William M. Briggs, PhD
Assistant Professor Statistics
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1. Experience

(1) 2003-present, Assistant Professor Statistics, Weill Medical College of Cornell University, New York

(2) 2004-present Adjunct Assistant Professor of Statistical Science, Cornell University, Ithaca, New York
My research interests are prediction, diagnosis, and prognosis accuracy and usefulness; skill and cognitive biases in prediction; practical decision analysis; dynamical and ensemble forecasting; graphical data display; climate variability; philosophy of statistics and probability; Bayesian foundations and the nature of evidence; Bayesian probability as it's used in physics and atmospheric science; and the adoption of Open Source software for publicly-funded clinical trials, particularly the development of the DrClamp web-based database (drclamp.com). I teach courses in statistics, emphasizing both Bayesian and classical methods, and I consult and perform analysis on the department's wide array of studies.

Assisted in the preparation and submission of many, many grants to various private and public institutions. I wrote the sample justification and data analysis plans plus co-wrote the methods sections. Became honorary Santa Claus mathematician (see wmbriggs.com). Santa uses ensembles!

(3) 2003-present. Statistical and epidemiological consultant, New York Methodist Hospital, New York
I teach a course to the Emergency Medicine and Surgical residents in basic epidemiology and statistics, and I consult on departmental research projects and maintain several of their study databases. I sit on the Institutial Review Committee as a guest member to review the statistics of proposed research. Helped in the preparation and submission of grants to the NIH and for-profit entities.

(4) 2002-2003. Gotham Risk Management, New York
A start up then, after Enron's shenanigans, a start down. We set future weather derivative and weather insurance contract prices that incorporated information from medium- and long-range weather and climate forecasts. A white paper is available on my web page.

(5) 1998-2002. DoubleClick, New York
I built an expensive and huge optimization engine for a web-based ad matching network, the details of which are terribly dull. Short version: click-through optimization, enormous database with about 10^8 names, updated daily, clever modelling and scoring, all heavy-duty computational statistics.

(6) 1993-1998. Graduate student, Cornell University
Started studying how long-range climate forecasts interacted with a crop model in the Atmospheric Science group, then switched to full time statistics. Was involved in the long-running environmental statistics consulting group, did work in tensor product splines and image analysis, then finished

with practical decision analysis work. Was Vice Chair of the graduate student government.

(7) 1992-1993. NATIONAL WEATHER SERVICE, SAULT STE. MARIE, MI
Forecast storms o' the day and launched enormous balloons in the name of science. My proudest moment came when I was able to convince an ancient AT machine to talk to an *analog*, 110 baud, phone-coupled! modem, all using BASIC.

(8) 1992-1993. SAULT STE. MARIE. *Evening News*
I wrote a free-lance science column for which I received free papers. And I was grateful for them.

(9) 1989-1992. UNDERGRADUATE STUDENT, CENTRAL MICHIGAN UNIVERSITY
Basic undergraduate meteorology degree, with an emphasis on dynamics and math. Started the local student meteorology group, which is now affliated with the AMS. Was involved with an FAA experiment of de-icing fluids. Spent a summer at U Michigan in a NSF REU program playing with a lidar used to model boundary layer dynamics. Won the Howard T. Orville scholarship from the AMS.

(10) 1983-1989. UNITED STATES AIR FORCE
Cryptography and other secret stuff. Shot things. I adopted and became proficient with fascinating and versatile military vocabulary. Ask me for examples. TS/SCI+ security clearance.

2. ACTIVITIES

(1) DRCLAMP, PH.P. open-source project creator & leader. The primary purpose of Dr. Clamp is to have one place to manage and enter data, track progresss, view reports, draw graphs, and analyze statistics. It was primarily designed for clinical trials, but it works for any patient/subject/person study where the data are best entered through a web page. Go to dr-clamp.com to play with the demo.

(2) *Monthly Weather Review:* Associate Editor.

(3) *American Meteorological Society:* Member of the Probability and Statistics Committee. Plan for short courses and regular meetings.

(4) **R**. Development work on the `verification` package, which is maintained by Matt Pocernich at the National Center for Atmospheric Research, who has done 99.9% of the work. I wrote the (outline of) skill function. Email for details.

(5) *Data Safety and Monitoring Boards* and other similar activities. Current board member for a Columbia study involving medication adherence in hypertension patients.

(6) *Consultant*—standard statistics consulting. Listed as a consultant on several pending grant submissions for studies at Columbia and New York Methodist Hospital.

(7) *Reviewer J American Statistical Association, Monthly Weather Review, Weather and Forecasting, J Geophysical Research, Journal of Applied Meteorology and Climatology* , National Science Foundation, others.

