The Local Public Health Institute of Massachusetts

Progress Report

July 1, 2014 – June 30, 2015

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Executive Summary

Introduction: Since January of 2010, the Boston University School of Public Health (BUSPH) has held the contract for and managed the Local Public Health Institute (LPHI) of Massachusetts. With support from the Massachusetts Department of Public Health, the LPHI staff work with the LPHI Advisory Committee to pursue the LPHI mission: *To provide and ensure a competent workforce by strengthening and sustaining the capacity of local boards of health to prepare for and respond to public health issues and emergencies and to promote the health of residents of the Commonwealth.* This report describes the LPHI's progress between July 1, 2014 and June 30, 2015 in addressing the problems and associated objectives identified on its logic model. Below is a description of the LPHI evaluation methodology used to inform the progress report, as well as a summary of the major accomplishments of the LPHI in the 12-month timeframe and recommended next steps.

Methodology: The LPHI evaluator and LPHI management team devised several data collection and tracking mechanisms to measure progress toward LPHI objectives and desired outcomes, including: (1) standardized training evaluation forms in paper and web-based formats; (2) administrative tracking by the LPHI Program Manager; and (3) web-based tracking of on-line module utilization.

Accomplishments and Next Steps: It was a very productive 12 months with significant progress made toward the program objectives, including:

- A total of 749 unduplicated users completed LPHI trainings addressed this year. These training covered all 17 program area and all 10 cross cutting competencies (although animal control and advocacy were only covered as part of the Foundations Course) at the awareness level. All four EP competencies were addressed. A total of 1,817 certificates of completion and contact hours were awarded to those completing the pre/post test and evaluations connected to the online modules, Foundations for Local Public Health Practice and Emergency Risk Communication in Practice.
- The LPHI is reaching its target audience. The trainees came from all regions of the Commonwealth and hold a range of positions in health, public health, and private industry. Roughly 31% hold "traditional" local health roles of environmental health inspectors, board of health members, health directors or agents, and public health nurses.
- The LPHI further expanded its capacity for distance learning by adding three new online awareness level modules (Emergency Dispensing Site Management, Environmental Health and Disease Surveillance in Shelters, and Indoor Skating Rinks) to the existing 34. In all, 1,779 trainees completed online modules and 6,026 utilized the modules as reference materials.
- Data were collected via training evaluations to supply the LPHI with an on-going assessment of its training. Of note in this evaluation data are the following: a) While 100% of the *Foundations Course* trainees said their knowledge increased as a result of the course and over 80% provided ratings to indicate they had a positive experience, quiz scores indicate that there were some problems with learning. Although most did better at post-test than at pre-test, roughly one-third would not have passed had they needed a post-test score of 65% correct or better. b) The *seven emergency preparedness sessions delivered at the annual MHOA public health conference* were all rated as having contributed to trainee knowledge. Food Establishments after a Disaster stood in slight contrast to the other highly rated sessions. Comments indicate that the session was not as relevant to local health

practitioners as the others, that the speaker was not as engaging as those in the other sessions, and that the content was not directly related to the title of the session. c) *The Emergency Risk Communication in Practice* participants all demonstrated knowledge gain for pre- and post-test findings, although the findings are based on a small class size and limited number of test questions. Participants indicated that the training improved their ability to perform the learning objectives associated with the training. Participant ratings indicate that the training was particularly valuable in prepared them to meet two objectives (define the criteria for development of effective communication strategies and apply course concepts to case studies), an indication of the value of this practice-based training.

- The LPHI collaborated with partners, including MDPH, to maximize training resources and to inform online modules such as Community Preparedness, Community Recovery, Emergency Dispensing Site Management, Environmental Health Assessment and Disease Surveillance at Shelters, Ice Rinks (Air Quality), and Legal Nuts and Bolts of Isolation and Quarantine. Additionally, the resources of the HRSA-funded NEPHTC enabled the LPHI to address public health training topics outside the scope of LPHI funding (e.g., MA PHIT Food and Housing series, the Management course and Wastewater and Title 5 modules).
- The LPHI Fellows Program inducted 5 new fellows. The recognition event was well-attended by more than 100 people. The total number of fellows to date is 25.
- All educational offerings and the Fellows Program were publicized on the LPHI website, with the BUSPH Constant Contact List, and through information forwarded to the public health associations, LSAC and MDPH, all of whom disseminate the material to their audiences. The LPHI discontinued its newsletter and monthly updates this year, although the absence of these communications tools does not seem to have had a detrimental impact on utilization of LPHI offerings. The number of training completers and utilization of the online modules as resources, the number of new fellows in the Fellows Program, and attendance at the Fellows induction ceremony are all indicators that the LPHI marketing efforts were successful.

Recommended next steps:

The LPHI should continue to:

- Build on the successful training efforts to date, incorporating evaluation components that will allow the LPHI to continually improve its trainings
- Explore opportunities for LPHI Fellows to be involved in the work of the LPHI Collaborate with partners to deliver training and develop new offerings
- Use the communications and marketing strategies to publicize LPHI trainings
- Evaluate LPHI progress toward objectives.

Recommended changes for next year, LPHI staff:

- May want to explore ways to further increase the proportion of training participants who work in local public health.
- Could consider a variety of communications strategies to market the LPHI more broadly and highlight its successes. This should include an assessment of the role of the newsletter and monthly updates.
- Can utilize evaluation findings to improve trainings, specifically by:
    - addressing challenges noted in the Foundations Course evaluation report related to the post-test results
    - learning from the experience at MHOA 2014 and working to ensure that future sessions feel relevant to local health practitioners, are conducted by engaging speakers and have training content that is consistent with the training title
    - revising the test instrument for Emergency Risk Communication in Practice.

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Introduction: Since January of 2010, the Boston University School of Public Health (BUSPH) has held the contract for and managed the Local Public Health Institute (LPHI) of Massachusetts. With support from the Massachusetts Department of Public Health, the LPHI staff work with the LPHI Advisory Committee to pursue the LPHI mission: *To provide and ensure a competent workforce by strengthening and sustaining the capacity of local boards of health to prepare for and respond to public health issues and emergencies and to promote the health of residents of the Commonwealth.* The LPHI Advisory Committee identified six potential problems that pose barriers to achieving the LPHI mission. An objective was established to address each of the identified problems and advance the LPHI toward its mission. This report is organized around the six problems and provides a report of the progress made between July 1, 2014 and June 30, 2015. A logic model was drafted to depict the relationship of the mission, problems, objectives, outputs and outcomes (See Appendix A). For information about any of the educational offerings or documents referenced in this report, contact Jennifer Tsoi, LPHI Project Manager at lphi@bu.edu or (617)638-4825.

