

CURRICULUM VITAE
David B. Peden, MD, MS

PERSONAL

Office Address:

Center for Environmental Medicine, Asthma, and Lung Biology
104 Mason Farm Road, CB#7310
The University of North Carolina School of Medicine
Chapel Hill, NC 27599-7310
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EDUCATION:

- 7/87-7/90 Fellowship, Allergy & Immunology
Allergic Diseases Section (Michael A. Kaliner, MD, Chief)
Laboratory of Clinical Investigation
National Institute of Allergy & Infectious Diseases
National Institutes of Health
Bethesda, MD
- 7/84-6/87 Internship and Residency in Pediatrics, Department of Pediatrics
West Virginia University Medical Center
Morgantown, WV
- 1984 Doctor of Medicine
West Virginia University
- 1984 Master of Science, Pharmacology and Toxicology
(Knox Van Dyke, PhD, major advisor)
West Virginia University
- 1980 Bachelor of Arts, *cum laude*, Citation in the Departmental Honors
Program, Department of Biology, West Virginia University

Professional Certification/Licensure:

Diagnostic Laboratory Immunology (#130), 1990 (permanent certification)
American Board of Allergy and Immunology (#3150), 1989, re-certified through 2021
American Board of Pediatrics (#38304), 1988, re-certified through Dec 2024
American Board of Medical Examiners (#298021), 1985 (permanent certification)
North Carolina Medical License #35461
Maryland License #D35066 (Inactive)
West Virginia License #14377 (Inactive)
DEA# FP2368985

PROFESSIONAL EXPERIENCE:

Primary Academic Appointments at UNC:

- 2/12-date Harry S. Andrews Distinguished Professor of Pediatrics
School of Medicine

University of North Carolina at Chapel Hill, Chapel Hill, NC

- 6/02-date Professor of Pediatrics, School of Medicine,
University of North Carolina at Chapel Hill, Chapel Hill, NC
- 9/96-6/02 Associate Professor of Pediatrics
School of Medicine, University of North Carolina at Chapel Hill
- 7/92-9/96 Assistant Professor of Pediatrics
School of Medicine-University of North Carolina at Chapel Hill
Chapel Hill, NC

Current Administrative Positions:

- 12/11-date Senior Associate Dean for Translational Research
School of Medicine, University of North Carolina at Chapel Hill
- 11/13-date Service Director for Team Science
NC Translational and Clinical Science Institute (CTSA)
University of North Carolina at Chapel Hill
Chapel Hill, NC
- 7/17-date Interim Director
Institute for the Environment
University of North Carolina at Chapel Hill
Chapel Hill, NC
- 6/16-date Vice Chair for Translational Research
Department of Pediatrics, School of Medicine
University of North Carolina at Chapel Hill
Chapel Hill, NC
- 7/02-date Director,
Center for Environmental Medicine, Asthma & Lung Biology
School of Medicine-University of North Carolina at Chapel Hill
Chapel Hill, NC
- 2/02-date Chief, Division of Allergy, Immunology & Rheumatology
Department of Pediatrics, School of Medicine
University of North Carolina at Chapel Hill
Chapel Hill, NC
- (known as the Division of Allergy, Immunology, Rheumatology &
Infectious Diseases 2/04-10/13 and Division of Allergy,
Immunology and Environmental Medicine 2/02-2/04)

Active additional academic positions:

- 10/07-date Professor, Department of Microbiology & Immunology
School of Medicine, University of North Carolina at Chapel Hill
Chapel Hill, NC

- 6/03 -date Professor of Medicine
School of Medicine, University of North Carolina at Chapel Hill
Chapel Hill, NC
- 12/02-date Faculty Member,
Curriculum in Toxicology
School of Medicine, University of North Carolina at Chapel Hill
Chapel Hill, NC
- 6/11-date Adjunct Professor of Environmental Sciences and Engineering,
School of Public Health, University of North Carolina at Chapel Hill

Prior Administrative Positions:

- 12/04-6/16 Associate Chair for Research
Department of Pediatrics, School of Medicine
University of North Carolina at Chapel Hill
Chapel Hill, NC
- 11/07-11/13 Co-Director, Inflammatory Diseases Institute
School of Medicine-University of North Carolina at Chapel Hill
Chapel Hill, NC
- 12/11-11/13 Service Director for Clinical Research Resources
NC Translational and Clinical Science Institute (CTSA)
University of North Carolina at Chapel Hill
Chapel Hill, NC
- 11/07-12/11 Deputy Director for Child Health Research,
NC Translational and Clinical Science Institute (CTSA)
University of North Carolina at Chapel Hill
Chapel Hill, NC
- 7/04-9/10 Program Director, Allergy and Immunology Training Program
University of North Carolina Hospitals
Chapel Hill, NC
- 10/01-7/02 Deputy Director,
Center for Environmental Medicine & Lung Biology
School of Medicine-University of North Carolina at Chapel Hill
Chapel Hill, NC
- 9/95-10/01 Associate Director,
Center for Environmental Medicine & Lung Biology
School of Medicine-University of North Carolina at Chapel Hill
Chapel Hill, NC
- 5/00-1/02 Medical Director, Pediatric Ambulatory Services
Department of Pediatrics
University of North Carolina at Chapel Hill, Chapel Hill, NC
- 7/92-12/01 Director, Allergy & Immunology Program

Division of Pulmonary Medicine & Allergy
Department of Pediatrics, University of North Carolina-CH

- 3/98-9/99 Co-Director,
Allergy, Immunology & Rheumatology Consultation Service
Department of Pediatrics, University of North Carolina-CH
Chapel Hill, NC
- 7/92-9/95 Investigator,
Center for Environmental Medicine & Lung Biology
School of Medicine-University of North Carolina at Chapel Hill
Chapel Hill, NC
- 6/90-6/92 Attending Physician
Allergy Consultation Service
National Institutes of Health, Bethesda, MD
- 7/87-6/92 Medical Staff Fellow
Allergic Diseases Section, Laboratory of Clinical Investigation
National Institute of Allergy & Infectious Diseases
National Institutes of Health, Bethesda, MD
- 7/88-6/89 Chief Medical Staff Fellow
National Institute of Allergy & Infectious Diseases
National Institutes of Health, Bethesda, MD
- 7/86-7/87 Chief Resident of Pediatrics
Department of Pediatrics, West Virginia University Medical Center
Morgantown, WV

HONORS:

President, American Academy of Allergy, Asthma and Immunology, 2017-2018
(Presidential Track Offices: Secretary/Treasurer, 2015-2016, President-Elect, 2016-2017, President, 2017-2018, Past President, 2018-2019)

