

A Geo-spatial Approach to Precision Public Health

Ta-Chien Chan

Research Center for Humanities and Social Sciences, Academia Sinica, Taiwan

Abstract

The traditional approach of epidemiology emphasizes the temporal dimension for setting up causal inference. The spatial dimension can provide a different perspective on where diseases occur and how environmental factors interact with behaviors and genetic traits. The recent concept of precision public health tries to target the right people by appropriate intervention as early as possible. If public health researchers or policy makers want to target the population in place, the geo-spatial approach might be a good choice. In this presentation, I will show four examples to share our experience on leveraging the power of data visualization, spatial statistics and health informatics for public health research and practice including spatio-temporal ring maps, the risk factors for out-of-hospital cardiac arrests (OHCA), the air pollution effects on chronic kidney diseases, and enhanced sentinel physician surveillance systems in communities. With the geo-spatial approach, the information for decision-making can be projected on vivid maps linking the nature, nurture and exposure for understanding the dynamic process of disease onset.