hand, which was not offered in return. Then, he began asking the checklist of questions: "When did your baby first become ill? Was there vomiting, seizures or blood in the stool? When did you take your baby to the hospital?" The mother, her head covered by a burka, did not respond; she wept quietly, fearful of what might happen to her child.

PRINCIPLES OF JUST-IN-TIME TRAINING

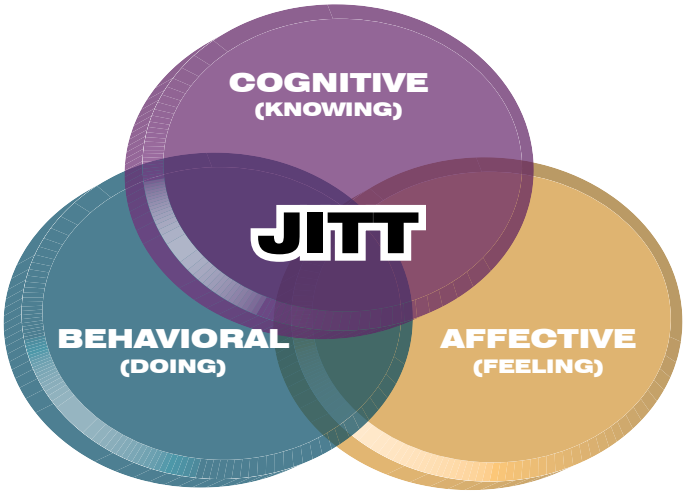
Anna, Susan, Jose, and John have widely varying tasks. Some can be quickly and easily learned, while others may need to be supported by extensive training and experience – e.g., in leadership principles, nursing procedures, or Incident Command System approaches. However, performing any of the above jobs well, and under stressful conditions, requires recognition of the interplay between three critical training principles. This section outlines the principles that should shape how to provide JITT to public health emergency responders whose job performance is tied to their skills in dealing with diverse clients under stressful conditions. Those principles are related to:

- **LEARNING DIMENSIONS;**
- **LEARNING STYLES; AND**
- **CULTURAL CONTEXT.**

LEARNING DIMENSIONS: Psychological and brain development research confirms that sound judgment (the application of knowing) – especially in times of stress and crisis – depends upon effective neural pathways that also connect action (i.e., doing) and emotion (i.e., feeling)[5]. To be effective in an emergency response (as well as in day-to-day work), local public health personnel must be able to logically evaluate events, circumstances, and conditions and confidently take action while feeling and expressing empathy for their clients.

Using an adult education and training lens, Figure 1 (page 6) illustrates the dynamic interplay of the three learning dimensions. The areas where these dimensions are congruent represent the highest quality of training and the best expected performance

FIGURE 1: LEARNING DIMENSIONS



The highest quality training, and retention of training, occurs where learning dimensions overlap and reinforce one another.

when learning is applied. For example, the doing of a task can usually be supported by knowing background information, leading to positive and efficacious feelings regarding one's ability in accomplishing that task.

Simplified examples of the interplay of these dimensions can be applied to the situations described above:

• Anna receives brief classroom training in clinic staffing guidelines and the appropriate Incident Command System terminology (knowing). She participates in an exercise in which she assigns staff with different backgrounds to various positions (doing). Her instructor critiques her exercise performance in a way that makes her feel confident in her ability to assign vaccination clinic staff (feeling).

• Susan receives instruction that vaccine vials she will be using have pre-sterilized seals, and do not require further disinfection to be safe (knowing). Another nurse observes her prepare her syringes and give several injections (doing), and gives her feedback that validates her skills (feeling).

• Jose is taught how to inform, calm, and reassure the people waiting in line. He is given information he can share with people in line as well as some suggested "scripts" for how to talk with them (knowing). These scripts express to those awaiting service that they are important, and provides specific information on how they will be served. He participates in a five minute role-playing exercise to practice the messages and gain a little experience in diffusing difficult situations and calling for help (doing). He feels well informed, valued, and that he is in a vital response role (feeling).

• John is informed that he will be interviewing people with varying backgrounds. He is given an orientation to intercultural communication issues that might arise between him and members of the client population he will be interviewing (knowing). This includes the importance of tone of voice, body language, question sequence, and the possible cultural meaning of his investigation questions. He observes the instructor's approach to difficult interviews, and then alternately, practices the roles of interviewer and client during role-playing (doing). He is given feedback that reassures him that he is ready to carry out interviews, and knows how

to respectfully and compassionately defer or break off a difficult interview and seek assistance (feeling).