3. EDUCATION

(1) Ph.D., 2004, Cornell University. Statistics.
(2) M.S., 1995, Cornell University. Atmospheric Science.
(3) B.S., Summa Cum Laude, 1992, Central Michigan University. Meteorology and Math.

4. PUBLICATIONS

4.1. **Peer-reviewed papers.**

4.1.1. *Methods papers and reviews.*

(1) Briggs, WM, 2007. Changes in number and intensity of world-wide tropical cyclones *arxiv.org/physics/0702131*.
(2) Briggs, WM, 2007. On the changes in number and intensity of North Atlantic tropical cyclones *Journal of Climate*. In Review. *arxiv.org/physics/0701345*.
(3) Briggs, WM, 2007. On the non-arbitrary assignment of equi-probable priors *arxiv.org/math.ST/0701331*.
(4) Briggs, WM, 2007. Broccoli Reduces The Risk of Splenetic Fever! The use of induction and falsifiability in statistics and model selection. *Statistical Science*. In review.
(5) Briggs, WM, R Zaretzki, 2007. The Skill Plot: a graphical technique for the evaluating the predictive usefulness of continuous diagnostic tests. *Biometrics*. Accepted.
(6) Briggs, WM, 2006. The optimal combination of probabilistic forecasts to maximize skill. *International Journal of Forecasting*. In review.
(7) Briggs, WM, and D Ruppert, 2006. Assessing the skill of yes/no forecasts for Markov observations. *Monthly Weather Review*. **134**, 2601-2611.
(8) Briggs, WM, 2006. Review of *Statistical Methods in the Atmospheric Sciences* (second edition, 2006) by Wilks, D.S. *Journal of the American Statistical Association*, **101** (in press).
(9) Briggs, WM, M Pocernich, and D Ruppert, 2005. Incorporating misclassification error in skill assessment. *Monthly Weather Review*, **133**(11), 3382-3392.
(10) Briggs, WM, 2005. A general method of incorporating forecast cost and loss in value scores. *Monthly Weather Review*, **133**(11), 3393-3397.
(11) Briggs, WM, and D Ruppert, 2005. Assessing the skill of Yes/No Predictions. *Biometrics*. **61(3)**, 799-807.
(12) Briggs, WM, 2004. Discussion to Gel, Y, AE Raftery, T Gneiting, and V.J. Berrocal, 2004. Calibrated Probabilistic Mesoscale Weather Field Forecasting: The Geostatistical Output Perturbation (GOP) Method. *J. American Statistical Association*. **99 (467)**: 586-587.
(13) Mozer, JB, and Briggs, WM, 2003. Skill in real-time solar wind shock forecasts. *J. Geophysical Research: Space Physics*, **108 (A6)**, SSH 9 p. 1-9, (DOI 10.1029/2003JA009827).
(14) Briggs, WM, 1999. Review of *Forecasting: Methods and Applications* (third edition, 1998) by Makridakis, Wheelwright, and Hyndman; and *Elements of Forecasting* (first edition, 1998) by Diebold. *Journal of the American Statistical Association*, **94**, 345-346.

(15) Briggs, W.M., and R.A. Levine, 1997. Wavelets and Field Forecast Verification. *Monthly Weather Review*, **25 (6)**, 1329-1341.

(16) Briggs, WM, and DS Wilks, 1996. Estimating monthly and seasonal distributions of temperature and precipitation using the new CPC long-range forecasts. *Journal of Climate*, **9**, 818-826.

(17) Briggs, WM, and DS Wilks, 1996. Extension of the CPC long-lead temperature and precipitation outlooks to general weather statistics. *Journal of Climate*, **9**, 3496-3504.

4.1.2. *Collaborative papers.*

(1) Mancuso, CA, T Choi, H Westermann, WM Briggs, S Wenderoth, 2007. Measuring physical activity in asthma patients: two-minute walk test, repeated chair rise test, and self-reported energy expenditure? *J. Asthma.* Accepted.

(2) Loizzo,J, J Peterson, E Wolf, M Altemis, WM Briggs, L Vahdat,and M Charlson, 2007. The effect of a contemplative self-healing program on quality of life in women with breast cancer and other gynecologic cancers. *Psycho-Oncology.* In review.

(3) Ullery, BW, JC Peterson, FM, WM Briggs, LN Girardi, W Ko, AJ Tortolani, OW Isom, K Krieger, 2006. Cardiac Surgery in Nonagenarians: Should We or Shouldn't We? *J. Thoracic and Cardiovascular Surgery.* In Review.

