2018-2022 LEAP Experiential Curriculum

Introduction:
The LEAP experiential curriculum is broken into four distinct domains in which fellows should gain experience. The focus of the LEAP fellowship is experiential learning, and thus each domain is broken into core experiences as well as supplementary activities. This curriculum document should serve to steer the activities of LEAP fellows, though fellows should absolutely not feel constrained to just these activities and should explore other activities of interest as well during the course of their LEAP year.

Core experiences: These are experiences that fellows should try to ensure they participate in during the course of the LEAP year. Being a core experience does not mean that the fellow needs to continuously be involved in that activity, but that they should have enough involvement that they understand the activity, its role and function, the principles that underlie the activity and how it relates to associated activities.

Supplemental experiences: These are experiences that fellows should be on the lookout for and that may be extremely helpful to participate in. Supplemental experiences may not always be available at every single training site and are thus not considered mandatory; however, fellows with greater interest in a domain may want to seek out these supplemental experiences to gain a greater understanding of the topic.

Domains:
Health care leadership/quality improvement science

- Experiences
  - Core
    - Adverse event/sentinel event debriefing —Attend an adverse event that is ID related, such as a health care-associated infection, sentinel surgical site infection or sepsis death.
    - Safety and quality committee meeting(s) —Attend and observe a safety and quality committee meeting to gain exposure to the concept of hospital safety metrics, hospital scorecards and department/division improvement reporting.
    - Incident command center opening—Attend and observe how a hospital incident command center functions and how reporting and communications are managed during crises. This can also be a modified incident command infrastructure (e.g., for COVID-19 response).
    - Hospital accreditation survey/state licensing survey preparatory rounds/meetings (i.e., tracer rounds, survey audits)—Get to know how accreditation surveys proceed, what kinds of data are viewed/gathered, how hospital locations and divisions are examined and prepared, and how to act during surveys.
    - Media communications training —Leadership i_n infectious diseases often requires communication with the lay press about topics such as community outbreaks, communicable diseases or emerging infectious diseases. It is strongly encouraged that each fellow request media training through the hospital's communications department. Communications training is helpful for any trainee who expects to be in a leadership position at some point.
  - Supplemental
    - Medical leadership training program(s) —If offered by your institution, medical leadership training can be helpful in learning the language of health care leadership, as well as the techniques and approaches used by health care management and businesspeople.
    - Implementation science/change management training —Often referred to by trade names such as LEAN/Six Sigma/ Belt training, Kepner-Tregoe analysis or PDSA quality improvement training, these change management techniques are extremely helpful in learning how to approach practice and organizational changes in a successful manner.
    - Safe/effective health care communications training —Sometimes referred to by specific terms such as SBAR, huddles, checklists, time-outs or debriefs, education in safe and effective health care communications is helpful for any leader who is expecting to lead, manage or oversee groups of personnel.

- Rapid improvement event (i.e., Kaizen event) —RIEs are usually days-long intensive sessions that attempt to redesign particularly troublesome or change-resistant processes within hospitals. They often use an assortment of change-management techniques and demonstrate the utility of rapid prototyping and the multifactorial impact of change in the health care setting. They can be a powerful tool for rapid change and measurement and analysis of the effect of change in a complex setting. Fellows can learn how these events are conducted, their pros and cons, and in what circumstances they're generally used.

- IDSA Leadership Institute—Empowers infectious diseases and HIV practitioners to be future leaders. https://www.idsociety.org/education--training/idsa-leadership-institute/ (paid option)

- Supporting literature
  - Institute of Medicine (U.S.). Committee on Quality of Health Care in America. To Err is Human: Building a Safer Health System [Internet]. Kohn LT, Corrigan JM, Donaldson MS, editors. Washington (DC): National Academies Press (US); 2000 [cited 2018 Aug 7]. Available from: http://www.ncbi.nlm.nih.gov/books/NBK225182/

  - Institute of Medicine (U.S.), editor. Crossing the quality chasm: A new health system for the 21st century. Washington, D.C.: National Academy Press; 2001. 337 p.

Public health

- Experiences
  - Core
    - Shadowing of key health department personnel (e.g., HAI coordinators, medical directorate, public health outbreak personnel, stewardship personnel) —Arrange to shadow department personnel while active in the field or while coordinating meetings. Ideally, one or more days a week should be spent at the DOH site so that the fellow can be integrated into developing situations. Key learning points include how the HAI program is structured at the health department; what types of funding streams a health department utilizes and how different funding is utilized; and what role CDC plays in health department funding and programming.

    - Programmatic advisory councils (e.g., HAI advisory council, stewardship advisory council) —Learn what kind of information the advisory councils track and how they use that information to inform public health department activities.

