

# ELLIOT B. SLOANE, PHD, CCE

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<b>Career</b>	<p><b><u>Villanova University</u></b> Villanova School of Business, Villanova, PA <b><u>May, 2000 - present</u></b> Assistant Professor, Management Information Systems (MIS) eBusiness, Databases, Telecommunications, Biomedical Informatics, and Business Ethics for Executive MBA, MBA, and undergraduates. Research and publication in the Biomedical Informatics, Health Systems Engineering, and Decision Support fields.</p> <p><b><u>MEDIQ/PRN Life Support Services, Inc.</u></b> Pennsauken, NJ. <b><u>Jan, 1990 – Feb, 2000</u></b> <b>Vice President, Operations, Clinical &amp; Information Engineering, Quality/Regulatory Assurance</b> Largest US life-support technology distribution, rental, and repair company. \$300 Million revenue, 20% EBITDA, with offices in over 100 cities in US. 1500 employees provided 365 day/24-hour services to 11,000 hospital, nursing, and home care customers. FDA-registered medical device manufacturer, and licensed for nationwide pharmaceutical and surgical supply distribution.</p> <p><b><u>ECRI (Emergency Care Research Institute) Plymouth Meeting, PA</u></b> <b><u>May, 1975 – Jan, 1990</u></b> <b>Vice President, Operations (COO); Vice President, Information Systems (CIO)</b> World-renowned medical device research, testing, database, publishing, education, and international consulting agency. Biomedical engineering, computer software and hardware development. President of NIST, ECRI's for-profit subsidiary.</p>
<b>Education</b>	<p><b>Ph.D.</b> 1999 Drexel University College of Information Science and Technology. (Human computer interaction) <b>M.S.</b> 1982 Drexel University College of Electrical Engineering (Computer/Digital Design) <b>B.S.</b> 1975 Cornell University College of Engineering (Electrical/Biomedical Engineering)</p>
<b>Industry Highlights</b>	<p><b>In his executive career prior to entering academia, Dr. Sloane was a successful team and project leader for global and strategic biomedical engineering and healthcare information system projects. He built a proven track record of reliable business program development and product/service delivery to in-house and outside customers, including:</b></p> <ul style="list-style-type: none"><li>• System design, development and implementation for information systems, biomedical /clinical engineering, research, management, finance, administration, manufacturing, publishing, and quality;</li><li>• Introduction and implementation of leading-edge information technologies, including PC/LAN business applications, SQL database, CD-ROM/WORM document scanning, OCR and archiving, working-group systems, Internet services, bar-coded asset tracking, and maintenance management; Technology acquisition, implementation management and consulting for information system, database, telecommunication, plant/facility, and health care/life-support technologies;</li><li>• Development, design, manufacturing and distribution experience for FDA-regulated medical devices and drugs (GMP, cGMP, CE, CSA, and UL compliance; ISO 9000 programs);</li><li>• New business development and merger/acquisition expertise, including international, corporate, government, and non-profit frameworks; Successful sales, marketing, and presentation roles, including international education, training, and writing. Extensive Board of Directors experience, including corporate, non-profit, and charitable organizations.</li></ul>
<b>Affiliations</b>	<p><b>AAMI</b> Association for the Advancement of Medical Instrumentation</p> <ul style="list-style-type: none"><li>• Biomedical Engineering Management and Productivity Committee Co-Chair, since 1988</li></ul> <p><b>ACCE</b> American College of Clinical Engineering, since 1996.</p> <ul style="list-style-type: none"><li>• President, 2001/2002; Chair of Integrating the Healthcare Environment and Patient Safety Task Forces</li></ul> <p><b>ACCE Healthcare Technology Foundation</b>, a 501(c)(3) patient safety educational foundation, since 2001.</p> <ul style="list-style-type: none"><li>• Founding Board Member, Chair of Finance and Budget Committee</li></ul> <p><b>AITP</b> Association for Information Technology Professionals (formerly DPMA), since 1982.</p> <ul style="list-style-type: none"><li>• President, 1993 and 1997/98; Executive Vice President 2000-2002, Montgomery County, PA Chapter.</li></ul> <p><b>Ben Franklin Technology Center of Philadelphia</b> - Biomedical Investments Reviewer since 1999.</p> <p><b>Carelift International</b> Medical relief &amp; training for developing countries; Board of Directors, 1994-2005.</p> <p><b>HIMSS</b> Healthcare Information Management Systems Society, since 2001. Author, Annual Conference Session Chair, and Presenter, and Co-chair of IHE Strategic Development Committee.</p> <p><b>IEEE</b> Institute of Electrical and Electronic Engineers, since 1976</p> <ul style="list-style-type: none"><li>• Board of Directors, Engineering in Medicine and Biology Society, 2003-2006, and 2007-2009 terms.</li><li>• IEEE Standards Association Technical Sponsor for IEEE 11073x Medical Device Informatics Standards, since 2004.</li></ul> <p><b>National Institutes of Health</b> Developmental Biomedical Technologies Grant Review Panel, since 2004.</p> <p><b>WHO</b> World Health Organization and Pan American Health Organization (PAHO)</p> <ul style="list-style-type: none"><li>• Clinical Engineering Advisor, 1988-present</li><li>• Medical Device Nomenclature Task Force, Linkoping, Sweden (1988),</li><li>• Advanced Clinical Engineering Workshop faculty, Nepal &amp; Havana (2001), Dominica &amp; Cancun (2003)</li><li>• International Medical Error and Patient Safety Taxonomy Workshop and Taskforce. Geneva, Switzerland (2003)</li></ul>
<b>Editorial Boards</b>	<p><i>Biomedical Instrumentation Technology Journal</i>, since 1990.</p> <p><i>Information Systems Management</i>, since 2007.</p> <p><i>International Journal of Networks and Virtual Organizations</i>, since 2006.</p> <p><i>International Journal of Biomedical Engineering and Technology</i>, since 2006.</p>
<b>Awards &amp; Honors</b>	<p>Elevated to Senior Member, IEEE in 2004.</p> <p>ACCE Thomas O'Dea Clinical Engineering Advocacy Award, 2006.</p> <p>ACCE-HIMSS Excellence in Clinical Engineering and Information Technology Synergies Award, 2007.</p> <p>Professional credential, Certified Clinical Engineer (CCE), earned June 2007.</p>

