Shannon R. Magari, ScD, MPH, MS
Principal
Vice President, Health Sciences

Education

- Harvard University, 2001
  Doctor of Science, ScD Environmental Health, concentration Occupational Epidemiology from the School of Public Health. Thesis, "Cardiovascular Responses to Occupational and Environmental Particulate Matter." The first prospective study of occupational and environmental particulates to utilize personal monitoring to examine preclinical changes in cardiovascular autonomic function in a young working cohort. Utilized a repeated measures design in this cohort to analyze minute to minute exposure and response relationships to reveal significant decreases in parasympathetic tone associated with increases in particulate exposure.
- Boston University, 1997
  Master of Public Health, MPH, concentration Epidemiology and Biostatistics from the School of Public Health
- Dartmouth College, 1994
  Master of Science, MS Engineering Science, concentration Chemical Engineering from the Thayer School of Engineering. Thesis, "*In vitro* Regeneration of Articular Cartilage in a Novel Bioreactor". Designed, constructed, characterized and operated a novel bioreactor for the in vitro tissue engineering of articular cartilage.
- Syracuse University, 1992
  Bachelor of Science, BS Bioengineering from the LC Smith School of Engineering.

Academic Affiliations

- Harvard University, Visiting Scientist
  School of Public Health, Occupational Health Department

Professional Experience

COLDEN CORPORATION

Dr. Magari provides client management and multidisciplinary consulting in a leadership capacity, specializing in litigation support, biosafety, industrial hygiene exposure assessments, epidemiological investigations, and indoor environment quality investigations.

Industrial Hygiene Exposure Assessment – Have designed and conducted hundreds of industrial hygiene assessments for chemical, physical and biological stressors in industrial, non-industrial and institutional settings. Critical to the success of each assessment is sensitivity to the uniqueness of each work site for the manner in which stressors are used, how workers interact with them, what health effects are of concern and an intimate knowledge of applicable regulations. We are often called upon to perform industrial hygiene analyses in complex environments with multiple stressors.

One illustrative project involved the investigation of hypersensitivity pneumonitis among a group of 400 machinists. The investigation included sampling and analyses of a suite of proprietary chemicals, airborne fungal and bacterial biological, volatile organic compounds and metals. We compiled and presented complex data sets to all stakeholders, identified areas for engineering and administrative controls and validated their efficacy.

Indoor Environment Quality – Designed and led over 100 indoor environment quality investigations in industrial, non-industrial and institutional settings. Investigations have included odor complaints, heating ventilation and air conditioning reviews, microbial investigations, low level volatile organics analysis and other select compounds. Investigations are targeted at identifying issues in a timely manner to minimizing employee discomfort, reduce work interruption and communicate risk appropriately and effectively.

Epidemiologic Investigations – Have designed and conducted disease cluster investigations in dozens of industrial and non-industrial situations including reproductive, respiratory and cancer outcomes. Recent projects have included an investigation of a cluster of early miscarriage and malformed infants in a foundry, breast cancer in a broadcasting operation and upper respiratory illness in a 150-person call center and a car parts machining environment.

The early-miscarriage investigation included interviews with the employees, review of local epidemiologic data, statistical extrapolation, industrial hygiene auditing and monitoring of 23 stressors, data analysis, interpretation and design of a multi-faceted risk communication strategy for all stake holders. No lawsuits were filed.

Biosafety Program Development – Developed biosafety programs for Fortune 100 companies and research institutions encompassing NIH requirements. Customized biosafety and animal-handling training. Created IH monitoring plan for research environments with myriad chemical and physical hazards. Have developed protocols for 500 resident animal vivaria including rodent, guinea pig and rabbit models. Responsible for filing and maintaining federal and state controlled substances licenses and program documents for all types of scheduled drugs.

HARVARD UNIVERSITY

Dr. Magari received her doctoral training and served as a postdoctoral research fellow at the Harvard School of Public Health specializing in Occupational Epidemiology. She currently maintains an academic appointment as a Visiting Scientist with the Harvard School of Public Health.

Epidemiologic Investigations – Responsible for all phases of a short-term prospective epidemiologic study investigating the effects of particulate air pollution on the cardiovascular system. This included study design, development, laboratory and project staff management. Designed relational databases and performed all statistical programming and interpretation using SAS and Splus.

Teaching – Teaching and curriculum development performed in basic environmental health, epidemiology and occupational health policy.

Biosafety – Served as laboratory health and safety director to ensure compliance with university regulations in an active BSL 2 laboratory.

ARIAD PHARMACEUTICALS

Dr. Magari was an associate research scientist in the toxicology department performing work to support several discovery avenues including allergy, asthma, osteoporosis and regulated gene therapy products in a BSL 2 laboratory.

