The University of Pittsburgh Cancer Institute (UPCI) and the Graduate School of Public Health (GSHP) at the University of Pittsburgh are jointly recruiting a distinguished epidemiologist to fill a full-time tenure stream faculty position at the level of Professor or Associate Professor to lead the UPCI’s Division of Cancer Prevention and Population Sciences. The Division Director will also serve as the Program Leader for the Cancer Epidemiology and Control Program at UPCI. The candidate will also be the recipient of the Arnold Palmer endowed Chair of Cancer Prevention Research.

The incumbent will lead and develop a program dedicated to research and research training in cancer epidemiology and control in community and clinical settings. The UPCI Cancer Prevention and Population Sciences Division will interact with basic and clinical programs to develop collaborative translational research projects. The major cancer focus of the Department of Epidemiology at GSHP has been the study of hormones and environmental factors, inflammation, genetic and molecular mechanisms, cancer prevention, and screening for early detection of cancer.

The UPCI is the only research-intensive major NCI-designated Comprehensive Cancer Center in Western Pennsylvania and has outstanding programs in immunology, molecular biology, virology, drug discovery, clinical research, bioinformatics, cancer biochemoprevention and control cancer as well as site specific programs including prostate, lung, melanoma, brain, head and neck, and breast, among others. Working in tandem with UPCI, the UPMC Cancer Centers constitute one of the largest integrated community networks providing the latest advances in cancer prevention, diagnosis and treatment at more than 40 locations throughout the tri-state area, and now expanding internationally. Opportunities exist for collaborative interactions with GSHP and other Schools of Health Sciences including the School of Medicine with outstanding programs in genomics, stem cell and developmental biology, structural and computational biology, imaging and gene therapy and access to state-of-the-art shared facilities in cancer biomarkers, in vivo imaging and cell therapy. Excellent laboratory support, and resources such as statistical and computer resources, population bases, Epidemiology Data Center (http://www.edc.gsph.pitt.edu), a large State Cancer Registry, strong clinical oncology program with significant regional market share and several large longitudinal data bases are available.

The candidates are expected to be nationally and internationally known senior level cancer epidemiologists with a proven record of publication in peer-reviewed high impact journals and extramural funding in areas that complement and enhance cancer research at the University of Pittsburgh. An MD and /or PhD or equivalent degrees are required. Strong communication and interpersonal skills will be critical to lead the Division as an academic platform for collaborate research and research training in cancer epidemiology. We are specifically interested in individuals who have combined interests in epidemiology and human biology as related to etiology and prevention of cancer.

Academic rank and salary will be commensurate with experience and qualifications. CV, letter of intent highlighting qualifications, areas of expertise and names of three references to position #0102117, may be submitted to:

Jennifer R. Grandis, MD
Chair, Search Committee for Director of Cancer Population Sciences
Professor and Vice Chair of Research, Department of Otolaryngology
UPMC Endowed Chair in Head and Neck Cancer
University of Pittsburgh School of Medicine

The University of Pittsburgh is an Affirmative Action, Equal Opportunity Employer.
American Journal of EPIEMIOLOGY

Founded 1920 by
W. H. Welch and
W. H. Howell as the
American Journal of Hygiene

POLICY BOARD
Michael J. Klag, Chairman
Sherman James
Malcolm Maclure
Noel R. Rose

