

Michael G. Kahn M.D., Ph.D.
Curriculum Vitae – University of Colorado Format
Updated: 21 November 2009

1. Personal history

Present Positions: Associate Professor of Pediatrics
Division of Clinical Epidemiology
Department of Pediatrics
University of Colorado, Denver
Michael.Kahn@ucdenver.edu

Co-Director, Colorado Clinical and Translational Sciences Institute
(CCTSI)
Core Director, Biomedical Informatics
University of Colorado, Denver

Director, Department of Clinical Informatics
The Children's Hospital
Aurora, Colorado
Kahn.Michael@tchden.org

2. Education

Dates	Major	University	Major
1971-1975	B.S.	University of California, Irvine	Biological Sciences
1971-1975	B.A.	University of California, Irvine	Chemistry
1975-1979	M.D.	University of California, San Diego	Medicine
1983-1988	Ph.D.	University of California, San Francisco	Medical Information Sciences

Dates	Position	Institution	Location
1979-1980	Intern, Internal Medicine	St. Mary Medical Center	Long Beach, California
1980-1981	Research Fellow, Ophthalmology	Massachusetts Eye and Ear Infirmary	Boston, Massachusetts
1981-1983	Resident, Internal Medicine	St. Mary Medical Center	Long Beach, California
1983-1988	Visiting Research Scholar	Medical Computer Sciences Group Knowledge Systems Laboratory Stanford University	Stanford, California
1985-1988	Post-Doctoral Fellow	National Library of Medicine University of California	San Francisco, California

3. Academic Positions

Dates	Position	Institution	Location
1988-1989	Instructor in Medicine	Department of Medicine Washington University School of Medicine	St. Louis, Missouri
1988-1997	Assistant Professor	Department of Computer Sciences	St. Louis, Missouri

Dates	Position	Institution	Location
1988-1997	(by courtesy) Assistant Professor (by courtesy)	Washington University School of Engineering and Applied Sciences Institution of Biomedical Computing Washington University School of Medicine and School of Engineering and Applied Sciences	St. Louis, Missouri
1989-1997	Assistant Professor	Department of Internal Medicine Washington University School of Medicine	St. Louis, Missouri
18993-1997	Division Chief	Division of Medical Informatics Department of Internal Medicine Washington University School of Medicine	St. Louis, Missouri
1994-1997	Assistant Professor (by courtesy)	Department of Radiology Washington University School of Medicine	St. Louis, Missouri
2005-current	Associate Professor	Department of Pediatrics University of Colorado, Denver	Aurora, Colorado
2007 – current	Associate Professor (by courtesy)	Graduate School University of Colorado, Denver	Aurora, Colorado
2008-current	Associate Professor (by courtesy)	College of Nursing University of Colorado, Denver	Aurora, Colorado
2008-current	Co-Director	Colorado Clinical and Translational Sciences Institute University of Colorado	Aurora, Colorado
2008-current	Core Director	Biomedical Informatics Core Colorado Clinical and Translational Sciences Institute	Aurora, Colorado
2009-current	Associate Professor (by courtesy)	Department of Informatics and Biostatistics Colorado School of Public Health University of Colorado, Denver	Aurora, Colorado

4. Hospital, government or other professional positions

Dates	Position	Institution	Location
1983-1985	Staff Physician	Ambulatory Care Clinic General Internal Medicine University of California	San Francisco, California
1983-1985	Staff Physician	Kaiser Permanente Medical Center	S. San Francisco, California
1994-1997	Director, Advanced Clinical Information Systems	BJC Health System	St. Louis, Missouri
1997-1999	Vice President, Product Development	Rodeer Systems	Broomfield, Colorado
1999-2004	Founder, CMO, Vice President	Fast Track Systems	Conshohocken, Pennsylvania
2004-2005	Director, Medical Informatics Enterprise Systems	GE Health Systems	Barrington, Illinois
2006-current	Director, Clinical Informatics	The Children’s Hospital	Denver, Colorado
8/2008	Consultant, Evaluation of Washington State University Biomedical Informatics program	Vanderbilt Center for Better Health	Nashville, Tennessee

Dates	Position	Institution	Location
8/2008-12/2009	Consultant, Clinical data warehouse and business intelligence	Emergis Inc.	Ontario, Canada
2009	Consultant, CTSA grant application	University of Kansas	Kansas City, KS
2009	Consultant, CTSA grant application	University of California	Irvine, California
2009-current	CTSA external advisory board, Biomedical informatics	Mt. Sinai School of Medicine	New York, NY

5. Honors, special recognitions, awards

Date of award	Award Title
1971-1975	Regents Scholar, University of California
1974	Phi Beta Kappa, University of California, Irvine
1975	Summa cum laude, Biological Sciences, University of California, Irvine
1975	Magna cum laude, Chemistry, University of California, Irvine
1980	Outstanding Intern of the Year, St. Mary Medical Center
1983	Outstanding Resident of the Year, St. Mary Medical Center
1989	Fellow, American College of Physicians
1991	Elected Fellow, American College of Medical Informatics
1996	Smithsonian Institute, Innovation in Technology Finalist
2007	Outstanding Research Mentor Award, University of Colorado Denver, Clinical Sciences Program