Academic Awards:

Beta Beta Beta (Biology Honor Society at West Virginia University), 1978
Alpha Epsilon Delta (Pre-Medical Honor Society at West Virginia University), 1978
Norman Award (WVU Undergraduate Research Award in Biology), 1980
Distinguished Alumnus of the West Virginia University School of Medicine, 2014

Scientific Awards:

Member, American Pediatric Society, 2017-date
2nd place presentation: Allergy and Immunology Section of the Southern Medical Association Meeting, 1989.
Clifford W. Perry Award from the American Lung Association of North Carolina, 1996
Elected to the Society for Pediatric Research, 1996
2007 Jerry Dolovich Memorial Lectureship of the American Academy of Allergy, Asthma and Immunology

Clinical Awards:

Best Doctors listing for Allergy and Immunology, 2007-date
US News and World Report Top Doctors for Allergy and Immunology, 2012-date

BIBLIOGRAPHY:

H Factor: 39

Books and Chapters (in reverse chronological order):

1. Peden DB. Chapter 4, Air Pollution and Asthma, in: Air Pollution and Health Effects, Eds: Nadadur S and Hollingsworth J, Springer-Verlag (London), 2015
2. Hernandez ML and Peden DB. Chapter 30, Air Pollution: Indoor and Outdoor in: Allergy: Principles and Practice, 8th Edition, Eds: Adkinson NF, Bochner B, Burks AW, Busse WW, Holgate ST, Lemanske R, O'Hehir R, Elsevier (Saunders) (Philadelphia), 2014
3. Stewart GA, Peden DB, Thompson PJ and Ludwig M. Allergens and Air Pollutants. Chapter 4 in Allergy. Holgate ST, Church MK, Broide DH and Martinez FD. 2012, Elsevier (London)
4. Dillon MA and Peden DB. Health Effects of Environmental Exposures while in Automobiles. Chapter 10 in Environmental and Occupational Lung Disease. Tarlo S, Cullinan P, Nemery B, 2010 John Wiley and Sons.
5. Peden D. Indoor and Outdoor Air Pollution. Chapter 32 in Allergy: Principles and Practice, 7th Edition, Adkinson NF, Busse WW, Bochner B., Holgate S, Simons FES and Lemanske, RF (Eds) 2009 Elsevier (Philadelphia)
6. Peden DB. Genetic and Environmental Factors in Asthma. Chapter 3. IN Asthma Health & Society: A Public Health Perspective. Andrew Harver and Harry Kotses (Eds). In Press 2007, Springer (New York)
7. Stewart GA, Thompson PA, Peden D and Alexis N. Allergens and Pollutants Chapter 17. Allergy, Holgate ST, Church MJ, Lichtenstein LM (EDs), Mosby 2006
8. Peden, D. Development of Atopy in Children. in Lung Development, Aging and the Environment, Harding R, Pinkerton K, Hooper S, Plopper C (eds) 2004 Academic Press (San Diego)
9. Peden D. Indoor and Outdoor Air Pollution. Chapter 32 in Allergy: Principles and Practice, Middleton E, Reed CE, Ellis EF, Adkinson NF, Yunginger JW , Busse WW, Bochner B., Holgate S (Eds) 2003 Harcourt (Philadelphia)
10. Peden D. Indoor and Outdoor Air Pollution. Update series of Allergy: Principles and Practice, Update Edition Middleton E, Reed CE, Ellis EF, Adkinson NF, Yunginger JW, Busse WW, Bochner B., Holgate S. (Eds) 5/2001 Mosby (St. Louis)
11. Peden D. Allergic Rhinitis. IN Essence of Office Pediatrics. Stockman J, Lohr JA Eds 2000 Saunders (Philadelphia)
12. Peden D. Contributor, CRC Desk Reference for Allergy and Asthma. Simon HU (Ed) CRC press (Boca Raton) 2000

13. Peden, DB. Air Pollution and Asthma. IN Environmental Asthma. R. Bush (Ed) (2000) Marcel Dekker, (New York)
14. Peden, DB and Boehlecke, B. Airborne contaminants and asthma: The effects of ozone, NO₂, SO₂, endotoxin and diesel exhaust particles on normal and asthmatic lungs. IN Asthma: Causes and Mechanisms of an Epidemic Inflammatory Disease. Platts-Mills TAE (Ed.), Lewis (Boca Raton) 1999
15. Folinsbee LJ and Peden DB. Air pollution and exercise-induced asthma (Chapter 12, pp 259-286). IN Exercise-Induced Asthma. McFadden R (Ed). , 1999 Marcel Dekker, (New York)
16. Peden DB. Controlled exposures of asthmatics to air pollutants (Chapter 37, pp. 865-880) IN Air Pollution and Health. Holgate S, Koren H, and Samet J (Eds), 1999 Academic Press (London)
17. Peden, DB. Effect of air pollution in asthma and exercise. IN Allergic Disease in Sports Medicine. Weiler J.M. (Ed) 1997, Marcel Dekker, New York
18. Peden DB. Bronchial asthma: pediatric. IN Patient care guidelines for nurse practitioners, p 167-173, Hoole AJ, Pickard CG, Jr, Ouimette RM, Lohr JA and Greenberg RA (Eds) 1995, J.B. Lippincott, Philadelphia
19. Peden DB. Allergic rhinitis: pediatric and adult. IN Patient care guidelines for nurse practitioners, p 143-146, Hoole AJ, Pickard CG, Jr, Ouimette RM, Lohr JA and Greenberg RA (Eds) 1995, J.B. Lippincott, Philadelphia
20. Van Dyke K, Van Dyke C, **Peden D**, and Matamoros M: Preliminary events leading to the production of luminol dependent chemiluminescence by human granulocytes. In Bioluminescence and chemiluminescence-basic chemistry and analytical application, Academic Press, 45-53, 1981.
21. Castranova V, Jones GS, Phillips RM, **Peden D**, and Van Dyke K: Defects associated with the transmembrane potential granulocytes in chronic granulomatous disease. In Bioluminescence and chemiluminescence-basic chemistry and analytical application, Academic Press, 327-333, 1981.
22. **Peden D**, Van Dyke Ch, Van Dyke C, Van Dyke K, Castranova V, Jones G, and Ringrose M: Arachidonate-based chemiluminescence in human granulocytes and platelets using the Monolight 301 (drug studies). In Bioluminescence and chemiluminescence-basic chemistry and analytical application, Academic Press, 385-390, 1981

Refereed papers/articles/reviews (in reverse chronological order):