ASSOCIATE EDITOR IN RESIDENCE
Shruti H. Mehta

ASSOCIATE EDITORS
Anthony Alberg, Charleston, SC
Alberto Ascherio, Boston, MA
Brad Astor, Baltimore, MD
Olga Bass, Research Triangle Park, NC
Edward J. Boyko, Seattle, WA
Robert F. Breiman, Atlanta, GA
Germaine M. Buck, Rockville, MD
Kenneth P. Cantor, Bethesda, MD
Wong-Ho Chow, Bethesda, MD
John D. Clemens, Bethesda, MD
Stephen Cole, Chapel Hill, NC
Glinda S. Cooper, Research Triangle Park, NC
Josef Coresh, Baltimore, MD
Steven S. Coughlin, Atlanta, GA
Rosa M. Crum, Baltimore, MD
Ralph B. D’Agostino, Jr., Winston-Salem, NC
Ralph B. D’Agostino, Sr., Boston, MA
Constantine Daskalakis, Philadelphia, PA
Ana V. Diez-Roux, Ann Arbor, MI
Brenda Eskensaz, Berkeley, CA
Guy D. Esliek, Boston, MA
Eduardo Faerstein, Rio de Janeiro, Brazil
Katherine M. Flegal, Hyattsville, MD
Betsy Foxman, Ann Arbor, MI
Lin Fritschi, Crawley, Australia
Sandro Galea, Ann Arbor, MI
Marjorie D. Gammon, Chapel Hill, NC
Peter J. Gerken, Rockville, MD
Richard F. Gillum, Hyattsville, MD
Edward Giovannucci, Boston, MA
Marlene B. Goldman, Lebanon, NH
Eliseo Guallar, Baltimore, MD
M. Elizabeth Halloran, Atlanta, GA
Bernard L. Harlow, Minneapolis, MN
Patricia Hartge, Rockville, MD
Maureen C. Hatch, Bethesda, MD
Richard B. Hayes, Bethesda, MD
Miguel A. Hernán, Boston, MA
Lisa Herrinton, Oakland, CA
Irv Hertz-Picciotto, Davis, CA
Jane A. Hoppin, Research Triangle Park, NC
Jouni Jaakkola, Birmingham, United Kingdom
Steven J. Jacobsen, Pasadena, CA
Konrad Jamrozik, Neillands, Australia
Stanislav V. Kasl, New Haven, CT
Freya Kamel, Research Triangle Park, NC
Jay S. Kaufman, Chapel Hill, NC
William C. Knowler, Phoenix, AZ
Alan R. Kristal, Seattle, WA
Michael F. Leitzmann, Bethesda, MD
De-Kun Li, Oakland, CA
Rong Ling Li, Memphis, TN
Marc Lipsitch, Boston, MA
Julian Little, Aberdeen, United Kingdom
Stephanie London, Research Triangle Park, NC
Matthew P. Longnecker, Research Triangle Park, NC
Gerald McGwin, Jr., Birmingham, AL
Joseph K. McLaughlin, Rockville, MD
Lorene M. Nelson, Stanford, CA

Copyright © 2008 by The Johns Hopkins
Bloomberg School of Public Health
Sponsored by the Society for Epidemiologic Research
Published by Oxford University Press

EDITOR-IN-CHIEF EMERITUS,
IN MEMORIAM
George W. Comstock

EDITORIAL PROJECT MANAGERS
Deborah J. Anderson
Sandra L. Bryant
Amy W. Redmon-Norwood

ADMINISTRATOR
Harriett Telljohann

ADMINISTRATIVE ASSISTANT
Cynthia A. Barbre

REVIEW COORDINATOR
Gayle Fini

ASSOCIATE EDITORS
Anthony Alberg, Charleston, SC
Alberto Ascherio, Boston, MA
Brad Astor, Baltimore, MD
Olga Bass, Research Triangle Park, NC
Edward J. Boyko, Seattle, WA
Robert F. Breiman, Atlanta, GA
Germaine M. Buck, Rockville, MD
Kenneth P. Cantor, Bethesda, MD
Wong-Ho Chow, Bethesda, MD
John D. Clemens, Bethesda, MD
Stephen Cole, Chapel Hill, NC
Glinda S. Cooper, Research Triangle Park, NC
Josef Coresh, Baltimore, MD
Steven S. Coughlin, Atlanta, GA
Rosa M. Crum, Baltimore, MD
Ralph B. D’Agostino, Jr., Winston-Salem, NC
Ralph B. D’Agostino, Sr., Boston, MA
Constantine Daskalakis, Philadelphia, PA
Ana V. Diez-Roux, Ann Arbor, MI
Brenda Eskensaz, Berkeley, CA
Guy D. Esliek, Boston, MA
Eduardo Faerstein, Rio de Janeiro, Brazil
Katherine M. Flegal, Hyattsville, MD
Betsy Foxman, Ann Arbor, MI
Lin Fritschi, Crawley, Australia
Sandro Galea, Ann Arbor, MI
Marjorie D. Gammon, Chapel Hill, NC
Peter J. Gerken, Rockville, MD
Richard F. Gillum, Hyattsville, MD
Edward Giovannucci, Boston, MA
Marlene B. Goldman, Lebanon, NH
Eliseo Guallar, Baltimore, MD
M. Elizabeth Halloran, Atlanta, GA
Bernard L. Harlow, Minneapolis, MN
Patricia Hartge, Rockville, MD
Maureen C. Hatch, Bethesda, MD
Richard B. Hayes, Bethesda, MD
Miguel A. Hernán, Boston, MA
Lisa Herrinton, Oakland, CA
Irv Hertz-Picciotto, Davis, CA
Jane A. Hoppin, Research Triangle Park, NC
Jouni Jaakkola, Birmingham, United Kingdom
Steven J. Jacobsen, Pasadena, CA
Konrad Jamrozik, Neillands, Australia
Stanislav V. Kasl, New Haven, CT
Freya Kamel, Research Triangle Park, NC
Jay S. Kaufman, Chapel Hill, NC
William C. Knowler, Phoenix, AZ
Alan R. Kristal, Seattle, WA
Michael F. Leitzmann, Bethesda, MD
De-Kun Li, Oakland, CA
Rong Ling Li, Memphis, TN
Marc Lipsitch, Boston, MA
Julian Little, Aberdeen, United Kingdom
Stephanie London, Research Triangle Park, NC
Matthew P. Longnecker, Research Triangle Park, NC
Gerald McGwin, Jr., Birmingham, AL
Joseph K. McLaughlin, Rockville, MD
Lorene M. Nelson, Stanford, CA

