

Background

The Institute of Medicine's 2003 report "*The Future of the Public's Health in the 21st Century*" states "an adequately sized and appropriately trained workforce performing competently is an essential element of the public health infrastructure"¹. For the workforce to be truly competent, they must have access to up-to-date trainings in order to properly promote health and prevent and control disease². Sellers et al. (2015) found that only 17% of employees in state health agencies in 37 states have formal training in public health, and only 45% reported that their training needs were being sufficiently met³. This lack of training could lead to disparities in quality of and capability to conduct public health work⁴. Other studies have also shown that public health professionals report gaps in knowledge and competencies necessary for their careers, including communications, evaluation, action planning, policy analysis, and financial management^{2,3}.

In this era of international travel, the public health workforce is challenged with addressing the growing problems of emerging and re-emerging issues⁵. There is an increasing need for just-in-time training and capacity building across the diverse public workforce to control emerging disease outbreaks and to prevent spread of infectious diseases.

The Region IV Public Health Training Center (R-IV PHTC), located at Emory University's Rollins School of Public Health, has a mission that includes providing training and educational offerings to strengthen the competency of the current public health workforce in HHS Region IV. Additionally, the R-IV PHTC has been charged with serving as a national resource in the area of infectious disease. To meet this charge, the R-IV PHTC conducted an environmental scan to identify existing trainings and resources related to infectious disease that are currently available to the public health workforce.

Learning Objectives

At the end of the poster session, participants will be able to:

- 1) Assess key resources and tools that will enhance or sustain professional work or volunteer role in planning for, responding to, and recovering from disasters and other public health emergencies.
- 2) Locate current infectious disease trainings that are pertinent to developing the public health workforce and that can be used as just-in-time training resources.
- 3) Link to existing tools related to infectious disease that can assist public health agencies in planning for and responding to infectious disease outbreaks in their communities.

Methods

The R-IV PHTC has been charged with serving as a national resource in the area of infectious disease. To meet this assignment, from June 2015 - February 2016, the R-IV PHTC conducted an environmental scan to identify existing trainings related to infectious disease that are currently available to the public health workforce nationwide. The R-IV PHTC systematically reviewed trainings that were developed between 2011-2015.

We reviewed the websites and learning management systems of 73 different organizations including but not limited to the TrainFinder Real-time Affiliated Integrated Network (TRAIN), Centers for Disease Control and Prevention (CDC), Public Health Foundation



(PHF), Association of State and Territorial Health Officials (ASTHO), National Association of County and City Health Officials (NACCHO), past and current PHTCs, and Preparedness and Emergency Response Learning Centers (PERLC).

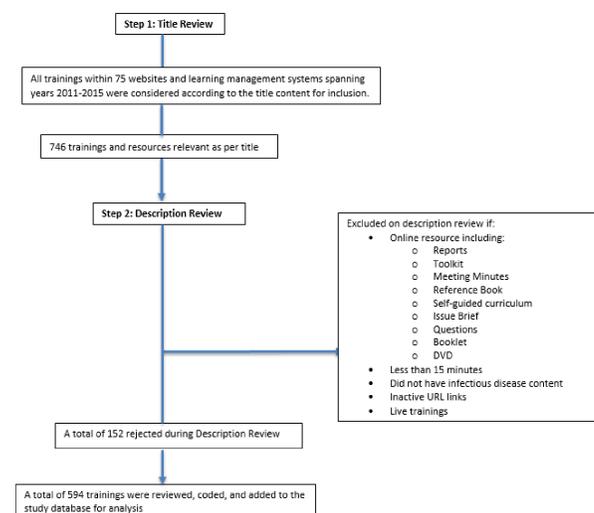
Inclusion criteria for database:

- Trainings related to infectious disease
- Developed between 2011 and 2015
- At least 15 minutes in length
- Active registration link

Trainings were identified utilizing several search terms including infectious disease, vaccination, immunizations, HIV/AIDS, tuberculosis (TB), Ebola, measles, etc.

