FROM OCCUPATION to PROFESSION:
The Evolution of a Career
2009 - 2010

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EXECUTIVE SUMMARY:

Environmental health departments in California and across the nation have difficulties recruiting and retaining credentialed environmental health professionals, Registered Environmental Health Specialists (REHS) and Registered Sanitarians (RS). Three primary influences have exacerbated this problem: an increase in workload created by the public’s increased awareness of the relationship between health and the environment; government agencies reducing salary costs by hiring less qualified workers; and decreased attractiveness of government service and the REHS career. These trends have led to a shrinking pool of credentialed environmental health practitioners and an increase of non-credentialed technicians in the environmental health field.

General interest in the environment’s impact on human health has led to the establishment of an increasing array of environmental health and protection programs. In order to fill this demand for service the state and local jurisdictions hire non-credentialed workers. As new areas of environmental health emerge new programs evolve. The traditional services of environmental health departments have changed little with the public’s increased attention to new and emerging problems.

Clearly the economic downturn of the last couple years has impacted local and state government resources negatively throughout the nation, but in California this comes after decades of “doing more with less”. Proposition 13 enacted in 1979 substantially reduced the state and local government’s taxing authority. Local and state agencies reduced their budgets by hiring technical staff to perform duties previously performed by credentialed REHS. This weakens the competency and effectiveness of the environmental health workforce.

California has stringent requirements, but the privileges are few. In California to be registered as an environmental health specialist requires completion of a bachelor’s degree that includes 30 semester units of science. In addition, once the applicant has met the education requirements they need to receive training and experience through a CDPH approved agency; this can range from 1 ½ years to 6 months. All candidates are required to pass the California REHS exam before they are registered. Once all of these requirements are met, the REHS has the right and privilege to use the title Registered Environmental Health Specialist, but a title does not convey an exclusive scope of work.

The REHS career path will become more attractive once it is recognized as a specific profession with inherent protections. California is best suited to be the first state to bring the REHS to a professional status by adopting legally binding standards supported by an exclusive scope of practice. This will make the REHS the defining practitioner within a field of specialists. By defining a single profession that captures the array of environmental health disciplines, we create a focal point to galvanize the public’s attention. And create a framework to understand interconnected problems of an increasingly complex world.

INTRODUCTION/BACKGROUND:
The history of the environmental health profession was well documented in a presentation made by Robert W. Powitz presented at the 2008 NEHA conference in Atlanta, GA. Originally the role of environmental health in society was largely performed by doctors and nurses. Dr. John Snow and Florence Nightingale are two well known examples of environmental health pioneers. These early efforts in sanitation and immunization are estimated to have increased life expectancy in the United States by 30 years. Today, however, due to social, political and economic influences, as well as technological advances, environmental health encompass a more diverse group of practitioners who tackle a more diverse set of problems.

Mr. Powitz concludes his presentation noting that “Sanitarian” is a defined occupation and included in the federal government’s Standard of Occupations. This is an important accomplishment, but not the ultimate goal. Currently less than half of the 50 states require a credentialed environmental health workforce to deliver environmental health services. In California, although the registration program is robust, the number of local and state staff without REHS credential is increasing as a proportion of the total environmental health workforce.

The public is bombarded daily with competing health claims and health threats. The concept of cause and effect as it relates to human health and the environment is recognized if not well understood by the general public. And the standard reaction of policy makers to the public’s demand for service is to create new, highly-targeted programs. The success of this approach may be its downfall. “In California, environmental health services are primarily provided through 62 local jurisdictions overlain by 35 air quality management districts, 21 water quality control districts, 55 county agricultural commissioners and 23 Cal OSHA enforcement districts. The structure of overlapping jurisdictions and objectives confuses both the public and policy makers.” This sea of silos undermines the concept of an interconnected world. The public is left to battle each bureaucracy individually, creating adversaries that should be allies.

In response to public outrage departments and programs are often created outside the traditional environmental or public health organization. In California the state agencies that address the public’s concerns regarding air pollution, water pollution and solid waste, for example, are not located within the California Department of Public Health. Inspectors and technicians in these agencies are not required to obtain the REHS credential. Local environmental health departments increasingly employ technicians and non-credentialed staff to perform the critical functions of environmental health. If the same approach had been taken in medicine, oncologists or anesthesiologists would not have to complete their first medical degree before specializing. Similarly in the field of engineering you are required to study basic principles of math and physics before you can specialize in bridge building or electrical engineering.

