CURRICULUM VITAE

Name: Charles Franklin Starmer, Jr. (Frank)

Date and Place of Birth: September 4, 1941, Greensboro, NC

Home Address: 2781 Golf Lake Drive
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Marital Status: Married; four adult "children", 8 grandkids

Education:
Duke University, B.S.E.E., 1963 (Electrical Engineering)
Duke University, M.S.E.E., 1965 (Electrical Engineering)
Rice University, 1965-1966
University of North Carolina, Ph.D., 1968 (Biomathematics and Bioengineering)

Academic Experience:

1961-1965:	Research Associate, Department of Medicine, Duke University
1966-1968:	Associate in Biomathematics, Duke University Medical Center
1968-1971:	Assistant Professor of Medicine (Computer Science) Duke University
1971-1978:	Associate Professor of Computer Science and Assistant Professor of Medicine, Duke University
1976-1977:	Visiting Associate Professor of Computer Science, Washington University, St. Louis
1978-1990:	Professor of Computer Science and Associate Professor of Experimental Medicine (Division of Cardiology), Duke University
1990-1997:	Professor of Computer Science and Professor of Experimental Medicine (Division of Cardiology), Duke University
1993-1994:	Visiting Professor of Biomedical Engineering, Indian Institute of Technology (Madras)
1997-1998:	Visiting Professor of Medical Physics, University of Patras, Greece
1997-present	Professor Emeritus of Computer Science, Duke University
1998-2006	Adjunct Professor of Computer Science, College of Charleston
1998-2006	Associate Provost for Information Technology, Professor of Biostatistics/Bioinformatics/Epidemiology and Medicine (Cardiology), Medical University of South Carolina
2006-2015	Associate Dean for Learning Technologies, Duke-NUS Medical School, Singapore and Professor of Biostatistics and Bioinformatics, Duke University (Responsible for design, implementation and operation of the Duke-NUS Medical School IT Infrastructure – primarily network and TBL learning technology)

International Collaborations:

1976-1982	Clinical Trials Database Consultant, Roche, Basel, Switzerland
1987-1991	Visiting Professor, All Union Institute of Cardiology, Moscow, Russia (Prof. Rosenshtraukh's Laboratory).
1989-1997	Genetics Database Consultant, Medical Genetics Center, Ain Shams University, Cairo, Egypt (Dr. Nemat Hashem, Director (deceased))
1991 (August):	Visiting Professor, Freiburg University, Physiology Institute (Dr. Jorg Weirich's Laboratory)
1992-2002:	Visiting Professor, Institute of Experimental and Theoretical Biophysics, Pushchino, Russia (Krinsky's Autowave Lab, now Medvinsky's Lab of Biophysics of Active Media)
1993-1994:	Visiting Professor, Indian Institute of Technology - Madras, Department of Applied Mechanics, Division of Bio-Engineering

1995-1998: Visiting Professor, Institute of Cell Biophysics, Pushchino, Russia (Kukushkin's Lab)
1997-1998: Fulbright Scholar, University of Patras, Medical Physics Department, Patras, Greece

Awards:

Eagle Scout
NIH Research Career Development Award (HL70102), 1972-1977
New York Marathon 1980, 1981, 3:32
Fulbright Scholar, University of Patras, Greece, July 1997-January 1998
Duke-NUS Medical School, Singapore. Spark Award, 2010
Duke-NUS Medical School, Singapore. Pioneer Award, 2011
Distinguished Faculty Award, Duke Medical Alumni Association, 2018

Society Memberships:

Retired Fellow of American College of Medical Informatics
Biomedical Engineering Society of India (life member)
Indian Association of Biomedical Scientists (life member)
Indian Association of Physiologists and Pharmacologists (life member)

NIH Grants:

HL070102 1972-1977 Research Career Development Award: Computer Recognition of Patterns in Heart Disease
HL014811 1972-1975 Computer retrieval and analysis of cardiovascular data
HS001613 1974-1977 Laboratory for development of health information systems
LM003373 1979-1984 Medical Databases and Clinical Investigation (Training Grant)
RR001693 1983-1985 User Software Interface
HL032994 1984–1998 Models of Drug Binding to Cardiac Sodium Channels

Photo Credits and Newspaper Articles

1. KAPOW: Superhero Science, Discovery Channel, November 9, 2003
2. Spiders Spin Out, 2004: http://www.abc.net.au/science/scribblygum/february2004/
3. Risk Takers, Mickey Rogers and Advanced Blasting Services: Discovery Channel High Definition, May 2007
4. Steel's role in construction: Engineering News Record, http://www.enr.construction.com/resources/special/archives/2005/steel2.asp
5. Having the diversity to respond: The demolition industry in the 21st Century. Engineering News Record, http://enr.construction.com/resources/special/archives/2005/demolition.asp
6. Lower Secondary Science Textbook Volume 2 (MOE approved, Singapore)
7. Gerritsen, V.B. The tiptoe of an airbus. Protein Spotlight 24, July 2002 (http://www.proteinspotlight.org)
8. Straits Times (Singapore) The Web of Curiosity, August 25, 2007, Science section.
9. Straits Times (Singapore) When the laws of science aren't laws at all, April 12, 2009, Science section.
10. Straits Times (Singapore) See and listen to what others miss. December 20, 2009, Science section.
11. Business Times (Singapore) Drawn to the Web. Dec 27-28,2008
12. American Political Science Review, May 2009, cover photo
13. Sex: Motor der Evolution, Stuttgarter Beitrage zur Naturkunde, 2012 page 12
14. Spiders of Brunei (Joseph Koh) page 299
15. Starmer, C. Frank Learning Language for (and Through) Life. Today (Singapore), Sep 16, 2013. http://www.todayonline.com/singapore/learning-languages-and-through-life
16. Starmer, C. Frank Learning Language for (and Through) Life. Malaysian Insider, Sep 17, 2013. http://www.themalaysianinsider.com/sideviews/article/learning-languages-for-and-through-life-c.-frank-starmer

Web Publications: Science

1. The Guarded Receptor Model: How it all got started, where we are and where we are going. http://frank.itlab.us/guarded.html
2. Understanding the vulnerable period and spiral wave initiation: http://frank.itlab.us/sample.html
3. A model of how drugs increase the rate of sudden cardiac death. http://frank.itlab.us/vp.html
4. (with E.A. Stead) Thoughts of a medical educator and his engineer. http://frank.itlab.us/stead/info_age.html
5. Restoring the joy of learning (with E. A. Stead). http://frank.itlab.us/stead/joy.html

6. Starmer, C. Frank Initiation of Excitation Waves. Scholarpedia, p.8689 , 2007 (http://www.scholarpedia.org/article/Initiation_of_Excitation_Waves)
7. Starmer, C. Frank Vulnerability of Cardiac Dynamics. Scholarpedia, p.24753. 2007 (http://www.scholarpedia.org/article/Vulnerability_of_Cardiac_Dynamics)