### **Refereed Journal Articles**

Dr. Vance Wilson, V. and Sloane, E. Winter 2007 Guest Editorial "Healthcare Information Systems" for the Special Issue on Healthcare Information Systems; *Information Systems Management* 23:2.

*International Journal of Networking and Virtual Organisations* - "Use of Coloured Petri Net models in planning, design, and simulation of intelligent wireless medical device networks for safe and flexible hospital capacity management" with Vijay Gehlot, Accepted for publication 8/29/2006, in production.

*Computer* - "Ensuring Patient Safety in Wireless Medical Device Networks" (35:4 (2006) pp. 32-38) Gehlot and Sloane

*IEEE Engineering in Medicine and Biology* - "Using a Decision Support System Tool for Healthcare Technology Assessments: Applying the Analytic Hierarchy Process to Improve the Quality of Capital Equipment Procurement Decisions." (23:3 (2004) pp. 42-55) Sloane

*Omega* - "Impact of process change on customer perception of waiting time - a field study" (32:1 (2004) pp. 77-83.) Luo, Liberatore, Nydick, Chung, and Sloane

*Journal of Computers and Operations Research* - "Using the analytic hierarchy process as a clinical engineering tool to facilitate an iterative, multidisciplinary, microeconomic health technology assessment" (30:10 (2003) pp. 1447-1465) Sloane, Liberatore, Nydick, Luo, and Chung

*Journal of Healthcare Information Management* - "Medical Decision Support Using the Analytic Hierarchy Process" (16:4 (2002) 38-43) with Liberatore, M. and Nydick, R.

*Biomedical Instrumentation and Technology* - "The Golden Age of Clinical Engineering: Digital Convergence and Information Technology Partnerships" (35:2 (2001) pp: 95-103)

*Journal of Clinical Engineering* - "Quality Management for a Nationwide Fleet of Rental Biomedical Equipment" 28:3 (2001) pp: 253-269.

### **Refereed Conference Papers/Proceedings**

1. "An integrated Social Actor and Service Oriented Architecture (SOA) Approach for Improved Electronic Health Record (EHR) Privacy and Confidentiality in the US National Healthcare Information Network," with Gundy Leroy and Steven Sheetz, Proceedings Of The Thirteenth Americas Conference On Information Systems (AMCIS), Keystone, CO August 09<sup>th</sup>-12<sup>th</sup> 2007.
2. "How to Implement the IHE Framework: Achieving Breakthrough Healthcare Enterprise Interoperability," HIMSS '07 Summer Summit, San Diego, CA. 25-27 June, 2007.
3. "Using hybrid SoSE approaches for modeling and validating large scale Service Oriented Architecture (SOA) System of Systems as next-generation global military informatics platforms with Colored Petri Nets (CPN) and Extend/MESA," with Thomas Way, Vijay Gehlot, And Robert Beck. Proceedings of the Second IEEE International Systems of Systems Engineering Conference, San Antonio, TX. 16-18 April 2007. In production.
4. "SoSE modeling and simulation approaches to evaluate security and performance limitations of a next-generation National Healthcare Information Network (NHIN-2)," with Thomas Way, Vijay Gehlot, Anany Levitan, and Robert Beck. Proceedings of the Second IEEE International Systems of Systems Engineering Conference, San Antonio, TX. 16-18 April 2007. In production.