Robert A. Ness, Houston, TX
Craig J. Newshaffer, Philadelphia, PA
Thomas R. O’Brien, Bethesda, MD
Andrew Olshan, Chapel Hill, NC
Nancy Padian, San Francisco, CA
Julie R. Palmer, Brookline, MA
Julie Parsonnet, Stanford, CA
Wendy S. Post, Baltimore, MD
Nancy Potischman, Bethesda, MD
Eric B. Rimm, Boston, MA
Harvey A. Risch, New Haven, CT
Leslie Robison, Minneapolis, MN
Karin Rosenblatt, Champaign, IL
Audrey F. Sapfias, Iowa City, IA
Glen A. Satten, Atlanta, GA
Enrique F. Schisterman, Bethesda, MD
Thomas A. Sellers, Tampa, FL
Eyal Shahar, Tucson, AZ
A. Richay Sharrett, Baltimore, MD
Gary Shaw, Oakland, CA
Colin L. Soskolne, Edmonton, Canada
Meir Stampfer, Boston, MA
Rachael Stolzenberg-Solomon, Rockville, MD
Sholom Wacholder, Bethesda, MD
Douglas L. Weed, Bethesda, MD
Scott T. Weiss, Boston, MA
Phyllis A. Wing, Atlanta, GA
Jun Zhang, Bethesda, MD
Wei Zhang, Nashville, TN
American Journal of Epidemiology


Oxford University Press is a department of the University of Oxford. It furthers the University's objective of excellence in research, scholarship, and education by publishing worldwide.

Subscriptions: A subscription to the American Journal of Epidemiology comprises 24 issues. Prices include postage; for subscribers outside the Americas, issues are sent air freight.

Annual subscription rate (Volumes 167 and 168, 24 issues, 2008): Institutional: Print and online $709/£473/€674, and Print only $674/£449/€674; Personal: (Combination: the Journal and Epidemiologic Reviews) Online only $330/£220/€330, and Print only $347/£231/€347. Please note: UK £ rate applies to UK and Rest of World, except US ($) and Europe (€). There may be other subscription rates available. For a complete listing please see: www.oxfordjournals.org/our_journals/aje/access_purchase/price_list.html.

Full pre-payment in the correct currency is required for all orders. Payment should be in US dollars for orders being delivered to the USA or Canada; Euros for orders being delivered within Europe (excluding the UK); GBP sterling for orders being delivered elsewhere (i.e., not being delivered to USA, Canada, or Europe). All orders should be accompanied by full payment and sent to your nearest Oxford Journals office. Subscriptions are accepted for complete volumes only. Orders are regarded as firm, and payments are not refundable. Our prices include Standard Air postage outside of the UK. Claims must be notified within four months of despatch/order date (whichever is later). Subscriptions in the EEC may be subject to European VAT. If registered, please supply details to avoid unnecessary charges. For subscriptions that include online versions, a proportion of the subscription price may be subject to UK VAT. Subscribers in Canada, please add GST to the prices quoted.

Personal subscription rates are only available if payment is made by personal cheque or credit card, delivery is to a private address, and is for personal use only.

Methods of payment: (i) Check (payable to Oxford University Press, mailed to Oxford University Press, Cashiers Office, Great Clarendon Street, Oxford OX2 6DP, UK) in GB£ Sterling (drawn on a UK bank), US$ dollars (drawn on a US bank), or EUR Euros.

