

## Curriculum Vitae

Arch I Carson MD PhD

Occupational Medicine and Medical Toxicology

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### Biosketch

Arch "Chip" Carson, MD, PhD is a physician (The Ohio State University), board certified in Occupational Medicine (American Board of Preventive Medicine), who holds a Doctor of Philosophy degree in Toxicology (University of Cincinnati, Kettering Laboratory). He has served on the faculty of the University of Cincinnati and the New York University Medical Center and joined the faculty of the University of Texas School of Public Health in 1992 in its Environmental Sciences Discipline and Occupational and Environmental Health and Aerospace Medicine Module. He is Associate Professor of Occupational Health, directs the Occupational and Environmental Medicine Residency Program and is a member of the research team of the Southwest Center for Occupational and Environmental Health, a NIOSH Education and Research Center, and WHO Collaborating Centre in Occupational Health. He maintains a clinical practice of occupational medicine and medical toxicology. He is a frequent consultant to governments, corporations and the legal community on matters related to industrial chemical exposure, toxicology and environmental justice. His research interests include: environmental and occupational chemical exposures, inhalation injuries, metal exposures and cancer, and professional training in occupational medicine.

### Professional Activities/Employment

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| 2017    | Enbridge Corporation, Medical Director, Employee Health Services.  |
| 2010-17 | University of Texas Health Science Center, Houston, Associate Professor of Occupational Health.  |
| 2010-17 | University of Texas Health Science Center at Houston, Program Director, Occupational and Environmental Medicine Residency.   |
| 1991-17 | Private practice of Occupational Medicine and Toxicology, New York, Texas and Ohio.  |
| 2011-17 | Spectra Energy Corporation, Medical Director, Employee Health Services.  |
| 1997-13 | Texas Medical Center Inc., Medical Director, Employee Health Services.   |
| 1992-08 | University of Texas School of Public Health, Assistant Professor of Occupational Medicine and Environmental Sciences.  |
| 1998-08 | University of Texas Health Science Center at Houston, Program Director, Occupational and Environmental Medicine Residency.   |
| 2003-08 | Southwest Center for Occupational and Environmental Health, Principal Investigator and Director, Diller Phosgene Exposure Incident Registry of the American Chemistry Council. |
| 2000-06 | Chevron Phillips Chemical Company, Corporate Medical Director.   |
| 2003-05 | U.S. Department of Energy Office of Worker Advocacy Physician Review Panel Appointee.  |
| 1997-04 | Southwest Center for Occupational and Environmental Health, Principal Investigator, City of Houston Lead Poisoning Epidemiology Project.                                       |

- 1992-03 UT Health Services, University of Texas Houston Health Science Center, Attending Physician, Occupational Medicine and Toxicology.
- 1997-01 University of Houston Downtown, Medical Director, Student Health Service.
- 1998-99 University of Texas School of Public Health, Convener of the Occupational/Environmental Health and Aerospace Medicine Module.
- 1992-97 Respiratory Consultants of Houston, PA, Attending Physician, Occupational Medicine and Toxicology.
- 1992-95 Exxon Chemical Americas, Baytown Polymer Center and Basic Chemicals Technology, Baytown TX, Consultant Physician.
- 1990-91 New York University Medical Center, Bellevue Hospital, Tisch Hospital, and Manhattan VA Hospital, New York NY, Dept. of Medicine, Clinical Instructor.
- 1982-90 Chemical Information Services Inc, Cincinnati OH, Associate in Toxicology.
- 1978-87 University of Cincinnati College of Medicine, Cincinnati OH, Instructor and Lecturer, Adjunct Assistant Professor of Industrial Toxicology.
- 1974-79 University of Cincinnati College of Medicine, Kettering Laboratory, Cincinnati OH, Research Technologist in Occupational Medicine and Clinical Studies.
- 1969-74 Millstone Inc., Cincinnati OH, Design Engineer, environmental control systems.