6. Membership in professional organizations

1981-current	American College of Physicians
1986-1995	Institute of Electrical and Electronics Engineers
1986-1995	Association for Computing Machinery
1995 (date of incorporation) – current	American Medical Informatics Association

Offices held:

1994-1998	Board of Scientific Counselors, National Library of Medicine
1994-1997	Board of Directors, American Medical Informatics Association

7. Major Committee and Service Responsibilities

Date	Committee
11/2005-current	Excelsior College, Informatics Curriculum Committee
11/2005 - current	Excelsior College, School of Health Sciences Faculty Committee
11/2005 – 5/2008	Pediatrics GCRC Scientific Advisory Council (SAC) (ex-officio)
11/2005 – 5/2008	Pediatrics GCRC Governing Advisory Council (GAC) (ex-officio)
11/2005 – current	The Children’s Hospital (TCH) EPIC Physician Advisory Committee
2/2006 – current	Member, TCH Outcomes Committee
2/2006 – 11/2006	Section leader, University of Colorado CTSA Planning Grant – Biomedical Informatics Core
11/2006 -5/2008	Chair, Clinical Sciences Program Industry Liaison Committee
2/2007 – current	Clinical Translational Research Advisory Committee (CTRAC) – Advisory committee to the Dean of the School of Medicine, University of Colorado

Date	Committee
7/2007-7/2008	Guest participant, Implementation Committee State of Colorado Hospital Quality Report Card
10/2007-12/2007	Team lead, Oversight Committee, U.S. News & World Report Best Children's Hospitals in America Survey Evaluation Group
11/2006-11/2007	Scientific Program Committee, American Medical Informatics Association Annual Symposium
11/2007-5/2009	Co Track Chair, Scientific Program Committee, American Medical Informatics Association Spring Symposium
8/2008-1/2009	Editorial Review Board, U.S. News & World Report Best Children's Hospitals in America Survey
3/2009-4/2010 (est)	American Medical Informatics Clinical Research Informatics Task Force (advisory to the AMIA Board of Directors)
9/2009-5/2010 (est)	Co Track Chair, Scientific Program Committee, American Medical Informatics Association, Clinical Research Informatics Summit

8. Licensure and board certification

Medical Licensure: California
Colorado
Board Certification: Internal Medicine, 1984

9. Inventions, intellectual property and patents held or pending

5,251,126 Diabetes data analysis and interpretation method. Issued: 5 October 1993
7,444,293 Improving clinical trial protocol quality using a model-based methodology. Issued: 28
October 2008
Pending Clinical trials management system and method. Filed: 31 May 2000
Pending Design assistance for clinical trial protocols. Filed: 5 June 2003

10. Review and referee work

1992-1997 Editorial Board, Artificial Intelligence in Medicine
1994-2001 Editorial Board, Journal of the American Medical Informatics Association
1997-2002 Editorial Board, International Journal of Medical Informatics
2006-current Editorial Board, Journal of the American Medical Informatics Association
2006-current Reviewer, Journal of Biomedical Informatics
6/2008 Member, CTSA Informatics Pilot Projects RFP 08-001 NCRR Administrative
Supplement Study Section Review Panel
2/2009 Member, Scientific Review Committee NCRR CTSA Panel ZRR1 CR-1 (01)
7/2009 Member, Scientific Review Committee DABP Research and Research Infrastructure
GO-RC2 Special Emphasis Panel ZRG1 HDM-E(99)
7/2009- Member, Biomedical Library and Informatics Review Committee (study section),
7/2013(est) National Library of Medicine, National Institutes of Health
9/2009 Chair, Scientific Review Committee Special Emphasis Panel/Scientific Review Group
2009/10 PSE-B(98) S

**11. Invited extramural lectures, presentations and visiting professorships
(University of Colorado only)**

Date	Organization	Meeting title / Talk title
2/2006	Colorado Council of Medical Librarians	Regional Annual Meeting <i>Knowledge Steward: A New Role for Medical Librarians?</i>
6/2006	Office of Human Research Protection	Special Populations / Special Research Situations <i>Genetic Research & Testing: Data Sharing, HIPAA and Maintaining Non-identifiably</i>
9/2006	Arizona State University	School of Computer and Information Sciences Kickoff Seminar <i>Data Management Challenges in the Post-Genomic Era</i>
11/2006	Turkish Medical Informatics Association	Third Turkish Medical Informatics Congress <i>(1) Clinical Decision Support – A Pragmatic Overview</i> <i>(2) Introduction to Research Informatics</i>
1/2007	American College of Medical Informatics	2007 Retreat <i>Informatics Tools for Translational Research</i>
4/2008	University of Colorado	Nursing Grand Rounds <i>Quality versus Research</i>
7/2009	National Institute for Drug Abuse	Narrowing the Research-Practice Divide in Evidence-based Medicine with Adoption of Electronic Medical Records Systems: Present and Future Directions
9/2009	The Children's Hospital	18th Annual O'Neil Pediatric Clinical Update <i>Pediatric Quality Measures</i>
9/2009	Mid-Continental Medical Librarian Association Annual Meeting	MCMLA 2009: High Altitudes, New Attitudes <i>Action-Oriented Medical Librarianship: Integration with Clinical and Operational Excellence</i>