1. Hauptman M, **Peden D**, Phipatanakul W. Environmental Control: The First Tenet of Allergy. *J Allergy Clin Immunol Pract* 2018;6:36-7. 2213-2198
2. Sheehan WJ, Gaffin JM, **Peden DB**, Busk RK, Phipatanakul W. Advances in Environmental and Occupational Disorders 2016. *J Allergy Clin Immunol*. 2017 Oct 25. pii: S0091-6749(17)31655-X. doi: 10.1016/j.jaci.2017.09.032. [Epub ahead of print]
3. Burbank AJ, Duran CG, Pan Y, Burns P, Jones S, Jiang Q, Yang C, Jenkins S, Wells H, Alexis N, Kesimer M, Bennett WD, Zhou H, **Peden DB***, Hernandez ML* (*= co-senior authors). Gamma tocopherol reduces sputum eosinophilia and endotoxin-induced sputum neutrophilia in volunteers with asthma. *J Allergy Clin Immunol*. 2017 Jul 20. pii: S0091-6749(17)31110-7. doi:10.1016/j.jaci.2017.06.029.
2. Burbank A, Sood A, Kesic MJ, **Peden DB**, Hernandez ML. Environmental determinants of allergy and asthma. *J Allergy Clin Immunol*. 2017 Jul;140(1):1-12. doi: 10.1016/j.jaci.2017.05.010.
3. Burbank AJ, Duran CG, Almond M, Jiang Q, Yang C, Wang T, Zhou H, Hernandez ML, **Peden DB**. A short course of gamma-tocopherol mitigates LPS-induced inflammatory responses in humans *ex vivo*. *J Allergy Clin Immunol*. 2017 May 12. pii: S0091-6749(17)30754-6. doi: 10.1016/j.jaci.2017.04.030.
4. Alexis NE, Bennett WD, **Peden D**. Hypertonic Saline Inhalation is Safe Following Inhaled Provocation Challenges in Asthmatics and Provides Enhanced Mucociliary Clearance. *J Asthma*. 2017 Jan 17:0. doi: 10.1080/02770903.2016.1278019.
5. High M, Hye-Youn Cho HY, Marzec J, Wiltshire T, Verhein KC, Caballero MT, Acosta PL, Ciencewicz J, McCaw ZR, Kobzik L, Miller-DeGraff L, Gladwell W, **Peden DB**, Serra ME, Shi M, Weinberg C, Suzuki O, Wang X, Bell DA, Polack FP, Kleeberger SR. Determinants of host susceptibility to murine respiratory syncytial virus (RSV) disease identify a role for the innate immunity scavenger receptor MARCO gene in human infants. *EBioMedicine*. 2016 Sep;11:73-84. doi: 10.1016/j.ebiom.2016.08.011. PubMed [journal] PMID: 27554839, PMCID: PMC5049919
6. Burbank, AJ; Grabich, SC; Todoric, K; Frye, M; Loughlin, CE; Duncan, K; Robinette C; Mills, K; **Peden, DB**; Diaz-Sanchez, D, Hernandez ML. Impact of Aeroallergen Sensitization on Asthma Control in African-American Teens with Persistent Asthma. *Ann Allergy Asthma Immunol*. 2016 Oct;117(4):442-444. doi: 10.1016/j.anai.2016.07.041.
7. Duran CG, Burbank AJ, Mills KH, Duckworth HR, Aleman MM, Kesic MJ, **Peden DB**, Pan Y, Zhou H, Hernandez ML. A proof of concept clinical study examining the NRF2 activator sulforaphane against neutrophilic airway inflammation. *Respir Res*. 2016 Jul 22;17(1):89. doi: 10.1186/s12931-016-0406-8. PubMed [journal] PMID: 27450419, PMCID: PMC4957339
8. Farooqui N, **Peden D**. Occupational Asthma. *J Allergy Clin Immunol Pract*. 2016 Jul-Aug;4(4):783-4. doi: 10.1016/j.jaip.2015.12.009.

9. Kobernick AK, **Peden DB**, Zhou H, Zhou Q, Dillon MA, Alexis NE. Reproducibility of the inflammatory response to inhaled endotoxin in healthy volunteers. *The Journal of allergy and clinical immunology*. 2016; 138(4):1205-1207. NIHMSID: NIHMS785596 PubMed [journal] PMID: 27297997, PMCID: PMC5056796
10. Dieffenderfer J, Goodell H, Mills S, McKnight M, Yao S, Lin F, Beppler E, Bent B, Misra V, Zhu Y, Oralkan O, Strohmaier J, Muth J, **Peden D**, and Bozkurt A. Low Power Wearable Systems for Continuous Monitoring of Environment and Health for Chronic Respiratory Disease. In Press, available on line, *Journal of Biomedical and Health Informatics*, 2016 doi: 10.1109/JBHI.2016.2573286
11. **Peden DB** and Bush R. Advances in environmental and occupational disorders in 2014. *J Allergy Clin Immunol*. 2015 Oct;136(4):866-71. doi: 10.1016/j.jaci.2015.08.008.
12. Kaminski KS, Beach CL, **Peden DB**, Le U, Roehrs PA. Successful use of palifermin following severe anaphylaxis to pegaspargase in a pediatric patient with acute lymphoblastic leukemia. *J Oncol Pharm Pract*. 2016,22 (2) 354-356
13. Burbank AJ, Shah SN, Montgomery M, **Peden D**, Tarrant T, Weimer ET. Clinically focused exome sequencing identifies a homozygous mutation that confers DOCK8 deficiency. *Pediatr Allergy Immunol*. 2016 27(1) pp 96-98 PubMed [journal] PMID: 26235511, PMCID: PMC4724217
14. Cascio WE, Gilmour MI, **Peden DB**. Ambient Air Pollution and Increases in Blood Pressure: Role for Biological Constituents of Particulate Matter. *Hypertension*. 2015 Jun 29. pii: HYPERTENSION AHA.115.05563. Invited Commentary
15. Anderson WH, Coakley RD, Button B, Henderson AG, Zeman KL, Alexis NE, **Peden DB**, Lazarowski ER, Davis CW, Bailey S, Fuller F, Almond M, Qaqish B, Bordonali E, Rubinstein M, Bennett WD, Kesimer M, Boucher RC. The Relationship of Mucus Concentration (Hydration) to Mucus Osmotic Pressure and Transport in Chronic Bronchitis. *Am J Respir Crit Care Med*. 2015 Jul 15;192(2):182-90. doi: 10.1164/rccm.201412-2230OC. PubMed [journal] PMID: 25909230, PMCID: PMC4532825
16. Aleman MM, Kesic MJ, Mills KH, **Peden DB**, Hernandez M, The IL-1 axis is associated with airway inflammation after O3 exposure in allergic asthmatics. *J Allergy Clin Immunol*. 2015 May 8. pii: S0091-6749(15)00486-8. doi: 10.1016/j.jaci.2015.03.035 PubMed [journal] PMID: 25959670, PMCID: PMC4600417
17. Maile R, Jones S, Pan Y, Zhou H, Jaspers I, **Peden DB***, Cairns BA*, Noah TL* (* denotes co-senior author). Association between early airway damage-associated molecular patterns and subsequent bacterial infection in patients with inhalational and burn injury. 2015 May 1;308(9):L855-60. doi: 10.1152/ajplung.00321.2014. PubMed [journal] PMID: 25770180, PMCID: PMC4421787
18. **Peden DB**. Does air pollution really cause allergy?. *Clin Exp Allergy*. 2015 Jan;45 (1):3-5. doi: 10.1111/cea.12414. Invited commentary