Laboratory Research – Designed, tested and analyzed pharmacokinetic, bioavailability and preliminary investigative toxicology studies. Developed analytical chemistry methods for these studies using HPLC and MS. Developed tissue culture and assay methods for the analysis of bone resorption for an *in vitro* osteoporosis model.

DARTMOUTH COLLEGE

Dr. Magari received her master of engineering training at the Thayer School of Engineering.

Engineering Design and Testing – Design, construction, characterization and operation of a novel bioreactor for the in vitro tissue engineering of articular cartilage in a BSL 2 laboratory. Tested various biomaterial matrices within the reactor and developed chemical assays to monitor chondrocyte function and articular cartilage regeneration in the reactor.

BRISTOL-MYERS SQUIBB

Dr. Magari served as an intern in both the fermentation and health and safety departments in their Upstate New York manufacturing facility.

Industrial Hygiene Exposure Assessments – Conducted health hazards analyses of bioaerosol exposures in a wastewater treatment facility including a preliminary risk analysis, industrial hygiene sampling and recommendations for protective action. Developed and implemented a drinking water sampling and analysis plan for the site. Initiated a personal protective equipment review for electrical shop personnel, and made and implemented appropriate safety recommendations.

Process Engineering – Performed engineering analysis of heat transfer, mass transfer and power uptake for biochemical fermentation processes. Responsible for tracking, compiling and publishing detailed production engineering reports for weekly and monthly periods. Performed engineering and cost analysis of proposals for modification and implementation of operating procedures. Responsible for software updating, documentation and training of chemical process operators with new computer control systems.

Board Memberships

- Central New York Occupational Health Clinic Center, Member
- Women Together Inspiring Entrepreneurial Success, Member

Professional Organizations

- President, Northeast Biological Safety Association
- American Industrial Hygiene Association (AIHA)
- Member, AIHA Nanotechnology Working Group
- Engineers Without Border

- International Society for Environmental Epidemiology (ISEE)
- American Public Health Association (APHA)
- Biomedical Engineering Society, Co-Chair Dartmouth Chapter (1993-94)
- Society of Women Engineers
- Order of the Engineer

Publications

Magari SR, Smith CE, Schiff MR, Rohr AC, Evaluation of community response to wind turbine-related noise in Western New York State. Noise and Health, Vol. 16(71), pp. 228-239, 2014.

Schiff MR, **Magari SR**, Smith CE, Rohr AC, Field evaluation of wind turbine-related noise in western New York State. *Journal of Noise Control Engineering*, Vol. 61(5), pp. 509-519, 2013.

Kim JY, Prouty LA, Fang SF, Rodrigues EG, **Magari SR**, Modest GA, Christiani DC, Association between Fine Particulate Matter and Oxidative DNA Damage
May Be Modified in Individuals with Hypertension. *Journal of Occupational and Environmental Medicine*, 51:1158-1166, 2009.

Harezlak, J, Coull BA, Laird NM, **Magari SR**, Christiani DC. Penalized Solutions to Functional Problems. *Computational Statistics and Data Analysis*, Vol. 51, pp. 4911-4925, 2007.

Kim JY, **Magari SR**, Herrick RF, Smith TJ, Christiani DC. Comparison of Fine Particulate Measurements from a Direct-Reading Instrument and a Gravimetric Sampling Method. *J Occupational Environmental Hygiene*, Vol. 1, pp.707-15, 2004.

Magari, SR, Schwartz, J, Williams, PL, Hauser, R, Smith, TJ, Christiani, DC, The Association of Particulate Air Metal Concentrations With Heart Rate Variability, *Environmental Health Perspectives*, Vol. 110, No. 9, 875-880, 2002.

Magari, SR, Schwartz, J, Williams, PL, Hauser, R., Smith, TJ, Christiani, DC, The Association Between Personal Measurements of Environmental Exposure to Particulates and Heart Rate Variability, *Epidemiology*, Vol. 13, pp 305-310, 2002.

Magari, SR, Hauser, R, Schwartz, J, Williams, PL, Smith, TJ, Christiani, DC, The Association of Heart Rate Variability with Occupational and Environmental Exposure to Particulate Air Pollution, *Circulation*, Vol. 104, 986-991, 2001.

Clackson, T., Yang, W., Rozamus, L.W., Hatada, M., Amara, J.F., Rollins, C.T., Stevenson, L.F., **Magari, S.R**., Wood, S.A., Courage, N.L., Lu, X., Cerasoli, F., Gilman, M. and Holt, D.A., Redesigning an FKBP-ligand Interface to Generate Chemical

Dimerizers with Novel Specificity, *Proceedings of the National Academy of Sciences*, Vol. 95, 10437-10442, 1998.