5. "Using SoSE Modeling and Simulation Approaches to Evaluate the Potential Security, Performance, and Limitations of a Next Generation US National Healthcare Information Network (NHIN-2): Simulating a Service Oriented Architecture (SOA) to create an extensible, context aware, dynamic discovery framework for robust, secure, flexible, safe, and reliable healthcare information management," with Thomas Way, Vijay Gehlot, and Robert Beck. Proceedings of the 1<sup>st</sup> IEEE Systems Conference, Honolulu, HI. 12-14 April 2007. In production.
6. "A Hybrid Approach to Modeling SOA Systems of Systems using CPN and MESA/Extend," with Thomas Way, Vijay Gehlot, Robert Beck and, James Solderitch, and Elzbieta Dziembowski . Proceedings of the 1<sup>st</sup> IEEE Systems Conference, Honolulu, HI. 12-14 April 2007. In production.
7. "Providing a Solid Foundation: NHIN Pilot Development and How the IHE Technical Framework Accelerates RHIOs" Session 115. HIMSS '07 Annual Conference, New Orleans, LA. 25 February -1 March, 2007.
8. "Successful NIH and State Grants: The reviewer's point of view," Decisions Sciences Institute (DSI) 2006 Annual Conference. San Antonio, TX. 18-21 November 2006.
9. "Executive Dashboard and Decision Support System for Reliable, Lean Global Military Medical Logistics Management" with Eric Rosow, Joe Adam, Dave Shine. Decisions Sciences Institute (DSI) 2006 Annual Conference. San Antonio, TX. 18-21 November 2006.
10. "JEDI – An Executive Dashboard and Decision Support System for Lean Global Military Medical Resource and Logistics Management" with Eric Rosow, Joe Adam, Dave Shine. Proceedings of the 28<sup>th</sup> Annual IEEE EMBS Annual Conference. New York, NY, 30 August – 3 September 2006.
11. "Design and Development Of A Prototype For An Inexpensive, Multi-Node Mobile, Palm-PDA-Based Wireless Clinical Information System Platform" with Nicholas O'Donoghue, Douglas Marzela, and Sarvesh Kulkarni. Proceedings of the Twelfth Americas Conference on Information Systems, Acapulco, Mexico August 04<sup>th</sup>-06<sup>th</sup> 2006.
12. "A General-Purpose Safety and Performance Verification and Validation Toolkit (V2T) for Life-Critical Wireless Medical Device Networks (WMDN)" with Vijay Gehlot. Proceedings Of The Twelfth Americas Conference On Information Systems, Acapulco, Mexico August 04<sup>th</sup>-06<sup>th</sup> 2006.
13. "Clinical/Biomedical Engineering Strategic Graphical Dashboard To Enhance Medical Device Maintenance And Asset Management" with Eric Rosow, Joe Adam, Dave Shine Proceedings Of The Twelfth Americas Conference On Information Systems, Acapulco, Mexico August 04<sup>th</sup>-06<sup>th</sup> 2006.
14. "Safety First! Safe and Successful Wireless Medical Device Systems" with Todd Cooper. (Used a novel annotated PowerPoint proceedings format.) Healthcare Information Management Systems Society Annual Conference, San Diego, CA, 12-16 February, 2006.
15. "Conceptual Design and Resources for a General-Purpose Safety and Performance Verification and Validation Toolkit (V2T) for Life-Critical Wireless Medical Device Networks (WMDN)" with Rick Schrenker. Proceedings of the 27<sup>th</sup> Annual International Conference of the Engineering in Medicine and Biology Society, 2005. IEEE- EMBS 2005. Shanghai, China, 1-4 September 2005, pp: 178-181.
16. "Clinical Engineering Department Strategic Graphical Dashboard to Enhance Maintenance Planning and Asset Management" with Eric Rosow, et al. Proceedings of the 27<sup>th</sup> Annual International Conference of the Engineering in Medicine and Biology Society, 2005. IEEE- EMBS 2005. Shanghai, China, 1-4 September 2005, pp: 7107-7110.
17. "Ensuring Patient Safety by using Colored Petri Net Simulation in the Design of Heterogeneous, Multi-Vendor, Integrated, Life-Critical Wireless (802.x) Patient Care Device Networks)" with Vijay Gehlot. Proceedings of the 27<sup>th</sup> Annual International Conference of the Engineering in Medicine and Biology Society, 2005. IEEE- EMBS 2005. Shanghai, China, 1-4 September 2005, pp: 162-165.
18. "Optimal Medical Equipment Maintenance Service Proposal Decision Support System Combining Activity Based Costing (ABC) and the Analytic Hierarchy Process (AHP)" with Leticia da Rocha and Jose Bassani. Proceedings of the 27<sup>th</sup> Annual International Conference of the Engineering in Medicine and Biology Society, 2005. IEEE- EMBS 2005. Shanghai, China, 1-4 September 2005, pp: 7103-7106.

19. "Quality of Service (QoS) in Healthcare Applications: Colored Petri Net Simulation for Design of Heterogeneous, Multi-Vendor, Integrated, Life-Critical Wireless (802.x) Patient Care Device Networks" AMCIS (Association of Information Systems) Annual Conference, Omaha, NB, August 11-14, 2005.  
<http://aisel.isworld.org/proceedings/amcis/2005/program.asp>
20. "Sun Tzu and the Art of Healing: Executive Dashboards and Data Mining for Business Intelligence in Integrated, Lean Military Supply Logistics for the 21st Century" AMCIS (Association of Information Systems) Annual Conference, Omaha, NB, August 11-14, 2005. <http://aisel.isworld.org/proceedings/amcis/2005/program.asp>.
21. "Medical Equipment Maintenance Service Proposal Analysis Using the Analytic Hierarchy Process Tool" Proceedings of the Northeast Decision Sciences Institute (DSI) Annual Conference. Philadelphia, PA. March 30-April 1, 2005. With da Rocha, L., and Bassani, J.
22. "Integrating the Healthcare Enterprise - Alarm Integration and Interoperability for Patient Care Devices" HIMSS (Health Information Management Systems Society) Annual Conference, Dallas, TX, February 13-17, 2005.
23. "Applications of the Petri net to simulate, test, and validate the performance and safety of complex, heterogeneous, multi-modality patient monitoring alarm systems" Conference Proceedings. 26th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. San Francisco, CA. Volume 2 (2004), pp: 3492 - 3495
24. "Clinical Engineering Use of Event-Driven Process Chain (EPC) to Develop Enterprise Models of Collaborative Information and Workflow for Re-Engineering the Operating Room" AMCIS (Association of Information Systems) Annual Conference, New York, NY, August 6-8, 2004. <http://aisel.isworld.org/proceedings/amcis/2004/program.asp>
25. "Application of the Petri net to Simulate and Validate Complex, Multi-Vendor, Heterogeneous Networks of Wireless Medical Device Systems" AMCIS (Association of Information Systems) Annual Conference, New York, NY, August 6-8, 2004. <http://aisel.isworld.org/proceedings/amcis/2004/program.asp>
26. "Case studies using graphically enhanced DSS to improve healthcare technology assessments and clinical decisions" Proceedings of the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Volume 4 (2003) pp: 3636 - 3639. With Liberatore, M. and Nydick, R.
27. "Strategic dashboards for improved healthcare technology management decisions" Proceedings of the 25th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Volume 4 (2003) pp:3634 - 3635. With Rosow, E. and Adam, J.
28. "Integration of heterogeneous military medical supplies and computerized equipment maintenance management (CMMS) databases and decision support systems" Proceedings of the 25th Annual International Conference, IEEE Engineering in Medicine and Biology Society. Volume 4 (2003) pp: 3628 - 3629. With Rosow, E. and Adam, J.
29. "Case studies of graphically enhanced computer software to improve MIS and clinical decisions" AMCIS (Association of Information Systems) Annual Conference, Orlando, FL, August 4-6, 2003.  
<http://aisel.isworld.org/proceedings/amcis/2003/program.asp>
30. "Beyond HIPAA: The Successful Technology-Enabled Healthcare Enterprise" HIMSS (Health Information Management Systems Society) 2003 Annual Conference, San Diego, CA, February, 2003.
31. "Improved Medical Decision Support Using the Analytic Hierarchy Process (AHP): Creating new Tools for Clinical Engineers, Health Systems Engineers, Clinicians, Insurers, and Administrators" Decision Sciences Institute Annual Conference, San Diego, CA. November 2002.
32. "An Analysis of the Medical Decision Support, Expert Systems, and Artificial Intelligence Literature" Decision Sciences Institute Annual Conference, San Diego, CA. November, 2002.
33. "Workshop on Decision Support Using the Analytic Hierarchy Process (AHP) in Healthcare" Decision Sciences Institute Annual Conference, San Diego, CA. November 2002, with Matt Liberatore and Robert Nydick.
34. "Clinical Engineering Technology Assessment Decision Support: A case study using the analytic hierarchy process (AHP)" Proceedings of the 24th Annual International Conference of the IEEE Engineering in Medicine and Biology Society. Volume 3 (2002) pp: 1950-1951. With Liberatore, M., Nydick, R., Luo, W., Chung, Q.
35. "Health Technology Assessments Using the Analytic Hierarchy Process." with Liberatore, M., Nydick, R Association for the Advancement of Medical Instrumentation., 18<sup>th</sup> Annual Conference. Minneapolis, MN. 1-4 June, 2002.