Methodology: The LPHI evaluator and LPHI management team devised several data collection and tracking mechanisms to measure progress toward LPHI objectives and desired outcomes. Below are descriptions of those mechanisms utilized to inform this report.

- ***Standardized training evaluation forms:*** All LPHI-supported trainings must include an evaluation component. Whenever possible, such evaluations include pre/post quiz questions to assess the extent to which students acquired knowledge as a result of training. The evaluations also assess the extent to which trainees feel better prepared to perform session learning objectives as a result of training and their satisfaction with several aspects of training, including the instructors, materials, etc. Evaluations are self-administered with trainees either completing them on paper or online.
- ***Administrative tracking:*** The project manager routinely tracks data related to the size and composition of the Advisory Committee and its meetings, the number and types of trainings and demographics of training participants, the number and types of collaborating partners, the number of trainings with a distance education component, and the status of the communications and marketing plan, including the number of newsletters and training calendars disseminated.
- ***Online module evaluations:*** Google Analytics is used to track unique and returning hits to the modules' webpage. Trainees who wish to obtain a certificate of completion and contact hours for use of the online modules may do so online as well.

Typically, quantitative analyses for the LPHI are conducted using SPSS and qualitative analyses are analyzed for common and divergent themes using qualitative thematic analysis. For more detail on any of the data sources described above or related evaluation documents, contact Hope Kenefick, the LPHI evaluator at hopewk@comcast.net.

Problem #1: A group of individuals that understands the needs of local public health and that represents various segments of the workforce and geographic areas of the Commonwealth is needed to advise MDPH and others (e.g., DEP, MEMA) about how to most effectively achieve the LPHI mission. To address the problem, the Institute will accomplish the following objective: *To rebuild and convene a highly functioning Advisory Committee.*

In March 2013, the Local State Advisory Committee (LSAC) agreed to act as the Institute Advisory Committee. LSAC includes members from each of the Public Health Preparedness Coalitions, the Mashpee and Aquinnah Tribal Councils, the five statewide public health professional organizations that comprise the Coalition of Local Public Health, and the Western Massachusetts Public Health Association. In 2014, an Education Subcommittee was formed to work more closely with LPHI on training review, and to align the learning priorities of the LPH workforce, strengthen partnerships, and advise MDPH and others (e.g., DEP, MEMA) about how to most effectively achieve the LPHI mission.

The figure below shows progress made toward the objective during the reporting period.

# of associations represented	6 public health associations are represented, including: MA Association of Health Boards, MA Health Officers Association, Western MA Public Health Association, MA Environmental Health Association, MA Public Health Association, MA Association of Public Health Nurses
# of regions represented	All emergency preparedness regions are represented on the LPHI Advisory Committee, including Regions 1, 2, 3, 4a, 4b, 4c , and 5
# of meetings	3 in-person meetings of the LPHI Advisory Committee (LSAC) took place between September 2013 and May 2014 - 1 with Bureau Directors at MDPH (January 2015) and 2 conference calls with OPEM Director and Project Officer (October and June).

The desired short-term outcome of our work to address problem #1 is: *Strengthened partnerships among public health and academic partners to ensure that LPHI trainings and programs are aligned with the learning priorities of the LPH workforce and are of high quality.* Over the course of the reporting period, active collaboration led to high quality training programs that meet the needs of the LPH workforce. Examples of such efforts include:

- ***Online module development:*** During the reporting period, 3 new online awareness level modules (Emergency Dispensing Site Management, Environmental Health and Disease Surveillance in Shelters, and Indoor Skating Rinks) were added to the already existing modules. Additional modules currently in development and planned to go live in the summer of 2015 are: Administrative Search Warrants; Animal Control; Community Preparedness; Community Recovery; Food Protection for Operators; Mold: A Special Housing Topic; and Isolation and Quarantine. These modules are the result of strong partnership between the LPHI staff, faculty at the BUSPH, MDPH Bureaus, practitioners in the field, and the New England Public Health Training Center (NEPHTC).
- ***Emergency Risk Communication in Practice classroom training:*** The LPHI delivered this session on June 25th in Worcester. This training was developed with the DelValle Institute of Emergency Preparedness and the former Center for Excellence for Emergency Preparedness Education and Training (CEEPET) at UMass Medical School.
- ***Foundations for Local Public Health Practice in MA:*** This multi-part blended training series for public health practitioners is the result of coordination and collaboration between the LPHI and the NEPHTC and involved numerous practice partners in course delivery.

- ***Support for MA Public Health Professional Association training efforts:*** LPHI leadership served on the MEHA and MHOA Education Committees, and on the Executive Committees of MAHB, MEHA, and MHOA. LPHI also chaired the Emergency Preparedness Track at the MHOA 2014 Annual Conference.

The alignment of the LPHI priorities and resources with those of the NEPHTC maximized resources for training, prevented duplication of effort, and resulted in more public health training initiatives than would have been possible under either funding stream alone.

Problem #2: The LPH workforce may not possess the capabilities needed to prepare for and respond to emerging public health issues and emergencies. Training is needed to ensure the LPH workforce has the competencies necessary to protect the health of MA residents. To address problem #2, the LPHI will accomplish the following objective: *Provide training courses and education programs on Public Health and Emergency Preparedness competencies.* The figure below shows progress made toward the objective during the reporting period.