19. Yu J, Hernandez M, Li H, Goktep I, Robinette C, Auerbach A, **Peden D**, Ahmedna M. Allergenicity of Roasted Peanuts Treated with a Non-Human Digestive Protease. *Food Research International*, Volume 69, March 2015, Pages 341–347
20. Todoric K, Zhou H, Zhang H, Mills K, **Peden D**, Hernandez M. BMI correlates with pollutant-induced interleukin-1 beta in sputum and blood. *Ann Allergy Asthma Immunol*. 2015 Mar;114(3):251-3. doi: 10.1016/j.anai.2014.11.010. Epub 2014 Dec 15.
21. Wu W, Wages PA, Devlin R, Diaz-Sanchez D, **Peden DB**, Samet JM. Src-mediated EGF Receptor Activation Regulates Ozone-induced Interleukin 8 Expression in Human Bronchial Epithelial Cells. *Environ Health Perspect*. 2015 Mar;123(3):231-6. doi: 10.1289/ehp.1307379.
22. Miller RL and **Peden DB**. Environmental impacts on immune responses in atopy and asthma. *J Allergy Clin Immunol*. 2014 Nov;134(5):1001-8. doi: 10.1016/j.jaci.2014.07.064. Epub 2014 Nov 5.
23. Hernandez ML, Mills K, Almond M, Todoric K, Aleman MM, Zhang H, Zhou H, **Peden DB**. Interleukin-1 receptor antagonist reduces endotoxin-induced airway inflammation in healthy volunteers. *J Allergy Clin Immunol*. 2015 Feb;135(2):379-85. doi: 10.1016/j.jaci.2014.07.039.
24. Wagner JG, Harkema JR, Jiang Q, Hernandez M, and **Peden DB**. Two Faces of Vitamin E in the Lung (Correspondence), *Am J Respir Crit Care Med*. 2014 Oct 1;190(7):841-2
25. Alexis NE, Huang T, Rappold A, Kehrl H, Devlin R, **Peden DB**. Asthmatics Demonstrate Airway Inflammation Following Exposure to concentrated ambient particulate matter, *Am J Respir Crit Care Med*. 2014 Jul 15;190(2):235-7. doi: 10.1164/rccm.201401-0126LE
26. Fry RC, Rager JE, Bauer, R, Sebastian E, **Peden DB**, Jaspers I, Alexis NE. Air toxics and epigenetic effects: Ozone altered microRNAs in the sputum of human subjects, *Am J Physiol Lung Cell Mol Physiol*. 2014 Jun 15;306(12):L1129-37. doi: 10.1152/ajplung.00348.2013. Epub 2014 Apr 25.
27. Wu W, Muller R, Berhane K, Fruin S, Liu F, Jaspers I, Diaz-Sanchez D, **Peden DB**, McConnell R. Inflammatory Response of Monocytes to Ambient Particles Varies by Highway Proximity, *Am J Respir Cell Mol Biol*. 2014 Dec;51(6):802-9. doi: 10.1165/rcmb.2013-0265OC.
28. **Peden DB** and Bush R. Advances in environmental and occupational disorders in 2013. *J Allergy Clin Immunol*. 2014 May;133(5):1265-9. doi: 10.1016/j.jaci.2014.02.027
29. Mills K, Lay J, Wu W, Robinette C, Kesic MJ, **Peden DB**, Hernandez M. Vitamin E, gamma tocopherol, diminishes ex vivo basophil response to dust mite allergen, *Allergy* 2014; 69: 541–544.
30. Bennett WD, Alexis NE, Almond M, Herbst M, Zeman KL, **Peden DB**. Effect of Inhaled Endotoxin on Mucociliary Clearance and Airway Inflammation in Smokers

and Non-Smokers, *J Aerosol Med Pulm Drug Deliv.* 2014 Feb 25. [Epub ahead of print]

