The Centers for Public Health Preparedness (CPHP) are a national network developed by the Centers for Disease Control and Prevention (CDC) and the Association of Schools of Public Health (ASPH) to train the public health and healthcare workforce to respond to threats to our nation’s health, such as bioterrorism, infectious disease outbreaks, and other public health emergencies. In order to foster collaboration within the network and to share best practices, CDC and ASPH established “exemplar groups,” to identify and examine CPHP resources in selected areas of preparedness and to summarize each group’s experience, or lessons learned, in using the resources. Each exemplar group was charged to develop a summary document that both the CPHP network and the workforce can use to navigate the myriad training resources that CPHP offer and/or to learn from the many lessons CPHP have learned in training and education for public health preparedness.

Defined as a learning situation in which the instructor and students are separated by time, location, or both, distance learning entails the delivery of training and education to remote locations via synchronous (same time) or asynchronous (anytime) means of instruction. Modes of delivery include web-based courses, audio and video media (tapes, CDs, and DVDs), CD-ROM, audio- and videoconferencing, satellite downlinks, and live and archived webcasts.

Almost any topic in public health preparedness can be taught using one or more of a broad range of distance education methodologies. Once students complete their training, they can demonstrate their mastery of new skills and knowledge via an array of similarly high-tech evaluation tools.

Findings
The exemplar group gathered data on relevant materials developed by 19 CPHP. The review addressed content accuracy, appropriateness and scope; technical issues, navigation and presentation; and, evaluation. All of the CPHP programs reviewed were judged to do an effective job based on these criteria. In addition:

• Almost all of the CPHP trainings were relevant to the public health preparedness curriculum and the information was of sufficient scope to adequately cover the topic for the intended audience.
• Most of the CPHP training sites demonstrated a logical progression of topics within the original site. The expertise and reputations of most host sites were authoritative.
• The design and delivery methods chosen varied widely, depending on an array of factors such as content, audience, cost, and time to develop the product.
• The uses of short, non-interactive online modules, CD-ROMs, or archived webcasts were thought to be especially appropriate to build awareness of new threats to public health and new programs to address these threats.
• Blended learning was highly regarded as a CPHP best practice. In these instances, face-to-face traditional classroom teaching was combined with distance learning.

Implications
Distance learning shows real promise as a key way to train the public health workforce to respond to terrorism and other emerging threats. An effective distance learning training program depends a great deal on its instructional design. The more that is known about the learners, the content, and other critical specifics of a training, the better. The long-term success of distance learning depends on the ability to motivate people to want to learn.

Distance learning does present challenges. When technology is used to deliver instruction, a factor in success is learner possession of the equipment and infrastructure to access course materials.
Traditional curricula are not easily transformed into a distance learning delivery technology. High-quality distance learning training materials require significant investment to plan and develop.

Sharing courses and resources across the CPHP network can be stymied by the varied approaches used to develop, design, and deliver distance learning. Interpretation of the laws that govern copyright and intellectual property can retard the process as well.

Even when distance learning delivery is optimal, many learners harbor concerns about access and comfort levels with technology. Students who respond positively to distance learning report a preference for classroom learning. Physical distance may cause some sense of isolation and lack of support. Distance learning course developers and instructors need compensatory ways to meet student expectations for interaction and contact.

Still another challenge facing the CPHP network is creating and distributing courses and training materials in languages other than English. Worldwide access may be an asset for reaching a broad audience, yet the true reach of distance learning training remains difficult to quantify.

**Conclusions and Next Steps**

Distance learning is more than just a format for the delivery of programming. It allows instructors and students to use new curricula, programs, and learning paradigms to broaden the benefits to both students and society, preparing public health professionals for a rapidly changing future.

However, many CPHP were thought to need improvement in two areas. The first was to provide standard and easy-to-find information on course offerings. The second was to improve the ways in which mastery of the learning objectives via distance learning technologies were demonstrated.