# of trainings and programs	3 new online modules (Emergency Dispensing Site Management, Environmental Health and Disease Surveillance in Shelters, and Indoor Skating Rinks) were added to address dozens of cross-cutting competencies at the awareness level. The LPHI delivered the Emergency Risk Communication in Practice classroom training on June 25th in Worcester. This training was developed with the DelValle Institute of Emergency Preparedness, and the former CEEPET at UMass Medical School. The Foundations for Local Public Health Practice in MA, a multi-part blended training series for public health practitioners, is the result of coordination and collaboration between the LPHI and the NEPHTC and involved numerous practice partners in course delivery. The course ran from October 2014 – March 2015. The LPHI website also promoted additional training resources, updates, and partner events/trainings.
# of competencies covered in trainings/programs	The constellation of trainings offered address program area (although animal control only covered in the Foundations Course) and all 10 cross cutting competencies (advocacy also covered in Foundations Course only) at the awareness level. All four EP competencies were addressed.
# of registrants and # of participants (total, by region and role)	The roles and regions of those who completed training are provided in Tables 1 and 2 below. LPHI trainees come from all five regions with Regions 2 and 3 having a slightly higher representation overall. The full range of job titles within public health participated in LPHI trainings this year; 30.9% of participants work in traditional local health roles (i.e., environmental health inspectors, specialists, or sanitarians, BOH members, local health directors/agents, and public health nurses). Others comprising a large proportion of trainees were students (24.1%), healthcare (10.9%), and private industry (10%).

Table 1. Percent of types of professional completing LPHI training

	Online (n=1779)	Foundations (n=27)	Emergency Risk Communication (n=11)	All (n=1817)
Job Titles (trainees descriptions of roles)	**%**	**%**	**%**	**%**
Administrative Assistant: Administrative staff of health departments & BOHs	4.3%	7.4%	0.0%	4.3%
Administrator: BOH Administrators, Grants Administrators, Health Administrators	1.7%	7.4%	0.0%	1.8%
BOH Member: BOH Member and Chairs	1.5%	3.7%	0.0%	1.5%
Local Health Director/Agent: Health Directors, Executive Directors, Health Agents	8.0%	22.2%	9.1%	8.2%
Environmental Health Inspector, Specialist or Sanitarian: Health inspectors, sanitarians, code enforcement officers, compliance officers, and environmental health specialists	16.0%	33.3%	0.0%	16.2%
Healthcare: Pharmacists, Lab Technicians, Hospital Staff, Nurses (not identified as Public Health Nurse)	11.1%	0.0%	0.0%	10.9%
Inspectional Services and other departments: Self identified as Inspectional Services; or inspectors and code enforcement officers of a city, not of a BOH or Health Department	2.5%	0.0%	0.0%	2.4%
Other: Professors, Research Fellows, Retired, Unemployed, Self-employed, Food service managers (schools), military, other State departments	5.0%	0.0%	18.2%	5.0%
Private industry: Wide range of staff from engineering firms, health clubs, gyms, septic and sewer companies, and tanning salons	10.2%	0.0%	0.0%	10.0%
Program Managers: Program managers are from academia, state departments (MassDOT, MWRA), and Boston Public Health Commission	0.9%	0.0%	9.1%	0.9%
Public Health Coordinators: Public health specialists, community health coordinators, public health coordinators and educators, emergency preparedness coordinators.	3.6%	3.7%	36.4%	3.8%
Public Health Nurse: Public health nurse & nurse supervisors	4.9%	7.4%	18.2%	5.0%
School nurse	2.9%	11.1%	0.0%	3.0%
Social Services: Case Managers, Social Workers, Therapist, Counselors, etc.	2.9%	0.0%	0.0%	2.9%
Students: Graduate, Undergraduate, and Nursing Students	24.5%	3.7%	9.1%	24.1%
TOTALS:	**100.0%**	**100.0%**	**100.0%**	**100.0%**

Table 2. Percent of regions represented among those completing LPHI training

Regions	Online modules (n=1779)	Foundations (n=27)	Emergency Risk Communication (n=11)	Overall (n=1817)
Region 1: Western MA	8.8%	15%	27.3%	9.0%
Region 2: Central MA	18.2%	15%	9.1%	18.1%
Region 3: Northeastern MA	18.2%	19%	9.1%	18.2%
Region 4A: Metrowest area	6.4%	7%	9.1%	6.4%
Region 4B: Greater Boston	6.3%	15%	9.1%	6.4%
Region 4C: City of Boston	7.7%	0%	18.2%	7.6%
Region 5: Southeastern MA & Cape Cod	9.1%	26%	0.0%	9.2%
State staff	4.2%	4%	9.1%	4.2%
Other (e.g., out of state, unknown)	21.1%	0%	9.1%	20.7%
Totals:	100.0%	100%	100.0%	100.0%

The desired short-term outcome of our work to address problem #2 is: *Increased numbers of Local Public Health workforce members trained on cross-cutting, program area and emergency preparedness competencies.*

All of the competencies are covered in the trainings offered by the LPHI this year, including the online modules. However, animal control and advocacy were only covered as part of the Foundations Course. Trainings focusing on these issues have not yet been developed. Training specifically related to advocacy is on hold at the recommendation of MA DPH. Training related to animal control will be launched later this summer.

Table 3. Number exposed to program area competencies during the reporting period

Program Areas	Total:
1. Air Quality	258
2. Animal Control	242
3. Body Art	275
4. Disease Case Management	297
5. Disease Surveillance, Investigation and Follow-up	354
6. Drinking Water	309
7. Food Protection	388
8. Hazardous and Infectious (Medical and Biologic) Waste	284
9. Health Promotion and Disease Prevention	782
10. Housing	571
11. Nuisance Control and Noisome Trades	331
12. Recreational Camps for Children	309
13. Recreational Waters: Swimming Pools and Bathing Beaches	331
14. Solid Waste	261
15. Tanning Establishments	326
16. Vaccine Management	321
17. Wastewater Treatment	349

Table 4. Number exposed to cross-cutting competencies during the reporting period

Cross Cutting Competencies	
1. Advocacy	27
2. Analysis, Problem Solving, and Risk Management	1572
3. Communication	1393
4. Community/Public Health Assessment	546
5. Cultural Competence	264
6. Emergency Preparedness	759
7. Health Education	1202
8. Leadership	142
9. Legal Issues	989
10. Project Development, Planning, and Management	142

Table 5. Number exposed to EP competencies[1] during the reporting period

EP Competencies	
1. Model Leadership	188
2. Communicate and Manage Information	382
3. Plan for and Improve Practice	719
4. Protect Worker Health and Safety	229

Problem #3: In order to use the available resources effectively and provide the Local Public Health workforce with needed training, we must understand their training needs, assess which trainings are available to meet their needs, and develop training to address the gaps. To address problem #3, the LPHI will accomplish the following objective*: Assess workforce competencies and training needs.* The figure below shows progress made toward the objective during the reporting period.

