

Engineer Professional Advisory Committee (EPAC)

Public Health Engineering Practice

2020 Work Plan

1-24-2020

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1 Background

The EPAC Public Health Engineering Practice (PHEP) subcommittee provides a means for engineers from multiple federal agencies with varying levels of experience and expertise to share those experiences and lessons learned, disseminate new technologies, and discuss issues of importance facing engineers daily. PHEP advises the EPAC and develops resources for United States Public Health Service (USPHS) agencies and their beneficiaries. The EPAC bylaws established PHEP to serve as a forum to discuss common concerns and provide a professional practice bridge between USPHS Operating Divisions and with outside agencies and organizations.

2 2020 PHEP Goals

- Provide leadership for PHS engineers to identify and disseminate best public health engineering practice
- Serve as a discussion and project group for USPHS engineers to pool their knowledge and tackle difficult engineering problems faced in their Operating Divisions
- Identify one or more projects that align with the [Surgeon General's Priorities](https://www.hhs.gov/surgeongeneral/priorities/index.html) (<https://www.hhs.gov/surgeongeneral/priorities/index.html>) to show how USPHS Engineers involvement can have a direct impact on the future health and safety of the nation. E.g.,
 - Opioids and Addiction
 - Tobacco
 - Community Health and Economic Prosperity
 - Health and National Security
 - Oral Health
 - Emerging Public Health Threats

3 Core Responsibilities

The PHEP Subcommittee will:

- Maintain an up to date PHEP Subcommittee website
- Serve as a resource to review public articles from Commissioned Corps and Civil Service Engineers who request assistance
- Organize monthly meetings and maintain documentation to evaluate progress on accomplishing work plan goals

4 Workgroups

The PHEP Subcommittee comprises four broad workgroups that each include projects to accomplish its goals set in the 2020 work plan document, which are the following:

- Access to Reference Materials
- Deployer and Operating Division (OPDIV) Skills and Needs
- Special Topic Projects
- Surgeon General (SG) or National Priority Topics

4.1 Access to Reference Materials

4.1.1 Engineering Standards

4.1.1.1 Leadership

- Lead: CDR Hugo Gonzalez
- Co-Lead: LCDR Julia Kane

4.1.1.2 Purpose

Analyze findings and recommend ways to increase access for a variety of engineering office sizes

4.1.1.3 Objectives

- Present analysis and recommendations to EPAC
- Publish analysis and recommendations in the Category Newsletter for engineers to take to their agencies that may assist them in increasing access to standards.

4.1.1.4 Milestones

- Draft by 31 JAN 2020
- Presentation planned in FEB 2020 during PHEP meeting

4.1.2 Engineering Library

4.1.2.1 Leadership

4.1.2.2 Purpose

Collect engineering references that are helpful to performing key engineering roles that can be accessed through portable electronics.

An example is provided in the following link:

<https://1drv.ms/u/s!Aggs7XKag-YmgeVxRK1OUB46QECdog?e=jl8n9>

4.1.2.3 Objectives

- Build a Max.Gov site to host materials
- Develop file-management framework to organize collection of documents

4.1.2.4 Milestone

- Collaborate with the Readiness (RDS) and Career Development subcommittees on the following objectives:
 - Accessible engineering references to aid in deployment and cross-agency collateral assignments
 - Development of a Skills Database (see above).
 - Trainings to educate and qualify engineers on Skills
- Appoint a curator to ensure there is no duplication
- Host on a Max.Gov site

4.2 Deployer and OPDIV Skills and Needs

4.2.1 Engineering Competencies

4.2.1.1 Leadership

- Lead: LCDR Russell Moore
- Co-Lead: CDR Deborah Hirst

4.2.1.2 Purpose

Define core competencies among various roles within agencies where USPHS Commissioned Corps Engineers work

4.2.1.3 Objectives

- Finalize core competencies to document USPHS Commissioned Corps Engineers assigned to the following areas:
 - Indian Health Service in Sanitary Facility Construction
 - National Institute of Occupation Safety and Health
 - National Park Service

4.2.1.4 Milestones

4.2.2 Skills Database

4.2.2.1 Leadership

4.2.2.2 Purpose

Baseline competencies to get an understanding of current USPHS Engineer Skillsets. The list will be used for, but not limited to the following:

- Deployment Rosters
- Mentoring

- Cross-Agency Collateral Assignments
- Developing training sessions based on USPHS needs
- Developing a Training Plan to meet USPHS objectives
- Other categories who are also aggregating their skills

4.2.2.3 Objectives

- Combine efforts with Resource Sharing Group within Mentoring Committee to build a database of skills
- Define approach of the target arenas where Engineers serve and working backwards on the critical skills needed (For example, consider deployment and what are the skills necessary that would be critical for success in a deployment role).