### **Educational Background**

- 2002 Certificate of Board Eligibility, Medical Toxicology, American Board of Preventive Medicine/American Board of Emergency Medicine
- 1992 Certificate of Training - Residency in Occupational Medicine University of Texas Health Science Center at Houston, School of Public Health, and Southwest Center for Occupational and Environmental Health, Houston TX, 1992.
- 1991 Certificate of Training - Postgraduate Internship in Internal Medicine, New York University Medical Center and Bellevue Hospital Center, New York NY.
- 1990 MD - Ohio State University College of Medicine, Columbus OH.
- 1987 PhD - Kettering Laboratory, University of Cincinnati College of Medicine, Cincinnati OH, awarded in the field of "Environmental Health – Toxicology."
- 1973 BS - University of Cincinnati College of Arts and Sciences Cincinnati OH. Awarded in "Biological Sciences with Concentration in Engineering."
- 1969 Rensselaer Polytechnic Institute, Troy NY. Management Engineering
- 1968 Villa Madonna College, Covington KY. Certificate in Contemporary Physics.

### **Fellowships**

- 2011-13 UTHHealth, Health Educators Fellowship, University of Texas Health Science Center at Houston.
- 1983-85 American Lung Association Fellowship in Lung Research (Inhalation Toxicology), American Lung Association of Southwestern Ohio, Grant.
- 1981-82 Owens Corning Fiberglas, Graduate Research Fellowship in Combustion Toxicology.
- 1979-80 National Institute for Occupational Safety and Health, Centers for Disease Control, Doctoral Fellowship in Industrial Toxicology.

### **Certifications**

- 2012 License to practice medicine, State of Ohio 35.098635
- 2010 Certified Healthy Homes Specialist – National Environmental Health Association.
- 2002 Board Eligibility, Medical Toxicology, American Board of Preventive Medicine/American Board of Emergency Medicine.
- 1994 Board Certification, Occupational Medicine, American Board of Preventive Medicine.
- 1992 License to practice medicine, State of Texas J2524.
- 1991 License to practice medicine, State of New York 186563.
- 1982 Emergency Hazard Response, Environmental and Industrial Chemical Accident Management, U.S. Environmental Protection Agency.
- 1979 Pulmonary Function Testing for Occupational Surveillance, NIOSH #003.

### **Professional Community Service**

- 2013-17 University of Texas Health Science Center at Houston, Steering Committee on Interprofessional Collaboration
- 2013-17 University of Texas Health Science Center at Houston, Chemical Safety Committee.
- 1998-17 Association of Environmental and Occupational Clinics/ATSDR community resource on toxic exposures and health consequences, Federal Region VI.
- 1997-17 City of Houston Biological, Chemical and Radiation Emergency Preparedness Program. Medical Toxicology On-Call Advisor to the Houston Medical Strike Team.
- 1998-17 Association of Occupational and Environmental Medicine Residency Directors. Chairman 2005-2006
- 2010-17 University of Texas Health Science Center at Houston, Graduate Medical  
1997-08 Education Committee
- 2010-17 University of Texas Health Science Center, Houston, Community/Press  
1994-08 Resource and Speaker via Public Information Office, (Toxic Exposures and Environmental Health).
- 1996-17 American College of Occupational and Environmental Medicine, Council on Academic Affairs and Co-chair, Academic Section 2004-2006. Occupational Medicine Residency Directors Committee, Chair 2006-2007, Appointed Member, Taskforce on the Future of Occupational Medicine Education 2005-2007. Appointed Co-chair, Taskforce on the Future of Occupational Medicine Education 2013-2015.
- 1996-17 Texas College of Occupational and Environmental Medicine. Secretary/Treasurer-2004-5, President Elect-2005-6, President-2006-7, Past President 2007-8.
- 2003-12 Boy Scouts of America, Sam Houston Council, Registered Adult Leader and Merit Badge Counselor.
- 2005-08 University of Texas School of Public Health, Practice Council Co-chair
- 2003-05 U.S. Department of Energy Office of Worker Advocacy Physician Review Panel Appointee.
- 1996-00 American Public Health Association, Occupational Health Subcommittee
- 1994-96 Advisory Board, National Environmental Education and Training Center (NEETC), Curriculum Development Committee.