31. Wagner JG, Birmingham NP, Jackson-Humbles D, Jiang Q, Harkema JR, and **Peden DB**. Supplementation with γ -Tocopherol Reduces Endotoxin-Induced Airway Inflammatory and Mucous Cell Responses in Rats. *Free Radic Biol Med.* 2014 Mar; 68:101-9. doi: 10.1016/j.freeradbiomed.2013.11.024
32. Jones S, Zhou H, Herbst M, Pujols-Ortiz S, Maile R, Joyner BL, Zhang H, Kesic M, Jaspers I, Short K, Meyer A, **Peden DB**, Cairns BA, Noah TL. Bronchoscopy-derived correlates of acute lung injury following inhalational injuries: A prospective observational study. *PLoS One.* 2013 May 17;8(5):e64250. doi: 10.1371/journal.pone.0064250.
33. Geiser M, Lay JC, Bennett WD, Zhou H, Wang X, **Peden DB**, Alexis NE. Effects of ex vivo Gamma Tocopherol on Airway Macrophage Function in Healthy and Mild Allergic Asthmatics, *J Innate Immun.* 2013;5(6):613-24. doi: 10.1159/000350234
34. Hernandez M, Wagner J, Kala A, Mills K, Wells H, Alexis N, Lay J, Jiang Q, Zhang H, Zhou H, **Peden DB**. Vitamin E Gamma-tocopherol Reduces Airway Neutrophil Recruitment after Inhaled Endotoxin Challenge in Rats and in Healthy Volunteers, *Free Radic Biol Med.* 2013 Jul;60:56-62. doi:10.1016/j.freeradbiomed.2013.02.001. Epub 2013 Feb 9.
35. **Peden DB** and Bush RK. Advances in environmental and occupational disorders in 2012. *J Allergy Clin Immunol.* Mar;131(3):668-74. doi: 10.1016/j.jaci.2012.12.1572. Epub 2013 Feb 4. Review.
36. Alexis NE, Lay JC, Zhou H, Kim CS, Hernandez ML, Kehrl H, Hazucha MJ, Devlin RB, Diaz-Sanchez D, Zou B, Zhou H, **Peden DB**. The Glutathione-S-Transferase null genotype and increased neutrophil response to low level ozone (0.06 ppm). *J Allergy Clin Immunol.* 2013 Feb;131(2):610-2. doi: 10.1016/j.jaci.2012.07.005.
37. McConnell R, Wu W, Berhane K, Liu F, Verma G, **Peden D**, Diaz-Sanchez D, Fruin S. Inflammatory Cytokine Response to Ambient Particles Varies due to Field Collection. *Am J Respir Cell Mol Biol.* 2013 Apr;48(4):497-502. doi: 10.1165/rcmb.2012-0320OC.
38. Alexander T, Iglesia E, Park Y, Duncan D, **Peden D**, Sheikh S, Ferris M DRESS and PLEX: Quo Vadis? Severe DRESS Syndrome Managed With Therapeutic Plasma Exchange. *Pediatrics.* 2013 Mar;131(3):e945-9. doi: 10.1542/peds.2012-2117. Epub 2013 Feb 18.
39. Effect of inhaled endotoxin on regional particle deposition in patients with mild asthma. Bennett WD, Herbst M, Zeman KL, Wu J, Hernandez ML, **Peden DB**. *J Allergy Clin Immunol.* 2012 Oct 25. *J Allergy Clin Immunol.* 2013 Mar;131(3):912-3. doi: 10.1016/j.jaci.2012.09.010. Epub 2012 Oct 25.
40. Fry RC, Rager JE, Zhou H, Zou B, Brickey WJ, Ting J, Lay JC, **Peden DB**, Alexis NE. Individuals with increased inflammatory response to ozone demonstrate muted signaling of immune cell trafficking pathways. *Respir Res.* 2012 Oct 3;13(1):89.

41. Wu W, Peden DB, McConnell R, Fruin S, Diaz-Sanchez D. Glutathione-S-transferase M1 regulation of diesel exhaust particle-induced pro-inflammatory mediator expression in primary human bronchial epithelial cells. *Part Fibre Toxicol.* 2012 Aug 6;9:31. doi: 10.1186/1743-8977-9-31.
42. Bauer RN, Brighton LE, Xiang Z, Rager JE, Fry RC, **Peden DB**, Jaspers I. Influenza enhances caspase-1 in bronchial epithelial cells from asthmatics and is associated with pathogenesis, *J Allergy Clin Immunol.* 2012 Oct;130(4):958-67.e14. doi: 10.1016/j.jaci.2012.07.013.
43. Hernandez ML, Lay, JC, Alexis NE, Brickey WJ, Ting JPY, Zhou H, **Peden DB**. Atopic asthmatics have reduced airway inflammatory cell recruitment after inhaled endotoxin challenge compared to healthy volunteers, *J Allergy Clin Immunol.* 2012 Oct;130(4):869-76.e2. doi: 10.1016/j.jaci.2012.05.026. Epub 2012 Jul 4.
44. Fuhlbrigge A*, **Peden D***, Apter AJ, Boushey HA, Camargo CA Jr, Gern J, Heymann PW, Martinez FD, Mauger D, Teague WG, Blaisdell C. *J Allergy Clin Immunol.* 2012 Mar; 129(3 Suppl):S34-48. *Co-first author.
45. Ding J, Liu Y, **Peden DB**, Kleeberger S and Zhou H. Regression analysis for a summed missing data problem under an outcome-dependent sampling scheme. In Press, *Canadian J. of Statistics*, 2012
46. Hernandez ML, Brickey W, Alexis NE, Fry R, Rager J, Zou B, Ting JPY, Zhou H, **Peden DB**. Airway cells from atopic asthmatics exposed to ozone display an enhanced innate immune gene profile. *J Allergy Clin Immunol.* 2012 Jan;129(1):259-61.e1-2.
47. Brickey WJ, Alexis NE, Hernandez ML, Reed W, Ting JPY, **Peden DB**. Sputum Inflammatory Cells from Persons with Allergic Rhinitis and Asthma Have Decreased Inflammasome Gene Expression, *J Allergy Clin Immunol.* 2011 Oct; 128 (4):900-3. Epub 2011 Aug 25.
48. Wang Y, Moreland M, Wagner J, Ames BN, Illek B, **Peden DB**, Jiang Q. Vitamin E forms inhibit IL-13/STAT6-induced eotaxin-3 secretion by upregulation of PAR4, an endogenous inhibitor of atypical PKCs in human lung epithelial cells. *J Nutr Biochem.* 2011 Jul 15. [Epub ahead of print]
49. Bennett WD, Alexis NE, Zeman K, Wu J, Herbst M, Ting JPY, Brickey W, Hernandez ML, **Peden DB**. Effect of inhaled allergen challenge on particle deposition and mucociliary clearance in mild allergic asthmatics. *Clin Exp Allergy.* 2011 Jul 5. doi: 10.1111/j.1365-2222.2011.03814.x.
50. Wu W, Doreswamy V, Diaz-Sanchez D, Samet JM, Kesic M, Dailey L, Zhang W, Jaspers I, **Peden DB**. GSTM1 Modulation of IL-8 Expression in Human Bronchial Epithelial Cells Exposed to Ozone. *Free Radic Biol Med.* 2011 Jul 15;51(2):522-9. Epub 2011
51. **Peden DB**. The Role of Oxidative Stress and Innate Immunity in O₃ and Endotoxin Induced Human Allergic Airway Disease. *Immunol Rev.* 2011 Jul;242(1):91-105. doi: 10.1111/j.1600-065X.2011.01035.x.