36. "Case Study: Using AHP to Select Neonatal Ventilators for Abington Memorial Hospital's Women's Health Facility." Association for the Advancement of Medical Instrumentation (AAMI) 17<sup>th</sup> Annual Conference, Baltimore, MD. 9-13 June, 2001. With Lewandowski, J., Liberatore, M., Nydick, R., Wack, D.
37. "Decision Support for Optimizing Health Technology Assessment." Institute for Operations Research and the Management Sciences (INFORMS) 2000 Annual Conference. San Antonio, TX, 5 November, 2000. With Liberatore, M., Nydick, R.

### **Pedagogy-related conference and collegiate activities**

1. Development of Healthcare Information Systems Curricula for Physicians, Nurses, and Biomedical Engineers Students. Summer 2007 Faculty Education Symposium, San Jose Medical School, Technologia de Monterrey, Mexico. 18-22 June, 2007.
2. "Healthcare Information Systems Research and Career Opportunities in the Biomedical Engineering Field," lecture and panel. Annual Doctoral Student Seminar Series, IEEE EMBS 2006 Annual Conference. New York, NY, 30 August – 3 September 2006
3. Inaugural Senior Undergraduate Course: Clinical Engineering for Biomedical Engineering Students. Summer 2006 Semester, Biomedical Engineering Department of the San Jose Medical School, Technologia de Monterrey, Mexico. June-July, 2006.
4. "Healthcare Information Systems and Clinical Engineering Careers in the Biomedical Engineering Field," lecture and panel. Annual Doctoral Student Seminar Series, IEEE EMBS 2005 Annual Conference. Shanghai, China, 1-4 September 2005
5. Healthcare Information Technology Curriculum Panel (Refereed Panel co-chair, Moderator, and Panelist); AMCIS (Association of Information Systems) Annual Conference. Omaha, NB, August 11-14, 2005.
6. "Petri net simulation of wireless medical device alarm systems: Addressing an emerging critical safety issue in hospitals – Joint research between Compute Science and Business School" with Vijay Gehlot. Villanova Computer Science Colloquium Series, 25 April, 2005.
7. Association of Information Technology Professionals (AITP) Montgomery County and Philadelphia Suburban Collegiate Liaison, Career, and Activity Advisor (2000-2006). Villanova University, Delaware Valley College, Gwynedd Mercy College, Penn State Abington Campus, Widener University
  - Coordinator and advisor for annual AITP collegiate CIO curriculum committees for each Student Chapter
  - Head of annual Student Chapter scholarship and collegiate conference grant committees
  - Head of annual MIS Student's Career Regional CIO Roundtables.
8. Business Ethics Curriculum Study Group. Joint work-study mini-conference between Villanova's College of Commerce Finance and the College of Arts and Sciences. May, 2004.
9. Clinical Engineering curriculum advisor, Drexel University School of Biomedical Engineering. 2001 and 2003.

### **US Executive or Industry Education (Typically non-refereed and/or invited conferences, papers, and publications)**

1. "Strategic planning for convergence of information and clinical technologies in healthcare panel," panel member, by ECRI Institute at Massachusetts General Hospital and Center For the Integration Of Medicine & Innovative Technology (CIMIT), Boston, MA. 15 JUNE, 2007.
2. "SOA What! Is there a Service Oriented Architecture in Your Future?" 24x7 Magazine, June, 2007.
3. "The 21<sup>st</sup> Century Healthcare ISO: How CE and IT Need Each Other in Order to Succeed – and Survive – in Healthcare" Keynote for the Service Industry Association (SIA) Executive Summit, Las Vegas, NV, March 5, 2007.
4. "Providing a Solid Foundation: NHIN Pilot Development and How the IHE Technical Framework Accelerates RHIOS," Session 115, HIMSS 2007 Annual Conference, New Orleans, LA. 26 February - 1 March, 2007.
5. "Achieving Successful Enterprise Interoperability Using IHE Profiles and Standards" Keynote for the Clinical Engineering Forum, HIMSS '07 (Health Information Management Systems Society) Annual Conference, New Orleans, LA. 25 February, 2007.