- 1981-85 Tri-State Air Committee Inc., Cincinnati OH, (voluntary air quality organization) Scientific Advisor, Elected to Board of Directors in 1982, President and Chairman 1984-85.
- 1981-85 American Lung Association of Southwestern Ohio, Cincinnati OH, (voluntary health organization) speakers bureau.
- 1982-83 City of Cincinnati, Appointment to Occupational Health Scientific Liaison Board (municipal advisory committee).
- 1981-83 Cincinnati Area Toxic Substances Coalition, Cincinnati OH, (coalition of business, voluntary, and labor organizations with interest in environmental toxic substance issues) Cofounder and Chairman.
- 1982-83 Ohio River Valley Committee on Occupational Safety and Health, Cincinnati OH, (organized labor coalition) Scientific Resource Committee.
- 1972-82 Walnut Hills-Evanston Medical Center, Cincinnati OH, (primary care center) Board of Directors.

**Professional Societies**

- 1991-17 American College of Occupational and Environmental Medicine.
- 1991-17 Texas College of Occupational and Environmental Medicine
- 2007-17 Texas Public Health Association.
- 2006-17 International Congress on Occupational Health.
- 2003-17 American College of Medical Toxicology.
- 2002-06 Society of Occupational and Environmental Health.
- 2001-06 American Conference of Governmental Industrial Hygienists.
- 1994-00 American Public Health Association.
- 1983-87 American Industrial Hygiene Association.
- 1983-87 Society of Toxicology.
- 1980-85 American Thoracic Society, Associate Member and Participant in Occupational and Environment Scientific Session.

**Publications**

- Anderson F, **Carson A**, Whitehead L and Burau K Age, Race and Gender Spatiotemporal Disparities of COPD Emergency Room Visits in Houston, Texas. Occupational Diseases and Environmental Medicine. 3: 1-9, 2015. <http://dx.doi.org/10.4236/odem.2015.31001>.
- Anderson F, **Carson A**, Whitehead L and Burau K. Spatiotemporal Analysis of the Effect of Ozone and Fine Particulate on CVD Emergency Room Visits in Harris County, Texas. Open Journal of Air Pollution, 3: 87-99, 2014. <http://dx.doi.org/10.4236/ojap.2014.34009>.
- Calcote, JC, **Carson, A**, Peskin, MF, Emery, RJ. An assessment of post-disaster psychological stress in hazardous waste operations and emergency response (HAZWOPER) workers. Disaster Med Public Health Preparedness. 7: 452-460, 2013. PMID 24274124.
- Delclos GL, Tullis LA, **Carson A**. The services industry. In Occupational and Environmental Lung Diseases. Tarlo SM, Cullinan, Nemery B eds. 2010 pp.258-271. Wiley-Blackwell, West Sussex, UK.
- Pugach S, Clarkson T, (**Carson A**). Prenatal mercury exposure and postnatal outcome: clinical case report and analysis. Clin Toxicol 47: 366-370, 2009.

Pauluhn J, **Carson A**, Costa DL, Gordon T, Kodavanti U, Last JA, Matthay MA, Pinkerton KE and Sciuto AM. Workshop summary: phosgene-induced pulmonary toxicity revisited: appraisal of early and late markers of pulmonary injury from animal models with emphasis on human significance. *Inhalation Toxicology*. 19(10):789-810, 2007.

Delclos GL, Gimeno D, Arif AA, Burau KD, **Carson A**, Lusk C, Stock T, Symanski E, Whitehead LW, Zock JP, Benavides FG and Anto JM. Occupational risk factors and asthma among health care professionals, *American Journal of Respiratory & Critical Care Medicine*. 175(7):667-75, 2007.

