

CURRICULUM VITAE

NAME: George Howard, DrPH

SOCIAL SECURITY NUMBER: XXX-XX-7245

ADDRESS:

RESIDENCE: 4200 Sharpsburg Drive
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BUSINESS: Professor and Chair
Department of Biostatistics
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PERSONAL INFORMATION:

BIRTHPLACE: Tarboro, North Carolina

BIRTH DATE: October 12, 1951

CITIZENSHIP: U.S.A.

RELIGION: Episcopal

MARITAL STATUS: Married

SPOUSE: Virginia Ellis Jackson

CHILDREN: Letitia Tice - February 17, 1979
Annie Green - February 7, 1983
Marjorie Jackson - July 20, 1987

EDUCATION:

- 1969-1973 St. Andrews Presbyterian College
Laurinburg, North Carolina
B.A. (Math and Business)
- 1974-1976 Graduate School
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina
M.S. (Operations Research)
- Thesis: An application of mathematical programming techniques to the redistricting of the Chapel Hill-Carrboro city school system.
Advisor: Dr. John Evans
- 1976-1979 School of Business and Economics
University of North Carolina at Greensboro
Greensboro, North Carolina
MBA (Finance and Marketing)
- 1980-1982 School of Public Health
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina
M.S.P.H. (Biostatistics)
- Thesis: Suggestion and evaluation of a regional cerebral blood flow parameter for the evaluation of "slippage."
Advisor: Dr. Dana Quade
- 1981-1987 School of Public Health
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina
DrPH (Biostatistics)
Dissertation: "An Evaluation of General Linear Models to Log-Rank Scores for Analysis of Failure Time Data: With Applications to Survival Following Stroke, in the North Carolina Comprehensive Stroke Program"
Advisor: Dr. Gary Koch

EMPLOYMENT:

- 1974-1975 Research Assistant and Applications Programmer
Duke University
Institute of Public Policy Sciences
Durham, North Carolina
- 1974-1976 Applications Programmer
Department of Computer Assisted Instruction School of
Medicine
University of North Carolina at Chapel Hill
Chapel Hill, North Carolina

1976-1978	Research Associate Department of Neurology Bowman Gray School of Medicine Winston-Salem, North Carolina
1978-1981	Instructor Department of Neurology Bowman Gray School of Medicine Winston-Salem, North Carolina
1981-1988	Research Assistant Professor Department of Neurology Bowman Gray School of Medicine Winston-Salem, North Carolina
1988-1993	Research Associate Professor Department of Public Health Sciences Bowman Gray School of Medicine Winston-Salem, North Carolina
1993-1994	Research Professor Department of Public Health Sciences Bowman Gray School of Medicine Winston-Salem, North Carolina
1994-1999	Professor Department of Public Health Sciences Bowman Gray School of Medicine Winston-Salem, North Carolina
1999-present	Professor and Chair Department of Biostatistics University of Alabama at Birmingham Birmingham, AL

Teaching Experience:Medical School:

Biostatistics lectures in the Community Medicine (Unit IV) Course (WFU)
1990
1991
1992

Graduate School:

CLEPI 411 & 412: Research Data Management and Reporting (WFU)
Fall 1989/Spring 1990
CLEPI 407: Introduction to Statistics (WFU)
1990
1991
BST 619: Research methods and data management (UAB)
1999
2000
BST 690: Consulting as a course (UAB)
2000, 2007
BST 601 & 602: Introduction to Biostatistics (UAB)
2000-2001, 2001-2002

BST 611 & 612: Intermediate Biostatistics (UAB)
2004-2005, 2005-2006
SOPH 601-602: Public Health Integrated Core
2003-2004
SPH 600 & 602: Core MPH Curriculum
2001-2002
SPH 695: Integrated experience (MPH final course)
2000, 2001, 2002
BST 704: Design and Conduct of Clinical Trials
2002, 2003, 2005

American Heart Association Trainee Programs

Faculty, AHA 14-day Course on Cardiovascular Epidemiology and Prevention, Tahoe, CA
August 1995 to August 2007