(ii) Bank transfer to Barclays Bank Plc, Oxford Group Office, Oxford (bank sort code 20-65-18) (UK), overseas only Swift code BARC GB 22 (GB£ Sterling to account no. 70299332, IBAN GB89BARC20651870299332; US$ Dollars to account no. 66014600, IBAN GB27BARC20651866014600; EUR Euros to account no. 78923655, IBAN GB16BARC20651878923655).

(iii) Credit card (Mastercard, Visa, Switch or American Express).

Back issues: The current year and two previous years’ issues are available from Oxford University Press. Previous volumes can be obtained online at http://www.periodicals.com/oxford.html or from the Periodicals Service Company, 11 Main Street, Germantown, NY 12526, USA. E-mail: psc@periodicals.com. Tel: (518) 537-4700. Fax: (518) 537-5899.

For further information, please contact: Journals Customer Service, Oxford University Press, Great Clarendon Street, Oxford OX2 6DP, UK. Telephone (& answer-phone outside normal working hours): +44 (0) 1865 353907, Fax: +44 (0) 1865 353485, E-mail: jnlscustserv@oxfordjournals.org. In the US, please contact: Journals Customer Service, Oxford University Press, 2001 Evans Road, Cary, NC 27513, USA. Telephone (& answer-phone outside normal working hours): 800-852-7323 (toll-free in USA/Canada), fax: 919-677-1714, e-mail: jnlorders@oxfordjournals.org. In Japan, please contact: Journals Customer Services, Oxford University Press, 4-5-10-8F Shiba, Minato-ku, Tokyo, 108-8386, Japan. Telephone: +81 3 5444 5858, Fax: +81 3 3454 2929, e-mail: custserv.jp@oxfordjournals.org.

Advertising: Advertising, inserts, and artwork enquiries should be addressed to Advertising and Special Sales, Oxford Journals, Oxford University Press, Great Clarendon Street, Oxford OX2 6DP, UK. Telephone: +44 (0) 1865 353329. Fax: +44 (0) 1865 353774. E-mail: jnladvertising@oxfordjournals.org.

Digital Object Identifiers: For information on dois and how to resolve them, please visit www.doi.org.

Oxford Journals Environmental and Ethical Policies: Oxford Journals is committed to working with the global community to bring the highest quality research to the widest possible audience. Oxford Journals will protect the environment by implementing environmentally friendly policies and practices wherever possible. Please see http://www.oxfordjournals.org/ethicalpolicies.html for further information on Oxford Journals’ environmental and ethical policies.

Requests for permissions, reprints, and photocopies: All rights reserved; no part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means (electronic, mechanical, photocopying, recording, or otherwise) without either prior written permission of the publisher (Oxford University Press, Rights and Business Development Journals Division, Great Clarendon St., Oxford OX2 6DP, UK. Tel. +44 1865 354490/353695; Fax: +44 1865 353485; E-mail: journals.permissions@oxfordjournals.org; Web: www.oxfordjournals.org/jnl/permissions) or a license permitting restricted copying, issued in the US by the Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923 (Fax: 978-750-4470) or in the UK by the Copyright Licensing Agency Ltd., 90 Tottenham Court Road, London W1P 9HE, UK. Reprints of individual articles are available only from the authors.

It is a condition of publication in the Journal that authors grant an exclusive license to the Johns Hopkins Bloomberg School of Public Health. However, requests for permission to reprint material found in the Journal should be submitted to Oxford University Press. This ensures that requests from third parties to reproduce articles are handled efficiently and consistently and will also allow the article to be disseminated as widely as possible. As part of the license agreement, authors may use their own material in other publications provided that the Journal is acknowledged as the original place of publication and Oxford University Press is notified in writing in advance.

The author(s) of each article appearing in this Journal is/are solely responsible for the content thereof; the publication of an article shall not constitute or be deemed to constitute any representation by the Editors, the Johns Hopkins Bloomberg School of Public Health, or the Society for Epidemiologic Research that the data presented therein are correct or sufficient to support the conclusions reached or that the experiment design or methodology is adequate.

The American Journal of Epidemiology is printed on acid-free paper that meets the minimum requirements of ANSI Standard Z39.48-1984 (Permanence of Paper).

The Journal is indexed or abstracted in Index Medicus, the Science Citation Index, Current Contents: Life Sciences, and the BIOSIS database. Copyright © 2008 by the Johns Hopkins Bloomberg School of Public Health.

The American Journal of Epidemiology (ISSN 0002-9262) is published semimonthly by Oxford University Press, 2001 Evans Road, Cary, NC 27513-2009. Periodical Postage paid at Cary, NC and at additional post offices.