All training titles related to infectious disease were automatically included in the database, and were reviewed independently to determine if they met the inclusion criteria. The final trainings were recorded in a searchable database and can be filtered by sponsor, title, year, provision of continuing education credits, addressed competencies, cost, length, infectious disease category, and modality. A short description and link to the registration site were also included for each training. Figure 1 depicts the training review process.

Figure 1: Steps to Identify Trainings for Systematic Review



Results

A total of 746 trainings were identified by title for consideration. During step two of the systematic review, 152 trainings were excluded due to the descriptions stating it was an online resource, not a training, was a live training without recording, was less than 15 minutes on length, did not include content relevant to infectious disease, or contained inactive URL links.

A total of 594 trainings were included in the final stage of the review which categorized training resources by infectious disease content, modality of delivery, year produced, CE credit availability, length and costs of training, and organization type producing training. Table 1 shows all descriptive categories for the database. The most common infectious disease content addressed by trainings was vector-borne diseases (33.2%, n=174), followed by vaccination/immunization (15.1%, n=79), and preparedness and emerging infections (11.3%, n=59). More than two-thirds of the trainings were offered via webinar (70.0%, n=416), followed by an online course (14.1%, n=84). Majority of the trainings were developed in 2014 (25%, n=149) followed by 2013 (19.7%, n=117). Approximately 115 (19.4%) trainings specified providing continuing education credits; of those, 106 (92.3%) were free. The duration of the 594 trainings ranged from 15 minutes to 32 hours. Of the 594 trainings included, 342 (57.6%) trainings were offered at no cost. Lastly, primary sponsors of the trainings were most frequently affiliated with non-governmental organization (37.9%, n=225), federal agency (16.7%, n=99), and PHTCs (13.6%, n=81).

Table 1: Demographic Information

VARIABLE	n (%)
Infectious Disease Category	
Bacterial Diseases	20 (3.8)
Disease Detection	2 (0.4)
Ebola	25 (4.8)
Foodborne, Waterborne, and Environmental Diseases	15 (2.9)
General Infectious Diseases	10 (1.9)
Global Migration and Quarantine	7 (1.3)
Healthcare-Associated Infections	6 (1.1)
HIV/AIDS	45 (8.6)
Infection Prevention	19 (3.6)
Influenza	15 (2.9)
Pneumonia	2 (0.4)
Preparedness and Emerging Infections	59 (11.3)
STD	26 (5.0)
TB	40 (7.6)
Vaccination/Immunization	79 (15.1)
Vector-Borne Diseases	174 (33.2)
Viral Disease	11 (2.1)
Viral Hepatitis	34 (6.5)
Zoonotic Diseases	5 (1.0)
Modality	
Grand Rounds Recording	23 (3.9)
Module	59 (9.9)
Online Course	84 (14.1)
Podcast	8 (1.3)
Webinar	416 (70.0)
Workshop	4 (0.7)
Year	
2011	26 (4.4)
2012	101 (17.0)
2013	117 (19.7)
2014	149 (25.1)
2015	89 (15.0)
Not specified	112 (18.8)
CE Credit Offered	
Yes	238 (40.0)
No	115 (19.4)
Not specified	241 (40.6)
Length of Training	
0-60 minutes	136 (22.9)
1:01-2 hours	97 (16.3)
2:01-4 hours	16 (2.7)
4:01-8 hours	20 (3.4)
Over 8 hours	6 (1.0)
Varies	4 (0.7)
Not specified	315 (53.0)
Cost of Training	
Free	342 (57.6)
\$1-\$100	246 (41.4)
Over \$100	6 (1.0)
Affiliation	
Academia	44 (7.4)
Federal Agency	99 (16.7)
Local Health Department	1 (0.2)
Non-governmental Organization	225 (37.9)
Other	66 (11.1)
Partnership	38 (6.4)
PERLC	2 (0.3)
PHTC	81 (13.6)
Private	36 (6.1)
State Health Department	2 (0.3)