Publications: Books, Proceedings of Professional Meetings, Abstracts

1. Starmer, CF, Artley, JL, Weinberg, DI, and Whalen, RE: An electric shock hazard in cardiology. IEEE Conference Paper. C.P. 63:649, 1962.
2. Starmer, CF: A multivariate analysis program for biomedical research. Proc. S. E. Regional ACM Meeting, Vol. 3, 1967.
3. Starmer, CF and Whalen, RE: Electrical hazards in a medical environment. Proc. Symposium on New Electrical Hazards in Hospitals. Ottowa, pp. 45-52, 1967.
4. Rosati, RA, Simon, SB, Ripperton, LA, Starmer, CF and Wallace, AG: Medical Interactive Data System: Prognostic stratification of patients with acute myocardial infarction. Proc. San Diego Biomedical Symp., pp.179-183, 1971.
5. McAnulty, MA, Starmer, CF and Kong, Y: Computer-aided measurement of coronary arterial trees. Proc. Computer Image Processing and Recognition, 1:1-3-1, 1-3-6, 1972.
6. Whalen, RE and Starmer, CF: Electrical hazards related to instrumentation, in *Textbookof CoronaryCare*. Excerpta Medica, Amsterdam: 744-762, 1972.
7. Starmer, CF and Smith, WM: Problems in acquisition and representation of coronary arterial trees. Computers in Cardiology, (IEEE, Long Beach, California), pp. 143-148, 1974
8. Sperling, O, Wyngaarden, JB and Starmer, CF: The kinetics of intramolecular distribution of 15N in Uric acid following administration of 15N Glycine: Preferential labeling of N-(3+9) in Uric acid in primary gout and a reappraisal of the "Glutamine Hypothesis", in O. Sperling, A. De Vries, and J.B. Wyngaarden (ed.), *Purine Metabolism in Man*, Plenum Press, New York, 41B: 371-392, 1974.
9. Starmer, CF, McIntosh, HD and Whalen, RE: Electrical hazards in cardiovascular function. *Electrical Safety & Hazards in Hospitals*, MSS Information Corporation, New York, pp. 132-143, 1974.
10. Starmer, CF and Smith, WM: Computer storage and retrieval of coronary trees. In *Cardiovascular Imaging and Image Processing: Theory and Practice - 1975*. The Society of Photo-optical Instrumentation Engineers, Palos Verdes Estates, California, Vol. 72:195-199, 1975.
11. Mittler, BS, Lee, KL, Starmer, CF and Rosati, RA: Machine-based aids for managing patients with chronic illnesses. Proceedings of the Second Illinois Conference on Medical Information Systems, Instrument Society of America, Pittsburgh, pp.49-55, 1976.
12. Starmer, F: Role of automatic data processing in clinical research. Methodologies and Protocols in Clinical Research: Evaluating Environmental Effects in Man (EPA Conference Proceedings), pp. 103-107, 1978. (Invited paper.)
13. Wallace, AG, Rosati, RA, Stead, EA, Jr. and Starmer, CF: A computer system for closing the loop between interventions and outcome in chronic illnesses. Proc. 8th World Congress of Cardiology, pp. 1076-1080, 1978.
14. Starmer, CF: Computational tools for statistical data analysis. In Studies in Computer Science edited by SV Pollack (series: Studies in Mathematics), Prentice-Hall, Englewood Cliffs, 1982.
15. Starmer, CF, Lee, KL, Harrell, FE and Rosati, RA: A database approach for stabilizing clinical decisions in the setting of chronic illness. Proceedings of the Third Annual Symposium on Computer Applications in Medical Care, IEEE Computer Society, Long Beach, California, pp.777-786, 1979. (Invited paper.)
16. Starmer, CF: Functional decomposition of clinical database systems. Proceedings of the Sixth Illinois Conference on Medical Information Systems, pp. 215-221, 1980. (Invited paper.)
17. Starmer, CF, Smith, DAH, Wells, JS and Wright, BC: Problems in data management when studying chronic illness. Proceedings of the 14th International Conference on Systems Science, Vol. II, Section I, pp.144-151, 1981.
18. Starmer, CF and Wright, BC: Minimizing the impact of system timing constraints: experience with a microprocessor-based interface for supporting real time graphics data entry. Proceedings of the 1981 Real-Time Systems Symposium, pp. 89-94.

