

BIOGRAPHICAL SKETCH

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NAME: Tarone, Robert Ernest

eRA COMMONS USER NAME (credential, e.g., agency login): TARONER

POSITION TITLE: Biostatistics Director

EDUCATION/TRAINING (*Begin with baccalaureate or other initial professional education, such as nursing, include postdoctoral training and residency training if applicable. Add/delete rows as necessary.*)

INSTITUTION AND LOCATION	DEGREE (if applicable)	Completion Date MM/YYYY	FIELD OF STUDY
University of California, Davis	B.S.	06/68	Mathematics
University of California, Davis	M.S.	06/69	Mathematics
University of California, Davis	Ph.D.	06/74	Mathematics

A. Personal Statement

I have extensive experience in providing statistical direction and analysis in a variety of areas of medical research that are relevant to the goals of the numerous and varied proposed investigations of determinants of disease in the Southern Community Cohort Study. As a Mathematical Statistician at the National Cancer Institute I was heavily involved in providing statistical assistance to a wide variety of laboratory and clinical researchers, including investigators in the fields of immunology, DNA repair, and cancer-prone inherited diseases. In addition, I was involved in the design, conduct and statistical analysis of several large scale observational studies, including the ALTS trial of HPV testing to detect cervical cancer, the nationwide NCI case-control study of electromagnetic fields and childhood leukemia risk, the prospective Agricultural Health Study, and the NCI case-control study of cell phones and brain tumor risk. I have also had extensive experience, while at the International Epidemiology Institute and Vanderbilt University Department of Medicine, in the conduct of retrospective and prospective cohort studies to evaluate potential health risks in numerous areas of environmental and occupational epidemiology. In summary, my record of statistical collaboration in productive laboratory and epidemiologic research demonstrates that I am well qualified for my role in the proposed project.

1. Signorello L.B., Cai Q., Tarone R.E., McLaughlin J.K. & Blot W.J. (2009). Racial differences in serum cotinine levels of smokers. *Dis Markers* 27(5):187-92. PMID: 20037205
2. Lipworth L., Mumma M.T., Cavanaugh K., Edwards T.L., Ikizler T.A., Tarone R.E., McLaughlin JK, Blot W.J. (2012). Incidence and predictors of end stage renal disease among low income blacks and whites. *PLoS One* 7(10): e48407. PMID: 23110237
3. Lipworth, L., Fazio S., Kabagambe E.K., Munro H., Nwazue B.C., Tarone R.E., McLaughlin J.K., Blot W.J. & Sampson U.K. (2014). A prospective study of statin use and mortality among 67,385 blacks and whites in the Southeastern United States. *Clin Epidemiol* 19(6):15-25. PMID: 24379700
4. Sonderman, J.S., Munro H.M., Blot W.J., Tarone, R.E. & McLaughlin, J.K. (2014). Suicides, accidents, and other external causes of death among blacks and whites in the Southern Community Cohort Study. *PLoS One* 9(12):e114852. PMID: 25486418

B. Positions and Honors

Positions and Employment

- 1971 - 74 Associate in Biostatistics, Department of Epidemiology and Preventive Medicine, UCD, Davis, CA
1974 - 76 Staff Fellow, Division of Cancer Cause and Prevention, National Institutes of Health, Bethesda, MD
1976 - 93 Mathematical Statistician, Division of Cancer Etiology, National Institutes of Health, Bethesda, MD
1993 - 02 Chief, Statistical Research and Applications Section, Division of Cancer Epidemiology and Genetics, National Institutes of Health, Bethesda, MD
2003 - 12 Professor, Department of Medicine, Vanderbilt University, Nashville, TN
2002 - Biostatistics Director, International Epidemiology Institute, Rockville, MD

Other Experience and Professional Memberships

- 1969 - 71 Medical Corpsman, United States Army
1974 - American Statistical Association
1983 - International Statistical Institute (elected member)

Honors

- 1979 Public Health Service Special Achievement Award
1983 Fellow, American Statistical Association
1992 National Institutes of Health Director's Award
1999 Division of Cancer Epidemiology and Genetics Exemplary Service Award
2001 National Institutes of Health Merit Award

C. Contribution to Science

1. I have derived and published a number of statistical methods for a variety of problems arising in biomedical research. These include nonparametric tests for censored survival data, methods for testing for heterogeneity of odds ratios across several strata, a method for combining relative risk estimates from multiple strata or studies, tests incorporating information on historical control tumor rates in animal carcinogenesis bioassays, estimation methods for identifiable contrasts in age-period-cohort analyses of disease rates, and statistical methods for the analysis of in vitro cell survival data from colony forming assays.
 - a. Tarone, R.E. & Ware, J. (1977). On distribution-free tests for equality of survival distributions. *Biometrika*, 64:156-60.
 - b. Tarone, R.E. (1982). The use of historical control information in testing for a trend in proportions. *Biometrics*, 38:215-20.
 - c. Tarone, R.E., Scudiero, D.A. & Robbins, J.H. (1983). Statistical methods for in vitro cell survival assays. *Mutat Res*, 111(1):79-96. PMID: 6621576
 - d. Tarone, R.E. & Chu, K.C. (1996). Evaluation of birth cohort patterns in population disease rates. *Am J Epidemiol*, 143(1):85-91. PMID: 8533751
2. Although ecologic analyses disease rates, either over time or across geographic areas, must be interpreted cautiously, a number of my publications have developed methods for strengthening inferences from such analyses. Application of these methods has provided evidence that breast cancer rates in U.S. women decreased for women born after 1945, that changes in cigarette smoking can be detected in lung cancer rates in early adulthood (20-34 years of age), and that decreases in prostate cancer and breast cancer death rates were partly a result of early detection via PSA testing and mammography screening, respectively.
 - a. Tarone, R.E. & Chu, K.C. (1992). Implications of birth cohort patterns in interpreting trends in breast cancer rates. *J Natl Cancer Inst*, 84(18):1402-10. PMID: 1512791
 - b. Grauman, D.J., Tarone, R.E., Devesa, S.S. & Fraumeni, J.F. Jr. (2000). Alternate ranging methods for cancer mortality maps. *J Natl Cancer Inst*, 92(7):534-43. PMID: 10749908
 - c. Jemal, A., Chu, K.C. & Tarone, R.E. (2001). Recent trends in lung cancer mortality in the United States. *J Natl Cancer Inst*, 93(4):277-83. PMID: 11181774