LEARNING STYLES: Researchers in educational psychology have long underscored that most learners retain, at best, 10 percent of instruction, especially if that teaching is solely lecture or didactic in nature. However, auditory learning is just one learning modality [6, 7] of multiple ways of knowing.[8] Learning is optimized when new knowledge and skills are practiced, tested, and assimilated in a variety of techniques that are aimed at one, or more, of the following learning styles:

- Auditory
- Visual
- Experiential (Kinesthetic)

Learning styles are analogous to learning dimensions. Learning styles can be reflected in Figure 2 (page 9), with each circle representing the methods for presenting that style. Where the circles overlap represents the area of greatest retention, and related application, of the information learned (e.g., when learning about client confidentiality requirements).

The simplest form of auditory learning is the lecture. This style may be enhanced when auditory-based methods, such as inquiry-stimulated dialog and case studies, are skillfully used. The visual style of learning includes the use of projected images, handouts, demonstrations, or otherwise, intended to reinforce the learners understanding of the lessons that are visually observed. The experiential, or kinesthetic, style requires practice of movements, such as preparing an injection site, drawing vaccine from a vial, and injecting it. An experiential activity is often first described (auditory) and shown (visual), or both; but, for many learners, confidence is gained as the motions are practiced (experiential).

Individuals may prefer certain learning styles over others. John may be strongly engaged, helping him to understand a visual flow chart of the interview process, but his mind may wander when hearing a description of that same process. Therefore,

PROPOSED STEPS TO ACHIEVING CULTURAL SENSITIVITY WITH JITT

1. Identify the demographics of communities impacted by the emergency, as well as any unique perceptions that they may have about the emergency, its meaning, and planned response operations.

2. Identify community members, leaders, and staff who already possess a reasonable level of cultural competence to work with the communities impacted by the emergency. Enlist their participation and support in designing and carrying out operations serving impacted communities; rely on them as resources for the response and the related JITT.

3. Make JITT materials culturally relevant to the learners. Consider what learning dimensions and styles will be most effective for learners in general; also, consider whether there might be culturally-influenced issues that could impact learning. Again, culturally informed staff or community consultants can be critically important in this process.

4. Tailor JITT materials to address the differing demographics of clients; use the knowledge of culturally competent staff and community contacts to develop any special guidelines unique to impacted culturally-defined groups. At a minimum, emphasize actions that are seen as courteous, respectful, compassionate, supportive, and effective communication by impacted communities.

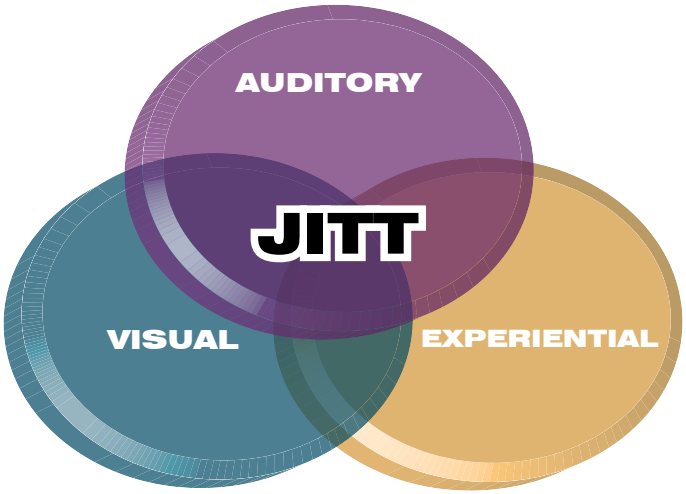
particularly important material should be augmented by using methods from each learning style in an effort to improve overall retention.

CULTURAL CONTEXT: Most LHDs in the United States have substantial diversity in the populations they serve, and in their permanent staff and response organization staff (e.g., staff and volunteers from partner organizations). Bennett and Bennett's research has emphasized that the most effective workers are those who develop culturally sensitive communication techniques through professional development training that includes a "mind set" (i.e., knowing), a "skill set" (i.e., doing) and a "heart set"--or attention to cultural differences in interpersonal feelings, meaning, values, and interactions (i.e., feeling).[9] For example, if a female nurse is interacting with a non-English speaking father whose child has been quarantined, the more adept her skills at providing him culturally contextualized information (i.e., "mind set"/knowing), maintaining sterilized barriers (i.e., "skill set"/doing) and sensitively calming the parent's fears (i.e., "heart set"/feeling), the more likely she will gain cooperation and prevent additional infections.

Training to achieve high levels of cultural competence can be difficult and may take far more time and effort than is typically practical from JITT during an emergency. Therefore, addressing the cultural context of JITT must be of limited scope. For example, areas of possible concern among members of the client population can

be identified, and effective interaction guidelines can be developed to help foster reasonable levels of cooperation, communication, and good will among staff and with clients. This approach stems from the need to create a team that can perform its operational tasks at high production rates through relatively brief, yet effective, interactions with each client. While there is not an intent to develop deep, long-term, and trusting relationships during the acute emergency response phase, such relationships are critical to the long-term success of the LHD. Therefore, it is important that culturally competent response elements are adequate to meet the needs of the response, and avoid creating barriers to successful future interactions between the LHD and the communities impacted by the emergency. With this in mind, the basic steps outlined on page 8 can help to align culturally sensitive approaches with JITT and the previously described learning dimensions and styles.