**Summary of Products for Distance Learning by CPHP**


**Albany Center for Public Health Preparedness, State University of New York Albany School of Public Health**  [www.ualbanycphp.org/](http://www.ualbanycphp.org/)
- Monthly satellite broadcast preparedness series: videotapes/webstream
- Online preparedness certificate course: terrorism, preparedness, and public health (in development)

**Center for Infectious Disease Preparedness, University of California at Berkeley School of Public Health**  [www.idready.org](http://www.idready.org)
- Web-based: DL preparedness programs available on demand
- Online course: Relational database management systems for epidemiologists (in development)

**Simulation Center for Public Health Preparedness, Burlington Community College**  [www.bcc.edu/pages/389.asp](http://www.bcc.edu/pages/389.asp)
- Online course: Preparedness curricula for fire, police, EMS units, civic leaders, corporate entities (in development)
Columbia Center for Public Health Preparedness, Columbia University Mailman School of Public Health  [www.mailman.hs.columbia.edu/CPHP/index.html](http://www.mailman.hs.columbia.edu/CPHP/index.html)
- Web-based course: Emergency preparedness (basic)

Center for Public Health Preparedness and Research, Emory University Rollins School of Public Health  [www.sph.emory.edu/CPHR/cphr/index.html](http://www.sph.emory.edu/CPHR/cphr/index.html)
- DL via web and CD-ROM: 13 instructional preparedness lectures
- DL via web and CD-ROM: influenza preparedness conference proceedings
- DL via web and CD-ROM: food/waterborne disease preparedness conference proceedings
- Web-based: skill-oriented series
- DL via web and CD-ROM: strategic national stockpile training
- Web-based: two preparedness courses
- Web-based: two preparedness courses--related case studies

Southeastern Center for Emerging Biological Threats, Emory University  [www.secenterbiothreats.org](http://www.secenterbiothreats.org)
- CD-ROM educational product from foodborne infectious disease conference and spring 2005 conference (in development)

Center for Terrorism Preparedness, University of Findlay School of Environmental and Emergency Management  [http://seem.findlay.edu/terrorism](http://seem.findlay.edu/terrorism)
- e-learning technologies: homeland security training (in development)

Center for Mass Destruction Defense, University of Georgia Medical College of Georgia  [www.cmadd.uga.edu](http://www.cmadd.uga.edu)
- CD-ROM: BDLS, ADLS disaster life support series

Harvard Center for Public Health Preparedness, Harvard School of Public Health  [www.hsph.harvard.edu/hcphp/](http://www.hsph.harvard.edu/hcphp/)
- DL: Preparedness training in Maine
- DL: preparedness training in Massachusetts
- Web-based: flexible learning platform

Upper Midwest Center for Public Health Preparedness, University of Iowa College of Public Health  [www.public-health.uiowa.edu/icphp/index.html](http://www.public-health.uiowa.edu/icphp/index.html)
- DL: four public health preparedness Train-the-Trainer programs
- Webcast, CD-ROM, archived streaming video, Iowa Communications Network, DVD, videotape: Public health preparedness grand rounds series
- On-line via Prepare Iowa Learning Management System: risk communication
- On-line via Prepare Iowa Learning Management System: ICS/NIMS

The Center for Food Security and Public Health, Iowa State University  [www.cfsph.iastate.edu](http://www.cfsph.iastate.edu)
- CD-ROM: BT awareness-level veterinarian training
- Online: zoonotic disease fact sheets/Powerpoint presentations

Johns Hopkins Center for Public Health Preparedness, Johns Hopkins Bloomberg School of Public Health  [www.jhsph.edu/cphp](http://www.jhsph.edu/cphp)
- DL: 22 module-based distance preparedness education trainings
Center for Deterrence of Biowarfare and Bioterrorism, University of Louisville Health Sciences
Center School of Public Health and Information Sciences
www.sphis.louisville.edu/cdbb_home.cfm
  • DL: training Modules for Healthcare providers as first responders to bioterrorism events

Center for Hispanic Disaster Training, Center for Disaster Epidemiology, University of Miami
School of Medicine www.med.miami.edu/
  • CD-ROM and online: BT and emergency preparedness, state and local public health perspective
  • Online course: demystifying data
  • CD-ROM and online: Psychosocial issues related to bioterrorism
  • Webcast: influenza pandemic symposium
  • CD-ROM and online: Laboratory aspects of BT
  • CD-ROM and online: BT, emergencies, and public health law

Center for Nonproliferation Studies, Monterey Institute for International Studies
http://cns.miis.edu/
  • Online tutorials: CBR nuclear terrorism

The New Jersey Center for Public Health Preparedness at University of Medicine & Dentistry of New Jersey www.njcpphp.org/
  • DL course: psychological components of a disaster
  • DL programs via 1-hour monthly teleconferences: preparedness and emerging issues training for regional epidemiologists

