

Curriculum Vitae

June 11, 2009

E. Andrés Houseman, Sc.D.

Assistant Professor of Community Health (Research)
Center for Environmental Health and Technology,
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Education:

2003	Biostatistics	Sc.D.	Harvard School of Public Health
1990	Applied Mathematics	A.B.	University of California at Berkeley

Academic Appointments:

2008-present Assistant Professor of Community Health (Research)
Center for Environmental Health and Technology,
The Warren Alpert Medical School of Brown University
2006-present Adjunct Assistant Professor, Department of Biostatistics,
Harvard School of Public Health
2006-2008 Assistant Professor, Department of Work Environment,
University of Massachusetts, Lowell
2003-2006 Research Scientist, Department of Biostatistics,
Harvard School of Public Health
1999-2003 Doctoral Candidate, Department of Biostatistics,
Harvard School of Public Health

Honors and Distinctions:

2000-2003 Howard Hughes Medical Institute Predoctoral Fellowship

Business Experience:

2005-2006 Consultant, Battelle, Columbus, OH
1998-1999 Senior Professional Services Engineer,
Actuate Software Corporation, San Mateo, CA
1994-1997 Senior Systems Analyst and Applications Developer,
Horsely Bridge Partners, San Francisco, CA
1990-1994 Associate Scientist, Eisenberg, Olivieri, and Associates, Oakland, CA

Major Research Interest:

Latent variable models and their application to molecular epidemiology and bioinformatics

Teaching Experience:

2009	Brown University	Analysis of Lifetime Data
2008	Brandeis University	Biostatistics
2006-2008	University of Massachusetts Lowell	Applied Regression

2004-2009	Harvard School of Public Health	Introduction to Mathematical Statistics Introduction to Biostatistics (Summer Program in Quantitative Sciences)
2005-2006	Harvard School of Public Health	Applied Survival Analysis and Discrete Data Analysis

Professional Societies:

2004-present International Biometric Society

Recent Presentations:

1. April, 2009: Recursively Partitioned Mixture Models with Applications to Genomic Data (Invited lecture at Brigham Young University), Provo, UT.
2. March, 2009: Clustering Methylation Array Data: A Model-Based Recursive-Partitioning Algorithm (Invited lecture at ENAR conference, International Biometric Society), San Antonio, TX.
3. August, 2008: Recursively Partitioned Mixture Models with Applications to Genomic Data (National Institutes of Health workshop), Bethesda, MD.

Other Activities:

1. NHLBI working group on epigenetics (September, 2008). Bethesda, MD.
2. Primary reviewer for NIH RC1 (Challenge Grants in Health and Science Research, June, 2009)

Publications:

1. **Houseman EA**, Christensen BC, Karagas MR, Wrensch M, Nelson HH, Wiemels J, Zheng S, Wiencke JK, Kelsey KT, Marsit CJ. Copy number variation has little impact on bead-array-based measures of DNA methylation. *Bioinformatics* (in press).
2. Chen AA, Marsit CJ, Christensen BC, **Houseman EA**, McClean MD, Smith JF, Bryan JT, Posner MR, Nelson HH, Kelsey KT. Genetic variation in the vitamin C transporter, SLC23A2, modifies the risk of HPV16-associated head and neck cancer. *Carcinogenesis*, 2009.
3. Christensen BC, **Houseman EA**, Godleski JJ, Marsit CJ, Longacker JL, Roelofs CR, Karagas MR, Wrensch MR, Yeh RF, Nelson HH, Wiemels JL, Zheng S, Wiencke JK, Bueno R, Sugarbaker DJ, Kelsey KT. Epigenetic profiles distinguish pleural mesothelioma from normal pleura and predict lung asbestos burden and clinical outcome. *Cancer Res* 69:227-34, 2009.
4. Desantis SM, **Houseman EA**, Coull BA, Louis DN, Mohapatra G, Betensky RA. A Latent Class Model with Hidden Markov Dependence for Array CGH Data. *Biometrics*, 2009.
5. Dodson RE, Levy JI, **Houseman EA**, Spengler JD, Bennett DH. Evaluating methods for predicting indoor residential volatile organic compound concentration distributions. *J Expo Sci Environ Epidemiol*, 2009.
6. Fabian P, McDevitt JJ, Lee WM, **Houseman EA**, Milton DK. An optimized method to detect influenza virus and human rhinovirus from exhaled breath and the airborne environment. *J Environ Monit* 11:314-7, 2009.
7. Marsit CJ, Christensen BC, **Houseman EA**, Karagas MR, Wrensch MR, Yeh RF, Nelson HH, Wiemels JL, Zheng S, Posner MR, McClean MD, Wiencke JK, Kelsey KT. Epigenetic profiling reveals etiologically distinct patterns of DNA methylation in head and neck squamous cell carcinoma. *Carcinogenesis* 30:416-22, 2009. PMID: PMC2650795.
8. Sanchez BN, **Houseman EA**, Ryan LM. Residual-based diagnostics for structural equation models. *Biometrics* 65:104-15, 2009.
9. Christensen BC, Godleski JJ, Marsit CJ, **Houseman EA**, Lopez-Fagundo CY, Longacker JL, Bueno R, Sugarbaker DJ, Nelson HH, Kelsey KT. Asbestos exposure predicts