Completed first draft of competency report	The first full draft of the competency report was completed in February of 2010. Since then, trainees have been asked to provide data about desired training topics for future trainings on session evaluation forms. In this way, the LPHI is able to track the needs and interests of those engaged in training.
Completed gap analysis and inventory of available trainings	The inventory of trainings and gap analysis were completed in July of 2010. Since then, LPHI staff have cross-walked LPHI offerings with the program area and cross-cutting competencies to ensure that LPHI resources are being used to address the competencies needed by the LPH workforce. The table in Appendices B shows the cross-cutting, program area and emergency preparedness competencies addressed by current LPHI trainings and those in development.

[1] http://www.cdc.gov/phpr/documents/perlcpdfs/preparednesscompetencymodelworkforce-version1_0.pdf

Assure awareness level training across 17 Program Areas and 10 Cross-Cutting Competencies.	LPHI is committed to providing awareness level training covering the 17 Program Areas and 10 cross cutting competencies through the Foundations Course and asynchronous online modules as well as additional courses related to the federal capabilities. As a result of the gap analysis, and with support from the HRSA-funded NEPHTC, LPHI now offers awareness level training that covers 16 of the 17 program areas (all but animal control), 9 of the 10 cross cutting competencies (advocacy on hold) and all four EP competencies. In addition, two MA Public Health Inspector Trainings (MA PHIT) which include prerequisites, classroom training, field training, and final assessment of competence related to housing and food inspections, are performance level trainings offered by the NEPHTC, with federal, state, and local partners. LPHI and the NEPHTC also collaborated on a comprehensive public health management training series.

The desired short-term outcome of our work to address problem #3 is: *Improved understanding of the training needs of Local Public Health and the trainings that exist and those that are needed.* The tables in Appendix B show the current trainings and those in development as well as the program area, cross-cutting, and emergency preparedness competencies addressed by each,

Problem #4: To maximize resources, we should collaborate with others who have a vested interest in strengthening the Local Public Health workforce. To address problem #4, the LPHI will accomplish the following objective: *To build partnerships.* The figure below shows progress made toward the objective during the reporting period.

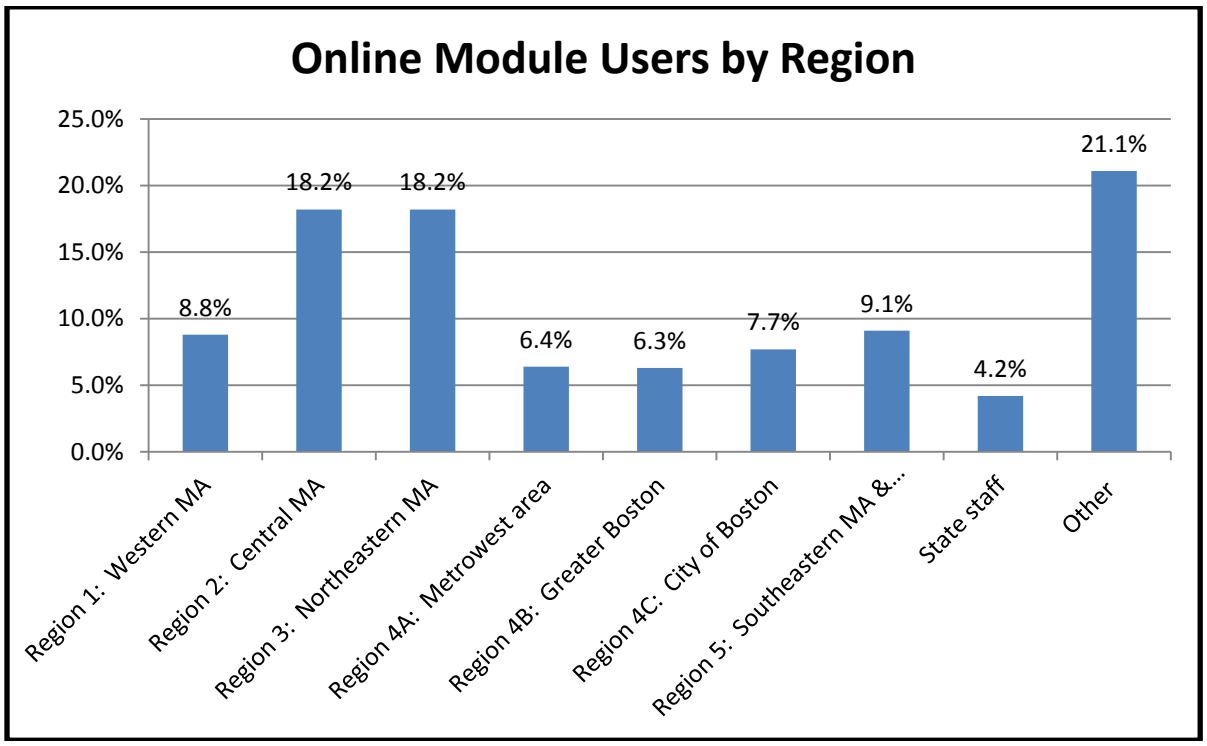
# of partners and collaborative projects	In addition to partnerships with the six public health associations, the LPHI has a number of other partnerships and is working on several collaborative projects, including: (1) The LPHI and MDPH collaborated on Emergency Dispensing Site Management, Environmental Health Assessment and Disease Surveillance at Shelters, and Ice Rinks (Air Quality), all launched in 2015. Administrative Search Warrants, Affordable Care Act for Local Boards of Health, Animal Control, Board of Health Funding Strategies, Community Preparedness, Community Recovery, Food Protection for Operators, Mold, Legal Nuts and Bolts of Isolation and Quarantine are in development and will be launched in late summer of 2015. (2) The resources of the HRSA-funded NEPHTC enable the LPHI to address public health training topics outside the scope of LPHI funding (i.e., emergency preparedness focused). MA PHIT Food and Housing series, the management course and certain online modules such as Health Numeracy and Health Equity are examples of the benefits of this relationship.