Ohio Center for Public Health Preparedness, Ohio State University School of Public Health
www.sph.osu.edu
  • Webcast: PH preparedness grand Rounds (9 presentations

Southwest Center for Public Health Preparedness, University of Oklahoma Health Sciences Center www.swcphp.ouhsc.edu
  • Video: PH nurse preparedness orientation

University of Pittsburgh Center for Public Health Preparedness, University of Pittsburgh Graduate School of Public Health www.cphp.pitt.edu/upcphp/
  • On-demand satellite videoconference downlinks: preparedness-related programs
  • Web-based: PH preparedness law module
  • Web-based: epidemiology course

Center for Biosecurity and Public Health Preparedness, University of Texas at Houston School of Public Health www.sph.uth.tmc.edu/cbphp/
  • ITV: preparedness training for Hawaii: Agents of Bioterrorism (awareness-level 12-week course; All-Hazards (more advanced level 12-week course)
  • ITV and web-based: nurse BT preparedness (2-hour course)
  • DL/ITV: monthly topics in preparedness
South Central Center for Public Health Preparedness, Tulane University School of Public Health and Tropical Medicine & University of Alabama-Birmingham School of Public Health
http://scphp.sph.tulane.edu/sccphp/index.htm
- Web-based course: ICS training
- Web-based course: chemical risk assessment education
- Web-based course: Recognition and safe handling of agents
- Satellite broadcast: preparedness programs (networking, best practices for Focus G training, triage, forensic epi, surveillance, designing preparedness training, implementing NIMS, mass vaccination, SNS, developing state health policy for preparedness)
- Online Courses, video, DVD, CD-ROM: training resource toolkits for rural providers
- Web-based: BT preparedness (advanced topics in emerging infectious diseases)
- Web-based: designing effective drills/exercises (TTT course for PH leaders)
- Web-based: professional curriculum for physicians; online: CME course (detection, diagnosis, treatment, infection control)
- Web-based: media communications and training for journalists

University of California at Los Angeles Center for Public Health and Disasters, University of California at Los Angeles School of Public Health
www.cphd.ucla.edu
- Web-based: guide to writing a PH disaster plan (create, pre-test, final, and evaluate user learning)

Illinois Public Health Preparedness Center, University of Illinois at Chicago School of Public Health
www.uic.edu/sph/prepare/
- Online: preparedness course (PH system, community health improvement, policy development, advocacy, and PH law, program development and evaluation, PH administration, PH emergency preparedness and response, environmental health, applied epidemiology, and infectious disease preparedness)

Michigan Center for Public Health Preparedness, University of Michigan School of Public Health
www.sph.umich.edu/bioterrorism/acphp/index.html
- Online Course: demystifying data
- Webcast: influenza pandemic symposium

North Carolina Center for Public Health Preparedness, University of North Carolina at Chapel Hill School of Public Health
www.sph.unc.edu/nccphp/
- Online: preparedness training modules (epidemiology, surveillance, forensic epi, infection control, communicable diseases, disaster management)
- Internet-based: Focus on Field Epidemiology, a bi-monthly periodical, which addresses basic concepts and key issues in field epidemiology
- Field Epidemiology Online Certificate Program: 12-credit, graduate-level certificate program (introduction to epidemiology for PH (basic methods), methods in field epidemiology, infectious disease epidemiology and PH surveillance)
- Blended learning continuing education: 14 weeks online followed by 2 days of face-to-face classroom meetings for public health nurses in North Carolina (introduction to communicable disease surveillance and investigation in North Carolina)

Florida Center for Public Health Preparedness, University of South Florida College of Public Health
www.fcphp.org/
- DL: 1-hour course in understanding compassion fatigue
- DL: 1.5-hour course in assuring cultural competence in disaster response
- Web-based, DVD, print: 1-hour course in critical incident stress management
- DL: 1-hour courses in roles of leadership in coping with prolonged terrorism
Northwest Center for Public Health Practice, University of Washington School of Public Health and Community Medicine  http://healthlinks.washington.edu/nwcphp/

- Web-based online training modules: PH law preparedness (overview of federal/constitutional preparedness laws and regulations; separate modules for specific states and tribes)
- Web-based: Epidemiology modules for local PH
- Web conferences: eight mental health preparedness trainings for Idaho PH and healthcare providers
- Online: training modules on mental health preparedness and emergency response
- Online: five training modules on emergency risk communication