Research Experience/Major Grants Funded:

Previous

1977-1981	Co-Investigator Community Hospital-Based Stroke Programs NINCDS
1978-1989	Principal Investigator Biostatistics and Data Management Core Cerebrovascular Research Center NINCDS/NINDS
1978-1982	Principal Investigator Factors Influencing Long-Term Prognosis of TIAs Cerebrovascular Research Center NINCDS
1983-1989	Principal Investigator Prospective Evaluation of TIA as a Risk Factor Cerebrovascular Research Center NINDS
1991-1993	Co-Principal Investigator Southeastern Consortium on Racial Differences in Stroke (SECORDS) NINDS
1986-1992	Co-Investigator Postmenopausal Estrogen/Progestin Intervention (PEPI) Study NHLBI
1991-1993	Principal Investigator, Coordinating Center Prospective Randomized Evaluation of the Vascular Effects of Norvasc Trial (PREVENT) Pfizer Pharmaceutical
1985-1999	Co-Investigator Atherosclerosis Risk in Communities (ARIC) NHLBI

1985-1999	Co-Investigator Asymptomatic Carotid Artery Stenosis (ACAS) Study NINDS
1991-1999	Principal Investigator, Coordinating Center Insulin Resistance Atherosclerosis Study (IRAS) NHLBI
1993-1999	Co-Investigator Detection of Microemboli in Strokes Study NINDS
1996-1999	Principal Investigator Otolaryngology Clinical Trials Cooperative Group NINCD
2001-2006	Principal Investigator, Coordinating Center Secondary Prevention of Small Subcortical Strokes (CREST) NINDS

Current

Co-Principal Investigator, Statistical Analysis
Carotid Revascularization Endarterectomy/Stenting Trial (CREST)
NINDS

Principal Investigator (U01: 40% effort)
REasons for Geographic and Racial Differences in Stroke (REGARDS)
NINDS

Co-Principal Investigator and lead statistician
Vaginal Ultrasound Cerclage Trial
NICHD

Co-PI and lead statistician
Treatment of Early Aggressive Rheumatoid Arthritis (TEAR)
Amgen

Co-PI and lead statistician (5% Effort)
Consortium for the Longitudinal Evaluation of African
Americans with early Rheumatoid Arthritis (CLEAR)
NIAMS

PROFESSIONAL INTERESTS:

Research interests and research in progress: Clinical trials methodology, cardiovascular and cerebrovascular epidemiology

PROFESSIONAL MEMBERSHIPS:

1974-Present	North Carolina Heart Association
1975-1981	Operations Research Societies of America

1980-Present	North Carolina Society of Neuroscience
1981-Present	American Statistical Association
1984-Present	Society for Clinical Trials
1984-Present	Biometric Society (ENAR)
1985-1986	American Marketing Association Board of Directors, Triad Chapter
1987-Present	Stroke Council, American Heart Association
1990-Present	Epidemiology Council, American Heart Association

ADVISORY BOARDS (recent)

2006 – Present	Executive Committee, Aspirin to Reduce Risk of Initial Vascular Events (ARRIVE) Study, Bayer HealthCare.
2003 – Present	Morehouse School of Medicine: Scientific Advisory Board, Stroke Prevention/Intervention Research Program
2005 – Present	Bayer Consumer Products, ARRIVE Study Executive Committee
2001 – 2004	Leadership Committee, Council on Cardiovascular Epidemiology and Prevention, American Heart Association
2006 – Present	Prevention Advisory Board, National Stroke Association
2004 – Present	Veteran's Administration, DSMB, The Home INR Study (THINRS)
2005 – Present	Neurobiological Technologies, Inc. Steering Committee, NTI-ASP-0502: Study of Acute Viprinex™ for Emergency Stroke, and NIT-ASP-0503: ASP-II (Ancrod in Stroke Program-II)
2007 – Present	Boehringer Ingelheim. Flibanserin Data and Monitoring Committee
2004 – 2007	NHLBI, Data and Safety Monitoring Board, Omega-3 Fish Oil Studies
2005 – Present	CDC, National Forum for the Prevention of Heart Disease and Stroke, Policy Research Advisory Committee
2003 – 2006	NINDS, Data and Safety Monitoring Board, Phase I trials.
2004 – Present	American Heart Association, Burgher Grant Program RFP Development and Monitoring Board
2007 – Present	NHLBI. Hispanic Study, Observational Studies Monitoring Board (Chair)
2007 – Present	NHLBI. Vest prevention of early sudden death trial (VEST) and Prediction of ICD Therapies Study (PREDICTS). Data and Safety Monitoring Board.