The desired short-term outcome of our work to address problem #4 is: *Increased educational offerings and collaborative projects.* In addition to the collaborative efforts to create and deliver the risk communications training and management training course, the LPHI also inducted five new fellows to the LPHI Fellows Program, bringing the total number of fellows to 25.

Problem #5: Geographic distances, staffing shortages at the local level, and scheduling challenges present significant obstacles when it comes to accessing classroom training. Tremendous technological resources exist that will enable the LPHI to address these obstacles by offering a more convenient avenue for training using web-based technology. The LPHI should determine appropriate uses for distance education and increase its use accordingly. To address problem #5, the LPHI will accomplish the following objective: *Increase capacity for distance education.* The figure below shows progress made toward the objective during the reporting period.

# of trainings or programs with a distance education component	In all, 1779 (duplicated) trainees completed online modules and 6026 utilized the modules as reference materials. To facilitate use of the modules by groups, Institute staff created facilitator guides for the modules (available as a PDF within the module). A facilitator guide provides suggestions and guidelines for how to conduct the training. Each facilitator can adapt and/or incorporate his/her own methods to best meet the needs of any given group of trainees. Throughout the guide, there are discussion points to better illustrate the information on each webpage. 3 new online modules were launched this year and 34 existing online modules were maintained and reviewed twice this year for broken hyperlinks and interactivities to ensure all modules are working properly. Modules are also reviewed periodically for necessary updates (e.g., regulation changes, new content, resources, etc.). In 2014 and 2015, 7 online modules were reviewed and updated as needed including Body Art, Food Protection, Hazards Materials and Waste, Medical and Biological Waste, Recreational Camps for Children, Recreational Waters: Bathing Beaches, and Tanning Facilities.

The desired short-term outcome of our work to address problem #5 is: *Increased participation in LPHI offerings across all regions.* LPHI classroom trainings are purposely conducted in central locations in MA when possible. The LPHI's online offerings enable trainees to participate in LPHI educational offerings regardless of location. Further, the asynchronous options enable trainees to access training anytime, anywhere. The bar graph below shows the regions in which those trainees who used LPHI online offerings work. Among the public health emergency preparedness regions, Regions 2 and 3 had the highest utilization of the LPHI online modules at 18.2% each followed by Regions 5 (at 9.1%) and 1 (at 8.8%). Together, regions 4A, 4B and 4C total 20.4%. The greatest portion of online users are "others" (e.g., outside MA, students, private industry, unknown) at 21%.



Problem #6: Although the LPHI offers tremendous opportunities for improving the skills and knowledge of the LPH workforce, too few people know about the LPHI or its offerings. The LPHI needs an effective communications and marketing plan to address this problem. To address problem #6, the LPHI will accomplish the following objective: *Have an effective communications and marketing plan.* The figure below shows progress made toward the objective.

A developed plan for marketing the LPHI and its offerings	The LPHI is included in the integrated communications plan for the Office of Public Health Practice at BUSPH, which was completed in early 2011. The plan contains target audiences, tactics for branding and messaging, and metrics for measuring reach. In 2015, this plan was revisited and updates are in process. The LPHI website is a critical tool for marketing the LPHI offerings. The site was rebuilt and re-launched in May 2015 to meet the latest Boston University web security standards. This relaunch was critical because the masslocalinstitute.org site was hacked and used as an entry point into a BUSPH server. No LPHI data or participant information was accessed in this event to the best of our knowledge. As a standard of practice, LPHI does not collect personal identifiable information from registered participants. The proper security measures were taken, including the shutdown of the LPHI website, move to a different server and the rebuilding of the LPHI website.

	The LPHI website also promotes LPHI trainings, updates, and partner events/trainings. The LPHI learning management system (LMS) tracks course registration, course completion, and certificates of completion with contact hours issued. The LMS also integrates pre/post tests and evaluations for the online modules. A new LMS is currently in development to improve the interactive learning experience of our users, including the issuance of specialty certificates. The new LMS is expected to launch at the end of 2015. All educational offerings and the Fellows Program were publicized on the LPHI website, and information was distributed using the BUSPH Constant Contact List, and via forwarding to the public health associations, LSAC and MDPH (which disseminate the material to their audiences).
Explore incentives for training	In all, 1817 certificates of completion and contact hours were awarded to those completing the pre/post test and evaluations connected to the online modules, Foundations for Local Public Health Practice and Emergency Risk Communication in Practice. As further modules are developed, the LPHI staff are considering 'bundling' and issuing certificates for completion in sets (e.g., an environmental health certificate or a public health nursing certificate). We expect to launch the bundled certificate program as soon as the LPHI has a permanent server location and new Learning Management System by the end of 2015. The Fellows Program, launched in 2011, recognizes significant contributions to public health practice and creates an incentive among prospective fellows to attain more training and to provide more service.
# of newsletters, flyers and calendars	A training calendar was utilized to coordinate training efforts with MDPH and the six public health associations. The newsletter and was discontinued this year, but quarterly updates were provided to the LSAC members.

The desired short-term outcomes of our work to address problem #6 are described below.

Increased awareness of the LPHI and its programs: The interest in training and the Fellows program demonstrate an awareness of the LPHI offerings. More than 80 people attended the induction ceremony for the LPHI fellows thanks to the marketing efforts associated with the event. During the reporting period, there were 27,315 hits to the LPHI website. Of those, 6,026 utilized the online modules as references and 1,779 completed the modules.[2]

[2] The total number of unduplicated users during the reporting period was 749. These numbers include duplicated users to show the extent of module use.

Identify and utilize incentives when feasible: As noted above, the certificates of completion and contact hours for courses serve as incentives for training.

Increased registrations for LPHI trainings: During the reporting period, 749 unduplicated individuals registered for and completed classroom, webinar and blended format session. This is an increase from 474 in the previous year. Additionally, 6026 utilized the online modules for reference purposes, increased from last year's 4,467. Overall, 1779 completed one or more modules and received certificates of completion this year compared to 820 last year.

Intermediate outcomes:

The LPHI's intermediate outcome is improved cross-cutting, program area, and emergency preparedness competencies among the local public health workforce who have received training from the LPHI. Each of the LPHI's educational offerings evaluated this year address a number of competencies (See Appendix B). For detailed evaluation findings and recommended changes related to LPHI trainings, please see the detailed evaluation report for each.

