

Public Health Surveillance

Theresa Hatzell, Timothy E. Aldrich, Willard Cates, Jr., Euichul Shin

Surveillance is the primary mechanism through which public health organizations acquire information concerning population health. Surveillance systems vary widely in both structure and function; consequently, the optimal system design is contingent on an organization's specific information needs and resources as well as the characteristics of the populations and health issues under study. In developing and maintaining surveillance systems, public health administrators must use current epidemiologic knowledge in tandem with effective managerial strategies.

Effective public health management requires an iterative cycle of formulating public health objectives, designing and implementing interventions, measuring the population-level impact of programs, and using that information to revise program targets and interventions. An essential input for this cycle is continuously updated information reflecting the current health status of the population. Public health surveillance is the primary mechanism through which public health organizations generate and process this information for use in management, policy, and practice.¹ Described as an essential step in the "systematic and ongoing assessment of the health of a community"² surveillance permits public health agencies to assess trends in disease and other health conditions, measure the prevalence of risk factors and health behaviors, and monitor the utilization of health services. Conclusions drawn from this information can then be used for decision making and action at multiple levels of the public health system.

This chapter provides an overview of surveillance systems and strategies that are relevant to the public health administrator. The first section describes the various functions that surveillance serves in public health and the corresponding configurations of surveillance systems. This is followed by an overview of basic epidemiologic techniques used in conducting surveillance activities. This overview is not intended to be a comprehensive "how to" guide to surveillance. Rather, the section presents fundamental information relevant to public health managers, whether they have ultimate oversight responsibility for a surveillance system within a public health agency, or they wish to capitalize fully on the program-enriching capacity of surveillance data. Readers seeking more detailed discussion of surveillance techniques are directed to other texts written for epidemiologists and other technicians directly responsible for surveillance operations.³⁶ The final section of this chapter describes administrative and managerial activities that support surveillance system operations.