OTHER PROFESSIONAL APPOINTMENTS AND ACTIVITIES:

Member, Epidemiology and Disease Control Study Section,
1999-present

Ad hoc member. NIH grant review for Epidemiology and Disease Control #1 Study Section

June 1991	February 1996
February 1992	July 1996
July 1992	December 1996
December 1992	April 1997
April 1993	July 1997
July 1993	October 1997
August 1993	July 1998
October 1993	October 1998
December 1993	February 1999
March 1994	June 1999

McGraw CP, Howard G. Factors influencing survival and quality of survival in patients treated for elevated intracranial pressure. In: Shulman K, Marmarou A, Miller JD, Becker DP, Hochwald GM, Brock M, eds. Intracranial pressure IV. New York: Springer Verlag 1980:54-55.

Harpold GJ, Ford CS, Howard G, Toole JF. Prognosis in TIA: the Bowman Gray experience. In: D'Addato M, Stella A, Pedrini L, eds. Ateroma della carotide e ischemia cerebrale reversibile. Bologna: Editrice Compositori 1985:13-18.

Harpold GJ, Ford CS, Howard G, Toole JF. Results and treatment of TIA: the Bowman Gray experience. In: D'Addato M, Stella A, Pedrini L, eds. Ateroma della carotide e ischemia cerebrale reversibile. Bologna: Editrice Compositori 1985:169-178.

Howard G. The manager as an analyst. Chapter 4, In: Glenn JR Jr, Ethics in decision making. New York: John Wiley and Sons 1985.

Yatsu F, Howard G, Walker MD, Becker C, Coull B, Feibel J, McLeroy KF, Toole JF. The community hospital-based stroke programs: North Carolina, Oregon, and New York. In: Cerebrovascular Diseases 1985.

Haisty WK Jr, Pope JE, Thomas KK, Howard G, Koch MA, Edmonds JH. Multivariate Q-wave criteria for inferior myocardial infarction. In: Bailey JJ, ed. Computerized interpretation of the electrocardiogram XI: proceedings of the 1986 Engineering Foundation Conference, Sheraton Hotel, Santa Barbara, CA: April 7-10, 1986. New York: Engineering Foundation 1986;51-55.

Assimos DG, Boyce WH, Lively M, Weidner N, Lewis JC, Howard G, Furr E, Sorrell M, McCullough DL, Bullock BC, Palmer TE. Porcine urologic models including jejunoileal bypass. In: Tumbleson ME, ed. Swine in biomedical research, vol. 1. New York: Plenum Press 1986:399-424.

Tell GS, Howard G, Evans GW, Smith ML, McKinney WM, Toole JF. Cigarette smoking and extracranial carotid atherosclerosis. In: Diana J, ed. Tobacco smoking and atherosclerosis: pathogenesis and cellular mechanisms. New York: Plenum Press 1990:39-49.

Coull BM, Beamer NB, Clark WM, Howard G. Acute phase response in atherothrombotic stroke. In: Moskowitz MA, Caplan LR, eds. Cerebrovascular Disease, Chapter 10. Newton, MA: Butterworth-Heinemann 1995:111-122.

Burke GL, Howard G. Ethnic differences in cerebral atherosclerosis. Stroke in Blacks, Basel, Karger, 1998.

Howard G. County-specific estimation from the Behavioral Risk Factor Surveillance System (BRFSS) with application to physical inactivity and cigarette smoking in North Carolina. Houston SL, Lengerich EJ. 1998 North Carolina Cardiovascular Disease Data Summit: Findings and Recommendations for Surveillance and Evaluation. Cardiovascular Health Data Unit, Division of Community Health, North Carolina Department of Health and Human Services, December 1998.