6. "21<sup>st</sup> Century Manifesto: The CE and IT need each other in order to succeed!" Keynote for the GE Medical Biomedical Advisory Council. New Orleans, LA. 23 February, 2007.
7. "Understanding the Emerging National Healthcare IT Infrastructure" 24x7 Magazine, December, 2006.
8. "Medical-IT Convergence" Presenter and Facilitator, SIA Executive Roundtable, Philadelphia, PA, September 14, 2006.
9. "The IHE Initiative" with Ray Zambuto. 24x7 Magazine, May 2006
10. "An Industry and Standards Perspective on FDA's Unique Device Identifier NPR" Testimony to the Food and Drug Administration public meeting about the Notice of Proposed Rulemaking. 25 October, 2006, Gaithersburg, MD.
11. "The 21st Century Mission for Clinical Engineering: Injecting Systems Thinking into the Healthcare Enterprise." AAMI (Association for the Advancement of Medical Instrumentation) Annual Conference. Washington, DC. 24-26 June, 2006.
12. "Best Practices to Create and Successfully Manage Safe Wireless Patient Care Systems" with Todd Cooper. Three-hour workshop at the Medical Records Institute TEPR 2006 Annual Conference, Baltimore, MD, 21-24 May 2005.
13. "Healthcare IT Investments" SIA Executive Summit, Las Vegas, NV, March 5-7, 2006.
14. "Safe and Successful Digital Wireless Medical Device Systems" Delaware Valley HIMSS Regional CIO Conference, Doylestown, PA. April, 2006.
15. "Business Cases and "Warp Speed Ahead" to Patient Care Device Interoperability! Co-Presenter/Author with Ray Zambuto and Todd Cooper. HIMSS '06 Annual Conference, San Diego, CA, 12-16 February 2006.
16. "IHE-PCD Vision, Mission, and Scope," ACCE/HIMSS National IHE-PCD Launch Meeting, Washington, DC. 29-30 September, 2005.
17. "Successful Integration of Medical Devices and Information Systems" Speaker on behalf of HIMSS at the AAMI 21<sup>st</sup> Annual Conference, May 2005, Tampa, FL.
18. "From Connectors to Care Records, Making the Link: Medical Device Interface Solutions," with Todd Cooper. Medical Records Institute TEPR 2005 Annual Conference, Salt Lake City, UT, 14-18 May 2005.
19. "Strategic Planning Summit Clinical Engineering and IT – Partners in Patient Safety and Technology Effectiveness." Conference Chair, Keynote Speaker, and Moderator. Maryland Regional HIMSS Annual CIO Conference. Baltimore, MD. April 2005.
20. "Patient Care Devices: Focus on Alarm Integration and Interoperability" IHE Showcase Author and Lecturer, HIMSS '05 Annual Conference, Dallas, TX, February 13-17, 2005.
21. "Successful Strategic Planning for the Next Generation of Clinical Information Systems" HIMSS (Health Information Management Systems Society), Oregon Chapter Fall 2004 Annual CIO Meeting. Portland, OR, September. 30, 2004.
22. "Successful IT Security Strategies for the Golden Age of Integrated Biomedical and Information Systems" HIMSS National Annual CIO Summer Conference, Las Vegas, NV, June 15-15, 2004.
23. "Successful Project Management with Special Emphasis on Information Technology (IT) Projects!" Speaker on behalf of HIMSS at the AAMI 20<sup>th</sup> Annual Conference, Boston, MA, June 5-7, 2004.
24. "Health Systems Engineering and National Medical Emergency Response" Drexel School of Biomedical Engineering Professional Colloquium Series, May 2004.
25. "Health Systems Engineering – Transformational Solutions for Healthcare (Today, not tomorrow)" regarding a proposed Philadelphia Regional Health Information Organizations and Shared Clinical Trial Information Systems Drexel School of Biomedical Engineering and College of Medicine Panel, March 2004.
26. "eHealth: IT and the Reinvention of Healthcare" AITP - Penn State Chapter, Montgomery County, PA. November 18, 2003.
27. "Patient Safety and Medical Error Taxonomy Healthcare Industry Taskforce," World Health Organization. Geneva, SW October, 2003. (In Appendix 3 with White Papers)

