

CURRICULUM VITAE
Thomas D. Downs

PERSONAL:

Born August 28, 1933 in Kalamazoo, Michigan
Married, with four children
Work Address: POBox 20186, Houston, TX 77225
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EDUCATION:

B.S. Western Michigan University
Kalamazoo, Michigan, 1960 (Mathematics)

M.P.H. The University of Michigan
Ann Arbor, Michigan, 1962 (Biostatistics)

Ph.D. The University of Michigan
Ann Arbor, Michigan, 1965 (Biostatistics)

MILITARY SERVICE:

United States Army, active service, April 1953-April 1956
United States Army, active reserve, 1958-1959
Honorably discharged, 1961

ACADEMIC APPOINTMENTS:

Professor of Biometry, The University of Texas Health
Science Center at Houston, School of Public Health:
1975-Present

Associate in Toxicology, The University of Texas Health
Science Center at Houston, Graduate School of Biomedical
Sciences: 1991-Present

Adjunct Professor of Statistics, Rice University: 1975-
Present

Associate Professor of Biometry, The University of Texas
Health Science Center at Houston, School of Public Health:
1970-1975

Adjunct Associate Professor of Mathematical Sciences, Rice
University: 1972-1975

Assistant Professor of Biometry, Case Western Reserve
University: 1965-1970

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VISITING PROFESSORSHIPS:

The University of Leeds, England (six weeks, 1976)

Harvard University, Cambridge (six weeks, 1977)

HONORS:

- 1. Senior Mathematics Award, Western Michigan Univ., 1960**
- 2. Kappa Rho Sigma Honorary Science Fraternity, Western Michigan Univ., 1960**
- 3. Cum Laude, Western Michigan Univ., 1960**
- 4. Delta Omega Honorary Public Health Society, Univ. of Michigan, 1962**
- 5. U.S. Public Health Service Traineeship, Univ. of Michigan, 1960-1964**
- 6. Outstanding Teacher Award, Univ. of Texas School of Public Health, 1983-84 academic year**

PROFESSIONAL SOCIETIES:

- 1. American Association Advancement of Science**
- 2. American Chemical Association**
- 3. American Statistical Association**
- 4. Biometrics Society**
- 5. Society for Epidemiologic Research**
- 6. Society for Risk Analysis**
(Co-Founder and Past President, Lone Star Chapter)

COURSES TAUGHT:

- 1. Medical Statistics, 1965-1973**
- 2. Elementary Biostatistics, 1968-1971, 1981, 1982**
- 3. Theory of Statistics, 1968-1969**
- 4. Multivariate Analysis, Odd-numbered years 1969-1983, 1984-1987**
- 5. Linear Models, 1970, 1972, 1974, 1986**
- 6. Directional Statistics, 1976, 1983, 1986**
- 7. Time Series Analysis, Even-numbered years 1974-1984**
- 8. Risk Assessment, 1980-1982, 1988-1992**
- 9. Intermediate Biometric Methods, 1988, 1989**
- 10. Risk Analysis, 1989-1992**

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REPORTS:

1. Downs, T., 1971. For: Consumer Product Safety Commission. Estimation Equations for the NIOSH Hospital Survey
2. Downs, T., 1976. For: Diamond Shamrock Chemical Company. Community Risk Assessment from Emissions from Vinyl Chloride Plants
3. Downs, T., Stallones, R., Frankowski, F. and Labarthe, L., 1977. For: The Society of Plastics Industries. A critical review of the literature on vinyl chloride and birth defects
4. Downs, T., 1978. For: The Society of Plastics Industries. A critical review of the proposed NIOSH occupational exposure standards for styrene
5. Downs, T., 1976. For: Pennsoil Corporation. Mortality among solvent dewaxing workers
6. Downs, T., 1979. For: The American Petroleum Institute. Comments on the proposed EPA water quality criteria
7. Battigelli, M., Downs, T., Lachtman, D., Milby, T. and Weir, F., 1979. For: The Engine Manufacturers Association. Comments on the proposed IRLG criteria for identifying and estimating risk from carcinogenic substances
8. Stallones, R. and Downs, T., 1979. For: The American Industrial Health Council. A critical review of "Estimates of the Fraction of Cancer in the United States Related to Occupational Factors".
9. Downs, T., 1979. For: Dow Chemical Company. A critical review of the Environmental Protection Agency Alcoa II Report on the Spontaneous Abortion Effects of Aerial Spraying of 2,4,5-T
10. Buffler, P., Labarthe, D., and Downs, T., 1979. For: US Air Force. Critique of a study protocol for determining deleterious effects, if any, in Vietnam veterans exposed to "agent orange"
11. Downs, T., 1979. For: Pennsoil Corporation. Effects of underground exposure on Duval Potash Miners
12. Downs, T., and Davis, E., 1979. For: Union Carbide Corp. Estimating tertiary effluents from an industrial wastewater pond