52. Esther CE, **Peden DB**, Alexis NE, Hernandez ML. Airway purinergic responses in healthy, atopic and asthmatic subjects exposed to ozone. *Inhal Toxicol*. 2011 May;23(6):324-30.
53. Lay JL, **Peden DB**, Alexis NE. Flow cytometry of sputum: assessing inflammation and immune response elements in the bronchial airways. *Inhal Toxicol*. 2011 Jun;23(7):392-406.
54. **Peden DB**, Bush RK. Advances in Environmental and Occupational Respiratory Disease. *J Allergy Clin Immunol*. 2011 Mar;127(3):696-700
55. Dillon M, Harris B Hernandez ML, Zou B, Reed WR, Bromberg P, Devlin R, Diaz-Sanchez D, Kleeberger SR, Zhou H, Lay JC, Alexis NE, **Peden DB**. Enhancement of systemic and sputum granulocyte response to inhaled endotoxin in persons with the GSTM1 null genotype. *Occupational and Environmental Medicine* 2011 Mar 25. [Epub ahead of print]
56. Kim C, Alexis NE, Rappold AG, Kehrl H, Hazucha MJ, Lay JC, Schmitt M, Case M, Devlin RB, **Peden DB** and Diaz-Sanchez D. Lung Function and Inflammatory Responses in Healthy Young Adults Exposed to 0.06 ppm Ozone for 6.6 Hours. *Am J Respir Crit Care Med*. 2011 May 1;183(9):1215-21. doi: 10.1164/rccm.201011-1813OC. Epub 2011 Jan 7.
57. Doreswamy V, Alexis NE, Zhou H, **Peden DB**. Effect of repeated nasal challenge with endotoxin. In Press, *Inhalation Toxicology*, 2011
58. Davis KJ, DiSantostefano R, **Peden DB** Is Johnny wheezing? Parent-child agreement in the Childhood Asthma in America survey. *Pediatric Allergy and Immunology* 2011 Feb;22(1-Part-I):31-35. doi: 10.1111/j.1399-3038.2010.01016.x. Epub 2010 Sep 9
59. Doreswamy V and **Peden DB**. Modulation of Asthma by Endotoxin. *Clin Exp Allergy*. 2011 Jan;41(1):9-19. doi: 10.1111/j.1365-2222.2010.03628.x.
60. Backus GS, Howden R, Fostel J, Bauer AK, Cho HY, Marzec J, **Peden DB**, Kleeberger SR Protective role of IL-10 in ozone-induced pulmonary inflammation. *Environ Health Perspect*. 2010 Dec;118(12):1721-7.
61. Hernandez, ML, Lay JC; Harris B, Esther CR, Brickey J, Bromberg PA, Diaz-Sanchez D, Devlin RB, Kleeberger SR, Alexis NE, **Peden DB**. Atopic Asthmatics but not atopics without asthma have enhanced inflammatory response to ozone. *J Allergy Clin Immunol*. 2010 Sep;126(3):537-544.e1.
62. Hernandez ML, Harris B, Lay JC, Bromberg PA, Diaz-Sanchez D, Devlin RB, Kleeberger SR, Alexis NE, **Peden DB**. Comparative airway inflammatory response of normal volunteers to ozone and lipopolysaccharide challenge. *Inhal Toxicol*. 2010 Jul;22(8):648-56.
63. Alexis NE, Lay JC, Hazucha M, Harris B, Hernandez ML, Bromberg PA, Kehrl H, Diaz-Sanchez D, Kim C, Devlin RB, **Peden DB**. Low-level ozone exposure induces airways inflammation and modifies cell surface phenotypes in healthy humans. *Inhal Toxicol*. 2010 Jun;22(7):593-600. PubMed PMID: 20384440.

64. **Peden D**, Reed CE. Environmental and occupational allergies. *J Allergy Clin Immunol*. 2010 Feb;125(2 Suppl 2):S150-60. Review. PubMed PMID: 20176257.
65. Wu W, Samet JM, **Peden DB**, Bromberg PA. Phosphorylation of p65 Is Required for Zinc Oxide Nanoparticle-induced Interleukin 8 Expression in Human Bronchial Epithelial Cells. *Environ Health Perspect*. 2010 Mar 1. [Epub ahead of print] PubMed PMID: 20194077.
66. **Peden DB**, Bush RK. Advances in environmental and occupational respiratory diseases in 2009. *J Allergy Clin Immunol*. 2010 Mar;125(3):559-62. Review. PubMed PMID: 20138350.
67. Alexis NE, Zhou H, Lay JC, Harris B, Hernandez ML, Lu TS, Bromberg PA, Diaz-Sanchez D, Devlin RB, Kleeberger SR, **Peden DB**. The glutathione-S-transferase Mu 1 null genotype modulates ozone-induced airway inflammation in human subjects. *J Allergy Clin Immunol*. 2009 Dec;124(6):1222-1228.e5. Epub . PubMed PMID:19796798.
68. Loughlin CE, Esther CR Jr, Lazarowski ER, Alexis NE, **Peden DB**. Neutrophilic inflammation is associated with altered airway hydration in stable asthmatics. *Respir Med*. 2010 Jan;104(1):29-33. Epub 2009 Jul 30. PubMed PMID: 19646854; PubMed Central PMCID: PMC2818060.
69. Steinberg DG, Kagen SL, Epstein PR, Demain JG, **Peden DB**, Bernstein JA. Environment, public policy, and human health: implications of current events for the next generation of patients and physicians. *Allergy Asthma Proc*. 2009 May-Jun;30(3):215-6. PubMed PMID: 19549422.
70. Wagner JG, Harkema JR, Jiang Q, Illek B, Ames BN, **Peden DB**. Gamma-tocopherol attenuates ozone-induced exacerbation of allergic rhinosinusitis in rats. *Toxicol Pathol*. 2009;37(4):481-91. Epub 2009 Apr 23. PubMed PMID: 19389874.
71. Zhou H, Alexis NE, Almond M, Donohue J, LaForce C, Bromberg PA, **Peden DB**. Influence of C-159T SNP of the CD14 gene promoter on lung function in smokers. *Respir Med*. 2009 Sep;103(9):1358-65. Epub 2009 Apr 10. PubMed PMID: 19361972.
72. Bush RK, **Peden DB**. Advances in environmental and occupational disorders in 2008. *J Allergy Clin Immunol*. 2009 Mar;123(3):575-8. Review. PubMed PMID:19281905.
73. Wu W, Alexis NE, Bromberg PA, Jaspers I, **Peden DB**. Mechanisms of LPS-induced CD40 expression in human peripheral blood monocytic cells. *Biochem Biophys Res Commun*. 2009 Feb 6;379(2):573-7. Epub 2008 Dec 30. PubMed PMID: 19118532; PubMed Central PMCID: PMC2649752.
74. Lay JC, Alexis NE, Zeman KL, **Peden DB**, Bennett WD. In vivo uptake of inhaled particles by airway phagocytes is enhanced in patients with mild asthma compared with normal volunteers. *Thorax*. 2009 Apr;64(4):313-20. Epub 2008 Dec 3. PubMed PMID: 19052052.