28. "Expanding the Clinical Engineering Toolbox: New Health Systems Engineering Tools for a New Century" ACCE Clinical Engineering Symposium, Long Beach, CA, 14 June 2003.
29. "Workshop on the Application of the AHP in Healthcare Technology Management," AAMI 19<sup>th</sup> Annual Conference, Long Beach, CA, June 2003 with Matt Liberatore.
30. "An Analysis of the Medical Decision Support, Expert System, and Artificial Intelligence Literature" Colloquium of the Drexel College of Biomedical Engineering, May 2003.
31. "Successful Healthcare IT Leadership Strategies" Session Chair, Moderator, and Panelist. The CIO Forum, Valley Forge, PA, May, 2003.
32. "Macroeconomic Health Technology Assessment Using the Analytic Hierarchy Process – Two Case Studies" with Liberatore, M. and Nydick, R. New Jersey Chapter of INFORMS, Rutgers, NJ. 12 March, 2003.
33. "Current Developments in Medical Decision Support Systems" Regional HIMSS Annual CIO Conference, Atlanta, GA. November, 2002.
34. "Successful Healthcare Provider Gap Analysis: CIO Compliance and the HIPAA Law" Sessions Chair, Moderator, and Panelist. The CIO Forum, Valley Forge, PA, May, 2002.
35. "E-Health: MIS Challenges and Opportunities in Healthcare" AITP-Montgomery County, PA. April, 2002.
36. "Collaborating for Success: Creating Winning Clinical Engineering and IT Partnerships" HIMSS '02 Annual Conference, 27-31 January, 2002. Atlanta, GA, with Ben Clark, LaDonna Shedor, Alan Lipschultz, and Leo Gilmore.
37. "Leadership in the Digital Convergence Revolution" AAMI 17<sup>th</sup> Annual Conference, Long Beach, CA, 9-12 June 2001 Baltimore, MD. with Vik Kheterpal and Paul Coss.
38. "Managing Clinical Engineering and Information Technology – Point-Counterpoint" AAMI 17<sup>th</sup> Annual Conference, 9-12 June 2001 Baltimore, MD, with Ben Clark, LaDonna Shedor, Alan Lipschultz, and Leo Gilmore.
39. "Update on the FDA Biomedical Service & Remarketing Standard" Healthtech 2000, Baltimore, MD, February, 2000.

### **International Executive Education and Pedagogy**

PAHO Healthcare Technology and Clinical Information System Executive and Healthcare Industry Education Advisory Panel (2006)

PAHO Delegate and Presenter: "Emerging Trends in Healthcare Technologies" Bahamas National Healthcare Executives Conference, Nassau, February 4, 2005.

"Information Technologies in Healthcare" via Internet 2 Live Telecast to the College of Medicine and Biomedical Engineering, TEC University of Monterrey, MX, 2003.

Clinical Engineering and Healthcare Information Technology Executive Faculty, World Health Organization (WHO) and Pan American Health Organization (2000-2006)

- Advanced Clinical Engineering Workshop (ACEW) Curriculum Committee, 2005. 5-day executive management leadership and education program for Ministry of Health officials, hospital administrators, physicians, nurses, and clinical engineers.
- Central-Eastern Asia (WHO) ACEW; *Faculty Member* for the Computerized Maintenance Management Systems, Quality Management Programs, Life-Cycle Cost of Ownership Analytics, and Prevention and Management of Patient Injury and Death Incident modules. Kathmandu, Nepal, April 2001.
- Spanish Caribbean Community (PAHO) ACEW; *Workshop Leader and Faculty Member* for the Computerized Maintenance Management Systems, Quality Management Programs, Life-Cycle Cost of Ownership Analytics, and Prevention and Management of Patient Injury and Death Incident modules. Havana, Cuba, May 2001.
- English Caribbean Community (PAHO) ACEW; *Workshop Leader and Faculty Member* for the Computerized Maintenance Management Systems, Quality Management Programs, Life-Cycle Cost of Ownership Analytics, Executive Decision Systems, and Prevention and Management of Patient Injury and Death Incident modules. Cancun, Mexico, Cuba, July 2003.
- Latin American Community (PAHO) ACEW *Workshop Program Co-Leader and Faculty Member* for the Computerized Maintenance Management Systems, Quality Management Programs, Life-Cycle Cost of Ownership Analytics, Executive Decision Systems, and Prevention and Management of Patient Injury and Death Incident modules. Cancun, Mexico, Cuba, September 2003.

**Academic Book Chapters:**

Chapter Editor: Information Systems. Clinical Engineering Handbook, JF Dyro, editor. Burlington, MA. Elsevier Academic Press, 2004

Section Author: Information Systems Management. Clinical Engineering Handbook, JF Dyro, editor. Burlington, MA. Elsevier Academic Press, 2004

**Editorial Boards:**

*Biomedical Instrumentation Technology Journal*, since 1990.

*Technology for Respiratory Therapy*, 1990-2002.

*International Journal of Networks and Virtual Organizations*, since 2006

*International Journal of Biomedical Engineering and Technology*, since 2006

*Information Systems Management* Guest Editor with Dr. Vance Wilson for the Winter 2007 Special Issue on Healthcare Information Systems; Volume 23, Issue 2.

### **Industry Awards and Professional Certifications:**

American College of Clinical Engineering's Thomas O'Dea Clinical Engineering Advocacy Award, Washington, DC, June 2006.

ACCE-HIMSS Excellence in Clinical Engineering and Information Technology Synergies Award, HIMSS '07, New Orleans, March, 2007.

Professional credential, Certified Clinical Engineer (CCE), earned by oral and written examinations, June 2007.

### **University service activities**

- 1) Villanova School of Business Teaching Excellence Committee, since January, 2007. Voting member of the Dougherty Award and Summer Grant Sub-Committees.
- 2) Lead faculty advisor for the Business Ethics Fortnight team that was jointly sponsored by the Commerce and Finance (C&F) Ethics Committee, the C&F Center for Principled Leadership, and the Arts and Science Ethics Program in 2003. Trained and traveled with the team to compete in our first national collegiate competition in April, 2004 at Loyola Marymount University (CA). Successfully invited to the final competition round, and went toe-to-toe with the Naval Academy for first place. Though they didn't win, the students made a very fine showing for our first outing. Co-supervised the following year teams (2005-2006) in their competitions at Loyola Marymount University in this growing, competitive debate forum.
- 3) Villanova Center for Professional Ethics planning and advisory committee, College of Arts and Science, 2005 and 2006.
- 4) College of Commerce and Finance delegate to the Villanova University Who's Who Committee, Fall 2005.
- 5) Active member of C&F Ethics Committee in 2003, 2004, 2005, & 2006. Addressed University Mission-related teaching in all C&F majors and also supported the MBA Ethics Debating team events.
- 6) Participant in Summer '04 Business Ethics faculty workshop that was co-taught by Ethics and Business Ethics Program Staff. Worked on extending in-class business ethics training to improve the impact and quality of those efforts for Undergraduate and Graduate courses.