12. Teaching record

Presentations to students, trainees

Date	Course/Event	Talk Title
4/2006	CLSC 6800 HIT Guest Lecture	Introduction to Clinical Decision Support – What is the Business Case?
4/2006	Internal Medicine Senior Resident Informatics Rotation	Introduction to Clinical Decision Support for Clinicians
2/2007	Center for Computational Pharmacology	Clinical informatics in the post-genomic era: The bedside/clinic perspective
5/2007	Internal Medicine Senior Resident Informatics Rotation	Introduction to Clinical Decision Support for Clinicians
10/2007	Department of Pediatrics first Year Fellows Retreat	Informatics tools and services for clinical research
4/2008	Internal Medicine Senior Resident Informatics Rotation	Introduction to Clinical Decision Support for Clinicians

Courses

Date	Course	Role
9/2007-12/2007	NURS 6289: Information Systems Life Cycle	Teaching Assistant
1/2008-5/2008	NURS 6293: Database Management Systems	Course Master
1/2008-5/2008	CLSC 6800: Introduction to Health Information Technology	Co-Course Master
6/2008-7/2008	NURS 6279: Knowledge Management Systems	Co-Course Master

Date	Course	Role
8/2008-12/2008	NURS 6836: Foundations in Health Informatics	Co-Course Creator Co-Course Master
1/2009-6/2009	NURS 6293: Database Management Systems	Course Master

Student Examination Committees

Date	Examination	Student
11/2007	Master of Nursing Comprehensive Examination College of Nursing	Kim Blea
11/2007	Master of Nursing Comprehensive Examination College of Nursing	Kate Schmitz
4/2008	Master of Nursing Comprehensive Examination College of Nursing	Robin Roling
7/2008	Master of Nursing Comprehensive Examination College of Nursing	Catherine MacAlpine
7/2008	Master of Nursing Comprehensive Examination College of Nursing	Marilyn Bowman-Hayes
11/2008	Master of Nursing Comprehensive Examination College of Nursing	Fran Sercer
11/2008	Master of Nursing Comprehensive Examination College of Nursing	Jessie Willard
4/2009	Master of Nursing Comprehensive Examination College of Nursing	Meredith Mealer

Faculty Mentorships, Graduate Student Advisor

Date	Student/Faculty	Program	Role
1/2006 - current	Marion Sills MD	DOP faculty development	Co-faculty research mentor
5/2006 – current	Amy Taylor	CLSC HIT PhD student	PhD advisor
5/2006 – current	Joseph Kunisch RN	CLSC HIT PhD student	PhD advisor
7/2007 – current	Eric Tham MD	DOP faculty development	Faculty research mentor
11/2009 - current	Jane Carrington RN	CON faculty development	Faculty research mentor

13. Grant support

Current Funding

5 UL1 RR025780-02 (Sokol, Ronald J) 5/19/2008-4/30-2013 4.8 calendar months
NIH/NCRR \$11,957,923 (Direct Costs)

Colorado Clinical Translational Sciences Institute

The program incorporates a broad reaching intra and inter-institutional comprehensive program to enhance clinical and translational research and science, training of clinical and translational scientists, and collaboration with the communities of the state of Colorado and the surrounding region.

NOTE: The effort provided by Dr. Kahn is dedicated to the CCTSI but paid entirely through the Institution's cost share commitment. Dr. Kahn's effort is formally tracked and recorded as cost share to this project.

3 UL1 RR025780-02S3 (Sokol, Ronald J) 9/26/2009-9/25/2011 2.4 calendar months
NIH/NCRR \$625,385 (Direct Costs)

Colorado Clinical Translational Sciences Institute

Supplement: Advance Translational (T1 and T2) Research by evaluating Internet-based remote access to electronic clinical systems to support study monitoring tasks.

This proposal will evaluate Internet-based remote access to electronic clinical systems to support study monitoring tasks. The project engages two NIH-sponsored clinical trial networks (adult: ARDS network;

pediatrics: BARC/ChiLDREN network) at five trial locations and two coordinating centers located across four states. Each study location uses different electronic clinical systems and remote access methods, replicating the diversity of clinical applications and access methods found across large research networks. This proposal will increase the tempo and efficiency of research.

Prior Funding

5M01 RR00069-45 (Krugman, R)	03/01/2006-05/19/2008	2.4 calendar months
NIH/NCRR	\$3,652,468	

General Clinical Research Center

The major goal of the General Clinical Research Center is to provide the infrastructure for performance of clinical (patient-oriented) investigation in infants, children and adolescents and in pregnant women. Funding ceased with the award of the NCRR CTSA grant

1P20 RR023500-01 (Geraci, M)	09/23/2006-09/22/2007	0.6 calendar months
NIH/NCRR	\$150,000	

CTSA Planning Grant Award

The overall goal of the Colorado CTSA planning grant is to structure a comprehensive strategy for establishing a CTS Center or Institute in Colorado. In considering this process, extensive thought is given to the breadth of resources needed for efficient translation of findings in all areas to effective health practices, capitalizing on mature resources here.

