Standard approaches to the diagnosis and management of infectious diseases rely on the integration of clinical skills, application of basic pathophysiologic principles, the interpretation of large numbers of low quality / small numbers of high quality studies and practice guidelines / medical information clearinghouses. While this approach has its merits, it is also associated with the over- and misuse of diagnostics, provides no principled approach to balancing multiple health objectives, is prone to discrimination, and externalizes costs to the population. In this talk I present a conceptual framework for health and disease that serves to operationalize an approach to medical decision making that is personalized to the patient and explicitly balances tradeoffs between clinical care and public health. I define states of health and 'probabilistic medicine', illustrate how artificial intelligence models can link data to decisions in a sustainable manner, provide examples from the world of infectious diseases and end with future directions.