cell cycle control gene promoter methylation in pleural mesothelioma. *Carcinogenesis* 29:1555-9, 2008. PMID: PMC2516493.

10. Desantis SM, **Houseman EA**, Coull BA, Stemmer-Rachamimov A, Betensky RA. A penalized latent class model for ordinal data. *Biostatistics* 9:249-62, 2008.

11. Furniss CS, Marsit CJ, **Houseman EA**, Eddy K, Kelsey KT. Line region hypomethylation is associated with lifestyle and differs by human papillomavirus status in head and neck squamous cell carcinomas. *Cancer Epidemiol Biomarkers Prev* 17:966-71, 2008. PMID: PMC2633874.

12. **Houseman EA**, Christensen BC, Yeh RF, Marsit CJ, Karagas MR, Wrensch M, Nelson HH, Wiemels J, Zheng S, Wiencke JK, Kelsey KT. Model-based clustering of DNA methylation array data: a recursive-partitioning algorithm for high-dimensional data arising as a mixture of beta distributions. *BMC Bioinformatics* 9:365, 2008. PMID: PMC2553421.

13. Knight MM, **Houseman EA**. A collaborative model for the treatment of depression in homebound elders. *Issues Ment Health Nurs* 29:974-91, 2008.

14. Loh MM, **Houseman EA**, Levy JI, Spengler JD, Bennett DH. Contribution to volatile organic compound exposures from time spent in stores and restaurants and bars. *J Expo Sci Environ Epidemiol*, 2008.

15. Breton CV, Zhou W, Kile ML, **Houseman EA**, Quamruzzaman Q, Rahman M, Mahiuddin G, Christiani DC. Susceptibility to arsenic-induced skin lesions from polymorphisms in base excision repair genes. *Carcinogenesis* 28:1520-5, 2007.

16. Dodson RE, **Houseman EA**, Levy JI, Spengler JD, Shine JP, Bennett DH. Measured and modeled personal exposures to and risks from volatile organic compounds. *Environ Sci Technol* 41:8498-505, 2007.

17. **Houseman EA**, Marsit C, Karagas M, Ryan LM. Penalized item response theory models: application to epigenetic alterations in bladder cancer. *Biometrics* 63:1269-77, 2007.

18. Hsiung DT, Marsit CJ, **Houseman EA**, Eddy K, Furniss CS, McClean MD, Kelsey KT. Global DNA methylation level in whole blood as a biomarker in head and neck squamous cell carcinoma. *Cancer Epidemiol Biomarkers Prev* 16:108-14, 2007.

19. Kile ML, **Houseman EA**, Breton CV, Quamruzzaman Q, Rahman M, Mahiuddin G, Christiani DC. Association between total ingested arsenic and toenail arsenic concentrations. *J Environ Sci Health A Tox Hazard Subst Environ Eng* 42:1827-34, 2007.

20. Kile ML, **Houseman EA**, Breton CV, Smith T, Quamruzzaman Q, Rahman M, Mahiuddin G, Christiani DC. Dietary arsenic exposure in bangladesh. *Environ Health Perspect* 115:889-93, 2007. PMID: PMC1892146.

21. Loh MM, Levy JI, Spengler JD, **Houseman EA**, Bennett DH. Ranking cancer risks of organic hazardous air pollutants in the United States. *Environ Health Perspect* 115:1160-8, 2007. PMID: PMC1940102.

22. Marsit CJ, **Houseman EA**, Schned AR, Karagas MR, Kelsey KT. Promoter hypermethylation is associated with current smoking, age, gender and survival in bladder cancer. *Carcinogenesis* 28:1745-51, 2007.

23. McCarty KM, Ryan L, **Houseman EA**, Williams PL, Miller DP, Quamruzzaman Q, Rahman M, Mahiuddin G, Smith T, Gonzalez E, Su L, Christiani DC. A case-control study of GST polymorphisms and arsenic related skin lesions. *Environ Health* 6:5, 2007. PMID: PMC1805433.