FIGURE 2: LEARNING STYLES



The highest quality training, and retention of training, occurs where learning styles overlap and reinforce one another.

INCLUSIVE JUST-IN-TIME TRAINING: A LEARNING MODEL

Compared to traditional business models of JITT that are designed to simply expedite the learning of new knowledge and acquisition of skills, the term Inclusive JITT represents a deliberate integration of the JITT principles just described, which include:

- **LEARNING DIMENSIONS** (knowing, doing, feeling);
- **LEARNING STYLES** (visual, auditory, experiential); and
- **CULTURAL CONTEXT** (individual, group, organization).

Building on the earlier case studies, Anna's angst as she drove to her shift may have been relieved if she had received Inclusive JITT related to her role as clinic manager. Receiving Inclusive JITT would have allowed her to feel confident in her ability to assign staff. Her confidence could be bolstered by knowing that she and her staff would also receive Inclusive JITT that would adequately prepare them for their duties upon opening the clinic in just two hours. Susan needed kinesthetic practice with an experienced partner, and not just paper handouts and a lecture, to sharpen her long

FIGURE 3: INCLUSIVE JUST-IN-TIME TRAINING MODEL

Inclusive JITT effectively merges learning dimensions, learning styles, and cultural context to produce high-performing public health emergency responders.

unused skills in order to feel confident with vaccination procedures. Both Jose and John were "set-up" contextually, or culturally, to fail. Jose was not provided enough information to meet clients' needs and calm their frustrations. John was not offered cultural insights on the individuals and groups with whom he would interact, and was not given the tools he needed to perform adequately in an extremely challenging situation.

Although it is challenging to capture all of the elements of Inclusive JITT in just a few minutes of training, the spirit of Inclusive JITT can be applied whether a trainer has five minutes or five hours, and can be taught and emulated by staff and volunteers, especially if the three key learning dimensions (knowing, doing, feeling) are emphasized within the cultural context. The need for Inclusive JITT may present itself at various times throughout an operational period, as new staff or volunteers arrive, or are moved, to different positions within a shift. It remains the leaders' responsibility to determine how to best implement Inclusive JITT given time restraints, and other factors, within the response setting.

Inclusive JITT is careful to integrate learning dimensions, learning styles, and cultural context. Using Jose's case study as an example, one can think about how the use of Inclusive JITT might have assisted him as he managed his station. Inclusive JITT would have allowed him to learn about and practice appropriate interactions with frustrated clients. Further, Inclusive JITT would have offered Jose examples of phrases and sound bites that he could share with clients as he walked up and down the line. Examples of such phrases include:

- "Thanks for your patience everyone. From here you should be done in just 25 more minutes." (integrates knowing and feeling dimensions).
- "Please complete both sides of the form. Let me know if you need an interpreter or a form in Spanish or Vietnamese, and I will find one for you." (integrates doing and knowing dimensions).

- "Water and restrooms are available to your right. Please keep each other's place in line if you need to use the facilities." (integrates knowing, doing, and feeling dimensions).

DEVELOPING AND IMPLEMENTING INCLUSIVE JUST-IN-TIME TRAINING

While each of the three conceptual learning dimensions (knowing, doing, feeling) should be addressed as part of Inclusive JITT, teaching techniques addressing the learning styles (auditory, visual, and experiential) should be carefully designed, tested, and revised.

The trainer needs to create culturally informed opportunities for practice and integration of knowledge and skills. In turn, learners need to be able to demonstrate appropriate proficiency under varying individual, organizational, and contextual conditions. Table 1 illustrates the principles of Inclusive JITT as well as examples

Inclusive JITT is careful to integrate learning dimensions, learning styles, and cultural context.

TABLE 1:

TRAINERS	LEARNING DIMENSION EMPHASIZED	LEARNING STYLE EMPHASIZED	CULTURAL CONTEXT EMPHASIZED	LEARNERS
Provide conceptual and factual material	**COGNITIVE** (knowing)	Visual and auditory	Individual: recognizing differences as assets	Demonstrate understanding of information
Provide case studies, examples, role play and practice opportunities	**BEHAVIORAL** (doing)	Experiential and auditory	Group: by creating cultural norms	Practice and demonstrate effective application of skills
Provide cultural and interpersonal communication cues	**AFFECTIVE** (feeling)	Experiential and visual	Organization: providing context that supports/ values staff and clients	Demonstrate culturally appropriate communication

Examples above illustrate how implementing Inclusive JITT calls for a dynamic, interdependent, and active engagement between the trainer and learner.

that incorporate elements of each principle. For example, trainers can visually and verbally provide culturally appropriate conceptual and factual information that are shown on a screen or hand-out, and pairs of learners can practice and teach each other their new knowledge or skills while being coached by trainers.