Online modules: Completion of pre-/post-tests and evaluations are required to receive a certificate with contact hours for the online modules. Trainees are asked to: (1) use a Likert scale (1=very low to 5=very high) to rate their ability to perform the module related learning objectives before and after completing the trainings; (2) complete pre and post-quizzes to assess changes in knowledge as a result of training; and (3) express their level of agreement with statements about training using a Likert Scale (1=Strongly disagree to 5=Strongly agree). The LPHI evaluator will review all three sources of data for 10 modules (planned for summer/early fall 2015) and submit a separate report of findings to MDPH for review.

The Foundations Course: Trainee ratings of the course indicate that they learned new content that will be useful to their work and they were satisfied with their experience in the course. Over 80% of trainees agreed that they had a positive experience with the course and would recommend it to someone new to working in public health. Roughly three-quarters agreed that: they would recommend the course to someone who has been working in public health and who wants to broaden his/her practice knowledge; they feel better prepared for their work in public health after having finished the course; that the course's mix of classroom and online learning worked well; and the course handouts will be useful in their jobs. Not quite 60% felt the use of Adobe Connect was helpful in the course, which may warrant an examination of why the technology is not helpful to more of the trainees. The majority (66.7% or more) expressed agreement that they learned new information from the environmental health and population health-focused webinars, the webinar content will be useful in their work, and that the webinars were an effective way to deliver the information. All (100%) said that their knowledge increased as a result of the course and that they intend to use at least one thing learned in their work. Sixty-seven percent indicated that they will apply the training to a state or national certification.

With regard to learning, the pre- and post-test showed mixed results. Although most trainees answered more of the 15 quiz questions correctly at post-test than at pre-test, four trainees did worse at post-test than at pre-test and four got the same number of correct responses at both testing intervals. In fact, if a post-test score of 65% is considered a passing grade, 13 of the 29 students for whom matched pre-test and post-test results were available failed the quiz at post-test. Improvements from pre-test to post-test for five quiz questions (4, 5, 6, 7, and 9), indicate that trainees gained some knowledge as a result of the course. However, examination of the individual quiz questions showed that fewer people answered correctly at post-test than at pre-test for five questions. For one additional question, most trainees answered correctly at pre-test and at post-test, suggesting that it may assess common knowledge and is not useful for assessing changes in knowledge due to the training. It is not clear why some students did better than others. Were those who did well more experienced practitioners, whereas those who did not less experienced in public health? Alternatively, did some students apply themselves more to learning the course content than others? Course organizers were advised to review the findings related to the individual students who passed versus failed at post-test to see if some trends could be identified that would be useful to course planning going forward.

MHOA Emergency Preparedness Sessions: The LPHI coordinated seven emergency preparedness sessions at the Annual MHOA Public Health Conference. MHOA's evaluation of these sessions was limited to using a Likert

Scale (1=completely disagree to 5=completely agree) to indicate level of agreement with four statements about each session: (1) Learning objectives were clear and met; (2) Presenter was organized and knowledgeable; (3) Presenter was interesting; and (4) The session added to my knowledge. For all seven sessions, the findings suggest that participants' knowledge increased as a result of the session, and perceived knowledge gains were highest for the Building Assessment after a Disaster and Mosquitoes after a Disaster Session (4.5 out of 5) and lowest for Food Establishments after a Disaster. Average ratings of agreement were highest for all four measures for Building Assessment after Disaster (4.5 to 4.7), Mosquitoes after a Disaster (4.5 to 4.7), and Bridging the Gap between Public Health and Emergency Management (4.3 to 4.8), whereas average ratings for all four measures were lowest for Food Establishments after a Disaster (3 to 3.5). The comments provided for the highest rated sessions illustrate participant satisfaction with the sessions: "Very informative - very well done," "Great presentation," "Great topic," "Very good - lots of ideas and good overview of the topic," "Great teacher," and "This was great and useful." In contrast, the session with the lowest average ratings received comments such as: "Not relevant to local health," "Would like to have had focus on establishments after disaster" and "Nothing about disasters in the presentation." The comments suggest that having a topic of interest to LPH, staying on topic, and presentation by an engaging presenter are necessary elements of a satisfying training experience. In future, the LPHI staff may want to ensure that presenters have a track record of being an engaging instructor, that his/her session is "on topic" and that the learning objectives will meet the needs of LPH.

Table 6. Average ratings of agreement with statements about training

Session (Presenter)	Q1 Avg. (Objectives clear and met)	Q2 Avg. (Presenter org. & knowledge-able)	Q3 Avg. (Presenter interesting)	Q4 Avg. (Added to my knowledge)
Rodents after Disaster (Maloney) n=48	4.1	4.3	4.2	4.1
Solid Waste after Disaster (Fisher) n=48	3.9	4.1	3.7	3.5
Building Assessment after a Disaster (Halfmann) n=54	4.6	4.7	4.7	4.5
Mosquitoes after a Disaster (Deschamps) n=51	4.7	4.9	4.5	4.5
Drinking Water after a Disaster (Pelletier) n=86	4	4.4	3.9	3.9
Food Establishments after a Disaster (Moore) n=43	3	3.5	3.5	3.2
Bridging the Gap between PH and EM (Kokko, Patterson) n=43	4.7	4.8	4.6	4.3

Emergency Risk Communication in Practice: Emergency Risk Communication in Practice was delivered at the Worcester Health Department on June 25, 2015. Ten individuals completed the training. The roles represented were local health director/agent, public health nurses, Public Health Coordinators/Managers, and others including the American Red Cross, CDC Associate, Health Educator, and Student.). For all five learning objectives, participants rated themselves as better able to perform the objectives after training than before. Ratings suggest that participants were satisfied with the session presenters, content, level of difficulty, examples, and materials. All agreed that their knowledge increased as a result of the training and reported that they intend to use at least one thing learned in the training in their work. Overall participants demonstrated knowledge change, but because the class size and the number of test questions were both small, it is difficult to determine any statistical significance in change. The pre- and post-test results will, however, help instructors determine where the content is too basic (questions show no change in knowledge) and where further clarity is needed in the training (questions most participants answered wrong).