    - Facility infection control assessment and response visits and debriefs (i.e., site visits) — Observe how an ICAR functions, what types of information and issues are identified by the state surveyors and what kinds of recommendations are made in response. It is advisable to attempt to observe more than one ICAR visit and to visit different types of health care facilities.
      - Facility types:
        - Acute care hospital
        - Critical access hospital
        - Ambulatory surgical center or other outpatient setting
        - Long-term care facility
        - Hemodialysis facility

    - Reportable disease reviews (CRE, CRAB, *Candida auris*, COVID-19, XDRO TB, STIs) —Attend meetings where reportable diseases are discussed to learn how the health department approaches tracking and management of concerning infectious and communicable pathogens.

    - Public health lab visits and meetings —Attempt to join any scheduled visits to the DOH's affiliated public health lab. Learn what kinds of activities the lab does, what kinds of services it provides to facilities around the state and how it determines what kinds of tests to use and in which circumstances (such as when PFGE or whole genome sequencing is appropriate for clonal analysis).

  - Supplemental
    - Outbreak investigations (community or health care associated) —Learn how the health department assists hospitals in outbreak investigations. If possible, it is very instructive for the fellow to assist as a liaison between the health department members and hospital epidemiology/infection control staff at the hospital.

- Educational collaboratives in which the health department is involved —Participate in activities such as COVID-19 outbreak mitigation, CDI prevention collaboratives, HAI or MDRO prevention collaboratives, antimicrobial resistance prevention collaboratives and antimicrobial stewardship collaboratives. Learn how varied the expertise among health care settings is, and what the health department does to try and disseminate knowledge and set standards. It is recommended that if there are opportunities to create and present information to collaborative members, the fellow should participate in these activities.

- Supporting literature
  - CDC. Principles of Epidemiology in Public Health Practice: An Introduction to Applied Epidemiology and Biostatistics. Third Edition. U.S. Department of Health and Human Services; 2006.

Antimicrobial stewardship

- Experiences
  - Core
    - Core stewardship program work meeting —Participate in the regular workgroup meeting for the stewardship program at your hospital. Key learning points include how stewardship programs monitor antimicrobial use in the hospital, how the efficacy of interventions is monitored, how antimicrobial use concerns by leadership are addressed by an ASP and what day-to-day activities a stewardship program engages in.

    - Prospective antimicrobial use reviews and feedback interventions —Participate in prospective auditing of antimicrobial use. Learning points include how to communicate stewardship recommendations with various types of providers.

    - Antimicrobial use reports —Assist in the creation and compilation of internal antimicrobial use and antimicrobial stewardship program activity reporting. Learning points include which metrics are used and how metrics of antimicrobial use and patient day denominators are collected and compiled, and what other kinds of data are collected and tracked by an ASP, including (if relevant) antimicrobial resistance data or antibiogram data, intervention tracking and national reporting.

    - Antimicrobial use guidelines (or clinical treatment guidelines) —Participate in the creation of new antimicrobial use guidelines or clinical treatment guidelines. Learning points include what kind of data goes into compiling a new treatment guideline, what the process is for approving and disseminating this type of guideline, and how to utilize pharmacokinetic and pharmacodynamic information to inform recommendations.

    - Antimicrobial stewardship educational efforts —Participate in antimicrobial stewardship educational lectures or other educational efforts. Learning points include how to most effectively convey stewardship recommendations.

    - Antimicrobial stewardship and microbiology joint meetings —Learn how the ASP program works with microbiology to influence susceptibility reporting (tiered susceptibility reports/tiered resistance testing), rapid diagnostic reporting and diagnostic stewardship (if any). What role does the lab play in hospital formulary review and antimicrobial approvals, creation of the hospital antibiogram, specialized testing and susceptibility reporting for newly introduced antimicrobial agents.

  - Supplemental
    - Approval of restricted antimicrobials (if not already involved) —Note: The fellow should not be unduly burdened by antimicrobial approval duties. However, a minor amount of exposure to the process and demands of antimicrobial approval is not inappropriate. Learning points include what kinds of clinical data are required to make properly informed decisions on approval, communication strategies to increase provider acceptance of recommendations, how to appropriately document an intervention and what types of strategies can be used when a requested antimicrobial is not appropriate. We strongly recommend that complicated cases undergo debriefings between the fellow and a more experienced stewardship physician/pharmacist to discuss points of contention and refine techniques.

    - Clinical decision support meetings —Participate in any meetings that the ASP program has with clinical decision support, especially if involving the design or monitoring of CDS stewardship interventions. Learning points include what limitations are inherent in clinical decision support systems and how to build in tracking metrics to monitor use of clinical decision support.

- Pharmacy and therapeutics meeting — Participate in the ASP-related sections of the P&T meeting in order to learn what types of concerns are brought up regarding the use of antimicrobial pharmaceuticals or antimicrobial use policies, and what the approval process is like.