19. Beck, JW, Jaszczak, RJ, Coleman, RE, Starmer, CF, and Nolte, LW: Analysis of SPECT using Monte Carlo simulation. Proceedings of the International Workshop on Physics and Engineering in Medical Imaging, Pacific Grove, California, March 15-18, 1982.
20. Beck, JW, Jaszczak, RJ, Starmer, CF: The effect of compton scattering on quantitative spect imaging. Proceedings of the Third World Congress of the World Federation of Nuclear Medicine in Biology, Paris, 1982.
21. Bowyer, K, Hedlund, L, Vock, P, Gerard, D, Effman, E, Starmer, F: Computer analysis of CT scan images for tissue densitometry. Proceedings of the Application of Optical Instrumentation in Medicine X, Volume 347, New Orleans, May 1982.
22. Starmer, CF, Grant, AO, Strauss, HC: A model of interaction of local anesthetics with Na channels. Biophys J 41:145a, 1983. Abstract from the 27th Annual Meeting of the Biophysical Society, San Diego, February, 1983.
23. Grant, AO, Starmer, CF and Strauss, HC: A model for the voltage dependent interaction of antiarrhythmic drugs with cardiac sodium channels. Clinical Research 31:460A, 1983.
24. Starmer, CF, Grant, AO, and Strauss, HC: A mechanism of apparent voltage dependence of local anesthetic affinity for Na channels. Circulation 68, III:295, 1983.
25. Starmer, CF, Grant, AO, and Strauss, HC: Mechanisms of apparent
26. variation of local anesthetic affinity for ionic channel binding site. Biophys J 45:287a, 1984. Abstract from the 28th Annual Meeting of the Biophysical Society, San Antonio, February, 1984.
27. Starmer, CF: Feedback stabilization of control policy selection in data/knowledge based systems. IEEE COMPDEC Proceedings, Los Angeles, 1984, pp. 586-591.
28. Grant, AO, Starmer, CF: Voltage dependent mechanisms of closure of unitary sodium channels of rabbit. Circulation, 1984.
29. Strauss, HC, Broughton, A, Starmer, CF and Grant, AO: pH potentiation of local anesthetic action in heart muscle. In *Cardiac Electrophysiology and Arrhythmias*, Grune and Stratton, 1985.
30. Starmer, CF: Exploring cardiovascular structure and function with a digital computer. In *The Heartand Cardiovascular System - Scientific Foundations*, ed: Fozzard, HM, Haber, E, Jennings, RB, Katz, AM, and Morgan, HE. Raven Press, New York, 1986.
31. Starmer, CF, Yeh, JZ and Tanguy, J: A quantitative description of QX222 blockade of sodium channels in squid axons. J Gen Physiol, December, 1985.
32. Packer, DL, Grant, AO, Strauss, HC, Starmer, CF: Quantitative determination of recovery kinetics from use-dependent drug uptake: A test of the guarded receptor hypothesis. Circulation 74(II), p. II-20, October, 1986.
33. Hurwitz, JL, Starmer, CF, Dietz, MA, Grant, AO: Sodium channel inactivation from closed states. Circulation 74(II), p. II-19, October, 1986.
34. Packer, DL, Grant, AO, Strauss, HC, Starmer, CF: Determination of apparent binding affinities from use-dependent conduction delay and Vmax reduction in purkinje fibers. Circulation 74(II), p. II-253, October, 1986.
35. Grant, AO, Yee, R, Brown, KK, Starmer, CF: A transient outward potassium current in canine cardiac purkinje cells. Circulation 74(II), p. II-254, October, 1986.
36. Starmer, CF, Grant, AO, Packer, DL: A macroscopic characterization of use-dependent ion channel blockade. Biophys. J. 51:8a, 1987.
37. Starmer, CF: Characterizing synaptic plasticity with an activity dependent model. Proceedings of the IEEE International Conference on Neural Networks, San Diego, CA, June 21-24, 1987.
38. Starmer, CF, Nesterenko, VV, Undrovinas, IA, Packer, DL, Gilliam, FR, Grant, AO, Rosenshtraukh, LV and Strauss, HC. Characterizing ion channel blockade with the guarded receptor hypothesis. Molecular and Cellular Mechanisms of Antiarrhythmic Agents. ed. L. Hondeghem, pp 179 - 200. Futura, Mt. Kisco NY, 1989.
39. Spach, MS, Dolber, PC, Heidlage, JF, and Starmer, CF Influence of Non-Tissue On Normal and Abnormal Conduction. Molecular Cellular Mechanisms of Antiarrhythmic Agents. ed. L. Hondeghem, pp 45 - 72. Futura, Mt. Kisco, NY, 1989. Jun 19-23, 1988.
40. Lastra, AA, Starmer, CF. POET: A Tool for the Analysis of the Performance of Parallel Algorithms. Proceedings of the 1988 International Conference on Parallel Processing.
41. Starmer, CF, Gilliam, FR, Nesterenko, VV and Grant, AO. Drug induced shifts in measures of channel availability do not necessarily reflect modified gating kinetics. Biophys J 55:246a, 1989.
42. Gilliam, F, Rivas, P, Whitcomb, D, Starmer, F, and Grant, A. Lidocaine reversal of marked QRS abnormalities and sodium channel blockade by propoxyphene. Circulation 80:II-605, 1989.
43. Starmer, F, Barber, M, Rivas, P, and Grant, A. Do tonic and use-dependent blockade reflect a common process? Circulation 80:II-605, 1989.