Savely SM, **Carson A** and Delclos GL. "A survey of the implementation status of environmental management systems in U.S. colleges and universities" *J Cleaner Production*, 15(7) 650-659, 2007.

Savely SM, **Carson A** and Delclos GL. "An environmental management system implementation model for U.S. colleges and universities" *J Cleaner Production*, 15(7) 660-670, 2007.

Delclos GL, Arif AA, Aday L, **Carson A**, Lai D, Lusk C, Stock T, Symanski E, Whitehead LW, Benavides FG and Anto JM. Validation of an asthma questionnaire for use in healthcare workers. *Occupational & Environmental Medicine*. 63(3):173-9, 2006.

Delclos GL, Bright KA, **Carson A**, Felknor SA, Mackey TA, Morandi MT, Schulze L and Whitehead LW. "A global survey of occupational health competencies and curriculum" *International Journal of Occupational and Environmental Health*; 11:181-194, 2005.

Nooka A, Duonghi L, **Carson A**, Hassan M. Assessing Occupational Risk for Pancreatic Cancer by Chemical Exposures and Work History: A Case-Control study at MD Anderson Cancer Center. American Association for Cancer Research, Orlando. March, 2004.

Mitchell CS, Moline J, Avery AN, Baker D, Blessman JE, **Carson A**, Cosby O, Darcey D, Ducatman A, Emmett EA, Forst L, Gerr F, Gochfeld M, Guidotti TL, Harber P, Hu H, Hegmann KT, Kipen HM, Levin J, McGrail MP, Meyer JD, Mueller KL, Prince S, Rubin R, Schwerha JJ, Sprince NL, Taiwo O and Upfal M. In response to the 2002, vol. 22, no. 4 article entitled "The rise and fall of occupational medicine in the United States" [Letter] *Am J Preventive Med*. 23(4):307-9, 2002.

**Carson A** and Delclos GL. "The Respiratory System," in *Modern Industrial Hygiene: Volume II – Biological Aspects*, JL Perkins, ed. 2003, American Conference of Governmental Industrial Hygienists, Cincinnati.

**Carson A**, Colombo S and Alavi. A, City of Houston Childhood Lead Poisoning Prevention Program: Case Density and Impact Analysis, March 31, 2000, Technical Report (Principal Investigator).

Townsend MC, Lockey JE, Velez H, **Carson A**, Cowl CT, Delclos GL, Gerstenhaber BJ, Harber PI, Horvath EP, Jolly AT, Jones SH, Knackmuhs GG, Lindesmith LA, Markham TN, Raymond LW, Rosenberg DM, Sherson D, Smith DD, and Wintermeyer SF. ACOEM Position Statement – "Spirometry in the Occupational Setting" *JOEM*; 42: 228-245, 2000.

Bright K, Delclos G, **Carson A**, Felknor S, Mackey T, Morandi M, Schultz L and Whitehead L. A Global Study of Occupational Health Competencies and Curricula, Report to the World Health Organization, March, 2000, Southwest Center for Occupational and Environmental Health.

**Carson A**, Guevara E, Delclos GL, Murray KA, Burau KD, Morandi MT, Felknor SA, ("A Study of General Health of Workers of the Industrial Complex of Barrancabermeja") in [Compendium on Occupational Health in the Petroleum Industry of Colombia: Technical and Scientific Report of the "Occupational Health in the Petroleum Industry" Project], 1999 Pan American Health Organization (co-author).

**Carson A**, Hangoc V and Bahrainwala M, City of Houston Childhood Lead Poisoning Prevention Program: Case Density and Impact Analysis, June 30, 1999, Technical Report (Principal Investigator).