Howard G. Incidence of stroke. Office of Civil Rights Symposium: Eliminating Racial and Ethnic Health Disparities. Atlanta, November 6-7, 2001.

Glasser SP, Howard G. It's all about uncertainty. In Glasser SP. Essentials of clinical research. Springer Science 2008.

JOURNAL ARTICLES:

1. McHenry LC Jr, Merory J, Bass E, Stump DA, Williams R, Witcofski R, Howard G, Toole JF. Xenon-133 inhalation method for regional cerebral blood flow measurements: normal values and test-retest results. *Stroke* 1978;9:396-399.
2. McGraw CP, Crowell GF, Howard G. Effect of aminophylline on the cerebral infarction in the mongolian gerbil. *Stroke* 1978;9:477-479.
3. Toole JF, Yuson CP, Janeway R, Johnston F, Davis C, Cordell AR, Howard G. Transient ischemic attacks: a prospective study of 225 patients. *Neurol* 1978;28:746-753.
4. McGraw CP, Alexander E Jr, Howard G. Effect of dose and dose schedule on the response of intracranial pressure to mannitol. *Surg Neurol* 1978;10:127-130.
5. Allen LG, Howard G, Smith JB, McCubbin JA, Weaver RL. Infant heart rate response to trigeminal airstream stimulation: determination of normal and deviant values. *Pediatr Res* 1979;13:184-187.
6. Appolone C, Romeis J, Gibson P, McLean W, Howard G. An epilepsy workshop for professionals. *Epilepsia* 1979;20:127-132.
7. McGraw C, Wagoner R, Buonanno F, Howard G. Effects of hyperbaric oxygen on cerebral infarction. *Acta Neurol Scand* 1979;60(suppl 72)470-471.
8. Ueda K, Howard G, Toole JF. Transient ischemic attacks (TIAs) and cerebral infarction (CI): a comparison of predisposing factors. *J Chron Dis* 1980;33:13-19.
9. Howard G, Griffith DW, Stump DA, Hinshelwood L. A mobile device for the measuring regional cerebral circulation. *Comput Applications Med Care* 1980;6:159-164.
10. Weaver RG Jr, Howard G, McKinney WM, Ball MR, Jones AM, Toole JF. Comparison of Doppler ultrasonography with arteriography of the carotid artery bifurcation. *Stroke* 1980;11:402-404.
11. Spudis EV, Fullerton W, Fernandez H, Green P, Tatum T, Howard G. Somatosensory central latencies and disc discrimination in multiple sclerosis. *Clin Electronencephalogr* 1980;11:48-56.
12. Toole JF, Howard G. Physician attitudes: management of asymptomatic carotid artery murmur and transient ischemic attacks. *Arch Neur* 1981;38:443-446.
13. Stump DA, McHenry LC Jr, Biller J, Howard G, Toole JF. Reduction of posterior circulation by provocative arm exercise in subclavian steal syndrome: demonstration by noninvasive rCBF measurement. *Trans ANA* 1981;106:361-363.
14. Biller J, Laster DW, Howard G, Toole JF, McHenry LC Jr. Cranial computerized tomography in carotid artery transient ischemic attacks. *Eur Neurol* 1982;21:98-101.
15. Jones AM, Biller J, Cowley AR, Howard G, McKinney WM, Toole JF. Extracranial carotid artery arteriosclerosis: diagnosis with continuous-wave Doppler and real-time ultrasound studies. *Arch Neur* 1982;39:393-394.
16. McHenry LC Jr, Stump DA, Howard G, Novack T, Bivins DH, Nelson AD. Comparison of the effects of intravenous papaverine hydrochloride and oral