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REPORTS: continued

13. Downs, T., 1980. For: The Society of Plastics Industries.
A critical review of the proposed NIOSH occupational exposure standards for styrene
14. Downs, T., Shaw, C., and Weir, F., 1980. For: The American Mining Congress.
Comments on the proposed EPA air quality criteria for airborne carcinogens
15. Downs, T., 1980. For: Standard Oil Company of Ohio.
Risk assessment from low-dose exposures to acrylonitrile
16. Downs, T., 1981. For: ASARCO.
Prepared statement to Puget Sound Air Pollution Control Agency on community lung cancer risk assessment for arsenic emissions
17. Downs, T., 1981. For: Cameron Iron Works.
Relationships between heat stress and risk of cardiovascular disease
18. Downs, T., 1982. For: Mr. Michael Pretl, Baltimore, MD.
A statistical analysis of the relative risk of PID among users of the Dalkon Shield
19. Downs, T., 1982. For: Mr. R. Manchester, Burlington, VT.
A statistical analysis of adjusted relative risks of the CDC Women's Health Study
20. Downs, T., 1983. For: Uniroyal.
Expected cancer cases and deaths for Uniroyal white males. By: selected site, pay status, date, and cumulative age group
21. Downs, T., 1983. For: ASARCO.
Comments on the risk assessment methodology used by EPA for high arsenic copper smelters
22. Downs, T., 1985. For: Monsanto Chemical Company.
Expected leukemia mortality among workers at the Monsanto Chocolate Bayou Plant
23. Downs, T., 1987. For: Mr. Craig McClellan, San Diego, CA and Mr. Phil Hardberger, San Antonio, TX.
Risk of death or injury involving children riding three-wheeled ATVs
24. Downs, T., 1988. For: ASARCO.
Comments on risk assessment procedures used for predicting arsenic-induced cancer in the vicinity of the Tacoma Smelter

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REPORTS (continued)

25. Downs, T., 1988. For: FDA.
Statistical accuracy and validity aspects of fetal
ultrasound Doppler devices
26. Downs, T., 1988. For: Enron Corporation.
Conservative risk assessment for arsenical cocontamination of
natural gas
27. Downs, T., 1988. For: Pennsoil Corporation.
Conservative risk assessment of potential arsenic
contamination in natural gas
28. Downs, T., 1989. For: Rebsamen Hospital, Jacksonville, AK.
Estimated cancer risks from asbestos exposures
29. Downs, T., 1989. For: FDA.
Sample size aspects of clinical trials for altering sex
ratios
30. Downs, T., 1989. For: FDA.
Comments on proposed FDA Guidelines for premarket testing of
female barrier contraceptives
31. Downs, T., 1989. For: FDA.
Comments on the Interceed absorbable adhesion barrier
premarket application
32. Downs, T., 1989. For: Pennsoil Corporation.
Statistical critiques of "White oils: a 90 day feeding study
in rats" and "White oils: a repeat 90 day feeding study in
female rats"
33. Downs, T., 1990. For: FDA.
Comments on the Genesis fetal recorder
34. Downs, T., 1990. For: FDA.
Statistical review of position paper on the premarket
approval criteria for ambulatory tocodynamometer used as an
aid in the diagnosis of preterm labor
35. Downs, T., 1990. For: FDA.
Review of Medela nipple stimulation device for contraction
stress tests
36. Downs, T., 1990. For: FDA.
Comments on the statistical analysis in support of the
Healthdyne uterine activity recording system