R29-LM05387 (Kahn, Michael)	2/1/1992-1/31/1997	50% Effort
NIH/NLM	\$341,400 (5 years – direct costs)	

Time and Context in Medical Databases

U01-CA60267 (Purdy, J)	3/1/1993-2/28/1997	15% Effort
NIH/NCI/RTOG	\$532,681 (5 years – direct costs)	

3-D Dose Escalation Study for Prostate Cancer (subcontract within RTOG)

U01-LM05845 (Kahn, M)	9/30/1994-9/27/1997	15% Effort
NIH/NLM	\$763,285 (3 years – direct costs)	

Automated Tools to Support Health Services Research

N/A	1/1/1994-4/1/1997	15% Effort
BJC Health Systems	\$250,000 (annual direct costs)	

Project Spectrum, a Multi-Institutional Data Repository

N/A (Kahn, M)	7/1/1990-6/30/1992	40% Effort
Whitaker Foundation	\$95,584 (2 years – direct costs)	

Automated Interpretation of Time-Varying Clinical Data using Numeric and Symbolic Techniques

N/A (Kahn, M)	3/1/1990-2/28/1992	10% Effort
Diabetes Treatment Centers of America Foundation	\$42,850 (direct costs)	

Automated Interpretation of Diabetes Patient Data

N/A (Kahn, M)	11/1/1990-10/31/1992	20% Effort
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NIH/NIDDK \$29,283 (direct costs)
Diabetes Research and Training Center: Pilot and Feasibility Grant

N01-CM-97564 (Purdy, J) 3/1/1989-2/28/1994 15% Effort
NCI \$908,746 (5 year - total costs)
Radiation Treatment Planning Tools

14. Bibliography

Peer-Reviewed Publications

- [1] Berry CC, Binder PS, **Kahn MG**. Distribution of cell areas in normal and transplanted corneas. *Experimental Eye Res.* 1980;31:623-35.
- [2] **Kahn MG**, Giblin FJ, Epstein DL. Glutathione in calf trabecular meshwork and its relation to aqueous humor outflow facility. *Invest Ophthalmol Vis Sci* 1983;24(9):1283-7. [PMID: 6885312]
- [3] Lindenmayer JM, **Kahn MG**, Hertzmark E, Epstein DL. Morphology and function of the aqueous outflow system in monkey eyes perfused with sulfhydryl reagents. *Invest Ophthalmol Vis Sci* 1983;24(6):710-7. [PMID: 6853097]
- [4] Van Meter J, Whiting-O'Keefe QE, **Kahn MG**, Warner A. Improving the quality of data in STOR. In: Ackerman MJ, editor. *Proc Symp Comp Appl Med Care*; 1984; Washington DC: IEEE Computer Society Press; 1984. p. 910-12.
- [5] **Kahn MG**, Ferguson JC, Shortliffe EH, Fagan LM. Representation and use of temporal information in Oncocin. In: Ackerman MJ, editor. *Proc Symp Comp Appl Med Care*; 1985; Washington DC: IEEE Computer Society Press; 1985. p. 172-176.
- [6] **Kahn MG**, Fagan LM, Shortliffe EH. Context-specific interpretation of patient records for a therapy advice system. In: Salamon R, Blum B, Jorgensen M, editors. *MEDINFO-86*; 1986; Amsterdam: North-Holland Publishing Company; 1986. p. 175-179.
- [7] Cousins SB, **Kahn MG**, Frisse ME. The display and manipulation of temporal information. In: Kingsland LC, editor. *Proc Symp Comp Appl Med Care*; 1989; Washington DC: IEEE Computer Society Press; 1989. p. 76-80.
- [8] **Kahn MG**, Fagan LM, Sheiner LB. Model-based interpretation of time-varying medical data. In: Kingsland LC, editor. *Proc Annu Comp Appl Med Care*; 1989; Washington DC: IEEE Computer Society Press; 1989. p. 28-32.
- [9] Tu SW, **Kahn MG**, Musen MA, Ferguson JC, Shortliffe EH, Fagan LM. Episodic skeletal-plan refinement based on temporal data. *Comm ACM* 1989;32:1439-1455.
- [10] Zimmerman JB, Cousins SB, Hartzell KM, Frisse ME, **Kahn MG**. A psychophysical comparison of two methods for adaptive histogram equalization. *J Digit Imaging* 1989;2(2):82-91. [PMID: 2488161]
- [11] Cousins SB, **Kahn MG**. Visualizing operations on temporal data. In: Ezquerra NF, editor. *Proc, First Conf Visualization Biomed Comput*; 1990; Los Alamitos, CA: IEEE Computer Society Press; 1990. p. 72-76.