Longer-term outcome:

The longer-term outcome is: *Improved agency performance in areas related to competencies in which agency personnel have been trained by the LPHI.* It is a "secondary level outcome," which means that an expected result of LPHI training is that agencies will benefit from the increased competencies of their staff that have been trained by the LPHI and that, consequently, agency performance related to those competencies should improve. In the fall of 2015, the LPHI evaluator will conduct data collection to assess the longer-term impact of LPHI training on agency performance.

Conclusions and Next Steps: The reporting period was very productive with significant progress made toward all six program objectives. Below, the major accomplishments are summarized and are followed by a list of recommended next steps.

- A total of 749 unduplicated users completed LPHI trainings addressed this year. These training covered all 17 program area and all 10 cross cutting competencies (although animal control and advocacy were only covered as part of the Foundations Course) at the awareness level. All four EP competencies were addressed. A total of 1,817 certificates of completion and contact hours were awarded to those completing the pre/post test and evaluations connected to the online modules, Foundations for Local Public Health Practice and Emergency Risk Communication in Practice.
- The LPHI is reaching its target audience. The trainees came from all regions of the Commonwealth and hold a range of positions in health, public health, and private industry. Roughly 31% hold "traditional" local health roles of environmental health inspectors, board of health members, health directors or agents, and public health nurses.
- The LPHI further expanded its capacity for distance learning by adding three new online awareness level modules (Emergency Dispensing Site Management, Environmental Health and Disease Surveillance in Shelters, and Indoor Skating Rinks) to the existing 34. In all, 1,779 trainees completed online modules and 6,026 utilized the modules as reference materials.
- Data were collected via training evaluations to supply the LPHI with an on-going assessment of its training. While 100% of the *Foundations Course* trainees said their knowledge increased as a result of the course and over 80% provided ratings to indicate they had a positive experience, quiz scores indicate that there were some problems with learning. Although most did better at post-test than at pre-test, roughly one-third would not have passed had they needed a post-test score of 65% correct or better. The *seven emergency preparedness sessions delivered at the annual MHOA public health conference* were all rated as having contributed to trainee knowledge. One session stood in slight contrast to the other highly rated sessions. Comments indicate that the session was not as relevant to local health practitioners as the others, that the speaker was not as engaging as those in the other sessions, and that the content was not directly related to the title of the session. *The Emergency Risk Communication in Practice* participants all demonstrated knowledge gain for pre- and post-test findings, although the findings are based on a small class size and limited number of test questions. Participants indicated that the training improved their ability to perform the learning objectives associated with the training. Participant ratings indicate that the training was particularly valuable in prepared them to meet two objectives (define the criteria for development of effective communication strategies and apply course concepts to case studies), an indication of the value of this practice-based training.
- The LPHI collaborated with partners to maximize training resources, including with MDPH on Community Preparedness, Community Recovery, Emergency Dispensing Site Management, Environmental Health Assessment and Disease Surveillance at Shelters, Ice Rinks (Air Quality), and Legal Nuts and Bolts of Isolation and Quarantine to inform online modules. Additionally, the resources of the HRSA-funded NEPHTC enabled the LPHI to address public health training topics outside the scope of LPHI funding (e.g., MA PHIT Food and Housing series, the management course and Wastewater and Title 5 modules).
- The LPHI Fellows Program inducted 5 new fellows. The recognition event was well-attended by more than 100 people. The total number of fellows to date is 25.
- All educational offerings and the Fellows Program were publicized on the LPHI website, using the BUSPH Constant Contact List, and through information forwarded to the public health associations, LSAC and MDPH (which disseminate the material to their audiences). The LPHI discontinued its newsletter and monthly updates this year; the absence of these communications tools does not seem to have had a

detrimental impact on utilization of LPHI offerings. The number of training completers, utilization of the online modules as resources, the number of new fellows in the Fellows Program, and attendance at the Fellows induction ceremony are all indicators that the LPHI marketing efforts were successful.

Recommended next steps:

The LPHI should continue to:

- Build on the successful training efforts to date, building in evaluation components that allow the LPHI to continually improve its trainings.
- Explore opportunities for LPHI Fellows to be involved in the work of the LPHI.
- Collaborate with partners to deliver training and develop new offerings.
- Use the communications and marketing strategies to publicize LPHI trainings.
- Evaluate LPHI progress toward objectives.

Recommended changes for next year, LPHI staff:

- May want to explore ways to further increase the proportion of training participants who work in local public health.
- Could consider a variety of communications strategies to market the LPHI more broadly and highlight its successes. This should include an assessment of the value of the newsletter and monthly updates.
- Can utilize evaluation findings to improve trainings, specifically by:
    - addressing challenges noted in the Foundations Course evaluation report related to the post-test results
    - learning from the experience at MHOA 2014 and working to ensure that future sessions feel relevant to local health practitioners, are conducted by engaging speakers and have training content that is consistent with the training title
    - revising the test instrument for Emergency Risk Communication in Practice.

Appendix A LPHI Logic Model

Mission: To provide and ensure a competent workforce by strengthening and sustaining the capacity of local boards of health to prepare for and respond to public health issues and emergencies and to promote the health of residents of the Commonwealth.