- pavabid HP capsules on regional cerebral blood flow in normal individuals. *J Cereb Blood Flow Metab* 1983;3:442-447.
17. McGraw CP, Howard G. Effect of mannitol on increased intracranial pressure. *Neurosurgery* 1983;13:269-271
 18. Toole JF, Howard G, Miller HS. Cardiac risk factors in TIA patients. *Trans Amer Clin and Climitol Assoc* 1984;96:154-157.
 19. Howard G, Till JS, Toole JF, Matthews C, Truscott BL. Factors influencing return to work following cerebral infarction. *JAMA* 1985;253:226-232.
 20. Ford CS, Crouse JR III, Howard G, Toole JF, Ball MR, Frye J. The role of plasma lipids in carotid bifurcation atherosclerosis. *Ann Neurol* 1985;17:301-303.
 21. Vinten-Johansen J, Edgerton TA, Howe HR, Gayheart PA, Mills SA, Howard G, Cordell AR: Immediate functional recovery and avoidance of reperfusion injury with surgical revascularization of short-term coronary occlusion. *Circulation* 72,No. 2,431-439,1985.
 22. Johnston WE, Prough DS, Royster RL, Howard G, Johnson JC, McLees BD: Pulmonary artery wedge pressure may fail to reflect left ventricular end-diastolic pressure in dogs with oleic acid-induced pulmonary edema. *Crit Care Med* 1985;13:487-491.
 23. Johnston WE, Alford PT, Prough DS, Howard G, Royster RL: Cardiopulmonary effects of hypertonic saline in canine oleic acid-induced pulmonary edema. *Crit Care Med* 1985;13:814-817.
 24. Prough DS, Johnson JC, Stullken EH, Stump DA, Poole GV Jr, Howard G. Effects on cerebral hemodynamics of resuscitation from endotoxic shock with hypertonic saline versus lactated Ringer's solution. *Crit Care Med* 1985;13:1040-1044.
 25. Howard G, Walker MD, Becker C, Coull B, Feibel J, McLeroy K, Toole JF, Yatsu F. Community hospital-based stroke programs: North Carolina, Oregon, and New York. III. Factors influencing survival after stroke: proportional hazards analysis of 4219 patients. *Stroke* 1986;17:294-299.
 26. Johnston WE, Royster RL, Choplin RH, Howard G, Mills SA, Tucker WY. Pulmonary artery catheter migration during cardiac surgery. *Anesthesiology* 1986;64:258-262.
 27. Dignan MB, Steekler A, Block GD, Howard G, Cosby M. Prevalence of health-risk behavior among seventh grade students in North Carolina. *South Med J* 1986;79:295-298,302.
 28. Dignan M, Block G, Steekler A, Howard G, Cosby M. Locus of control and smokeless tobacco use among adolescents. *Adolescence* 1986;21:377-381.
 29. Grice SC, Morrell RC, Balestrieri FJ, Stump DA, Howard G. Intravenous regional anesthesia: evaluation and prevention of leakage under the tourniquet. *Anesthesiology* 1986;65:316-320.
 30. Smith HP, Kelly DL Jr, McWhorter JM, Armstrong D, Johnson R, Transou C, Howard G. Comparison of mannitol regimens in patients with severe head injury undergoing intracranial monitoring. *J Neurosurg* 1986;65:820-824.

