Everyone’s Data Are Special—Or Are They?

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Editor’s Note: A need exists within environmental health agencies to increase their capacity to perform in an environment of diminishing resources. With limited resources and increasing demands, we need to seek new approaches to the practice of environmental health. Acutely aware of these challenges, the Journal publishes the Building Capacity column to educate, reinforce, and build on successes within the profession using technology to improve efficiency and extend the impact of environmental health agencies.

This column is authored by technical advisors of the National Environmental Health Association (NEHA) Data and Technology Section, as well as guest authors. The conclusions of this column are those of the author(s) and do not necessarily represent the views of NEHA.

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Environmental health data systems and structures are more confoundingly diverse than even the variety of food inspection rules in place across the U.S. This situation is primarily due to the environmental health profession not evolving as many other public health operations have over the past years. Chronic and communicable diseases and other programs were developed out of national assessments or outbreaks where federal resources and requirements were formative to the creation of relatively uniform state and local operations. Conversely, environmental health started with cholera in a well here, malaria there, a community wanting safer food, or similar local concern to improve the quality of life and the longevity of the public.

This local, organic germination and maturing process is why environmental health is profoundly local, as often said by Dr. David Dyjack, executive director of the National Environmental Health Association. With over 2,800 public health operations in the U.S., there are just as many independent ways to collect, store, and analyze data collected. Another great supporter of our profession, Darryl Booth, general manager of environmental health at Accela, says something very similar: “If you have seen one health department, you have seen one health department.” Booth is in the data management industry and has seen enough environmental health operations to know that each is as unique as its staff. The science that drives our work, however, is no different across agencies. The data we collect and use should be like the science we use, and should not be influenced by the personalities, policies, and practices of each agency.

Science at Its Center

Consider what makes up the basic work we record every day. We capture the location, date, time, type of service performed, and observed measurements. While that is an oversimplification, when we examine these pieces we do see potential items that could be standardized to allow for several benefits without having to change rules or having identical policies or practices.

Some examples of these benefits are:

- Ease of sharing data to compare:
  - Policy impacts
  - Best practices
  - Results of changes in workload
- Substantial decreases in the cost to set up or change data systems
- An increase in reliable research to help prevent illness
- Identification of efficiencies or ways to support prioritizing efforts when resources are slim
- Ability to define the return on investment made into environmental health operations
- Incorporation of environmental health factors used in local medical decisions to support systems
- Reliable and valid data-centered storytelling to inform constituents and partners

These benefits require that the data we collect every day fit a structure that allows it to move. If you have ever moved your household, you will be familiar with the benefits of knowing the size and shape of the boxes and the weight of their contents. Data stan-
Standards are the route to having the right size and shape of boxes to collect your data. This understanding makes it not only easier to move but also allows you to know where to get the stuff you need whenever you need it.

The Standard for Aquatic Facility Environments—Data (SAFE-D) model demonstrates this idea. Each piece of data is defined to support collecting whatever information you need from swimming pool inspections, regardless of your regulations, location, or jurisdiction. Setting up standards for each of the services we provide would require a similar focus on the science—and not any single regulation or way to get the service completed. If all fields of environmental health had standard data dictionaries that had common definitions, we could advance our ability to assess our data against other data, such as comparing socioeconomic factors, demographics, and public policies.

**Cost Benefits**
The reduced cost of setting up or changing your data system based on a standard dictionary comes from the fact that most, if not all the pieces, are already defined. As such, system developers and programmers can focus on making the user interface and reports as needed, and not have to reinvent the basic structure of the backend database. Using standardized data will also prevent cost and time overruns by helping you define the scope of your data project. Having a standard data dictionary and relationship structure to start with limits the customization, which is often the problem with project scope issues.

If you have your existing data already boxed up in a standardized system, it is far easier and less costly to convert it to another system should you find the need to change database systems or contractors. Most often, the greatest cost in time and funds in changing systems is the conversion of your data, if that is possible at all.

**Get on Board or Build Our Own Ship?**
The rest of public health is seeing huge investments in the Data Modernization Initiative (DMI), an initiative from the Centers for Disease Control and Prevention that aims to modernize data across the federal and state public health landscape (www.cdc.gov/surveillance/data-modernization/index.html). Even this massive federal effort to build a standard way to share data so that we can better identify disease threats is struggling with the fact that local offices do not have a data standard or have conflicting views of what should limit data sharing. As our data are related to primary prevention that only overlaps with the rest of public health when outbreaks happen, we are not a central part of this initiative.

So, we have a decision to make: Do we chase this DMI ship that is already sailing or do we prepare for our own journey that focuses on the needs of environmental health operations? Either way, now is the time to use the political winds to drive our efforts.

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