IMPLEMENTING COMPETENCY-BASED CURRICULUM FOR CDC’S LABORATORY LEADERSHIP SERVICE FELLOWSHIP PROGRAM

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LLS FELLOWSHIP OVERVIEW

Mission
Develop future public health laboratory leaders who integrate laboratory safety and quality as a principal standard of practice in every facet of their work.

Program Focus:
- A two-year competency-based service learning program
- Focus on applied public health laboratory research, quality management, the science of biosafety, and leadership
- Aligned with CDC’s Epidemic Intelligence Service (EIS) to promote interdisciplinary training, applied learning, and networking.
LLS STOOD-UP TIMELINE

- Recommendations for stronger lab leadership
- Defined program competencies based on APHL/CDC guidance
- Funding available for LLS
- Seven LLS fellows and positions matched
- LLS “Action” council convened
- LLS Class of 2015 starts 2-year fellowship
SUCCESSIVE APPROXIMATION MODEL (SAM)


GUIDING PRINCIPLES FOR SELECTING LLS COMPETENCIES

Organization goals
• Develop future public health laboratory leaders who consistently incorporate quality and safety into laboratory science

Needs assessment and target audience:
• Early Career scientists who want to be future PHL leaders

Prerequisite of LLS Fellows:
1. PhD on laboratory science
2. Two years of post-doctoral laboratory experience

CDC/APHL Competency Guidelines for Public Health Laboratory Professionals
LLS COMPETENCY DOMAINS

- Six Domains
  - Communication
  - Quality Management System
  - Applied laboratory Research
  - Laboratory Safety
  - Leadership & Management
  - Informatics & Bioinformatics
ACHIEVING LLS COMPETENCIES

Domains (6)

→ Core Competencies for LLS (14)

→ Sub-competencies

→ Appropriate Tier Levels

→ 10 Core Activities of Learning plus Didactic trainings
LLS CORE ACTIVITIES OF LEARNING (CALs)

**CAL 1**
- Conduct applied laboratory research to address a public health or safety-related issue.

**CAL 2**
- Conduct a safety risk assessment to evaluate the probability and potential consequences of exposure to a given hazard.

**CAL 3**
- Evaluate a quality management system.

**CAL 4**
- Incorporate bioinformatics principles into applied public health laboratory science.

**CAL 5**
- Give a 10–20 minute oral presentation to a scientific audience.

**CAL 6**
- Give an in-depth public health talk on the fellow’s original LLS work or field of study.

**CAL 7**
- Write and submit, as first author, a scientific manuscript for a peer-reviewed journal.

**CAL 8**
- Participate in laboratory operations management.

**CAL 9**
- Communicate complex scientific concepts to an external lay audience.

**CAL 10**
- Provide Service to the agency.
IMPLEMENTATION OF A COMPETENCY-BASED CURRICULUM

- **Didactic Learning**
  - Summer Course
  - Fall Courses
  - Continuing Education (1/month)
  - Enrichment Activities
  - Conferences (e.g. APHL, ASM, EIS)

- **Service Learning** - a type of experiential learning
  - Core Activities of Learning
  - Field experiences
  - Services to the host sites while learning

EXAMPLE: CAL 2-CONDUCT A SAFETY RISK ASSESSMENT TO EVALUATE THE PROBABILITY AND POTENTIAL CONSEQUENCES OF EXPOSURE TO A GIVEN HAZARD

**Requirements:**

- Summer course training on laboratory risk assessment
- Need pass CDC required risk assessment training exam
- Conduct laboratory risk assessment at host site
- Present at Fall course and evaluated by a panel of safety experts
- Continuing education to address questions and mitigation approaches
- Recommend mitigation and improvements and report on the progress
ASSESSMENT OF TRAINING OUTCOMES

- Assess “Core Activities of Learning” every 3-5 years to ensure achievement of LLS competencies
- Instructional rubrics created for each CAL allows supervisors to assess progression of competencies every 6 months and the outcomes drive curriculum learning objectives
- The LLS program needs to have means to evaluate whether competencies are obtained at the end of two years by CAL assessment, projects completed, and services provided

LLS Curriculum is around a two year cycle based
CAREER PATH FOR LLS GRADUATES

Upon graduation, LLS fellows can:

- Advance science of lab safety and quality
- Achieve PHL leadership and management positions
- Contribute to improved public health laboratory workforce
Program Evaluation Plan

Engage LLS stakeholders

LLS Program logic model

Implementation fidelity

Achievement of short-term outcomes

LLS indicators

Methods and tools

Sample evaluation efforts related to curriculum:

- Competency to curriculum mapping
- Session observations
- Program documentation
- Course evaluations
- CAL assessments
- Supervisors (surveys, meetings)
- Self-assessments

Ongoing evaluation to inform program and curriculum
APPLICATION FOR LLS CLASS of 2018 IS OPEN NOW

To be eligible for LLS, you must have:

- A doctoral-level degree in a laboratory related discipline
- A minimum of 2 years of post-graduate laboratory experience completed before the fellowship begins
- U.S. citizen or U.S. permanent resident status

Open April 15-July 17, 2017
https://www.cdc.gov/lls/application.html
QUESTIONS

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Graduating LLS Class with their Supervisors

For more information, contact CDC
1-800-CDC-INFO (232-4636)

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.