31. Dignan MB, Howard G, Toole JF, Becker C, McLeroy KR. Evaluation of the North Carolina Stroke Care Program. *Stroke* 1986;17:382-386.
32. Prough DS, Johnson JC, Stump DA, Stullken EH, Poole GV Jr, Howard G. Effects of hypertonic saline versus lactated Ringer's solution on cerebral oxygen transport during resuscitation from hemorrhagic shock. *J Neurosurg* 1986;64:627-632.
33. Yatsu FM, Becker C, McLeroy KR, Coull B, Feibel J, Howard G, Toole JF, Walker MD. Community hospital-based stroke programs: North Carolina, Oregon, and New York. I. Goals, objectives and data collection procedures. *Stroke* 1986;17:276-284.
34. Becker C, Howard G, McLeroy KR, Yatsu FM, Toole JF, Coull B, Feibel J, Walker MD. Community hospital-based stroke programs: North Carolina, Oregon, and New York. II. Description of study population. *Stroke* 1986;17:285-293.
35. Prough DS, Stump DA, Roy RC, Gravlee GP, Williams T, Mills SA, Hinshelwood L, Howard G. The response of cerebral blood flow to changes in carbon dioxide tension during hypothermic cardiopulmonary bypass. *Anesthesiology* 1986;64:576-581.
36. Ford CS, Howard VJ, Howard G, Frye JL, Toole JF, McKinney WM. The sex difference in manifestations of carotid bifurcation disease. *Stroke* 1986;17:877-881.
37. Johnston WE, Balestrieri F, Plonk G, D'Souza V, Howard G. The influence of periaortic collateral vessels on the intraoperative hemodynamic effects of acute aortic occlusion in patients with aorta-occlusive disease or abdominal aortic aneurysm. *Anesthesiology* 1987;66:386-389.
38. Butterworth JF IV, Austin JC, Johnson MD, Berrizbeitia LD, Dance GR, Howard G, Cohn LW. Effect of total spinal anesthesia on arterial and venous responses to dopamine and dobutamine. *Anesth Analg* 1987;66:209-214.
39. Johnston WE, Royster RL, Vinten-Johansen JS, Gravlee GP, Howard G, Mills SA, Tucker WY. Influence of Balloon Inflation and Deflation on location of pulmonary artery catheter tip. *Anesthesiology* 1987;67:110-115.
40. Poole, GV Jr, Prough DS, Johnson JC, Stullken EH, Stump DA, Howard G. Effects of resuscitation from hemorrhagic shock on cerebral hemodynamics in the presence of an intracranial mass. *J Trauma* 1987;27:18-23.
41. Howard G, Toole JF, Frye-Pierson JF, Hinshelwood LC. Factors influencing the survival of 451 transient ischemic attack patients. *Stroke* 1987;18:552-557.
42. Monu J, Bohrer SP, Howard G. Some upper cervical spine norms. *Spine* 1987;12:515-519.
43. Keeler DK, Johnston WE, Vinten-Johansen J, Royster RL, Howard G. Pulmonary artery wedge pressure measurement during experimental pulmonary hypertension: comparison of techniques in relation to catheter-induced hemorrhage. *J Cardiothorac Anesth* 1987;1:305-308.

44. Gravlee GP, Brauer SD, Roy RC, Howard G, Kiger J, Scott C, Royster RL, Pauca AL. Predicting the pharmacodynamics of heparin: a clinical evaluation of the Hepcon System 4. *J Cardiothorac Anesth* 1987;1:379-387.
45. Crouse JR, Toole JF, McKinney WM, Dignan MB, Howard G, Kahl FR, McMahan MR, Harpold GH. Risk factors for extracranial carotid artery atherosclerosis. *Stroke* 1987;18:990-996.
46. Oles KS, Penry JK, Cole DLW, Howard G. The use of acetazolamide as an adjunct to carbamazepine in refractory partial seizures. *Epilepsia* 1989;30:74-78.
47. Tell GS, Howard G, McKinney WM, Toole JF. Cigarette smoking cessation and extracranial carotid atherosclerosis. *JAMA* 1989;261:1178-1180.
48. Howard G, Evans GW, Murros KE, Toole JF, Lefkowitz D, Truscott L. Cause specific mortality following cerebral infarction. *J Clin Epidemiol* 1989;42:45-51.
49. Howard G, Toole JF, Becker C, Lefkowitz DS, Truscott BL, Rose L, Evans GW. Changes in survival following stroke in five North Carolina counties observed during two different periods. *Stroke* 1989;20:345-350.
50. Murros KE, Evans GW, Toole JF, Howard G, Rose L. Cerebral infarction in transient ischemic attacks. *J Neurol* 1989;236:182-184.
51. Scuderi PE, Prough DS, Davis Jr CH, Balestrieri FJ, McWhorter JM, Howard G. The effects of regional and general anesthesia on blood pressure control after carotid endarterectomy. *J Neurosurg Anesthesiol* 1989;1:41-45.
52. Tell GS, Howard G, McKinney WM. Risk factors for site specific extracranial carotid artery plaque, distribution as measured by B-Mode ultrasound. *J Clin Epid* 1989;42:551-559.
53. Doolittle DJ, Rahn CA, Burger GT, Davis R, deBethizy JD, Howard G, Lee CK, McKarns SC, Riccio E, Robinson J, Reynolds J, Hayes AW. Human urine mutagenicity study comparing cigarettes which burn or only heat tobacco. *Human Mutagenicity. Mutation Research* 1989;223:221-232.
54. Howard VJ, Howard G, Harpold GJ, Nunn CL, Myers LG, McKinney WM, Murros KE, Toole JF. Correlation of carotid bruits and carotid atherosclerosis detected by B-mode real-time ultrasonography. *Stroke* 1989;20:1331-1335.
55. Howard G, Brockschmidt JK, Rose LA, Frye-Pierson JL, Crouse JR, Evans GW, Mitchell ES, Toole JF. Changes in survival after transient ischemic attacks: observations comparing the 1970's and 1980's. *Neurology* 1989;39:982-985.
56. Doolittle D, Rahn C, Burger G, Lee C, Reed B, Riccio E, Howard G, Passananti G, Vesell S, Hayes A. Effect of cooking methods on the mutagenicity of food and on urinary mutagenicity of human consumers. *Fd Chem. Toxic* 1989;27:657-666.
57. Howard G, Evans G, Toole J, Tell G, Rose L, Espeland M, Truscott L. Characteristics of stroke victims associated with early cardiovascular mortality in their children. *J Clin Epidemiol* 1990;43:49-54.
58. Coull BM, Brockschmidt JK, Howard G, Becker C, Yatsu FM, Toole JF, McLeroy KR, Feibel J. Community hospital-based stroke programs in North Carolina,

