For more than 4 decades investigators and developers have been building electronic medical records systems. At first these electronic record systems were designed for hospitalized patients, many of whom were in Intensive Care Units. Then the need to share data patient across the entire hospital became apparent. There were multiple data sources within the hospital that required “integration” to optimize patient care. These data sources included the clinical laboratory, the pharmacy, care provided by nurses and physicians, medical records coding systems in addition to automatically gathering data from bedside monitoring devices. As these systems were being developed, it became apparent that Computerized Decision-Support to optimize patient care and prevent errors would improve the quality of patient care. To enable Computerized Decision-Support systems, it was essential to have data gathered from these multiple data sources in a highly structured or coded format. As a consequence, it became necessary to develop structured vocabulary systems and decision rules to optimize care. By implementing such systems, caregivers and Medical Informatics specialists developed decision support modules to alert physicians, nurses, and other caregivers to potential adverse events. These systems then became essential in helping provide optimum patient care. Algorithms for monitoring and managing the most complex situations in patient care were developed, implemented and evaluated. Virtually all of these efforts improved the quality and efficiency of patient care delivery.

Soon it became apparent that having only the “hospital part” of the patient record in electronic form was inadequate. Having data available from the patient’s visit to their local physician was also essential to providing optimum care. Thus, gathering clinical and historical data during these physician visits became essential. Just as with the care in the hospital, care of “outpatients” was improved by the development of these electronic record systems.

More recently, having the “patient” be a source of medical data for their own records has become feasible and practical. As a consequence, the naming of the electronic medical record has recently become the “Electronic Health Record.” In the future, the ideal record system will be a shareable Electronic Health Record that can be shared with multiple physicians, hospitals and the Public Health Department. Many challenges and opportunities to develop the best shareable Electronic Health Records still exist. Dr. Gardner will discuss these challenges and opportunities from a perspective of having lived and worked in the field of Medical Informatics since its beginnings over 40 years ago.