Table 2: Free trainings that provide CE credit, categorized by modality and infectious disease category

	Grand Rounds Recording	Module	Online Course	Podcast	Webinar	Total - ID Category
Bacterial Diseases					1 (0.2)	1 (5.0)
Foodborne, Waterborne, and Environmental Diseases		5 (8.5)	1 (1.2)			6 (40.0)
General Infectious Diseases			2 (2.4)			2 (20.0)
Healthcare-Associated Infections			3 (3.6)		2 (0.5)	5 (83.3)
HIV/AIDS		1 (1.7)	3 (3.6)		5 (1.2)	9 (20.0)
Infection Prevention			2 (2.4)		5 (1.2)	7 (36.8)
Influenza			3 (3.6)	1 (12.5)	2 (0.5)	6 (40.0)
Preparedness and Emerging Infections	1 (4.3)	3 (5.1)	4 (4.8)		7 (1.7)	15 (25.4)
STD		11 (18.6)	2 (2.4)		2 (0.5)	15 (57.7)
TB		2 (3.4)	5 (6.0)		2 (0.5)	9 (22.5)
Vaccination/Immunization	2 (8.7)	7 (11.9)	3 (3.6)	1 (12.5)	5 (1.2)	18 (22.8)
Vector-Borne Diseases			4 (4.8)		1 (0.2)	5 (2.9)
Viral Disease			1 (1.2)			1 (9.1)
Viral Hepatitis		1 (1.7)			5 (1.2)	6 (17.6)
Zoonotic Diseases			1 (1.2)			1 (20.0)
Total - modality	3 (13.0)	30 (50.8)	34 (40.5)	2 (25.0)	37 (8.9)	106

Discussion

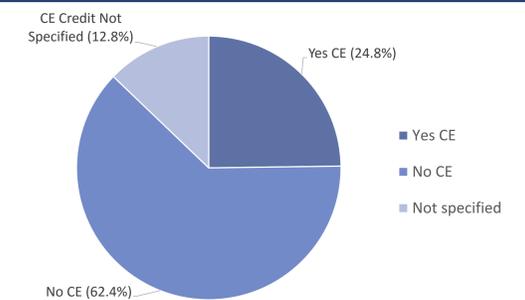
There has been a steady increase in infectious disease related trainings since 2011; however as research evolves, trainings risk becoming outdated. Equally as important, there is a growing need for the development and availability of the most up-to-date trainings, as infectious diseases like Zika and Ebola emerge. Due to budget cuts at the local, state, and federal levels, public health workers may find it challenging to access any learning opportunities⁶. Defunded programs are losing the infrastructure for storing archived competency-based trainings within their learning management systems (LMS). Unfortunately, free trainings through online LMS may be the only way in which the public health workforce has access to training resources.

Table 2 illustrates the low frequency of free trainings that provide CE credit by modality and infectious disease category (17.8%, n=106). At the time of the review, there were no free workshops that provided CE credits nor trainings categorized as disease detection, Ebola, global migration and quarantine, and pneumonia. For this reason, these topics were not included in the table.

All trainings were available with links to access through the internet at the time of the review. Over half (57.6%, n=342) of the reviewed trainings were available at no cost and only 1% (n=6) cost more than \$100.00.

Shorter distance-based trainings may be more accommodating for public health professionals to include in their demanding schedules. Among those trainings under two hours, about 62.4% (n=146) do not offer CE credit and only 24.8% (n=58) do offer CE credits (See Figure 2). Future research to assess the quality of such trainings would be useful to public health professionals. There is also a need for future research studies to examine the effectiveness of infectious disease training delivery across all modalities.

Figure 2: Trainings under 2 hours by CE credits



Region IV Public Health Training Center's Infectious Disease Training Database

The Region IV Public Health Training Center has identified over 500 training programs and resources in our designated content area of Infectious Disease developed by other public health organizations between 2011-2015. You may search this database by going to: <http://www.r4phtc.org/infectious-disease-trainings/>.

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