44. Barber, M, Starmer, F, and Grant, A. Dilantin reversed sodium channel blockade with amitriptyline by allosteric modulation of a channel receptor site. Circulation 80:II-135, 1989.
45. Gilliam, F, Rivas, P, Starmer, F and Grant A. External pH modulates the block of both calcium and sodium channels by nicardipine. Circulation 80:II-136, 1989.
46. Grant, A, Dietz, M, and Starmer, F. Voltage-dependent block of single cardiac sodium channels by disopyramide. Circulation 80:II-136, 1989.
47. Grant, AO, Dietz, MA, Gilliam, FR and Starmer, CF. Mechanisms of blockade of cardiac sodium channels by antiarrhythmic drugs: New insight from current experimental approaches. Current topics in Antiarrhythmic agents, Excerpta Medica, Ltd. Tokyo, 1989. pp 57-64.
48. Barber, MJ, Starmer, CF and Grant, AO. Slow blockade of the cardiac sodium channel by dilantin: single channel analysis. Circulation 82:III-11, 1990.
49. Barber, MJ, Starmer, F and Grant, AO. Muscarinic modulation of kinetics of block of rabbit atrial sodium channels by lidocaine. Circulation 82: III-342, 1990.
50. Barber, MJ, Starmer, CF and Grant, AO. Changes in external sodium concentration do not affect recovery kinetics or steady-state block of rabbit atrial sodium channels during exposure to lidocaine. Circulation 82:III-526, 1990.
51. Wendt, DJ, Merrill, JJ, Starmer, CF and Grant, AO. Do lidocaine-associated sodium channels conduct? Circulation 84:II-174, 1991.
52. Wendt, DJ, Starmer, CF and Grant, AO. Interaction of the metabolite glycylxylidide with the cardiac sodium channel: Additive blockade with lidocaine. Circulation 84:II-175, 1991.
53. Liu, L, Wendt, DJ, Starmer, CF and Grant, AO. Block of the transient outward current in rabbit atrial myocytes by quinidine: Lack of voltage and frequency dependence. Circulation 84:II-180, 1991.
54. Starmer, CF, Lancaster, AR, Lastra, AA and Grant AO. Slowly unbinding sodium channel antagonists promote arrhythmic responses to premature stimulation. Circulation 84:II-324, 1991.
55. Starmer,CF, Krinsky, VI, Tong, FC, Romashko, DN, Aliev, RR, Burashnikov, A and Stepanov, MR. Role of channel blockade in promoting the initiation of rotating vortices in Cardiac Muscle. Computers in Cardiology, 55-58, 1992.
56. Young, T and Starmer, CF. Minimal cellular automata model of cardiac cells: initiation of reentrant activation from a single stimulation site. Computers in Cardiology, 419-422, 1992.