- [12] Frisse ME, Ge NJ, Langenbacher JM, **Kahn MG**, Brownstein BH. A yeast artificial chromosome library database - design considerations. In: Miller RA, editor. Proc Symp Comp Appl Med Care; 1990; Washington DC: IEEE Computer Society Press; 1990. p. 94-98.
- [13] **Kahn MG**, Abrams CB, Cousins SB, Beard JC, Frisse ME. Automated interpretation of diabetes patient data: Detecting temporal changes in insulin therapy. In: Miller RA, editor. Proc Symp Comp Appl Med Care; 1990; Washington DC: IEEE Computer Society Press; 1990. p. 569-573.
- [14] Cousins SB, **Kahn MG**. The visual display of temporal information. Artificial Intelligence in Medicine 1991;3:341-357.
- [15] Jain NL, **Kahn MG**. Ranking radiotherapy treatment plans using decision-analytic and heuristic techniques. In: Clayton PD, editor. Proc Annu Symp Comp Appl Med Care; 1991; Washington DC: McGraw-Hill, Inc; 1991. p. 1000-1004. [PMID: 1807562]
- [16] **Kahn MG**, Abrams CB, Orland MJ, Beard JC, Cousins SB, Miller JP, et al. Intelligent computer-based interpretation and graphical presentation of self-monitored blood glucose and insulin data. Diabetes, Nutrition & Metabolism 1991;4 (Suppl 1):99-107.
- [17] **Kahn MG**, Fagan LM, Sheiner L. Combining physiologic models and symbolic methods to interpret time-varying patient data. Meth Inf Med 1991;30(3):167-78. [PMID: 1943788]
- [18] **Kahn MG**, Tu S, Fagan LM. TQuery: a context-sensitive temporal query language. Comput Biomed Res 1991;24(5):401-19. [PMID: 1743002]
- [19] **Kahn MG**. Modeling time in medical decision-support programs. Med Decis Making 1991;11(4):249-64. [PMID: 1766328]
- [20] **Kahn MG**, Fagan LM, Tu S. Extensions to the time-oriented database model to support temporal reasoning in medical expert systems. Meth Inf Med 1991;30(1):4-14. [PMID: 2005832]
- [21] Jain NL, **Kahn MG**. Ranking radiotherapy treatment plans using decision-analytic and heuristic techniques. Comput Biomed Res 1992;25(4):374-83. [PMID: 1511598]
- [22] Hripcsak G, Wigertz O, **Kahn M**, Clayton P, Pryor T. ASTM E31.15 on health knowledge representation: the Arden Syntax. Stud Health Technol Inform 1993;6:105-12. [PMID: 10163801]
- [23] Jain NL, **Kahn MG**, Drzymala RE, Emami BE, Purdy JA. Objective evaluation of 3-D radiation treatment plans: a decision-analytic tool incorporating treatment preferences of radiation oncologists. Int J Radiat Oncol Biol Phys 1993;26(2):321-33. [PMID: 8491690]
- [24] Jain NL, **Kahn MG**. Objective evaluation of radiation treatment plans. In: Safran C, editor. Proc Annu Symp Comp Appl Med Care; 1993; Washington DC: McGraw-Hill; 1993. p. 134-138. [PMID: 8130449]
- [25] **Kahn MG**. The desktop database dilemma. Acad Med 1993;68(1):34-7. [PMID: 8447890]
- [26] **Kahn MG**, Steib SA, Fraser VJ, Dunagan WC. An expert system for culture-based infection control surveillance. Proc Annu Symp Comput Appl Med Care 1993:171-5. [PMID: 8130456]

- [27] Marrs KA, Steib SA, Abrams CA, **Kahn MG**. Unifying heterogeneous distributed clinical data in a relational database. *Proc Annu Symp Comput Appl Med Care* 1993:644-8. [PMID: 8130554]
- [28] Schoening PA, Abrams CA, **Kahn MG**. An object model for uniform access to heterogeneous databases. *Proc Annu Symp Comput Appl Med Care* 1993:502-6. [PMID: 8130524]
- [29] Drzymala RE, Holman MD, Yan D, Harms WB, Jain NL, **Kahn MG**, et al. Integrated software tools for the evaluation of radiotherapy treatment plans. *Int J Radiat Oncol Biol Phys* 1994;30(4):909-19. [PMID: 7960994]
- [30] Jacky J, Kalet I, Chen J, Coggins J, Cousins S, Drzymala R, Harms W, **Kahn M**, Kromhout-Schiro S, Sherouse G, et al. Portable software tools for 3D radiation therapy planning. *Int J Radiat Oncol Biol Phys* 1994;30(4):921-8. [PMID: 7960995]
- [31] Jain NL, **Kahn MG**. Clinical decision-support systems in radiation therapy. In: Purdy J, editor. *3D Radiation Treatment Planning and Conformal Therapy*. Madison, WI: Medical Physics Publishing; 1994.
- [32] Murphy JM, Jain NL, Romero CA, **Kahn MG**. Construction of a literature database and its use to provide probabilities for decision-analytic models of thrombolytic therapy. *J. Am Med Inform Assoc (Suppl)* 1994;1:819-23. [PMID: 7950039]
- [33] Coble JM, Maffitt JS, Orland MJ, **Kahn MG**. Contextual inquiry: Discovering physician's true needs. In: Gardner JM, editor. *Proc Annu Symp Comput Appl Med Care*; 1995; Washington DC: Hanley & Belfus, Inc.; 1995. p. 469-73. [PMID: 8563326]
- [34] Fritz KA, **Kahn MG**. Project Spectrum: An eighteen hospital enterprise-wide electronic medical record. In: Waegemann CP, editor. *Toward an electronic patient record '95*; 1995; Orlando FL: Medical Records Institute; 1995. p. 59-67.
- [35] Jain NL, **Kahn MG**. Using knowledge maintenance for preference assessment. In: Gardner RM, editor. *Proc Annu Symp Comput Appl Med Care*; 1995; Washington DC: Hanley & Belfus, Inc; 1995. p. 263-9. [PMID: 8563281]
- [36] **Kahn MG**. The computer-based patient record and Robert Fulghum's 16 principles. *MD Comput* 1995;12(4):253-8. [PMID: 7651089]
- [37] **Kahn MG**, Marrs KA. Creating temporal abstractions in three clinical information systems. In: Gardner RM, editor. *Proc Annu Symp Comput Appl Med Care*; 1995; Washington DC: Hanley & Belfus, Inc; 1995. p. 392-6. [PMID: 8563309]
- [38] **Kahn MG**, Steib SA, Spitznagel EL, Dunagen WC, Fraser VJ. Improvement in user performance following development and routine use of an expert system. In: Greenes RA, Peterson HE, Protti DJ, editors. *Medinfo-95*; 1995; Edmonton Alberta, Canada: International Medical Informatics Association / Healthcare Computing & Communications Canada, Inc; 1995. p. 1064-7. [PMID: 8591368]
- [39] Marrs KA, **Kahn MG**. Extending a clinical repository to include multiple sites. In: Gardner RM, editor. *Proc Annu Symp Comput Appl Med Care*; 1995; Washington DC: Hanley & Belfus, Inc; 1995. p. 387-91. [PMID: 8563308]