24. McDevitt JJ, Lai KM, Rudnick SN, **Houseman EA**, First MW, Milton DK. Characterization of UVC light sensitivity of vaccinia virus. *Appl Environ Microbiol* 73:5760-6, 2007. PMID: PMC2074914.

25. Morara M, Ryan L, **Houseman A**, Strauss W. Optimal design for epidemiological studies subject to designed missingness. *Lifetime Data Anal* 13:583-605, 2007.

26. Schmidt MW, **Houseman A**, Ivanov AR, Wolf DA. Comparative proteomic and transcriptomic profiling of the fission yeast *Schizosaccharomyces pombe*. *Mol Syst Biol* 3:79, 2007. PMID: PMC1828747.
27. Breton CV, **Houseman EA**, Kile ML, Quamruzzaman Q, Rahman M, Mahiuddin G, Christiani DC. Gender-specific protective effect of hemoglobin on arsenic-induced skin lesions. *Cancer Epidemiol Biomarkers Prev* 15:902-7, 2006.
28. Coull BA, **Houseman EA**, Betensky RA. A computationally tractable multivariate random effects model for clustered binary data. *Biometrika* 93:587-99, 2006.
29. **Houseman EA**, Coull BA, Betensky RA. Feature-specific penalized latent class analysis for genomic data. *Biometrics* 62:1062-70, 2006.
30. **Houseman EA**, Coull BA, Ryan LM. A functional-based distribution diagnostic for a linear model with correlated outcomes. *Biometrika* 93:911-26, 2006.
31. **Houseman EA**, Coull BA, Shine JP. A nonstationary negative binomial time series with time-dependent covariates: Enterococcus counts in Boston Harbor. *J Amer Stat Assoc* 101:1365-76, 2006.
32. **Houseman EA**, Milton DK. Partial questionnaire designs, questionnaire nonresponse, and attributable fraction: Applications to adult onset asthma. *Stat Med* 25:1499-519, 2006.
33. Loh MM, **Houseman EA**, Gray GM, Levy JI, Spengler JD, Bennett DH. Measured concentrations of VOCs in several non-residential microenvironments in the United States. *Environ Sci Technol* 40:6903-11, 2006.
34. Marsit CJ, **Houseman EA**, Christensen BC, Eddy K, Bueno R, Sugarbaker DJ, Nelson HH, Karagas MR, Kelsey KT. Examination of a CpG island methylator phenotype and implications of methylation profiles in solid tumors. *Cancer Res* 66:10621-9, 2006.
35. McCarty KM, **Houseman EA**, Quamruzzaman Q, Rahman M, Mahiuddin G, Smith T, Ryan L, Christiani DC. The impact of diet and betel nut use on skin lesions associated with drinking-water arsenic in Pabna, Bangladesh. *Environ Health Perspect* 114:334-40, 2006. PMID: PMC1392225.
36. Sama SR, Milton DK, Hunt PR, **Houseman EA**, Henneberger PK, Rosiello RA. Case-by-case assessment of adult-onset asthma attributable to occupational exposures among members of a health maintenance organization. *J Occup Environ Med* 48:400-7, 2006.
37. Chen YC, Su HJ, Guo YL, **Houseman EA**, Christiani DC. Interaction between environmental tobacco smoke and arsenic methylation ability on the risk of bladder cancer. *Cancer Causes Control* 16:75-81, 2005.
38. **Houseman EA**. A robust regression model for a first-order autoregressive time series with unequal spacing: application to water monitoring. *J Royal Stat Soc - Series C* 54:769-80, 2005.
39. Kile ML, **Houseman EA**, Rodrigues E, Smith TJ, Quamruzzaman Q, Rahman M, Mahiuddin G, Su L, Christiani DC. Toenail arsenic concentrations, GSTT1 gene polymorphisms, and arsenic exposure from drinking water. *Cancer Epidemiol Biomarkers Prev* 14:2419-26, 2005.
40. **Houseman EA**, Ryan LM, Coull BA. Cholesky residuals for assessing normal errors in linear model with correlated outcomes. *J Amer Stat Assoc* 99:383-94, 2004.
41. **Houseman EA**, Ryan L, Levy JI, Spengler JD. Autocorrelation in real-time continuous monitoring of microenvironments *J Appl Stat* 29:855-72, 2002.
42. Levy JI, **Houseman EA**, Spengler JD, Loh P, Ryan L. Fine particulate matter and polycyclic aromatic hydrocarbon concentration patterns in Roxbury, Massachusetts: a community-based GIS analysis. *Environ Health Perspect* 109:341-7, 2001. PMID: PMC1240273.
43. Levy JI, **Houseman EA**, Ryan L, Richardson D, Spengler JD. Particle concentrations in urban microenvironments. *Environ Health Perspect* 108:1051-7, 2000. PMID: PMC1240162.