57. Krinsky, VI, Burashnikov, A, Efimova, T, Mikhaliuk, ER, Tong, FC and Starmer, CF. "Analysis of Cardiac Vulnerability to Stimulus Current and Electrode Configuration: Theoretical and Experimental Studies". Proc. of the Int. Conf. "Future directions of nonlinear dynamics in biology and physics". Copenhagen, 1992.
58. Starmer, CF, Krinsky, VI, Romashko, DN and Aliev, RR. "Pulse chemistry of vortices supression in cardiac muscle". p254-256 in Spatio-Temporal Organization in Nonequilibrium Systems. Ed. Mueller, SC and Plesses, R Verlag, Dortmund, 1992.
59. Starmer, CF. Modelling cardiac reentrant arrhythmias. Proceedings of the Second BIOMEDEA Symposium: Experimental Techniques in Medical Physiology. IIT-Bombay, Powai, Bombay, India, 1994. (Invited paper.)
60. Starobin, JM, Zilberter, YI and Starmer, CF. Unexcitable zones as a source of spiral wave initiation and cardiac arrhythmias. Proc. 16th IEEE Eng in Med and Biol. pp.5-6, 1994
61. Starmer, CF, Wendt, DJ, Grant, AO, Starobin, J and Zilberter, Y. Torsade de pointes: an anti- or proarrhythmic response to K channel block. Circulation 90: I-518, 1994.
62. Zilberter, YI, Starmer, CF, Starobin, J and Grant, AO. Background sodium current and electrical instabilities in cardiac cells. Biophysical Journal 68:A158, 1995.
63. Starobin, JM, Zilberter, YI and Starmer, CF. Conditions for wavefront separation from an unexcitable obstacle in cardiac tissue of low excitability. Proc. 17th IEEE Eng in Med and Biol. 1995.
64. Starmer, CF, Spach, MS and Grant, AO. Cellular coupling: a generic mechanism for converting a cellular antiarrhythmic process to a multicellular proarrhythmic process. Pacing and Clinical Electrophysiol. 18:839, 1995
65. Dietz, MA, Ellis, CS and Starmer, CF. Clock instability and its effect on time intervals in performance studies. CMG95 Proceedings. Dec. 1995, 439-448.
66. Starmer, CF and Starobin, J. Anti- and Proarrhythmic Mechanisms in Cardiac Tissue: Linking Spiral Waves, Reentrant Arrhythmias and Electrocardiographic Patterns, in "Discontinuous Propagation and Cardiac Arrhythmias" edited by Spooner, P. Futura Press, 1996.
67. Cimponeriu, A., Starmerf, C.F., Bezerianos, A. Action potential propagation in ischemic cardiac tissue: A theoretical computer model, Computers in Cardiology, IEEE Inc. Cleveland Ohio, 25:317-320, 1998