- d. Chu, K.C., Tarone, R.E. & Freeman, H.P. (2003). Trends in prostate cancer mortality among black men and white men in the United States. *Cancer*, 97(6):1507-16. PMID: 12627516
3. A long-standing interest in the control of the false-positive error rate in medical research has led to several publications, on both the methodologic and the philosophic issues involved in reducing the publication of false-positive results. The publications document the magnitude of the problem and provide guidance on reducing the probability of reporting false-positive findings.
- Tarone, R.E. (1990). A modified Bonferroni method for discrete data. *Biometrics*, 46(2):515-22. PMID: 2364136
 - Boffetta, P., McLaughlin, J.K., La Vecchia, C., Tarone, R.E., Lipworth, L. & Blot, W.J. (2008). False-positive results in cancer epidemiology: a plea for epistemological modesty. *J Natl Cancer Inst*, 100(14):988-95. PMC2467434
 - Ioannidis, J.P.A., Tarone, R. & McLaughlin, J.K. (2011). The false positive to false negative ratio in epidemiologic studies. *Epidemiology*, 22(4):450-6. PMID: 21490505
 - McLaughlin JK, Tarone RE. False positives in cancer epidemiology. *Cancer Epidemiol Biomarkers Prev* 2013;22(1):11-15. PMID: 23118145
4. I have been involved in the design and analysis of numerous cohort studies to evaluate the impact of lifestyle, environmental or occupational risk factors on disease risk. These studies have resulted in numerous publications on a wide variety of both disease endpoints and risk factors.
- Alavanja, M.C., Samanic, C., Dosemeci, M., Lubin, J., Tarone, R., Lynch, C.F., Knott, C., Thomas, K., Hoppin, J.A., Barker, J., Coble, J., Sandler, D.P. & Blair, A. (2003). Use of agricultural pesticides and prostate cancer risk in the Agricultural Health Study cohort. *Am J Epidemiol*, 157(9):800-14. PMID: 12727674
 - Sigurdson, A.J., Doody, M.M., Rao, R.S., Freedman, D.M., Alexander, B.H., Hauptmann, M., Mohan, A.K., Yoshinaga, S., Hill, D.R., Tarone, R., Mabuchi, K., Ron, E. & Linet, M.S. (2003). Cancer incidence in the US radiologic technologists health study, 1983-1998. *Cancer*, 97(12):3080-9. PMID: 12784345
 - Lipworth, L., Sonderman, J.S., Mumma, M.T., Tarone, R.E., Marano, D.E., Boice, J.D. Jr. & McLaughlin, J.K. (2011). Cancer mortality among aircraft manufacturing workers: an extended follow-up. *J Occup Environ Med*, 53(9):992-1007. PMID: 21866047
 - Sonderman, J.S., Munro, H.M., Blot, W.J., Tarone, R.E. & McLaughlin, J.K. (2014). Suicides, accidents, and other external causes of death among blacks and whites in the Southern Community Cohort Study. *PLoS One*, 9(12):e114852. PMC4259484

Complete List of Published Work in MyBibliography:

<http://www.ncbi.nlm.nih.gov/sites/myncbi/1vOivVFkLq95f/bibliographay/48692470/public/?sort=date&direction=ascending>

D. Research Support

Ongoing Research Support

2R01 CA092447-10 (Blot, Signorello) 09/30/01 – 08/31/16
NIH/NCI

Southern Community Cohort Study

The major goal of this project is to investigate the causes of racial disparities in the occurrence of cancer in the southern United States.

Role: Co-Investigator

5P50CA098131-12 (Arteaga) 09/17/13 – 08/31/18
NIH/NCI

Spore In Breast Cancer – Project 3 (Identification of Prognostic Factors for Triple Negative Breast Cancer)

Project 3: The proposed two-year study will be supported by the current cycle of the breast cancer SPORE grant, with subsequent replication of findings to be sought within the NBHS and SCCS populations as part of research for the planned renewal of the SPORE grant.

Role: IEI PD/PI

Completed Research Support

5 U01 CA137026-02 (Boice)

08/01/10 - 07/31/15

NIH/NCI

Cancer Mortality among Military Participants at U.S. Nuclear Weapons Tests

To evaluate the risk of radiation-induced cancers and quantify the risk in terms of low-dose radiation received gradually from external exposures and from inhaled or ingested radionuclides in fallout among military participants at aboveground nuclear weapons tests in Nevada and the Pacific testing areas.

Role: Statistician