

Applications of Medical Technology and Privacy – These Problems

May Hurt

Richard Doyle, PE, SL-IEEE

Abstract:

The Applications in Medical Technology and Privacy are rapidly advancing and need better definition. This presentation provides an incite into new products and applications along with accountability and privacy of the data. It is sometimes the government policies that create the biggest problems.

This tutorial provides a vision of personalized medicine (PM): Driving the diagnostic to prognostic paradigm shift - strategies for predicting disease through routine health monitoring biomeasurement technologies. What is the incentive – ROI? Health and wellness versus pain and suffering. Some health programs (Kaiser Permanente) restore health and are efficient. For a central database approach, should it be private or public?

What are the current capabilities for the identification and use of biochemical (predictive and diagnostic) and imaging data now for patient care – including molecular pathology, laboratory diagnostics (from clinical chemistry to DNA analysis) and medical diagnostic imaging?

1. Implementation/Integration of Electronic Health Records and Personalized Health Records
2. Standards harmonization, conformance testing, certification
3. Roadmap toward a Nationwide Health Information Network
4. Detailed mathematical modeling and computational analysis
5. Data reduction, filtering, mining for knowledge management, secondary uses, etc

Many of these questions will be answered and the most current medical technologies and security issues will be addressed.

Bio:

Richard Doyle is a Registered Electrical and Civil Engineer in California and has a B.S. in Mechanical Engineering from Oregon State University and a M.S. in Engineering from the University of California, Irvine. Mr. Doyle has more than 30 years of experience in the theoretical analysis and design of electrical and mechanical systems. Mr. Doyle's recent experience includes consulting for the past 20 years in the Medical Field for such companies as Thoratec, Gen-Probe, and other medical companies in California and the US. He analyzed the reliability of three generations of heart pumps and provided many recommendations to Thoratec for their various designs. He has provided design and analysis support for numerous systems associated with power supplies and associated electronic control systems based on Microprocessor, DSP, and ASIC applications. He was the Chairman of the Biotechnology Council for four years of one million members belonging to ten societies of which IEEE was one of the societies. This tutorial was presented in The Hague in 2005, in Yokohama in 2009 and other places in the US. He is a past president of the IEEE Reliability Society and is the Past Region 6 Director (60,000 IEEE members), Past Division VI Director and served on the IEEE Board of Directors for four years.