Biomedical and Health Informatics Series
Tuesday, October 16, 2007, Room RR-134, 12:00-12:50

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"Integrating Query and Visualization Tools to Enhance Utilization of Public Health Data"

Public health data are collected and utilized at multiple points, including clinical, laboratory, county, state, national and even international settings. However, analysis of such data often occurs outside the context of clinical care. In the case of infectious disease control, this can cause delays and under-utilization of data. One such case is contact investigation, which collects data on those exposed to an infectious disease. Problems associated with this process include complex risk factors, distributed knowledge, inefficient prioritization, unclear stopping criteria, and time delays. To address these problems, I will present a prototype system to provide interactive query and visualization tools to disease investigators in tuberculosis clinics. These tools bring together social network, geographic, and molecular data to improve information retrieval, provide rich context for outbreak investigations, and to unify information collected throughout the organization. I will describe these tools, evaluation of their usability, and ongoing research to study their use in the real world.

Dr. Neil Abernethy is an epidemiologist at the University of California San Francisco, where he studies tuberculosis risk factors and interventions in cooperation with the CDC and San Francisco Department of Public Health. He completed his Ph.D. in Biomedical Informatics at Stanford University, where he investigated computational methods to merge and analyze diverse data sources and for biomedicine, focusing on public health. Prior to his Ph.D., Dr. Abernethy conducted bioinformatics research at North Carolina State Univeristy and Stanford University, where he studied molecular evolution, RNA structural models, and knowledge representation. Subsequently, he co-founded Ingenuity Systems, a genomics company that provides innovative pathway analysis of high-throughput molecular experiments. His current research includes social network, geographic, and molecular epidemiologic methods for outbreak surveillance and response, focusing on interactive user interfaces that improve access to this complex public health data.

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