(4) Boutin-Foster C., Ogedegbe G., Peterson J., Briggs M., Allegrante J., Charlson ME., 2006. Psychosocial mediators of the relationship between race/ethnicity and depressive symptoms in Latino and white patients with coronary artery disease. *J, National Medical Association.* In review.

(5) Charlson ME, Boutin-Foster C., Mancuso C., Ogedegbe G., Peterson J., Briggs M., Allegrante J., Robbins L., Isen A., 2006. Using positive affect and self affirmation to inform and to improve self management behaviors in cardiopulmonary patients: Design, rationale and methods. *Controlled Clinical Trials.* Accepted.

(6) Charlson, M, Peterson J., Syat B, Briggs WM, Kline R, Dodd M, Murad V, Dione W, 2006. Outcomes of Community Based Social Service Interventions in Homebound Elders *Int. J. Geriatric Psychiatry.* In review.

(7) Charlson ME, Peterson F, Boutin-Foster C, Briggs WM, Ogedegbe G, McCulloch C, et al., 2006. Changing health behaviors after angioplasty: a randomized-controlled clinical trial. *Health Education Research.* In review.

(8) Charlson ME, Boutin-Foster C, Mancuso CA, Peterson F, Ogedegbe G, Briggs WM, Robbins L, Isen A, Allegrante JP, 2006. Randomized Controlled Trials of Positive Affect and Self-affirmation to Facilitate Healthy Behaviors in Patients with Cardiopulmonary Diseases: Rationale, Trial Design, and Methods. *Contemporary Clinical Trials.* In review.

(9) Zandieh, SO, Briggs WM, Kuder JM, Sparer M, Gershel J, Mancuso CA, 2006. Negative perceptions of healthcare among caregivers of children auto-assigned to a medicaid managed care health plan. *I forgot where.* In review.

(10) Charlson ME, Charlson RE, Briggs WM, Hollenberg J, 2006. Can disease management target patients most likely to generate high costs. *J. General Internal Medicine.* Accepted.

(11) Charlson ME, Peterson F, Krieger K, Hartman GS, Hollenberg J, Briggs WM, et al., 2006. Improvement of outcomes after coronary artery bypass. *J. Thoracic and Cardiovascular Surgey.* In review.

(12) D'Ayala, M, C Martone, R M Smith, WM Briggs, M Potouridis, J S Deitch, and L Wise, 2006. The effect of systemic anticoagulation in patients undergoing angioaccess surgery. *Annals of Vascular Surgery.* In press.

(13) Birkhahn, WM Briggs, PA Datillo, SK Van Deusen, TJ Gaeta, 2006. Classifying patients suspected of appendicitis with regard to likelihood. *American Journal of Surgery*, **191(4)**, 497-502.

(14) Milla F, Skubas N, Briggs WM, Girardi LN, Lee LY, Ko W, Tortolani AJ, Krieger KH, Isom OW, Mack CA, 2006. Epicardial beating heart cryoablation using a novel argon-based cryoclamp and linear probe. *J Thorac Cardiovasc Surg.*, **131(2)**, 403-11.

(15) Milling, TJ, C Holden, LA Melniker, WM Briggs, R Birkhahn, TJ Gaeta, 2006. Randomized controlled trial of single-operator vs. two-operator ultrasound guidance for internal jugular central venous cannulation. *Acad Emerg Med.*, **13(3)**, 245-7.

(16) Birkhahn, SK Van Deusen, O Okpara, PA Datillo, WM Briggs, TJ Gaeta, 2006. Funding and publishing trends of original research by emergency medicine investigators over the past decade. *Annals of Emergency Medicine*, **13(1)**, 95-101

(17) Melniker LA, Leibner E, McKenney MG, Lopez P, Briggs WM, Mancuso CA., 2006. Randomized Controlled Clinical Trial of Point-of-Care, Limited Ultrasonography (PLUS) for Trauma in the Emergency Department: The First Sonography Outcomes Assessment Program (SOAP-1) Trial. *Annals of Emergency Medicine.* **48(3)**, 227-235.

(18) Milling, TJ, J Rose, WM Briggs, R Birkhahn, TJ Gaeta, JJ Bove, and LA Melniker, 2005. Randomized, controlled clinical trial of point-of-care limited ultrasonography assistance of central venous cannulation: the Third Sonography Outcomes Assessment Program (SOAP-3) Trial. *Crit Care Med.* **33(8)**, 1764-9.