Mechanisms to increase revenues often include raising or establishing fees that fund individual programs through permits. In California, funding for environmental health programs has largely been replaced rather than enhanced by fee generated revenues. At the state level, the initiative process has established specific tax revenues for specific targets through the sale of bonds. Program specific funds, whether through permit fees or bond sales provide no flexibility to re-direct resources based on changing needs. The important roles of monitoring and assessment are not provided for in this funding model.
In order to save on employee costs, environmental health agencies have hired technicians and non-credentialed staff in areas traditionally held by REHS. This appears to keep the agency’s salary costs down, but the hidden costs are not counted. By hiring narrowly trained and less educated individuals the agency is less equipped to solve complex problems that cross arbitrary program boundaries.

California requires their REHS to meet one of five combinations of education, training and experience to be completed prior to sitting for the state administered exam. All candidates must have completed a minimum of a bachelor’s degree that includes at least 30 semester units of science with at least one course in General Chemistry, Biology, Microbiology, Calculus or College Algebra and Organic Chemistry or Physics, a minimum number of lab courses are also required. The evaluation of the applicant’s core science course work is rigorous and only science courses for science majors are accepted. The training and experience component must conform to the California state training plan requirements as described in the California Health and Safety Code, Section 106635.

Once the applicant has met the education requirements, he or she is eligible to receive on-the-job training and experience through a CDPH approved agency; this ranges from 6 – 18 months. Graduates from CDPH approved environmental health degree programs complete an internship to satisfy the training and experience requirements. All candidates including candidates for reciprocity are required to pass the California REHS exam before they are registered.

The California REHS exam’s test plan is based on the 2005 job analysis for California REHS. Exam questions are selected from a pool of over 2,000 items and chosen to meet the test plan’s criteria. The test plan determines the number of questions on the exam from each program area. Since the same exam is not re-administered, each exam has to be individually compiled and analyzed.

These standards for educational excellence; competent training, relevant experience and a legally defensible psychometrically sound and secure exam have been established to ensure that the California REHS has satisfied high professional standards. However, with all of this emphasis on standards of excellence the California REHS career path remains obscure and undervalued. The percentage of REHS out of all environmental health positions in local and state government has decreased over the last 20 years.

**Problem Statement:**

It is widely acknowledged that the environmental health workforce is shrinking while the environmental health challenges facing the country are significantly expanding. This project attempts to identify the influences affecting this trend especially as it applies to REHS and RS and suggests strategies to reverse it.
Behavior Over Time Graph:

Important Trends over Time

- REHS workforce
- non-REHS positions
- EH workload
- REHS positions
- REHS applicants
- Trainee positions


Values: 100, 600, 1100, 1600, 2100, 2600, 3100, 3600, 4100, 4600
The number of REHS and RS, credentialed environmental health professionals, has not grown with the increased environmental health workload. As the public’s attention on health and environmental issues increases; local agencies hire non-credentialed environmental health personnel, both as scientists and technicians to satisfy workload demands. The non-credentialed, non-REHS are narrowly focused on specific issues and don’t have a broad environmental health perspective. Neither do they have a holistic view of potential public health consequences. And without a diverse environmental health and science background, they are not prepared to work outside their area of expertise. As the workforce becomes increasingly specialized and narrowly focused their world view becomes smaller and their ability to think outside the silo decreases, therefore more workers are needed to do the variety of tasks and activities that make up environmental health work. In contrast a program designed to hire credentialed REHS creates a robust generalist workforce with the adaptability to address a variety of environmental health problems backed up by scientists and technicians at the state and local level for scientific research and technical support.
**10 Essential Environmental Health Services:**

The 10 Essential Services describe a collection of competencies necessary in an environmental health department or program to effectively provide the services and programs aimed at improving and protecting human health and the environment. This project supports the first 8 of the 10 services by advocating an increase to the number of credentialed environmental health staff at the local and state level. An increase in REHS and RS will lead to a reliance on the professional credential building a foundation of well educated and trained environmental health professionals with the capacity to meet critical essential service demands.