68. Cimponeriu, A., Starmer, C. F. and Bezerianos, A. Action potential propagation in the ischemic myocardium: a theoretical computer model. Proc. Symposium on electronics and telecommunications. 1998. IEEE Inc. Vol 2, Timisoara, 154-158.
69. Cimponeriu, A. Starmer, C.F. and Bezeriianos, A. Modeling of ventricular tissue and ecg reconstruction in acute and chronic ischemia. Computers in Cardiology. IEEE Inc. Hannover Germany 26:503-506, 1999.
70. Componeriu, A., Starmer, C.F. and Bezerianos, A. Antiarrhythmic drugs effect analysis on a model of cardiac fiber. Computers in Cardiology, IEEE Inc. Boston Mass. Sept 2000.
71. Starmer, C. F. Initiating a propagating wave: from excitation to spirals. 18th Annual Computational Neuroscience Meeting, Berlin, July 2009

Publications: Articles

1. Weinberg, DI, Artley, JL, Whalen, RE, McIntosh, HD and Starmer, CF: Electric shock hazards in cardiology. IRE Trans. Biomed. Elect., BME 9:244, 1962.
2. Thompson, HK, Starmer, CF, Whalen, RE and McIntosh, HD: Indicator transit time considered a gamma variate. Circ. Res. 14:502-515, 1964.
3. Whalen, RE, Starmer, CF and McIntosh, HD: Electrical hazards associated with cardiac pacemaking. Ann. N.Y. Acad. Sci. 111:922-931, 1964.
4. Starmer, CF, Whalen, RE and McIntosh, HD: Hazards of electric shock in cardiology. Am. J. Cardiol. 14:537-546, 1964.
5. Barry, WP, Starmer, CF, Whalen, RE and McIntosh, HD: Electric shock hazards in radiology departments. Am. J. Roent. Ther. &Nucl. Med. 95:976, 1965.
6. Pilkington, T, Starmer, CF and Boineau, J: On the electrocardiographic field equation. Bull. Math. Biophys. 27:493, 1965.
7. Fuson, R, Saltzman, HA, Starmer, CF and Smith, WW: Nomograms for oxygen content, saturation and pressure at hyperbaric conditions. Anesthesiology 27:176, 1966.
8. McIntosh, HD, Starmer, CF and Whalen, RE: A comparison of the ventricular fibrillation threshold with and without anesthesia. Am. Heart J. 72:419, 1966.
9. Starmer, CF, Whalen, RE and McIntosh, HD: Determination of leakage currents in medical equipment. Am. J. Cardiol. 17:437, 1966.
10. Whalen, RE and Starmer, CF: Electric shock hazards in clinical cardiology. Mod. Concepts of Cardiovasc. Dis. 36:7, 1967.
11. Starmer, CF and Grizzle, JE: A computer program for analysis of data by general linear models. UNC Inst. Statistics Mimeo Series, No. 560, 1968.
12. Grizzle, JE, Starmer, CF and Koch, GG: Analysis of categorical data by linear models. Biometrics 25:489-504, 1969.
13. Forthofer, RN, Starmer, CF and Grizzle, JE: A program for the analysis of categorical data by linear models. UNC Inst. Statistics Mimeo Series, No. 604, 1969.
14. Harley, A, Starmer, CF and Greenfield, JC: Pressure-flow studies in man: An evaluation of the duration of the phases of systole. J. Clin. Invest. 48:895, 1969.
15. Starmer, CF and Clark, DO: Computer computations of cardiac output using the gamma function. J. Appl. Phys. 28:219, 1970.
16. Ramo, BW, Myers, N, Wallace, AG, Starmer, CF, Clark, DO and Whalen, RE: Hemodynamic findings in 123 patients with acute myocardial infarction on admission. Circ. 42:567, 1970.
17. Starmer, CF, McIntosh, HD and Whalen, RE: Electric hazards and cardiovascular function. New Eng. J. Med. 284:181, 1971.
18. Greenfield, JC, Starmer, CF and Walston, A: Measurement of aortic blood flow in man by the computed pressure derivative method. J. Appl. Physiol. 31:792-795, 1971.
19. Forthofer, RN, Starmer, CF and Grizzle, JE: A program for the analysis of categorical data by linear models. J. Biomedical Systems, 2:3-48, 1971.
20. Starmer, CF, Rosati, RA and Simon, SB: Interactive acquisition and analysis of discrete data. Comp. Biomed. Res. 5:505-514, 1972.

