

## **Informatics and Public Health**

Public health informatics (PHI) systematically applies information, computer science, and technology to public health practice, research, and learning. It is a developing discipline that integrates public health and information technology. Expanding this field and disseminating informatics knowledge and expertise to public health professionals are critical to unlocking the potential of information systems to improve the nation's health.

The conception, design, development, deployment, refinement, maintenance, and evaluation of communication, surveillance, information, and learning systems related to public health are considered in the field of PHI. It is crucial as it can improve decision-making, support data-driven strategies and robust surveillance systems, adapt to healthcare changes, and enhance public health communication.

PHI is eminent among other informatics specialties because of its focus on population prevention, use of a wide range of interventions to achieve its goals, and constraints of operating in a governmental context. The current need for PHI arises from enhancements in information technology and new pressures on the public health system. By applying the principles of PHI, it is possible to foster healthy communities and advance the nation's public health goals.

Due to technological development and the growing need for real-time health data, tailored and more effective public health interventions are needed. Significant challenges include Data security, privacy, Interoperability, a trained workforce, limited resources, and infrastructure. Enhancing the ability of public health systems to address current and future challenges more efficiently is essential.

As PHI continues to evolve, it will transform public health practices by enabling more personalized, data-driven, and global approaches to health promotion and disease prevention. These trends will offer unique opportunities to enhance population health outcomes and build more resilient public health infrastructures.

Dixon BE, Kharrazi H, Lehmann HP. Public Health and Epidemiology Informatics: Recent Research and Trends in the United States. *Yearb Med Inform.* 2015 Aug 13;10(1):199-206. doi: 10.15265/IY-2015-012. PMID: 26293869; PMCID: PMC4587030.

Yasnoff WA, O'Carroll PW, Koo D, Linkins RW, Kilbourne EM. Public health informatics: improving and transforming public health in the information age. *J Public Health Manag Pract.* 2000 Nov;6(6):67-75. doi: 10.1097/00124784-200006060-00010. PMID: 18019962.