![Diagram of 10 Essential Public Health Services]

**Figure 1 Ten Essential Public Health Services; Public Health Functions Steering Committee, 1994**

**Assessment**

1. **Monitor** environmental and health status to identify and solve community environmental health problems.
   - The credentialed REHS or RS has the varied background in science and environmental health training to listen to the whole community’s needs rather than focus on a single program objective.

2. **Diagnose and investigate** environmental health problems and health hazards in the community.
   - As trained professionals REHS and RS have the skills needed to explore potential sources of hazards and identify causal relationships across program boundaries.

**Policy Development**

3. **Inform, educate, and empower** people about environmental health issues.
   - With a strong science background, tempered with specialized training and
experience the REHS and RS are equipped to explain complex issues to the general public.

4. **Mobilize** community partnerships to identify and solve environmental health problems.
   - Because the credentialed staff are fluent in various program areas they can communicate with a wide range of citizens and policy makers and develop strategies to address community concerns

5. **Develop policies and plans** that support individual and community environmental health efforts.
   - Well developed plans and policies arise from the consideration of many variables and influences. The REHS and RS with their background in academic as well as real world problems and solutions bring value to the process.

**Assurance**

6. **Enforce** laws and regulations that protect health and ensure safety.
   - The REHS and RS
   - Enforcement activities are a routine function of REHS and RS. They are trained to recognize threats within the human environment and take necessary actions to protect health.

7. **Link** people to needed environmental health services and assure the provision of environmental health services when otherwise unavailable.
   - With broad based experience in many aspects of community environmental and public health the REHS and RS have the network of connections to link people to the services they need.

8. **Assure** a competent environmental health workforce.
   - This project aims to increase the number REHS and RS in local and state environmental health agencies, thereby assuring that the workforce meets minimum education, training and experience standards.

**National Goals Supported**

1. This project supports the national goals for health protection as identified by the CDC in their CDC Health Protection Goals:

   **Healthy People in Healthy Places**
   - The places where people live, work, learn, and play will protect and promote their health and safety, especially those people at greater risk of health disparities.
   - The purpose of this project is to improve the delivery of environmental health services by recognizing the value of the REHS and the RS as benchmarks of professional excellence. As the credentialed staff increases throughout all levels of government service and in private practice the competence, efficacy and accountability of environmental health will also increase.

2. This project is aligned with the Healthy People 2020 Objective which has been retained but modified from HP 2010 Public Health Infrastructure (PHI).
“PHI HP2020–8: (Developmental) Increase the proportion of Tribal, State, and local public health personnel who receive continuing education consistent with the core competencies for public health professionals.

*Potential Data Source:* Public Health Foundation, TRAIN.”

Additionally, modified language has been submitted to HHSA to specify environmental health professional workforce as follows:

Environmental health is best accomplished through a workforce educated science and trained in a diverse variety of environmental health disciplines. Improve the delivery of environmental health services at local and state levels by increasing the number of environmental health practitioners trained on current issues, emerging threats and consistent with the essential services of environmental health. 90% of all California Registered Environmental Health Specialists will have a minimum of 24 hours of continuing education every 2 years.

Data source: CDPH-REHS program records; Public Health Foundation, TRAIN;

3. This project supports fully the goals and objectives as presented in The National Strategy to Revitalize Environmental Public Health Services.

**Goal V is to promote the development of a competent and effective environmental health service work force.** This goal captures the core of this project - to enumerate, organize and empower the environmental health workforce in California and the nation through professional recognition.