21. Starmer, CF: A nonparametric general linear model. Comp. Biomed. Res. 5:608-612, 1972.
22. Davidson, RM, Ramo, BW, Wallace, AG, Whalen, RE and Starmer, CF: Blood gas and hemodynamic responses to oxygen in acute myocardial infarction. Circ. 47:704-711, 1973.
23. Starmer, CF and Whalen, RE: Role of current density in electrically induced ventricular fibrillation. Medical Instrumentation 7:158-161, 1973.
24. Starmer, CF, McHale, PA and Greenfield, JC: Processing of arterial pressure waves with a digital computer. Comp. Biomed. Res. 6:90-96, 1973.
25. Wyngaarden, JB, Sperling, O and Starmer, CF: A reappraisal of the concept of an abnormality of glutamine metabolism in primary gout. Trans. Amer. Clin. and Clim. Soc. 84:166-182, 1973.
26. Starmer, CF, McHale, PA, Cobb, F and Greenfield, JC: Evaluation of several methods for computing stroke volume from central aortic pressure. Circ. Res. 33:139-140, 1973.
27. Sperling, O, Wyngaarden, JB and Starmer, CF: The kinetics of intramolecular distribution of 15N in uric acid after administration of [15N]Glycine. J. Clin. Invest. 52:2468-2485, 1973.
28. Starmer, CF, Rosati, RA and McNeer, JF: Data bank use in the management of chronic disease. Comp. Biomed. Res. 7:111-116, 1974.
29. McNeer, JF, Starmer, CF, Bartel, AG, Behar, VS, Kong, Y, Peter, RH and Rosati, RA: The nature of treatment selection in coronary artery disease: Experience with medical and surgical treatment of a chronic disease. Circ. 49:606-614, 1974.
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34. McNeer, JF, Wallace, AG, Wagner, GS, Starmer, CF and Rosati, RA: The course of acute myocardial infarction: Feasibility of early discharge of the uncomplicated patient. Circ. 51:410-413, 1975.
35. Starmer, CF and Rosati, RA: Computer based aid to managing patients with chronic illness. IEEE Computer 8: No. 1:46-50, 1975.
36. Rosati, RA, McNeer, JF, Starmer, CF, Mittler, BS, Morris, JJ and Wallace, AG: A new information system for medical practice. Arch. Int. Med. 135:1017-1024, 1975.
37. Roe, CR and Starmer, CF: A sensitivity analysis of enzymatic estimation of infarct size. Circ. 52:1-5, 1975.
38. Starmer, CF and Smith, WM: Problems in acquisition and representation of coronary arterial trees. IEEE Computer 8: No. 7:36-41,1975.
39. Margolis, JR, Hirshfeld, JW, McNeer, JF, Starmer, CF, Rosati, RA, Peter, RH, Behar, VS and Kong, Y: Sudden death due to coronary artery disease. Circ., Supp.(3). 52:180-183, 1975.
40. Starmer, CF and Lee, KL: A mathematical approach to decisions: Application of Bayes rule to a mixture of continuous and discrete clinical variables. Comp. and Biomed. Res. 9:531-541, 1976.
41. Roe, CR, Starmer, CF and Cobb, FR: Mathematical models fail to improve CPK estimates of extent of infarct. Letter to the Editor, Circ. 55, No.4:678-679, 1977.
42. Roe, CR, Cobb, FR and Starmer, CF: The relationship between enzymatic and histologic estimates of the extent of myocardial infarction in conscious dogs with permanent coronary occlusion. Circ. 55:438-449, 1977.
43. Starmer, CF and Rosati, RA: A decision support system for managing patients with a chronic illness. Database 8:51-57, 1977.
44. Moses, MJ, Slatton, GH, Gambling, GM and Starmer, CF: Synaptonemal complex karotyping in spermatocytes of the chinese hamster *(Cricetulus Griseus*). Chromosoma 60:345-375, 1977.
45. Smith, WM and Starmer, CF: Error propagation in quantitative biplane cineroentgenography. Phys. in Med. and Bio. 23, No.4:677-685, 1978.
46. Ideker, RE, Behar, VS, Wagner, GS, Starr, JW, Starmer, CF, Lee, KL and Hackel, DB: Evaluation of asynergy as an indicator of myocardial fibrosis. Circ. 57:715-725, 1978.
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