### **Recent professional/industry service activities**

- 1) Co-founder, IHE USA non-profit standards development organization, April, 2007.
- 2) Co-Chair, HIMSS International Integrating the Healthcare Enterprise (IHE) Strategic Development Committee (Appointed October, 2006)
- 3) ACCE Delegate to the HIMSS IHE Strategic Development Committee (since 2002.)
- 4) Co-Chair, Joint ACCE-HIMSS Integrating the Healthcare Enterprise Strategic Patient Care Device Domain (Since 2004.)
- 5) NIH Grant Review Committee, Biomedical NIH engineering, medical informatics, and bioengineering , Elder care Technologies for the elderly (since 2003.)
- 6) Board of Directors, Association of Information Technology Professionals (since 1998)
- 7) Board of Directors, IEEE Engineering in Medicine Society (2003-2006 and 2006-2009 terms).
- 8) Chair, IEEE Healthcare Information Systems Membership Development Board Committee (2005 & 2006)
- 9) Medical device and information systems IEEE/ISO/ANSI 11073 Standards Committee, Sponsor (Since 2004)
- 10) Board of Directors American College of Clinical Engineering (2001-2004)
- 11) Co-Founder and Board of Directors, ACCE Healthcare Technology Foundation. (Since 2004)
- 12) Advisory Board, Philadelphia Regional CIO Forum (2002-2006)
- 13) Investment Grant Biomedical Technology Advisory Committee (medical informatics and medical devices), Ben Franklin Technology Partnership (Since 2001)

### **Current society and industry organization activities**

- 1) Board of Directors, ACCE Healthcare Technology Foundation.
- 2) Board of Directors, Association of Information Technology Professionals
- 3) Board of Directors, IEEE Engineering in Medicine Society (EMBS)
- 4) Co-chair, AAMI Clinical Engineering and Productivity Management Committee (1988-present)
- 5) Co-chair ACCE/HIMSS IHE Patient Care Devices Domain (2004-present)
- 6) Co-chair, Integrating the Healthcare Enterprise (IHE) International Strategic Development Committee, Healthcare Information Systems Society (HIMSS), Radiologic Society of North America (RSNA), and American College of Cardiology (ACC), appointed Fall, 2006.
- 7) Appointed to the HIMSS Security and Privacy Advisory Committee, July, 2007.
- 8) Member, HIMSS Medical Device Security Workgroup, since 2005.

- 9) IHE Voting Delegate, ANSI Healthcare Information Standards Standards Panel (HITSP), on behalf of US Department of Health and Human Services (2006 and 2007)

**Recent conference/paper review chair activities (Note, this list is a selected subset, and is regularly updated)**

Annual International Conference of the IEEE Engineering in Medicine and Biology Society

- 1) Conference Theme Co-Chair, Clinical Engineering. 25<sup>th</sup>, 26<sup>th</sup>, 27<sup>th</sup>, and 28<sup>th</sup> Annual Conferences. (2003-2007)
- 2) Conference Theme Co-Chair, Healthcare Information Systems. 26<sup>th</sup>-29<sup>th</sup> Annual Conferences of the IEEE Engineering in Medicine and Biology Society. 2004 -2007.
- 3) Conference Theme Co-Chair, Biomedical Engineering Industry and Applications. 27<sup>th</sup> Annual Conference of the IEEE Engineering in Medicine and Biology Society. September 2005.
- 4) Session Co-Chair, Clinical Engineering. 25<sup>th</sup> - 29<sup>th</sup> Annual Conference of the IEEE Engineering in Medicine and Biology Society. September 2003-2007.
- 5) Session Co-Chair, Healthcare Information Systems. 26<sup>th</sup>, 27<sup>th</sup>, 28<sup>th</sup>, 29<sup>th</sup> Annual Conference of the IEEE Engineering in Medicine and Biology Society. September 2004-2007.
- 6) Conference Content Planning Committee. 26<sup>th</sup> Annual Conference of the IEEE Engineering in Medicine and Biology Society. Scottsdale, AZ, March, 2004.
- 7) 2007-2008 Conferences Committee, IEEE Engineering in Medicine and Biology Society.

Annual International Conference of the Americas Conference on Information Systems (AMCIS)

- 1) SIGHealth Annual Conference Track Conference Planning Committee. 2003 – 2007.
- 2) Mini-track co-chair and paper reviewer for Integrating the Digital Healthcare Enterprise sessions. 2004-2007.
- 3) Session Co-Chair and paper reviewer for “Integrating the Digital Healthcare Enterprise” Mini-Track and Sessions. Annual AMCIS (Americas Conference on Information Systems) Conferences. August 2004-2007.

**PRE-ACADEMIC CAREER PUBLICATION, RESEARCH, AND EXECUTIVE EDUCATION  
ACTIVITIES (i.e., prior to joining Villanova University in May, 2000)**

**Publications and Software Systems: (1984 to present)**

“Subacute Care: New Equipment, New Maintenance Concerns”, Nursing Homes Magazine, Vol. 44, No. 8, October 1995

“Rapid Serial Visual Presentation (RSVP) for Professional Tasks: A Trial Study of an Accelerated Reading Display for Citation Relevance Judgments by Domain Experts”, Elliot B. Sloane, Doctoral Dissertation accepted by Drexel University College of Information Science and Technology, July 1999

Health Devices Inspection and Preventive Maintenance System (Book), Contributing Author. ECRI, Plymouth Meeting, PA 1984

Health Devices Annual Sourcebook and Database, Software System Designer and Publisher. ECRI, Plymouth Meeting, PA 1984-1990