4. This project recognizes the value of the competencies described in The Environmental Health Competency Project: Recommendation for Core Competencies for Local Environmental Health Practitioners. The specific guidance that is recommended can be used as a template for continuing education or used as the basis for a local program or department’s training plan. This project, however, looks at the destination of a professional environmental health workforce rather than the specific roadmap.
Goal: Improve environmental health delivery system in California by increasing number of REHS working in state and local environmental health programs

Resources/Inputs
- Funding
  - State funded through fees on registrants and applicants

Human Resources
- State staff
- Advisory Committee

Information Resources
- Access database of REHS and Applicants Surveys

Partners
- CCDEH
- CEHA
- CalEPA Agencies
- Academic Institutions

Activities
- Monitor Program Effectiveness
  - Conduct needs assessment of County EH Depts.
  - Conduct needs assessment of Cert. Applicants
  - Survey applicants on clarity of process
- Implementation & Connections
  - Develop strategy to match applicants with EHD
  - Share survey info with target groups
  - Design feedback loop for application process and web site users
  - Increase # & type of trainee programs
- Program Evaluation
  - Review past surveys and strategic plans
  - Define recurrent objectives and new directions
  - Collaborate on Shared Vision

Outputs
- Survey instrument for County EHD
- Survey instrument for Cert. Applicants
- Snapshot of local EHD workforce needs
- Information about applicants
- Identify weak points of application process
- Suggested improvements for web site
- Strategy to connect applicants, and EHD
- Lists of applicants by job preferences
- Model training plan for CDPH & Cal EPA inspectors
  - # vacant trainee positions
  - # REHS (total & active)
  - # Environmental Health degree graduates
- Evaluation of prior survey results
  - # of staff meetings on Shared Vision;
  - # Meetings & contacts with partners

Short & Long Term Outcomes, Impacts.
- Improve relationship between EHD and CDPH
- Increased collaboration and trust between partners
- Increased ability to assess EHD needs
- Streamline application process
- Improve web site clarity
- Increase # REHS in CDPH & Cal EPA
- Increased opportunities for REHS training
- Increased matching of available applicants with EHD needs.
- Increased # of REHS at local EHD
- Knowledge gained from past successes and failures
- Develop a learning organization
- Move from Gatekeepers to Cheerleaders

Behavior
- Increased collaboration leading to effective partnerships

Results
- More efficient and effective environmental health delivery system
- Improved health in California populations

National Environmental Public Health Leadership Institute
PROJECT OBJECTIVES/DESCRIPTION/DELIVERABLES:

CA REHS Program Objectives

Program Goal: To improve environmental health delivery in California by enumerating, organizing and empowering the environmental health workforce in California and the nation through professional recognition.

Problem: Environmental health departments do not fill environmental health positions with credentialed professionals or trainees. (Trainees in this context are individuals prepared to complete the requirements for registration as a REHS or RS.) The number of credentialed REHS or RS in environmental health continues to diminish as a percent of the total environmental health workforce.

Outcome Objective: By June 2011, increase by 25% the number of REHS in the environmental health workforce.

Determinant: The number of REHS in the environmental health workforce.

Impact Objective: Increased REHS will improve environmental health delivery

Contributing Factors:
1. Applicants meet minimum statutory requirements, but do not possess core competencies [Environmental Health Competency Project]
2. Qualified applicants have poor interview skills,
3. Qualified applicants do not possess personal attributes of an effective environmental health practitioner. [Environmental Health Competency Project]
4. Local directors unable or unwilling to do necessary outreach
5. Applicants unable or unwilling to relocate for entrance level positions.
6. Limited trainee positions available throughout state
7. Few alternatives to traditional county training programs for trainees.

Process Objectives:
- By March 1, 2010 develop a nationwide network of state registration programs for environmental health practitioners.
- By June 1, 2010, match qualified applicants with interested county directors and training coordinators by identifying applicant strengths.
- By August 1, 2010 establish network of mentors to encourage and assist qualified applicants through the training and experience program
- By September 1, 2010 develop promotional materials advocating the adoption of a professional code for REHS in California
- By December 1, 2010, enumerate California REHS registrants, collecting data on employers, program disciplines, professional associations and job satisfaction.
METHODOLOGY:

Event: Registration Network

Activities:
1. Collect data on all 50 states regarding their registration programs and policies
2. Enter data in an excel spreadsheet
3. Create a distribution email list of all registration program representatives
4. Form a coalition to support and encourage registration programs nationwide.

Event: Matchmaker

Activities:
1. Review past workforce studies
2. Develop surveys for directors and applicants
3. Compile list of qualified applicants sorted by desired work location.
4. Provide each county director a list of qualified applicants anxious to work in their county.