75. Hernandez M, Zhou H, Zhou B, Robinette C, Crissman K, Hatch G, Alexis NE, **Peden D**. Combination treatment with high-dose vitamin C and alpha-tocopherol does not enhance respiratory-tract lining fluid vitamin C levels in asthmatics. *Inhal Toxicol*. 2009 Feb;21(3):173-81. PubMed PMID: 18932058.
76. Shea KM, Truckner RT, Weber RW, **Peden DB**. Climate change and allergic disease. *J Allergy Clin Immunol*. 2008 Sep;122(3):443-53; quiz 454-5. Review. PubMed PMID: 18774380.
77. Alexis NE, Lay JC, Haczku A, Gong H, Linn W, Hazucha MJ, Harris B, Tal-Singer R, **Peden DB**. Fluticasone propionate protects against ozone-induced airway inflammation and modified immune cell activation markers in healthy volunteers. *Environ Health Perspect*. 2008 Jun;116(6):799-805. PubMed PMID: 18560537; PubMed Central PMCID: PMC2430237.
78. Bush RK, **Peden D**. Advances in environmental and occupational respiratory disease in 2007. *J Allergy Clin Immunol*. 2008 Jun;121(6):1359-62. Review. PubMed PMID: 18539192.
79. Esch RE, Bush RK, **Peden D**, Lockey RF. Sublingual-oral administration of standardized allergenic extracts: phase 1 safety and dosing results. *Ann Allergy Asthma Immunol*. 2008 May;100(5):475-81. PubMed PMID: 18517081.
80. Wu W, Silbajoris RA, Cao D, Bromberg PA, Zhang Q, **Peden DB**, Samet JM. Regulation of cyclooxygenase-2 expression by cAMP response element and mRNA stability in a human airway epithelial cell line exposed to zinc. *Toxicol Appl Pharmacol*. 2008 Sep 1;231(2):260-6. Epub 2008 Apr 29. PubMed PMID: 18513776.
81. Alexis NE, Brickey WJ, Lay JC, Wang Y, Roubey RA, Ting JP, **Peden DB**. Development of an inhaled endotoxin challenge protocol for characterizing evoked cell surface phenotype and genomic responses of airway cells in allergic individuals. *Ann Allergy Asthma Immunol*. 2008 Mar;100(3):206-15. PubMed PMID:18426139.
82. Wisner J, Alexis NE, Jiang Q, Wu W, Robinette C, Roubey R, **Peden DB**. In vivo gamma-tocopherol supplementation decreases systemic oxidative stress and cytokine responses of human monocytes in normal and asthmatic subjects. *Free Radic Biol Med*. 2008 Jul 1;45(1):40-9. Epub 2008 Mar 12. PubMed PMID: 18405673; PubMed Central PMCID: PMC2492672.
83. Schaumann F, Müller M, Braun A, Luettig B, **Peden DB**, Hohlfeld JM, Krug N. Endotoxin augments myeloid dendritic cell influx into the airways in patients with allergic asthma. *Am J Respir Crit Care Med*. 2008 Jun 15;177(12):1307-13. Epub 2008 Apr 3. PubMed PMID: 18388357; PubMed Central PMCID: PMC2427055.
84. Wu W, Alexis NE, Chen X, Bromberg PA, **Peden DB**. Involvement of mitogen-activated protein kinases and NFkappaB in LPS-induced CD40 expression on human monocytic cells. *Toxicol Appl Pharmacol*. 2008 Apr 15;228(2):135-43. Epub 2007 Dec 14. PubMed PMID: 18187173; PubMed Central PMCID: PMC2430028.

85. Lorenz E, Muhlebach MS, Tessier PA, Alexis NE, Duncan Hite R, Seeds MC, **Peden DB**, Meredith W. Different expression ratio of S100A8/A9 and S100A12 in acute and chronic lung diseases. *Respir Med*. 2008 Apr;102(4):567-73. Epub 2007 Dec 27. PubMed PMID: 18164192; PubMed Central PMCID: PMC2347354.
86. Wagner JG, Jiang Q, Harkema JR, Ames BN, Illek B, Roubey RA, **Peden DB**. Gamma-tocopherol prevents airway eosinophilia and mucous cell hyperplasia in experimentally induced allergic rhinitis and asthma. *Clin Exp Allergy*. 2008 Mar;38(3):501-11. Epub 2007 Oct 26. PubMed PMID: 17970781.
87. Svendsen ER, Yeatts KB, **Peden D**, Orton S, Alexis NE, Creason J, Williams R, Neas L. Circulating neutrophil CD14 expression and the inverse association of ambient particulate matter on lung function in asthmatic children. *Ann Allergy Asthma Immunol*. 2007 Sep;99(3):244-53. PubMed PMID: 17910328.
88. Wagner JG, Jiang Q, Harkema JR, Illek B, Patel DD, Ames BN, **Peden DB**. Ozone enhancement of lower airway allergic inflammation is prevented by gamma-tocopherol. *Free Radic Biol Med*. 2007 Oct 15;43(8):1176-88. Epub 2007 Jul 20. PubMed PMID: 17854713.
89. Lay JC, Alexis NE, Kleeberger SR, Roubey RA, Harris BD, Bromberg PA, Hazucha MJ, Devlin RB, **Peden DB**. Ozone enhances markers of innate immunity and antigen presentation on airway monocytes in healthy individuals. *J Allergy Clin Immunol*. 2007 Sep;120(3):719-22. Epub 2007 Jun 21. PubMed PMID: 17586033.
90. Yeatts K, Svendsen E, Creason J, Alexis N, Herbst M, Scott J, Kupper L, Williams R, Neas L, Cascio W, Devlin RB, **Peden DB**. Coarse particulate matter (PM_{2.5-10}) affects heart rate variability, blood lipids, and circulating eosinophils in adults with asthma. *Environ Health Perspect*. 2007 May;115(5):709-14. Epub 2007 Jan 18. PubMed PMID: 17520057; PubMed Central PMCID:PMC1867980.
91. **Peden DB**, Bush RK. Advances in environmental and occupational disorders 2006. *J Allergy Clin Immunol*. 2007 May;119(5):1127-32. Review. PubMed PMID: 17472812.
92. Fuhlbrigge AL, Guilbert T, Spahn J, **Peden D**, Davis K. The influence of variation in type and pattern of symptoms on assessment in pediatric asthma. *Pediatrics*. 2006 Aug;118(2):619-25. PubMed PMID: 16882815.
93. Kongerud J, Madden MC, Hazucha M, **Peden D**. Nasal responses in asthmatic and nonasthmatic subjects following exposure to diesel exhaust particles. *Inhal Toxicol*. 2006 Aug;18(9):589-94. PubMed PMID: 16864550.
94. Alexis NE, Lay JC, Zeman K, Bennett WE, **Peden DB**, Soukup JM, Devlin RB, Becker S. Biological material on inhaled coarse fraction particulate matter activates airway phagocytes in vivo in healthy volunteers. *J Allergy Clin Immunol*. 2006 Jun;117(6):1396-403. Epub 2006 Apr 27. PubMed PMID: 16751003.
95. Bush RK, **Peden DB**. Advances in environmental and occupational disorders. *J Allergy Clin Immunol*. 2006 Jun;117(6):1367-73. Review. PubMed PMID: 16750999.