Health Devices Product Comparison Report System and Database, Software System Designer and Publisher. ECRI, Plymouth Meeting, PA 1984-1990

Hospital Equipment Control System (IBM PC Software and Book), Principal Software System Designer, Programmer, and Contributing Author. ECRI, Plymouth Meeting, PA 1987

**Earlier Publications:** Principal investigator and author of these issues of Health Devices Journal, Published by Emergency Care Research Institute (ECRI), Plymouth Meeting

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|-----|--|----------------|-----------|
| 1.  | "Primer on Medical Oxygen"                           | Vol. 5:No. 10; | Aug. 1976 |
| 2.  | "Evaluation: Oxygen Regulators"                      | Vol. 5:No. 10; | Aug. 1976 |
| 3.  | "Evaluation: Oxygen Flowmeters"                      | Vol. 5:No. 10; | Aug. 1976 |
| 4.  | "Evaluation: Oxygen Regulators"                      | Vol. 5:No. 12; | Oct. 1976 |
| 5.  | "Evaluation: Oxygen/Flowmeter Combinations"          | Vol. 6:No. 1;  | Nov. 1976 |
| 6.  | "Evaluation: Oxygen Masks"                           | Vol. 6:No. 7;  | May 1977  |
| 7.  | "Evaluation: Electrical Safety Analyzers"            | Vol. 7:No. 2;  | Dec. 1977 |
| 8.  | "Evaluation: Battery-Powered Defibrillator/Monitors" | Vol. 7:No. 10; | Aug. 1978 |
| 9.  | "Evaluation: Oxygen Gas-Powered Resuscitators"       | Vol. 8:No. 2;  | Dec. 1978 |
| 10. | "Pulmonary Resuscitation with Artificial Airways"    | Vol. 8:No. 2;  | Dec. 1978 |
| 11. | "Resuscitator Use and Abuse"                         | Vol. 8:No. 2;  | Dec. 1978 |

**Hazard and Accident Investigations and Publications (Principal Investigator): ECRI, 1975-1979**

1. “Hazard Report: MRL defibrillator monitor”
2. “Hazard Report: Sorenson shunt”
3. “Hazard Report: Razel infusion pump”
4. “Hazard Report: Robertshaw resuscitator” (“Pink Sheet”, Nationwide Hazard Alert Bulletin)
5. “Hazard Report: Ohio Kreiselman resuscitator”
6. “Hazard Report: Instrutek electrical safety tester”
7. “Hazard Report: BD-Electrodyne defibrillator paddle connector”

#### **Invited International Presentations and Lectures: 1984 – 1994**

1. 1993; "FDA's Safe Medical Device Act of 1990 Regulations for Medical Device Users", Annual Materials Managers Conference - South Carolina Hospital Association, Hilton Head, SC
2. 1993; "Impact of FDA's Safe Medical Device Act of 1990 Medical Device Recall Policies", Annual Conference, AAMI, Boston, MA
3. 1992; Revised, updated, and presented above full-day Technology Assessment course at Annual Conference - AAMI, Anaheim, CA
4. 1991; "Medical Equipment Technology Assessment Strategies for the 90's", Course Director, full-day course at Annual Conference, - AAMI, Washington, DC
5. 1984; "AHA Arrhythmia Database Update", AAMI - Washington, DC
6. 1989; "Medical Equipment Selection, Acquisition, and Safety/Reliability Management", World Health Organization (WHO) and Pan American Health Organization (PAHO) Conference on Medical Technology Management and Assessment for Caribbean Countries, - Port of Spain, Trinidad
7. 1988; International Conference on Linking WHO Collaborating Center Medical Device Reliability Databases, World Health Organization - Dusseldorf, W. Germany
8. 1988; "International Medical Equipment Reliability Databases and Experience", World Congress of Medical Physics & Biomedical Engineering - San Antonio, TX
9. 1987; "International Medical Equipment Reliability Databases and Indexing", Annual Conference WHO/LINFO - Linkoping, Sweden
10. 1987; "The Development and History of Biomedical Engineering in the United States", Brazilian Clinical Engineering Conference - Rio de Janeiro, Brazil
11. 1986; AAMI Northeast Regional Conference - Equipment Control Program Albany, NY
12. 1984; 1) "Medical Equipment Reliability Databases" and 2) "National Medical Equipment Management Program", -Australia Dept. of Health Canberra, Australia
13. 1985; Annual Conference, AAMI - Panel, Equipment Control Programs Experts Roundtable - Chicago, IL
14. 1985; "Computerized Medical Equipment Registration", Australia Dept. of Health - Melbourne, Australia

#### **Earliest Invited International Presentations and Lectures: 1975-1984**

1. 1983; "AHA Arrhythmia Databases", Annual Conference Association for the Advancement of Medical Instrumentation (AAMI) - Los Angeles, CA
2. 1980; "Physician Automation", Podiatry Association - Philadelphia, PA
3. 1979; Northeast Regional Cardiology Conference - Hartford, CT
4. 1979; "Electrical Safety in Medical Devices", American Society of Cardiologists - Hershey, PA 1975; "Medical Device Safety", Respiratory Therapy Association Northeast Regional Conference -Philadelphia, PA
5. 1978; "Medical Equipment Hazards and Safety", Annual Conference of Emergency Physicians - Tarpon Springs, FL
6. 1977; Committee member, Cardiopulmonary Resuscitation Conference, National Research Council, Committee on Resuscitation Washington, DC
7. 1978; "Biomedical Equipment Inspection and Preventative Maintenance", Ohio Hospital Association - Akron, OH
8. 1978; "Biomedical Equipment Maintenance Programs", Ohio Hospital Association - Columbus, OH