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Harnessing the power of infectious disease information with a relational database

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Using infectious disease information effectively is an important priority in global public health. About one half of all deaths in developing countries are caused by infectious diseases. Infectious diseases are no longer confined by geographical boundaries. An outbreak of SARS in China can become an outbreak in Toronto a few days later. A vast treasury of infectious disease knowledge has been discovered in the last 150 years. This knowledge, summarized in Control of Communicable Diseases Manual, includes signs & symptoms, diagnostic tests, geographical occurrence, mode of transmission, incubation period, and risk factors. With the current availability of fast hand-held computers, the Internet, and easy-to-use relational database software, the stage is set for the eradication or control of many infectious diseases that have ravaged mankind for thousands of years. A properly designed and updated relational database of infectious diseases can serve as a decision-support tool for physicians and other healthcare professionals. Information can be instantaneously updated for frontline doctors, who can query the database for all diseases that match specific symptoms, an occupation, a region of the world, or an insect vector. The results of a query become a differential diagnosis list based on the criteria of the query. For example, the user can find that 8 of 248 diseases match the criteria of "jaundice" and "ticks." In summary, all useful infectious disease information can be collected and indexed into a relational database to help practitioners quickly build differential diagnoses and find details about specific diseases.

Biography

Jay A Brown, MD, MPH, is board certified by the American Board of Preventive Medicine. With 30 years of experience practicing family and occupational medicine, he now works as a Consultant for the U.S. Department of Labor and National Library of Medicine. Since the release of the first Microsoft Access in 1992, he has been trying to demonstrate the power of a relational database to store medical knowledge so that the "right information at the right time" can be readily retrieved. His two databases are "Haz-Map: A Relational Database of Hazardous Chemicals and Occupational Diseases" and "IDdx: Infectious Disease Queries."

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