(19) Garfield JL, Birkhahn RH, Gaeta TJ, Briggs WM, 2004. Diagnostic Delays and Pathways on Route to Operative Intervention in Acute Appendicitis. *American Surgeon.* **70(11)**, 1010-1013.

(20) Birkhahn RH, Gaeta TJ, Tloczkowski J, Mundy TA, Sharma M, Bove JJ, Briggs WM, 2003. Emergency medicine trained physicians are proficient in the insertion of transvenous pacemakers. *Annals of Emergency Medicine.* **43 (4)**, 469-474

4.2. **Preprints and abstracts (old sample only).**

(1) Briggs, WM, and D Ruppert, 2004. Assessing the skill of yes/no forecasts for Markov observations. 17th Conf. on Probability and Statistics in the Atmospheric Sciences, Seattle, WA, Amer. Meteor. Soc.

(2) Melniker, L, E Liebner, B Tiffany, P Lopez, WM Briggs, M McKenney, 2004. Randomized clinical trial of point-of-care limited ultrasonography (PLUS) for trauma in the emergency department. *Annals of Emergency Medicine*, **44**.

(3) Birkhahn RH, Gaeta TJ, Van Deusen SK, Briggs WM, 2004. Classifying patients suspected of appendicitis with regard to likelihood. *Annals of Emergency Medicine*, **44 (4)**: S17-S17 51 Suppl. S.

(4) Zandieh, SO, WM Briggs, JM Kuder, and CA Mancuso, 2004. Negative perceptions of health care among caregivers of children auto-assigned to a Medicaid managed care health plan. Ambulatory Pediatric Association Meeting, San Francisco, CA; and National Research Service Award Trainees Conference, San Diego, CA.

(5) Melniker, L, E Liebner, B Tiffany, P Lopez, M Sharma, WM Briggs, M McKenney, 2003. Cost Analysis of Point-of-care, Limited Ultrasonography (PLUS) in Trauma Patients: The Sonography Outcomes Assessment Program (SOAP)-1 Trial. *Academic Emergency Medicine*, **11**, 568.

(6) Melniker, LA, WM Briggs, and CA Mancuso, 2003. Including comorbidity in the assessment of trauma patients: a revision of the trauma injury severity score. *J. Clin Epidemiol*, Sep., **56(9)**, 921. PMID: 14505784.

(7) Briggs, WM, and RA Levine, 1998. Comparison of forecasts using the bootstrap. 14th Conf. on Probability and Statistics in the Atmospheric Sciences Phoenix, AZ, Amer. Meteor. Soc., 1-4.

(8) Briggs, WM, and R Zaretzki, 1998. The effect of randomly spaced observations on field forecast error scores. 14th Conf. on Probability and Statistics in the Atmospheric Sciences Phoenix, AZ, Amer. Meteor. Soc., 5-8.

(9) Briggs, WM, and RA Levine, 1996. Wavelets and image comparison: new approaches to field forecast verification. 13th Conf. on Probability and Statistics in the Atmospheric Sciences, San Francisco, CA, Amer. Meteor. Soc., 274-277.

(10) Briggs, WM, and DS Wilks, 1996. Modifying parameters of a daily stochastic weather generator using long-range forecasts. 13th Conf. on Probability and Statistics in the Atmospheric Sciences, San Francisco, CA, Amer. Meteor. Soc., 243-2246.

5. Courses taught

(1) Introductory Statistics (Summers: 2003-present). Define probability, randomness, and statistics. The difference between Classical and Bayesian statistics is emphasized, particularly in how evidence is measured. The student will, by the end of the class, be able to read and broadly understand many of the results contained in the statistics section of medical journals.

(2) Intermediate Statistics (Falls: 2002-present). A hands-on course. Exploratory data analysis and the importance of graphical methods. Categorial data and contingency table analysis. Practical linear and logistic regression. I use the R software to teach the course and maintain a web site for students to download code and data. Seems to work well.

(3) Advanced Statistics (Spring, even years: 2006-present). Multivariate statistical methods: factor, cluster, and discriminant analysis. Practical survival analysis and proportional hazards regression. Hierarchical and linear mixed models, generalized estimating equations, likelihood, and Bayesian Markov chain Monte Carlo methods.

6. Languages

R, SAS, SPSS, PHP, Perl, Matlab, Octave, Fortran (yes, really, but rustily), C, ML (I'm working on this one because it is very slick), SQL, DHTML, some Java and Javascript, Linux scripting (by no means not an expert).

7. Memberships

(1) American Statistical Association
(2) Institute of Mathematical Statistics
(3) American Meteorological Society
(4) American Geophysical Union
(5) American Association for the Advancement of Science

8. Contact

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