Magari, SR, Rivera, V.M., Iuliucci, J.D., Gilman, M., and Cerasoli F., Pharmacologic Control of a Humanized Gene Therapy System Implanted in to Nude Mice, *Journal of Clinical Investigations*, Vol. 100, No. 11, pp. 2865-2872, 1997.

Rivera, V.M., Clackson, T., Natesan, S., Pollock, R., Amara, J. Keenan, T., **Magari, S.R.**, Phillips, T., Courage, N.L., Cerasoli, F., Holt, D.A., and Gilman, M., A Humanized System for Pharmacologic Control of Gene Expression, *Nature Medicine*, Vol. 2, No. 9, pp. 1028-1032, 1996.

Heath, C.A. and **Magari, SR**., Mini-Review: Mechanical Factors Affecting Cartilage Regeneration In Vitro, *Biotechnology and Bioengineering*, Vol. 51, pp. 430-437, 1996.

Presentations/Published Abstracts

Magari, S.R., Schwartz, J., Williams, P., Hauser, R., Smith, T.J., Christiani, D.C., The Association of Particulate Air Metal Concentrations with Heart Rate Variability, *American Journal of Epidemiology*, Vol. 155, No. 11, pp 309 Suppl. S, 2002.

Magari, S.R., Schwartz, J., Williams, P., Hauser, R., Smith, T.J., Christiani, D.C., Association of Personal Particle Exposure with Heart Rate Variability, *Epidemiology*, Vol. 12, No. 4, pp S39, 2001. International Society of Environmental Epidemiology, Garmisch, Germany, 2001.

Magari, S.R., Hauser, R., Smith, T.J., Schwartz, J., Williams, P., Christiani, D.C., Association of Heart Rate Variability with Occupational and Environmental Exposure to Particulates. Seventh International Congress on Combustion By-Products, North Carolina, 2001.

Kim, J.Y., **Magari, S.R**., Christiani, D.C., Exhaled Nitric Oxide Measurements in Workers Exposed to Fuel-Oil Ash, *American Journal of Respiratory and Critical Care Medicine*, Vol. 163, No. 5, pp A494 2001. American Thoracic Society, San Francisco, 2001.

Mukherjee, S., Rodrigues, E., **Magari, S.R.**, Kim, J.Y., Weker, R., Chrisitiani, D.C. Urinary 1-Hydroxypyrene As A Biomarker of Exposure to Airborne Polycyclic Aromatic Hydrocarbons in Boilermakers, *American Journal of Respiratory and Critical Care Medicine*, Vol.163, No.5, pp A495, 2001, American Thoracic Society, San Francisco, 2001.

Mukherjee, S., Rodrigues, E., **Magari, S.R.**, Kim, J.Y., Weker, R., Chrisitiani, D.C. Assessment of Urinary 1-Hydroxypyrene Level as a Biomarker of Polycyclic aromatic Hydrocarbon (PA) Exposure in Occupationally Exposed Boilermakers, *Epidemiology*, Vol.12, No. 4, pp 174, 2001.

Magari, S.R., Woodin, M., Hauser, R., Smith, T.J., Schwartz, J., Williams, P., Christiani, D.C., Cardiovascular Effects of Exposure to Fuel-Oil Ash and Metal Fume: A Preliminary Assessment. *American Journal of Respiratory and Critical Care Medicine*, Vol. 161, No. 3, pp. A25, American Thoracic Society, Toronto, Canada, 2000.

Kim, J.Y., **Magari, S.R**., Herrick, R.F., Smith, T.J., Christiani, D.C., Comparison of $PM_{2.5}$ Measurements from a Direct-Reading Instrument and a Gravimetric Sampling Method, American Industrial Hygiene Conference, 2000.

Fine, E.G., **Magari, S.R.**, Rousseau, S., Orndorff, K. A., Heath, C.A., and Rosen, J. M., Chondrocytes Grown on Opaque Porous Biodegradable Polymer Matrices Examined by Confocal Microscopy, 20th Annual Mtg., Society for Biomaterials, Boston, MA, April 1994.

Magari, S.R. and Heath, C.A., In Vitro Chondrocyte Growth and Cartilage Formation Under Intermittent Hydrostatic Pressure, Engineering Foundation Conference, Cell Culture Engineering IV, San Diego, CA, March 1994.

Magari, S.R. and Heath, C.A., Chondrocyte Growth and Cartilage Formation in a Three-Dimensional Resorbable Matrix under Intermittent Hydrostatic Pressure, U.K.-U.S. Workshop on Cellular Engineering, Chester, England, September 1993.