Using the four case studies illustrated throughout this paper, public health response leaders can explore ways to implement Inclusive JITT into an incident response. As a response leader, Anna can work closely with all team leaders before arriving on site to ensure leaders understand the Inclusive JITT model, and related resources, that they will be expected to deliver to surge staff—a model that ensures that staff have an opportunity to practice skills, ask questions, and gain sensitivity to the cultural context. Susan should be offered an opportunity to practice giving injections and Jose, answering questions, through a role play or a similar activity. With Inclusive JITT, John would also have an opportunity to practice delivering case investigation questions to a diverse audience, and receive feedback on the cultural appropriateness of his approach before being assigned to his position. Each of the preceding examples of activities reflects an Inclusive JITT approach.

In summary, Inclusive JITT applies important practices and considerations to the training methods and modalities used to quickly adapt a workforce to emergency roles. Trainers must keep in mind various learning styles of responders and tailor their Inclusive JITT approaches to address each style, whenever possible. Trainers must also remember responders' inherent need to know, do, and feel. To reiterate, learners may need to:

- Understand overall response organization objectives (knowing)
- Know where to find translators or materials in different languages (knowing)

- Understand job roles and expectations (knowing)
- Understand the makeup of the anticipated client composition, as well as particularly important cultural/ethnic considerations (knowing)
- Understand basic respectful communication techniques that promote success in working with others (knowing)
- Demonstrate proper use of tools, forms, and job aides (doing)
- Demonstrate competence in job-related procedures and skills (doing)
- Walk the layout of the POD or other emergency response locale (doing)
- Walk the layout of the site of emergency operations (doing)
- Feel confident in being able to meet job expectations (feeling)
- Feel confident in response objectives and organization (feeling)
- Feel able to work with individuals or groups of people from different backgrounds (feeling)
- Feel a sense of duty to serve within the response (feeling)

It's important that Inclusive JITT materials developed for emergency operations be prepared before the emergency to the maximum extent possible, supporting a "continuum of training"—or one that does not simply start or stop when an emergency does. Inclusive JITT materials should be designed, taught to pilot groups and exercise participants, evaluated, revised, retested, and continually readied for use.[2]

Inclusive JITT should be planned intentionally, regularized into the training of core responders, and embedded in professional knowledge and action. It should also be designed to be flexible to evolving organizational, staff, and incident needs. Finally, Inclusive JITT must recognize and integrate the learning dimensions, learning styles, and cultural context outlined throughout this paper to the maximum extent possible.

INCLUSIVE JUST-IN-TIME TRAINING TOOLS FOR EXPANDING EMERGENCY OPERATIONS

The National Association of County and City Health Officials' Advanced Practice Centers (APC) have the mission to identify and refine national best practices for LHDs to use for public health preparedness and response. Multnomah County (Portland, OR) Health Department's APC will complete a set of four Inclusive JITT informed tools to provide training and public health surge capacity for mass prophylaxis and public health investigations by September 2010. Each tool will be based on review of the research literature, best practices from around the nation, and the educational principles and learning constructs reviewed above. Local, regional, and national public health thought leaders will test and review each tool. Below is an overview of each tool:

TOOL 1 - Orientation to Inclusive JITT for Public Health Leaders is an overview of the framework, philosophy, and environment of Inclusive JITT for LHDs. This tool uses stories to illustrate adult learning styles and demonstrates how to tailor Inclusive JITT to meet LHDs' needs. It describes how to prepare and implement Inclusive JITT.

TOOL 2 - The Staff Allocation Decision-Making tool helps LHD leaders justify expanded operations to policy and executive leaders who will need to approve significant hiring or reallocation of personnel to mass prophylaxis operations or public health investigations during a public health emergency. The tool is particularly valuable when there are insufficient personnel to ideally perform both types of operations.

TOOL 3 - Inclusive JITT for Public Health Investigations provides responders with materials to improve the individual performance of surge personnel brought into public health investigations. The tool includes a leader checklist, field training guide, job aide (Go Guide), and evaluation form.

TOOL 4 - Inclusive JITT for Mass Prophylaxis Operations provides responders with materials to improve the individual performance of surge personnel brought into mass prophylaxis operations. The tool includes a leader checklist, field training guide, job aide (Go Guide), and evaluation form.

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INCLUSIVE JITT TOOLS WILL BE AVAILABLE FOR DOWNLOAD IN SEPTEMBER, 2010 FROM:

NACCHO'S APC TOOLKIT: www.naccho.org/apc
MULTNOMAH COUNTY HEALTH DEPARTMENT'S APC WEB SITE: www.multco.or.us

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