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REPORTS (continued)

37. Downs, T., 1990. For: FDA.
Clinical data review of Healthdyne system 37 uterine
activity recording system
38. Downs, T., 1990. For: DuPont Chemical Company.
Review of appeals court decision re DeLuca versus Marrell
Dow Pharmaceuticals
39. Downs, T., 1990. For: Mr. Steve Dillard, Houston, TX.
Review of benzene risk assessment articles
40. Downs, T., 1990. For: FDA.
Comments on the statistical analysis and clinical utility of
the Healthdyne HUAM system, with revisions enclosed with
letter to FDA dated 9 Oct 90
41. Philpott, P., Davis, E., Downs, T. and Schroeder, G., 1990.
For: AMOCO and Monsanto Chemical Company.
Evaluation of long-term water quality trends in Chocolate
Bayou
42. Buffler, P., Burau, K., Downs, T., Prichard, H. and Rosas,
A., 1990. For: IBM.
Exposure to VDTs and reproductive outcomes: Meta-analysis of
epidemiologic studies
43. Downs, T., 1991. For: FDA.
Review of clinical studies and labeling for MY-PAP self-
administered screening device for cervical cancer
44. Downs, T., 1991. For: FDA.
Review of clinical statistics in the PMA for the Advanced
Medical Systems HUAM
45. Downs, T., 1991. For: FDA.
Review of Cook chorionic villus sampling set

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CURRENT RESEARCH ACTIVITIES:

1. Leukemia incidence in Southeast Texas (funded by NCI)
2. Angular-angular regression methodology (no funding)
3. Risk factors for leukemia in Texas (funded by NCI)
4. Risk assessment methodology (no funding)
5. Statistics of hyperplanes in n-space (no funding)
6. VDT exposures and adverse pregnancy outcome (funded by IBM)
7. HIV-associated CNS lymphomas (proposal to NIH)
8. Cancer in rubber workers (expert witness)
9. Safety and Efficacy of Ob-Gyn devices (consultant to FDA)
10. Skin keratoses and chemical exposures (funded by ICI)
11. Statistics of long-term animal cancer bioassays (no funding)
12. Evaluation of a cluster of lymphoma cases (funded by NASA)
13. Asbestos levels in children's lungs (funded by NCI)
14. Statistical methods for meta-analysis (no funding)
15. Southwest Center for Occupational Health and Safety (member)
16. Toxicologic aspects of risk assessment (associate faculty)
16. Health of petrochemical plant workers (funded by Phillips)
17. Public perception of risks (no funding)
18. Multivariate methods in Public Health (no funding)

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PUBLICATIONS:

1. Gannon, J. and Downs, T. Programming river DO calculations. Water and Sewage Works Journal, March, 1963.
2. Downs, T. The von Mises distribution: derived distributions, regression theory, and some applications to meteorological problems. Ph.D. Thesis, University of Michigan, Ann Arbor, 1965.
3. Downs, T. Some relationships among the von Mises distributions of different dimensions. Biometrika 53:269, 1965.
4. Downs, T., Liebman J., and Romberg, H. The statistical treatment of angular data in vectorcardiography. In: Vectorcardiography 1965, I. Hoffman and R. Teymore, editors. North-Holland, Amsterdam, 1966, p.256.
5. Liebman, J., Downs, T., Romberg, H. and Agusti, R. Statistical treatment of angular data in vectorcardiography. The American J. of Cardiology 17:129, 1966.
6. Liebman, J., Romberg, H., and Downs, T. The Frank QRS VCG in the Premature Infant. Vectorcardiography, 1965, I. Hoffman and R. Teymore, editors. North-Holland, Amsterdam, 1966, p.272.
7. Downs, T. Quality Control. The Handbook of Biochemistry and Physics. Henry Damm, editor. World Publishing Company, Cleveland, 1966.
8. Kats, S., Heiple, K., Downs, T. and Ford, A.B. Long-Term Course of 147 Patients with Fracture of the Hip. Surgery. Gynecology and Obstetrics 124:1219, 1967.
9. Downs, T. and Gould, L. Some Relationships Between the Normal and von Mises Distributions. Biometrika 54:684, 1967.
10. Adams, M., Downs, T. and Deuble, H. Nursing Referral Outcome for Post-Hospitalized Chronically Ill Patients. American J. of Public Health 58:101, 1968.
11. Weir, W. and Downs, T. The Optimum Time for Conception. American J. of Fertility 19:64, 1968.
12. Young, M. and Downs, T. Testing the Significance of Agreement Among Observers. Journal of Speech and Hearing Research 11:5, 1968.