- [40] Murphy JF, **Kahn MG**, Krone RJ. Prethrombolytic versus thrombolytic era risk stratification of patients with acute myocardial infarction. *Am J Cardiol* 1995;76(11):827-9. [PMID: 7572665]
- [41] Murphy JF, Marrs KA, **Kahn MG**. A probability database for decision-analytic models of coronary revascularization procedures. In: Gardner RM, editor. *Proc Annu Symp Comput Appl Med Care*; 1995; Washington DC: Hanley & Belfus, Inc; 1995. p. 72-6. [PMID: 8563383]
- [42] Steib SA, Reichley RM, McMullin ST, Marrs KA, Bailey TC, Dunagan WC, **Kahn MG**. Supporting ad-hoc queries in an integrated clinical database. In: Gardner RM, editor. *Proc Annu Symp Comput Appl Med Care*; 1995; Washington DC: Hanley & Belfus; 1995. p. 62-6. [PMID: 8563360]
- [43] Graham MV, Jain NL, **Kahn MG**, Drzymala R, Purdy JA. Objective plan evaluation using a score function tool. *Front Radiat Ther Oncol* 1996;29:81-5. [PMID: 8742890]
- [44] Graham MV, Jain NL, **Kahn MG**, Drzymala RE, Purdy JA. Evaluation of an objective plan-evaluation model in the three dimensional treatment of nonsmall cell lung cancer. *Int J Radiat Oncol Biol Phys* 1996;34(2):469-74. [PMID: 8567350]
- [45] **Kahn MG**, Bailey T, Steib S, Fraser V, Dunagan W. Statistical process control methods for expert system performance monitoring. *J. Am. Med. Inform. Assoc.* 1996;3(4):258-269. [PMID: 8816348]
- [46] **Kahn MG**, Steib SA, Dunagan WC, Fraser VJ. Monitoring expert system performance using continuous user feedback. *J Am Med Inform Assoc* 1996;3(3):216-23. [PMID: 8723612]
- [47] Baorto DM, Cimino JJ, Parvin CA, **Kahn MG**. Using Logical Observation Identifier Names and Codes (LOINC) to exchange laboratory data among three academic hospitals. In: Miller RA, editor. *Proc AMIA Annu Fall Symp*; 1997; Washington DC: Hanley & Belfus, Inc.; 1997. p. 96-100. [PMID: 9357596]
- [48] Coble JM, Karat J, Orland MJ, **Kahn MG**. Iterative usability testing: Ensuring a usable clinical workstation. In: Miller RA, editor. *Proc AMIA Annu Fall Symp*; 1997; Washington DC: Hanley & Belfus, Inc.; 1997. p. 744-8. [PMID: 9357724]
- [49] **Kahn MG**. Three perspectives on integrated clinical databases. *Acad Med* 1997;72(4):281-6. [PMID: 9125943]
- [50] McMullin ST, Reichley RM, **Kahn MG**, Dunagan WC, Bailey TC. Automated system for identifying potential dosage problems at a large university hospital. *Am J Health Syst Pharm* 1997;54(5):545-9. [PMID: 9066863]
- [51] Baorto DM, Cimino JJ, Parvin CA, **Kahn MG**. Combining laboratory data sets from multiple institutions using the logical observation identifier names and codes (LOINC). *Int J Med Inf* 1998;51(1):29-37. [PMID: 9749897]
- [52] Little JR, Miller J, **Kahn MG**. Nosocomial penicillin-resistant pneumococcal infections at a Midwestern university hospital. *Infect Control Hosp Epidemiol* 1998;19(10):782-4. [PMID: 9801288]