- Oregon and New York. IV. Stroke diagnosis and its relation to demographics, risk factors, and clinical status after stroke. *Stroke* 1990;21:867-873.
59. Tell GS, Howard G, Evans GW, Smith ML, McKinney WM, Toole JF. Cigarette smoking and extracranial carotid atherosclerosis. *Adv Exp Med Biol* 1990;273:39-49.
 60. Howard G, Ryu JE, Evans GW, McKinney WM, Toole JF, Murros KE, Crouse JR III. Extracranial carotid atherosclerosis in patients with and without transient ischemic attacks and coronary artery disease. *Arteriosclerosis* 1990;10(5):714-719.
 61. Howard G, Koch G. The GLM log-rank test: general linear modeling of log-rank scores as a method of analysis for survival data. *Communications in Statistics* 1990;19(3):903-917.
 62. Doolittle DJ, Rahn CA, Riccio E, Passananti GT, Howard G, Vesell ES, Burger GT, Hayes AW. Comparative studies of the mutagenicity of urine from smokers and non-smokers on a controlled non-mutagenic diet. *Fd Chem Toxic* 1990;28(9):639-646.
 63. Pahlm O, Case D, Howard G, Pope J, Haisty WK. Decision rules for the ECG diagnosis of inferior myocardial infarction. *Comput Biomed Res* 1990;23(4):332-345.
 64. Howard G, Evans GW, Thomas JL, Ryu JE, Kahl FR, Crouse JR. Reevaluation of TIA as a risk factor for early mortality. *Stroke* 1991;22:582-585.
 65. Evans GW, Howard G, Murros KE, Rose LA, Toole JF. Cerebral infarction verified by computed cranial tomography and prognosis following transient ischemic attack. *Stroke* 1991;22(4):431-436.
 66. Howard G, Brockschmidt JK, Coull BM, Becker C, Feibel J, Walker MD, McLeroy KR, Toole JF, Yatsu FM. Community hospital-based stroke programs in North Carolina, Oregon and New York. V. Stroke Diagnosis: Factors influencing the diagnostic evaluation of patients following acute stroke. *J Clin Epidemiol* 1991;44(3):293-301.
 67. Rahn CA, Howard G, Riccio E, Doolittle DJ. Correlations between urinary nicotine or cotinine and urinary mutagenicity in smokers on controlled diets. *Environ Mol Mutagen* 1991;17:244-252.
 68. Wofford JL, Kahl FR, Howard GR, McKinney WM, Toole JF, Crouse JR III. Relation of extent of extracranial carotid artery atherosclerosis as measured by B-mode ultrasound to the extent of coronary atherosclerosis. *Arteriosclerosis and Thrombosis* 1991;11:1786-1794.
 69. Howard G, Craven TE, Sanders L, Evans GW. Relationship of hospitalized stroke rate and in-hospital mortality to the decline in U.S. stroke mortality. *Neuroepidemiology* 1991;10:251-259.
 70. Bond MG, Barnes RW, Riley WA, Wilmoth SK, Chambless LE, Howard G, Owens B, ARIC Study Group. High resolution B-mode ultrasound scanning methods in the Atherosclerosis Risk in Communities (ARIC) Study. *J Neuroimaging* 1991;1:68-73.