- Carson A**, Spears B, and Burau K, City of Houston Childhood Lead Poisoning Prevention Program: Case Density and Impact Analysis, June 30, 1998, Technical Report (Principal Investigator).
- Carson A**, Detry M, Spears B, and Burau K, City of Houston Childhood Lead Poisoning Prevention Program: Case Density and Impact Analysis, June 30, 1997, Technical Report (Principal Investigator).
- Delclos GL and **Carson A**, "Acute Gaseous Exposures," in Occupational and Environmental Respiratory Diseases, P Harber, M Schenker, and J Balmes eds. 1995, Mosby Yearbook Pub., St. Louis.
- Carson A**, "Respiratory Effects of Exposure to Fresh Smokes from Pyrolytic Decomposition of Styrene Plastic in Rats." Doctoral Dissertation, University of Cincinnati Kettering Laboratory, 1987.
- Carson A**, "A Dynamic Method for the Generation of Fresh Smokes From Combustion or Pyrolytic Decomposition of Structural Materials." Doctoral Dissertation, University of Cincinnati Kettering Laboratory, 1987.
- Samuels SJ, Lemasters GK and **Carson A**, "Statistical Methods for Describing Occupational Exposure Measurements," Am. Ind. Hyg. Assoc. J., 46:427-433, 1985.
- Lemasters GK, **Carson A** and Samuels SJ, "Occupational Styrene Exposure for Twelve Product Categories in the Reinforced-Plastics Industry," Am. Ind. Hyg. Assoc. J., 46:434-441, 1985.
- Lockey JE, Brooks SM, Jarabek AM, Khoury PR, McKay RT, **Carson A**, Morrison JA, Wiot JF and Spitz HB. "Pulmonary changes after exposure to vermiculite contaminated with fibrous tremolite" Am Rev Respir Dis. 129(6):952-8, 1984.
- Lockey JE, Jarabek A, **Carson A**, McKay R, Harber P, Khoury P, Morrison J, Wiot J, Spitz H and Brooks SM, "Pulmonary Hazards from Vermiculite," in Health Issues Related to Metal and Nonmetallic Mining, WL Wagner, W Rom and P Merchant eds. 1983, Butterworth's, Boston.
- Vinegar A and **Carson A**, "Pulmonary Function Changes in Chinese Hamsters Exposed Six Months to Diesel Exhaust," Environ Int, 5:369-371, 1981.
- Lockey JE, Jarabek A, **Carson A**, McKay R, Harber P, Khoury P, Morrison J, Prior J and Brooks SM, "Health Effects of Vermiculite Exposure," Am Rev Respir Dis, 123:133, 1981 abstract.
- Lockey JE, Jarabek A, **Carson A**, McKay R, Harber P, Khoury P, Morrison J and Brooks SM, "Single-Breath Diffusing Capacity (DLCOsb) in a Working Population," Am Rev Respir Dis, 123:132, 1981 abstract.
- Vinegar A, **Carson A** and Pepelko WE, "Pulmonary Function Changes in Chinese Hamsters Exposed to Diesel Exhaust," in Health Effects of Diesel Engine Emissions, Vol. 2, WE Pepelko, RM Danner and NA Clarke eds, 1980, US Environmental Protection Agency, Washington.
- Carson A**, Vinegar A, Leng J and Cooper G, "Effects of Chronic Exposure to some Diesel Exhaust Components on Lung Function in Rats," Fed Proc, 39:1091, 1980 abstract.
- Elia VJ, Anderson LA, MacDonald TJ, **Carson A**, Buncher CR and Brooks SM, "Determination of Urinary Mandelic and Phenylglyoxylic Acids in Styrene Exposed Workers and a Control Population," Am Ind Hyg Assoc J, 41:922-926, 1980.
- Brooks SM, Anderson LA, Emmett E, **Carson A**, Tsay JY, Elia VJ, Buncher CR and Karbowsky R, "The Effects of Protective Equipment on Styrene Exposure in Workers in the Reinforced Plastics Industry," Arch Environ Health, 35:287-294, 1980.
- Brooks SM, Zipp T, Barber M and **Carson A**, "Measurement of Maximal Expiratory Flow Rates in Cigarette Smokers Using Gases of High and Low Densities," Am Rev Respir Dis, 118:75-81, 1978.