4.2.2.4 Milestone

- This is a long-term project with continuous progress; however, the most important goals are the following:
 - Phase 1 – Year 2020
 - 0 – 9 months: Define target arenas
 - 9 – 12 months: Create survey or database using Max Collect feature on Max.Gov
 - Procedures for how to vet and gather documentation to verify/certify skills
 - Workflow for storing and retrieving data into reports to support Readiness, Mentoring, Recruitment and Retention Subcommittees
 - Later Phases
 - Adding non-certifiable skills and how to vet whether an officer possesses those skills
 - Synchronizing processes & skills with other categories
 - Cross-integration with other EPAC subcommittees to use the list for specific mentoring and developing deployment rosters for readiness
 - Developing training on specific skills that can be used in deployments or cross-agency collateral assignments
 - Establishing key skills that can be developed while serving on key leadership subcommittee roles

4.3 Special Topic Projects

4.3.1 Sustainable Pipes

4.3.1.1 Leadership

- Lead: CAPT Stephen Bosiljevac
- Co-Lead: CAPT Luke Schulte

4.3.1.2 Purpose

Minimize global warming impacts through effective pipe material selection for water/waste water construction projects

4.3.1.3 Objectives

- Draft second article based on group's research to expand the conclusions from initial article published in *The Military Engineer*

4.3.1.4 Milestone

- Publish an article in the Fall Edition of the EPAC Newsletter

4.3.2 Small Scale Package Wastewater Treatment Plants

4.3.2.1 Leadership

- Lead: CAPT Luke Schulte
- Co-Lead:

4.3.2.2 Purpose

Highlight successful installations at the National Park Service implementation options for small scale, package wastewater treatment plants that can be applicable in different environments

4.3.2.3 Objectives

- Draft an article in *The Military Engineer*

4.3.2.4 Milestone

4.4 Surgeon General or National Priority Topics

4.4.1 Lead and Drinking Water

4.4.1.1 Leadership

- Lead: CAPT Alex Daily
- Co-Lead:

4.4.1.2 Purpose

Collect information, especially from USPHS staff that have worked with affected communities, on how lead and potentially other drinking water contaminants impact communities and how they are being addressed. Include both technical (e.g. treatment techniques) and non-technical (e.g. community engagement and buy-in) concerns.

4.4.1.3 Working Thesis

By applying a collaborative and disciplined problem-solving approach, and by employing organizational structure that supports their front-line delivery services, USPHS Engineers are improving public health and providing models of service that could benefit a wider population.

4.4.1.4 Objectives

- Understand lead exposure pathways, how they occur, and what their impacts are. Lead in drinking water is only one of several exposure pathways
- Understand the wider factors associated with lead issues (not just technical problems). For example, how they disproportionately affect disadvantaged populations or how property ownership issues restrict potential solutions. (Most municipalities do not own the water service lines on the homeowners' properties.)

- Understand treatment techniques and be able to make technical recommendations based on engineering design
- Understand how to get in touch with technical and public health experts with specialized expertise
- Understand the community engagement practices need to address lead issues (over and above the technical solution) Community engagement and involvement is likely a crucial piece of any successful solution approach
- Understand how lead crises have developed in various communities, how they have been addressed, and what has/hasn't worked (case studies)
- Consider the applicability of these questions to other contaminants (e.g. arsenic, radionuclides) Consider whether our approach should be on a broader level than just lead

4.4.1.5 *Milestone*

- Complete rough draft of paper to submit for PHEP/EPAC review by 31 JAN 2020
- Finalize a paper and follow-up recommendations by 28 FEB 2020

4.4.2 3-D Print Face for Naloxone Training

4.4.2.1 *Leadership*

- Lead: LT Timothy Martin
- Co-Lead: LT Jong Ho Won

4.4.2.2 *Purpose*

Leveraging 3-D printing to produce a cost-effective naloxone training kit. Naloxone Training aligns with the Surgeon General priorities and USPHS Commissioned Corps and Civil Service Engineers at the Food and Drug Administration have developed a solution increase the availability of naloxone trainings by making the kits more cost-effective.

4.4.2.3 *Objectives*

- Publish article in *The Military Engineer* on development for May 2020 edition under the Project Delivery Theme.
 - Abstract due 28JAN2020
 - Final Manuscript due 18FEB2020
- Draft SOPs on fabricating faces using two-part silicone and 3D-printing
- Fabricate additional masks using two-part silicone
- Source Naloxone and EVzio trainer devices
- Host 3D-print files on NIH Print Exchange

4.4.2.4 *Milestone*

- Submit article proposal by 28JAN2020 in *The Military Engineer*
- Submit Final manuscript by 18FEB2020 in *The Military Engineer*
- Publish use studies for naloxone training mask in trade journals