- [53] **Kahn MG**. Clinical research database and clinical decision making in chronic diseases. *Horm Res.* 1999;51(Suppl 1):50-7. [PMID: 10393492]
- [54] **Kahn MG**. The expanding informatics community: blessing or curse? *J Am Med Inform Assoc* 2001;8(6):621-3. [PMID: 11687569]
- [55] **Kahn MG**, Broverman CA, Wu N, Farnsworth WJ, Manlapaz-Espiritu L. A model-based method for improving protocol quality. *Appl Clin Trials* 2002;11(5):35-44.
- [56] **Kahn MG**. Computable protocol models for interactive trial design. *Drug Info J* 2002;36(3):487-497.
- [57] Weng C, **Kahn M**, Gennari J. Temporal knowledge representation for scheduling tasks in clinical trial protocols. *Proc AMIA Symp* 2002:879-83. [PMID: 1246395]
- [58] **Kahn MG**. Operational protocol models in the drug development process: A new way forward. *Pharm Dev Regul* 2003;1(1):41-53.
- [59] Ricciardi TN, Lieberman MI, **Kahn MG**, Masarie Jr FEC. Clinical Terminology Support for a National Ambulatory Practice Outcomes Research Network. In: Friedman CP, Ash J, Tarczy-Hornoch P, editors. *Proceedings, American Medical Association; 2005; Washington DC: AMIA; 2005.* p. 629-633. [PMID: 16779116]
- [60] **Kahn MG**, Kaplan D, Sokol RJ, DiLaura RP. Configuration Challenges: Implementing Translational Research Policies in Electronic Health Records. *Acad. Med.* 2007; 82(7):661-669. [PMID: 17595562]
- [61] **Kahn MG**, Todd J. Comparative quality measures: Putting evidence above expediency (editorial). *Pediatrics* 2008; 122(1): 182-183. [PMID: 18596002]
- [62] Feudtner C, Pati, S, Goodman DM, **Kahn MG**, Sharma V, Hutto JH, Levin JE, Slomin AD, Hall M, Shah, SS. Do systems of healthcare affect the likelihood of pediatric hospital readmission? A nationwide multi-state study. Under review for publication.
- [63] **Kahn MG**, Ranade D. Impact of Electronic Medical Records Data on a Clinical Quality Trigger Tool. Under review for publication.
- [64] **Kahn MG**, Ketz K. Eliminating Unused Data in Clinical Trials. Under review for publication.
- [65] Sills MR, Fairclough D, Ranade D, **Kahn M**. Emergency Department Crowding is Associated with Decreased Quality of Care for Children. Under review for publication.

Book Chapters, Invited Publications & Reviews

- [1] **Kahn MG**. In pursuit of time's arrow: Temporal reasoning in medical decision support. In: Andreassen S, Engelbrecht R, Wyatt J, editors. *Artificial Intelligence in Medicine.* Amsterdam: IOS Press; 1993. p. 3-6.

- [2] **Kahn MG**. Knowledge-based systems. In: van Bommel JH, McCray AT, editors. Yearbook of Medical Informatics: Sharing Knowledge and Information. Stuttgart Germany: Schattauer; 1993. p. 399-401.
- [3] **Kahn MG**. Clinical databases and critical care research. In: Schuster DP, Kollef MH, editors. Crit Care Clin. Philadelphia, PA: W.B. Saunders Company; 1994. p. 37-51. [PMID: 8118732]
- [4] **Kahn MG**. Enterprise-wide clinical data integration. In: Brennan P, Schneider SJ, Tornquist E, editors. Community Health Care Information Networks. New York, NY: Springer-Verlag; 1996. p. 100-110.
- [5] **Kahn MG**. Optimizing protocol design. Good Clin Prac J 2003;10(9):30-31.
- [6] **Kahn MG**. What price safety testing? Good Clin Prac J 2003;10(8):31.
- [7] **Kahn MG**. Why do trial costs vary so much from centre to centre? Good Clin Prac J 2003;10(5):30-31.

Other Products of Scholarship: PhD Thesis, Public-Domain Data Set

- [1] **Kahn MG**. Model-Based Interpretation of Time-Ordered Medical Data. San Francisco: University of California, San Francisco; 1988.
- [2] **Kahn MG**. Diabetes data Set. Machine Learning Repository. Center for Machine Learning and Intelligent Systems, University of California Irvine, 1994. Available at <http://archive.ics.uci.edu/ml/datasets/Diabetes>

Scientific abstracts published or presented at scientific meetings: Competitive only

- [1] **Kahn MG**, Fagan LM, Shortliffe EH. Time in clinical decision support systems: Temporal reasoning in ONCOCIN and ONYX. In: Rada R, editor. SigBio Newsletter; 1986; New York, NY: ACM Press; 1986. p. 13-16.
- [2] Zimmerman JB, Cousins SB, Frisse ME, Hartzell KM, **Kahn MG**. A psychophysical comparison of two methods for adaptive histogram equalization. In: Schneider RH, Dwyer SJ, Jost RG, editors. Proc Med Imaging III: Image Capture and Display; 1989; Newport Beach CA; 1989. p. 154-165.
- [3] Cousins SB, **Kahn MG**. Visualizing operations on temporal data (abstract). AAI-AIM Spring Symposium 1990.
- [4] **Kahn MG**, Cousins SB, Bloch C. Automated interpretation of diabetes patient data using numeric and symbolic techniques (abstract). AAI-AIM Spring Symposium 1990.
- [5] Drzymala RE, Holman M, Yan D, Jain NL, **Kahn MG**, Purdy JA. X-windows-based tools for radiation therapy treatment plan evaluation (abstract). Med Physics 1991;18:611.
- [6] Jain NL, **Kahn MG**, Drzymala RE, Emami B, Purdy JA. Ranking radiotherapy treatment plans using decision-analytic and heuristic techniques. Med Physics 1991;18(3):641.