Problems/resources	LPHI objectives	Outputs	Short-term outcomes
A group of individuals that understands the needs of local public health and that represents various segments of the workforce and geographic areas of the Commonwealth is needed to advise MDPH and others (e.g., DEP, MEMA) about how to most effectively achieve the LPHI mission.	Rebuild and convene a highly functioning Advisory Committee	✓ # of associations represented ✓ # of regions represented ✓ # of academic partners represented ✓ # of meetings ✓ Production/adoption of operating principles	Strengthened partnerships among public health and academic partners to ensure that LPHI trainings and programs are aligned with the learning priorities of the LPH workforce and are of high quality.
The LPH workforce may not possess the capabilities needed to prepare for and respond to emerging public health issues and emergencies. Training is needed to ensure the LPH workforce has the competencies necessary to protect the health of MA residents.	Provide training courses and education programs on PH and EP competencies	✓ # of trainings and programs ✓ # of competencies covered in trainings/programs ✓ # of registrants and # of participants (total, by region, role)	Increased numbers of LPH workforce members trained on cross-cutting, program area and emergency preparedness competencies
In order to use the available resources effectively and provide the LPH workforce with needed training, we must understand their training needs, assess which trainings are available to meet their needs, and develop training to address the gaps.	Assess workforce competencies and training needs	✓ Completed first draft of competency report ✓ Completed gap analysis and inventory of available trainings	Improved understanding of the trainings needs of LPH and the trainings that exist and those that are needed.
To maximize resources we should collaborate with others who have a vested interest in strengthening the LPH workforce	Build partnerships	✓ # of partners and collaborative projects	Increased educational offerings and collaborative projects
Geographic distances, staffing shortages at the local level, and scheduling challenges present significant obstacles when it comes to accessing classroom training. Tremendous technological resources exist that will enable the LPHI to address these obstacles by offering a more convenient avenue for training using web-based technology. The LPHI should determine appropriate uses for distance education and increase its use accordingly.	Increase capacity for distance education	✓ # of trainings or programs with a distance education component	Increased participation in LPHI offerings across all regions
Although the LPHI offers tremendous opportunities for improving the skills and knowledge of the LPH workforce, too few people know about the LPHI or its offerings. The LPHI needs an effective communications and marketing plan to address this problem.	Have an effective communications and marketing plan	✓ A developed plan for marketing the LPHI and its offerings ✓ Explore incentives for training ✓ # of newsletters and calendars	Increased awareness of the LPHI and its programs Identify and utilize incentives when feasible Increased registrations for LPHI trainings

Primary level Outcome:

Improved cross-cutting, program area and emergency preparedness competencies among the local public health workforce who have received training from the LPHI.

Secondary Level Outcome:

Improved agency performance in areas related to competencies in which agency personnel have been trained by the LPHI.

Appendix B Competencies Addressed by LPHI Trainings

Competencies	**Trainings that Address Competencies**	
Program Area	***On Your Time* Modules**	**Other**
Air Quality	• Indoor Skating Rinks	
Animal Control	• *In development*	
Body Art	• Body Art	
Disease Case Management	• Disease Case Management	
Disease Surveillance, Investigation and Follow-up	• Environmental Health and Disease Surveillance in Shelters • Legal Nuts and Bolts of Isolation and Quarantine • MAVEN • Surveillance of Infectious Diseases	• Foundations for Local Public Health Practice course (Foundations Course)
Drinking Water	• Drinking Water	• Foundations Course
Food Protection	• Food Protection (includes Food Code Overview and Summary of the 1999 Federal Food Code) • Special Food Operations: Sushi	• Foundations Course
Hazardous Waste	• Body Art • Hazardous Materials and Waste • Medical and Biologic Waste	
Health Promotion and Disease Prevention	• Dealing with Stress in Disasters • Health Promotion and Disease Prevention • Lyme Disease	• Foundations Course
Housing	• Bed Bugs: A Special Housing Topic • Hoarding: A Special Housing Topic • Housing	
Nuisance Control and Noisome Trades	• Nuisance Control and Abatement	• Foundations Course
Recreational Camps for Children	• Recreation Camps for Children	• Foundations Course
Recreational Waters: Swimming Pools and Bathing Beaches	• Recreational Waters: Bathing Beaches • Recreational Waters: Swimming Pools	• Foundations Course
Solid Waste	• Solid Waste	
Tanning Establishments	• Tanning Facilities	
Vaccine Management	• Immunizations	• Foundations Course
Wastewater Treatment	• Wastewater & Title 5	• Foundations Course
Cross-Cutting	***On Your Time* Modules**	**Other**
Advocacy		• Foundations Course • Managing Effectively in Today's Public Health

Appendix B Competencies Addressed by LPHI Trainings

		Environment course (Management course)
Analysis, Problem Solving and Risk Management	• See Program Area modules listed above and • Emergency Preparedness Begins at Home • Emergency Dispensing Site Management • Public Health Law • Public Health Workforce Protection	• Management Course • Emergency Risk Communication for Public Health Professionals (non-LPHI training but vetted by LPHI)
Communication	• See Program Area modules listed above and • Affordable Care Act for LBOH • Emergency Preparedness Begins at Home • HHAN	• Management Course
Community/Public Health Assessment	• See Program Area modules listed above and • Emergency Dispensing Site Management	• Management Course • Emergency Risk Communication for Public Health Professionals
Cultural Competence	• Dealing with Stress in Disasters • Health Promotion and Disease Prevention • Hoarding: A Special Housing Topic	• Management Course
Emergency Preparedness	• Dealing with Stress in Disasters • Drinking Water • Emergency Dispensing Site Management • Emergency Preparedness in MA • Emergency Preparedness Begins at Home • Environmental Health and Disease Surveillance in Shelters • Food Protection • HHAN • Housing • Public Health Law and Legal Issues in MA • Public Health Workforce Protection • Solid, Waste • Surveillance of Infectious Diseases • Wastewater	• Management Course • Emergency Risk Communication for Public Health Professionals
Health Education	• See Program Area modules listed above and • Emergency Preparedness Begins at Home • Public Health Workforce Protection	
Leadership	• Affordable Care Act and Local Public Health	• Foundations Course • Management Course

	• Dealing with Stress in Disasters • Orientation to Local Public Health in MA	
Legal Issues	• See Program Area modules listed above and • Orientation to Local Public Health in MA • Public Health Law and Legal Issues in MA	• Foundations Course • Management Course
Project Development, Planning and Management	• Emergency Dispensing Site Management • Health Promotion Disease Prevention	• Management Course
Emergency Preparedness	***On Your Time* Modules**	**Other**
Model Leadership	• Dealing with Stress in Disasters • Emergency Preparedness Begins at Home • and Emergency Preparedness in MA • Legal Nuts and Bolts of Isolation and Quarantine	• Management Course
Communicate and Manage information	• Emergency Preparedness in MA • Food Protection • HHAN • Immunization • MAVEN • Surveillance of Infectious Diseases	• Management Course • Emergency Risk Communication for Public Health Professionals
Plan for and Improve Practice	• See Program Area modules listed above and • Emergency Dispensing Site Management • Emergency Preparedness in MA • Environmental Health and Disease Surveillance in Shelters	• Management Course
Protect Worker Health and Safety	• Dealing with Stress in Disasters • Emergency Preparedness in MA • Emergency Preparedness Begins at Home • Hazardous Materials and Waste • Medical and Biologic Waste • Public Health Workforce Protection	