- Participate in formulary review —Learn what criteria are necessary for formulary substitution of agents, and when an agent can be removed from formulary or restricted to specific providers.

- IDSA Core Antimicrobial Stewardship Curriculum, developed to provide infectious diseases (ID) fellows with foundational education and training in antimicrobial stewardship. https://academy.idsociety.org/content/core-antimicrobial-stewardship-curriculum-fellows (paid option)

- IDSA Advanced Antimicrobial Stewardship (AS) curriculum provides the knowledge and skills to become a leader in antimicrobial stewardship. https://academy.idsociety.org/content/advanced-antimicrobial-stewardship-curriculum-self-study#group-tabs-node-course-default1 (paid option)

- Supporting literature
  - Core Elements of Hospital Antibiotic Stewardship Programs From the Centers for Disease Control and Prevention: 2019. https://www.cdc.gov/antibiotic-use/hcp/core-elements/hospital.html

  - CDC Training Course on Antimicrobial Stewardship. https://www.cdc.gov/antibiotic-use/hcp/training/index.html

  - Barlam TF, Cosgrove SE, Abbo LM, MacDougall C, Schuetz AN, Septimus EJ, et al. Implementing an Antibiotic Stewardship Program: Guidelines by the Infectious Diseases Society of America and the Society for Healthcare Epidemiology of America. Clin Infect Dis. 2016 May 15;62(10):e51–77.
-

Hospital epidemiology

- Experiences
  - Core
    - Core infection prevention/hospital epidemiology program work meeting –Participate in the regular workgroup meeting for the infection prevention/hospital epidemiology program at your hospital. Key learning points include how HAIs are monitored in the hospital, how the efficacy of interventions is monitored, how HAI concerns and leadership are addressed by the infection prevention program, and what day-to-day activities infection preventionists and hospital epidemiologists engage in.

    - Tracking metrics —Numerator/denominator.

    - HAI review —Engage with whomever performs HAI review and the HAI review process (identifying if they meet NHSN definitions) and adjudication meetings. Learn surveillance definitions for HAIs and how they differ from clinical criteria.

    - HAI cluster/outbreak workup —Participate in at least one HAI cluster workup. Learning points include how to create a proper case criterion and retrospectively identifying potential cases, what kind of data are needed to create a case detail listing (line list), how to appropriately select controls and how to create an epidemic curve. Learn how to utilize exposure ratios, relative risk, and odds rations and confidence intervals in appropriately selecting cases and controls. Learn how to approach multidisciplinary case workup and interventions.

    - urgical observation —Participate in at least one surgical procedure observation. Learn about the types of potential surgical infection risks, the interventions used to minimize them and the types of monitoring used to maintain control over SSIs.

    - Environment of care rounding —Participate in at least one EoC assessment. Learn what types of environmental hazards are examined by infection prevention and which hospital departments are in charge of maintaining a safe environment for patients.

- Infection control risk assessment —Participate in an ICRA and learn how infection preventionists assess a location's infection risk and how that influences the types of infection control measures needed for that area.

- Infection preventionist shadowing —Shadow infection preventionists at least once. Learn what their normal activities entail, what types of surveillance they perform and how they act in the hospital to minimize the acquisition and spread of HAIs.

- Supplemental
  - Joint epi/central sterile meetings —If any discussions are being had between central sterile (i.e., sterile reprocessing) and hospital epidemiology/infection control, the fellow should participate to learn what types of device and equipment reprocessing issues are relevant to infection control. Particular learning points include how the different levels of processing (sterilization, high-level disinfection, low-level disinfection, nonsterile cleaning) change the needed processing techniques and handling/storage issues.

  - Joint epi/micro meetings —Participate in any discussions being held between the microbiology lab and hospital epidemiology/infection control. Learn how microbiology interfaces with infection control, how microbial screening is utilized to reduce rates of HAI acquisition and colonization, and how advanced diagnostic techniques are being utilized and addressed by infection control and hospital epidemiology. Also learn how yearly antibiograms are created and disseminated to hospital staff.

  - Joint epi/environmental services meetings —Participate in any discussions being held between EVS and hospital epidemiology/infection control to learn what types of monitoring by infection control are used to maintain proper standards of environmental hygiene, and what additional interventions are used by EVS to protect specialized populations and reduce incidence of infection such as CDI.

  - Infection control policy reviews.

- Supporting literature
  - Lautenbach, Ebbing, Keith F. Woeltje, and Preeti N. Malani. Practical Healthcare Epidemiology. Chicago: Published for the Society for Healthcare Epidemiology of America by the University of Chicago Press, 2010 (particularly Chapter 8).