- [7] Jain NL, **Kahn MG**, Drzymala RE, Purdy JA. Evaluation of radiotherapy treatment plans using decision-analytic and heuristic techniques (abstract). *Med Biol Eng & Comput* 1991;29 (Suppl):437.
- [8] **Kahn MG**. An object-oriented clinical database for context-sensitive data storage, retrieval, and interpretation (abstract). *Med Biol Eng & Comput* 1991;29 (Suppl)(29):280.
- [9] Jain NL, **Kahn MG**. A methodology for reconciliation of inconsistencies in physicians' preferences through clinical use of decision-support systems (abstract). *Med Dec Making* 1992;12:349.
- [10] Jain NL, **Kahn MG**, Purdy JA. A decision-theoretic model for the objective evaluation of 3D radiation treatment plans. *Med Physics* 1993;20:876.
- [11] Jain NL, **Kahn MG**, Graham MV, Purdy JA. 3D conformal radiation therapy: V. Decision-theoretic evaluation of radiation treatment plans. In: Hounsell AR, Wilkison JM, Williams PC, editors. *Proceedings, XI International Conference on the Use of Computers in Radiation Therapy*; 1994; Manchester UK; 1994. p. 8-9.
- [12] Abrams CA, **Kahn MG**, Steib SA. An expert system for monitoring renally excreted drugs (abstract). In: Gardner RM, editor. *Symp Comp Appl Med Care*; 1995; Washington DC: Hanley & Belfus, Inc; 1995. p. 960.
- [13] Whitman ED, Frisse ME, **Kahn MG**. The impact of data sharing on data quality (abstract). In: Gardner RM, editor. *Proc Annu Symp Comp Appl Med Care*; 1995; Washington DC: Hanley & Belfus, Inc; 1995. p. 952.
- [14] Feudtner C, Pati S, Goodman DM, **Kahn MG**, Sharma V, Hutto JH, Levin JE, Slonim AD, Hall M, Shah SS. Do systems of healthcare affect the likelihood of pediatric hospital readmission? A nationwide multi-state study. (Poster 4845.12). *Pediatric Academic Societies' Annual Meeting*, Honolulu, HI, 2008.
- [15] Sills MR, Mitchell MS, Liu G, **Kahn MG**. Overcrowding and time to first steroid medication for patients presenting to a pediatric emergency department for acute asthma exacerbations. (Poster 3786.22). *Pediatric Academic Societies' Annual Meeting*, Honolulu, HI, 2008.
- [16] Mitchell MS, Liu G, Sills MR, **Kahn MG**. Overcrowding and quality of care for patients seen in a pediatric emergency department for acute long bone fractures. (Poster 3786.11). *Pediatric Academic Societies' Annual Meeting*, Honolulu, HI, 2008.
- [17] Sills MR, Ranade D, **Kahn MG**, Fairclough. Crowding and quality of pediatric emergency department care for acute asthma. (Poster 2814.118) *Pediatric Academic Societies' Annual Meeting*, Baltimore, MD, 2009.
- [18] Bajaj L, Stowe A, Deakyne S, Stapp RH, Federico M, **Kahn M**. A community/academic asthma quality improvement collaborative project: Implementing evidenced-based asthma guidelines in a community pediatric independent practices association. (Presentation 3445.6). *Pediatric Academic Societies' Annual Meeting*, Baltimore, MD, 2009.

- [19] Sills MR, Mitchell M, Ranade D, **Kahn MG**, Fairclough D. Emergency department crowding and the quality of fracture analgesia. (Poster 4331.123). Pediatric Academic Societies' Annual Meeting, Baltimore, MD, 2009.
- [20] Watlington T, Swietlik M, Siparsky G, Tham E, Bajaj L, Brayden R, **Kahn M**. Implementing clinical decision support to aid in the diagnosis, evaluation, and treatment of hypertension in children and adolescents. (Presentation 6955). Council on Clinical Information Technology, American Academic of Pediatrics National Conference, Washington DC, 2009.
- [21] Batson DH, **Kahn MG**. Standard terminologies and pediatric data sets: Deriving a minimum terminology set for pediatric data needs. (Presentation 7086) Council on Clinical Information Technology, American Academic of Pediatrics National Conference, Washington DC, 2009.
- [22] Ferguson C, Roosevelt G, Deakyne S, Ranade D, **Kahn M**. The relationship between emergency department length of stay and inpatient length of stay. (Poster 8272). Council on Clinical Information Technology, American Academic of Pediatrics National Conference, Washington DC, 2009.
- [23] Siparsky G, **Kahn M**. Knowledge management in the changing environment of pediatric reference intervals and analytic procedures. (Poster 7224). Council on Clinical Information Technology, American Academic of Pediatrics National Conference, Washington DC, 2009.