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PUBLICATIONS (continued)

13. Greenvian, V., Liebman, J., Linton, D. and Downs, T. Posterior Mitral Regurgitation in Girls Possibly due to Posterior Papillary Muscle Dysfunction. *Pediatrics* 42:276, 1968.
14. Jaffe, J., Persky, L. and Downs, T. Parenteral Therapy in the Management of Mechanical Renal Trauma. *The Journal of Urology* 100:133, 1968.
15. Kats, S., Ford, A., Downs, T. and Adams, M. Chronic Disease Classification in Evaluation of Medical Care Programs. *Medical Care* 7:139, 1969.
16. Downs, T. and Liebman, J. Statistical Methods for VCG Directions. *Trans. on Bio-med. Engineering* 16:37, 1969.
17. Kats, S., Downs, T., Cash, H., Gots, R. and Ford, A. Progress in Development of the Index of ADL. *The Gerontologist* 10:20, 1970.
18. Dearchuk, C., Downs, T., Matthews, L. and Lough, M. A Method for Ventilatory Measurements in Subjects One Month to Five Years of Age. Normal Results and Observations in Disease. *Pediatric Research* 3:165, 1970.
19. Markus, E., Blenkner, M. and Downs, T. Relocation Stress and the Aged. *Interdiscipl. Topics Gerontology* 7:60, 1970.
20. Ready, J., Szekes, T. and Downs, T. Tongue Rolling Among Twins. *Journal of Heredity* 62:2, 1971.
21. Liebman, J., Downs, T. and Fiedge, A. The Frank and McFee Vectorcardiogram in Normal Children. *Vectorcardiography*, 1970. I. Hoffman, R. Hamby and E. Glassman, editors. North-Holland, Amsterdam. 1971, P. 483.
22. Downs T., Liebman, J. and MacKay, W. Statistical Methods for Vectorcardiogram Orientations. *Vectorcardiography*, 1970. I. Hoffman, R. Hamby and E. Glassman, editors. North-Holland, Amsterdam, 1971, p. 216.
23. Markus, E., Blenkner, M., Bloom, M. and Downs, T. The Impact of Relocation upon Mortality rates of Institutionalized Aged Persons. *Journal of Gerontology* 26:4, 1971.
24. Kats, S., Ford, A., Downs, T., Adams, M. and Rusby, D. The Effect of Continued Care. United State Department of Health, Education and Welfare, 1972.
25. Downs, T. Orientation Statistics. *Biometrika* 59:663, 1972.

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PUBLICATIONS (continued)

26. Markus, E. Blenkner, M., Bloom, M. and Downs, T. Some Factors and Their Association with Post-Relocation Mortality Among Institutionalized Aged Persons. *Journal of Gerontology* 27:3, 1972.
27. Moir, T. and Downs, T. Myocardial Reactive Hyperemia: comparative effects of adenosine, ATP, ADP, and AMP. *American J. of Physiology* 222:6, 1972.
28. Nielsen, M., Blenkner, M., Bloom, M. and Downs, T. Older Persons after Hospitalization: A controlled Study of Home Aide Service. *American J. of Public Health* 62:1094, 1972.
29. Strong, W., Downs, T., Liebman, J. and Liebowitz, R. The Normal Adolescent Electrocardiogram. *American Heart Journal* 83:115, 1972.
30. Downs, T. Rotational Angular Correlations. *Biorhythms and Human Reproduction*. M. Farrin et al, editors. John Wiley & Sons, New York. p. 97, 1974.
31. Smolensky, M., Kraft, I., Sothorn, R., Downs, T., Bifler, C. and Mealy, E. Circadian Rhythmicity in Heart Rate and Duration of Cardiac Cycle (F-F Interval) in Donor and Recipient Cardiac Tissue of Heart Homograft Patients. *Texas Reports on Biology and Medicine* 33:533, 1975.
32. Severs, R., Neal, R. and Downs, T. Time as a Factor in Atmospheric Sampling. *American Industrial Hygiene Assoc. J.* 38:134, 1977.
33. Downs, T. Community Risk Assessment. *Texas Reports on Biology and Medicine* 37:118, 1978.
34. Davis, E., Downs, T. and Gray, W. Ammonia in Texas Streams during Low Flow from Municipal Wastewater. *Water Resources Bull.* 14:1417, 1978.
35. Hayes, J. and Downs, T. Seasonal Changes in an Isolated Population of *Culex Pipiens Quinquemaculatus* (Diptera: Culicidae): A Time Series Analysis. *J. Medical Entomology* 17:63, 1980.
36. Downs, T. Problem Ranking. In: *Health Effects of Photovoltaic Technology*. Stang et al, editors. Proceedings of a Workshop at Brookhaven National Laboratory, p. 270, 1980.