71. Mandell GL, Dewan DM, Howard G, Floyd HM. The effectiveness of low dose droperidol in controlling nausea and vomiting during epidural anesthesia for cesarean section. *Int J Obstet Anesth* 1992;1:65-68.
72. Smith M, Howard G, Evans GW. Bootstrap estimation of the variance of percentile regression parameters. *Proceedings of the 17th Annual SAS Users Group International Conference*. 1992:1283-1291.
73. Ryu JE, Howard G, Craven TE, Bond MG, Hagaman AP, Crouse JR. Postprandial triglyceridemia and carotid atherosclerosis in middle-aged subjects. *Stroke* 1992;23(6):823-828.
74. Howard G, Sharrett AR, Heiss G, Evans GW, Chambless LE, Riley WA, Burke GL. Carotid artery intimal-medial thickness distribution in general populations as evaluated by B-mode ultrasound. *Stroke* 1993;24:1297-1304.
75. Howard G. Decline in stroke mortality in North Carolina: description, predictions, and a possible underlying cause. *Ann Epidemiol* 1993;3:488-492.
76. Eicke BM, Tegeler CH, Howard G, Bennett JB, Myers LG, Meads D. In-vitro validation of color velocity imaging and spectral Doppler for velocity determination. *J Neuroimaging* 1993;3:89-92.
77. Howard G, Evans GW, Crouse JR, Toole JF, Ryu JE, Tegeler C, Frye-Pierson J, Mitchell E, Sanders L. A prospective reevaluation of transient ischemic attacks as a risk factor for death, and fatal or nonfatal cardiovascular events. *Stroke* 1994;25:342-345.
78. Lancman ME, Asconapé JJ, Craven WJ, Howard G, Penry JK. Predictive value of induction of psychogenic seizures by suggestion. *Ann Neurol* 1994;35:359-361.
79. Howard G, Burke GL, Szklo M, Tell GS, Eckfeldt J, Evans GW, Heiss G. Active and Passive Smoking are associated with increased carotid wall thickness: The Atherosclerosis Risk in Communities (ARIC) Study. *Arch Intern Med* 1994;154:1277-1282.
80. Howard G, Burke GL, Evans GW, Crouse JR, Riley W, Arnaud D, de Lacy R, Heiss G. Relations of intimal-medial thickness among sites within the carotid artery as evaluated by B-mode ultrasound. *Stroke* 1994;25:1581-1587.
81. Espeland MA, Hoen H, Byington R, Howard, G, Riley WA, Furberg CD. Spatial distribution of carotid intimal-medial thickness as measured by b-mode ultrasonography. *Stroke* 1994;25:1812-1819.
82. Howard G, Anderson R, Sorlie P, Andrews VC, Backlund E, Burke GL. Ethnic differences in stroke mortality between non-Hispanic Whites, Hispanic whites, and blacks: the National Longitudinal Mortality Study. *Stroke* 1994;25:2120-2125.
83. Howard G, Evans GW, Toole JF. Silent cerebral infarctions in transient ischemic attack populations: implications of advancing technology. *J Stroke Cerebrovasc Dis* 1994;4:S47-S50.
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