Event: Mentoring Program

Activities:
1. Identify potential mentors in CEHA, CCDEH and CDPH
2. Develop general information and tools for mentors to use
   a. Job responsibilities /expectations.
   b. Interview skills and resume writing
   c. Core values and ethics
   d. Cultivate leadership skills in mentors

Event: Pro Code

Activities:
1. Write articles for California EHJ on the Professions Code
2. Give presentations at CEHA annual symposium
3. Organize a panel discuss in an environmental health forum.
4. Use social media to reach larger audience
5. Work with CEHA subcommittee and EHSRC ad hoc Committee.

Event: Evidence based workforce study

Activities:
1. Develop survey to enumerate California REHS and trainees.
2. Use survey tool to collect data on non-credentialed staff
3. Work with nationwide network of registration programs to capture environmental health workforce data.

RESULTS:

Many of the proposed activities are planned for 2010; however progress has been made in the following areas:

1. Published an article in California EHJ on the importance of a Professions Code.
2. Delivered a speech on the value of e Professions Code at the CEHA update in Fresno, CA in September 2009.
3. The Environmental Health Specialist Registration Committee has created an ad hoc committee to discuss the issues of reciprocity and scope of work.
4. Proposed language for the California Conference of Local Health Officers platform statement that recognizing the value of environmental health workforce development.
5. Developed survey tool for REHS applicants, pilot project launched.
6. Collaborated on survey tool for environmental health directors regarding workforce development.
7. Created excel spreadsheet of contact information for state REHS and RS registration programs nationwide; for a copy email: Margaret.Blood@CDPH.ca.gov.

CONCLUSIONS:

It is widely predicted that severe workforce shortages are imminent within environmental public health agencies. The question is who will fill the ranks? Will agencies, departments, states and territories lower standards? Many states already have disbanded their registration programs for environmental health practitioners. The purpose of this project is to identify steps that will ensure that the people filling the environmental health positions are competent and credentialed.

- **Enumeration** is the first step toward an evidence based workforce study that can clarify to the public and policy makers the critical qualities inherent in a competent environmental health workforce. This enumeration needs to include all environmental health practitioners, levels of education, training, experience and professional credentials.
- **A network of Registration Programs** will provide a structure to develop mutual support for professional goals. Neighboring jurisdictions as well those across the country can join forces to address political and social trends.
- **A Professions Code** is the legal means to establish the educational, training, experience and examination standards as well as the rewards commensurate with the importance and value that REHS and RS bring to public health. As a specific profession with inherent protections REHS and RS career path will become significantly more attractive.

A credentialed environmental health workforce with a diverse science background is best equipped to recognize and solve emerging and interdisciplinary problems. They are also less likely to become narrowly focused on single issues. By defining a single profession that captures the array of environmental health disciplines, we create a focal point to galvanize the public’s attention. And create a framework to understand interconnected problems of an increasingly complex world.

LEADERSHIP DEVELOPMENT OPPORTUNITIES:

*Margaret Blood, REHS*

The environmental Public Health Leadership Institute has challenged my assumptions and confirmed my suspisions. The systems thinking and logic modeling required me to research the underlying motives and influences at play in public service administration. The personal reflection, has provided me with insight about myself as well as a deeper understading of others. I have used these new skills in the office to build a confident and flexible team.
I have met fascinating people from all over the United States and am refreshed by the complexity and diversity of the fellows. I am grateful for this unparalleled opportunity and intent to continue to build on the framework EPHLI has given me to advocate for the environmental health profession.
ABOUT THE EPHLI FELLOW

Margaret Blood, REHS is the program administrator for the California Environmental Health Specialist Registration Program. She works closely with the California Environmental Health Association; California Conference of the Directors of Environmental Health and California Universities to promote the environmental health profession. She worked with a variety of individuals and groups for the adoption of continuing education regulations in California, which became law in this fall 2009. She received her Bachelor’s degree in biology from Sonoma State University and completed additional coursework in environmental health at San Jose State University. Before her current assignment, Margaret worked in Los Angeles and the rural Californian counties of Calaveras and Amador delivering environmental health services for 18 years, with a concentration on solid waste disposal, food safety and drinking water. Her vision for the REHS program is excellence throughout the environmental health workforce by increasing the value and recognition of the REHS credential by the California’s citizens and policy makers.
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