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PUBLICATIONS (continued)

37. Downs, T. and Frankowski, R. Influence of Repair Processes on Dose-Response Models. *Drug Metabolism Reviews* 13:839, 1982.
38. Gleser, P., Payne, A., Snyder, D. and Downs, T. Mortality and Influenza. *J. of Infectious Disease* 146:313, 1982.
39. Casserly, D., Davis, E. and Downs, T. Sorption of Organics by *Selenastrum Capricornutum*. *Water Research* 17:1591, 1983.
40. Downs, T. Book Review of *Geometry and Biological Time* by A.T. Winifree. *Biometrics* 39:837, 1983.
41. Downs, T. An Assessment of Various Dose-Response Models in the Determination of Risk. In: *New Approaches to Toxicity Testing and Their Application in Human Risk Assessment*. A.P. Li, editor. Raven Press, New York, 1985.
42. Wheeler, W., Cherry L., Downs, T and Hsu, T. Mitotic Inhibition and Aneuploidy Induction by Naturally Occurring and Synthetic Estrogens in Chinese Hamster Cells in Vitro. *Mutation Research* 171:31, 1986.
43. Downs, T., Crane M. and Kim, K. Mortality among Workers at a Butadiene Facility. *American J. of Industrial Medicine* 12:311-329, 1987.
44. Downs, T. Projective Angular Regression. Submitted for publication
45. Davis, E., Sullivan, E. and Downs, T. Determination of Celloxolve and Chlorox Concentrations Inhibitory to Industrial Waste Stabilization Pond Treatment Efficiencies. *Water Science Technology* 21:1833-1836, 1989.
46. Buefler, P., Downs, T., Christensen, B. et al. The Incidence of Leukemias and Myelodysplasia in Adult Males Residing in the Upper Texas Gulf Coast. Submitted for publication
47. Burau, K., Buefler, P., Downs, T. et al. Ascertainment and Evaluation Methods for a Large Epidemiologic Study of Adult Leukemia Incidence in the Upper Texas Gulf Coast. Submitted for publication
48. Downs, T. Biostatistical Approaches for Modelling U-shaped Dose-Response Curves and Study Design Considerations in Assessing the Biological Effects of Low Doses. *Proceedings: Workshop on Biological Effects of Low Doses*. E.J. Calabrese, editor. Lewis Publishers, Ann Arbor, 1992.

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PUBLICATIONS (continued)

49. Downs, T. and Crane, M. A Meta-Analytic Method for Assessing Dose-Response in Studies of Association. Example: passive-smoking and lung cancer. Submitted for publication
50. Burau, K., Buffler, P., Downs, T. et al. A Meta-analysis of epidemiologic studies of VDT Use and Pregnancy Outcomes. Submitted for publication.
51. Downs, T., Crane, M., Yin, K. et al. Mortality among Workers exposed to Acrylonitrile, Styrene, and Butadiene: An update. Submitted for publication.
52. Cooper, S.P., Downs, T., Burau, K. et al. A Survey of Keratoses among Paraquat Workers and a Nonexposed Friend Reference Group. Submitted for publication.

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