96. Alexis NE, **Peden DB**. Inflammatory response of the airway to inhaled endotoxin correlates with body mass index in atopic patients with asthma but not in normal volunteers. *J Allergy Clin Immunol*. 2006 May;117(5):1185-6. Epub 2006 Feb 7. PubMed PMID: 16675350.
97. Shaffer HC, Parsons DJ, **Peden DB**, Morrell D. Recurrent syncope and anaphylaxis as presentation of systemic mastocytosis in a pediatric patient: case report and literature review. *J Am Acad Dermatol*. 2006 May;54(5 Suppl):S210-3. Review. PubMed PMID: 16631942.
98. Zeldin DC, Eggleston P, Chapman M, Piedimonte G, Renz H, **Peden D**. How exposures to biologics influence the induction and incidence of asthma. *Environ Health Perspect*. 2006 Apr;114(4):620-6. Review. PubMed PMID: 16581556; PubMed Central PMCID: PMC1440791.
99. Noah TL, Tudor GE, Ivins SS, Murphy PC, **Peden DB**, Henderson FW. Repeated measurement of nasal lavage fluid chemokines in school-age children with asthma. *Ann Allergy Asthma Immunol*. 2006 Feb;96(2):304-10. PubMed PMID: 16498852.
100. Alexis NE, Muhlebach MS, **Peden DB**, Noah TL. Attenuation of host defense function of lung phagocytes in young cystic fibrosis patients. *J Cyst Fibros*. 2006 Jan;5(1):17-25. Epub 2005 Dec 13. PubMed PMID: 16356787; PubMed Central PMCID: PMC1764441.
101. Elliott L, Heederik D, Marshall S, **Peden D**, Loomis D. Incidence of allergy and allergy symptoms among workers exposed to laboratory animals. *Occup Environ Med*. 2005 Nov;62(11):766-71. PubMed PMID: 16234402; PubMed Central PMCID:PMC1740921.
102. Elliott L, Heederik D, Marshall S, **Peden D**, Loomis D. Progression of self-reported symptoms in laboratory animal allergy. *J Allergy Clin Immunol*. 2005 Jul;116(1):127-32. PubMed PMID: 15990785.
103. Alexis NE, Lay JC, Almond M, Bromberg PA, Patel DD, **Peden DB**. Acute LPS inhalation in healthy volunteers induces dendritic cell maturation in vivo. *J Allergy Clin Immunol*. 2005 Feb;115(2):345-50. PubMed PMID: 15696093.
104. **Peden DB**. The epidemiology and genetics of asthma risk associated with air pollution. *J Allergy Clin Immunol*. 2005 Feb;115(2):213-9; quiz 220. Review. PubMed PMID: 15696070.
105. Kleeberger SR, **Peden D**. Gene-environment interactions in asthma and other respiratory diseases. *Annu Rev Med*. 2005;56:383-400. Review. PubMed PMID: 15660518.
106. Pearlman DS, **Peden D**, Condemi JJ, Weinstein S, White M, Baitinger L, Scott C, Ho SY, House K, Dorinsky P. Efficacy and safety of fluticasone propionate/salmeterol HFA 134A MDI in patients with mild-to-moderate persistent asthma. *J Asthma*. 2004;41(8):797-806. PubMed PMID: 15641629.

107. Alexis NE, Lay JC, Almond M, **Peden DB**. Inhalation of low-dose endotoxin favors local T(H)2 response and primes airway phagocytes in vivo. *J Allergy Clin Immunol*. 2004 Dec;114(6):1325-31. PubMed PMID: 15577830.
108. Bernstein JA, Alexis N, Barnes C, Bernstein IL, Bernstein JA, Nel A, **Peden D**, Diaz-Sanchez D, Tarlo SM, Williams PB. Health effects of air pollution. *J Allergy Clin Immunol*. 2004 Nov;114(5):1116-23. Review. PubMed PMID: 15536419.
109. Chen LL, Tager IB, **Peden DB**, Christian DL, Ferrando RE, Welch BS, Balmes JR. Effect of ozone exposure on airway responses to inhaled allergen in asthmatic subjects. *Chest*. 2004 Jun;125(6):2328-35. PubMed PMID: 15189958.
110. Alexis NE, Becker S, Bromberg PA, Devlin R, **Peden DB**. Circulating CD11b expression correlates with the neutrophil response and airway mCD14 expression is enhanced following ozone exposure in humans. *Clin Immunol*. 2004 Apr;111(1):126-31. PubMed PMID: 15093561.
111. Boehlecke B, Hazucha M, Alexis NE, Jacobs R, Reist P, Bromberg PA, **Peden DB**. Low-dose airborne endotoxin exposure enhances bronchial responsiveness to inhaled allergen in atopic asthmatics. *J Allergy Clin Immunol*. 2003 Dec;112(6):1241-3. PubMed PMID: 14657891.
112. Yeatts K, Johnston Davis K, **Peden D**, Shy C. Health consequences associated with frequent wheezing in adolescents without asthma diagnosis. *Eur Respir J*. 2003 Nov;22(5):781-6. PubMed PMID: 14621085.
113. Alexis NE, Eldridge MW, **Peden DB**. Effect of inhaled endotoxin on airway and circulating inflammatory cell phagocytosis and CD11b expression in atopic asthmatic subjects. *J Allergy Clin Immunol*. 2003 Aug;112(2):353-61. PubMed PMID: 12897742.
114. **Peden DB**. Air pollutants, exercise, and risk of developing asthma in children. *Clin J Sport Med*. 2003 Jan;13(1):62-3. PubMed PMID: 12583396.
115. **Peden D**. Does air pollution cause asthma exacerbations in children? *Ann Allergy Asthma Immunol*. 2003 Jan;90(1):1-2. PubMed PMID: 12546326.
116. **Peden DB**. Influences on the development of allergy and asthma. *Toxicology*. 2002 Dec 27;181-182:323-8. Review. PubMed PMID: 12505333.
117. Alexis N, Griffith K, Almond M, **Peden DB**. IL-4 induces IL-6 and signs of allergic-type inflammation in the nasal airways of nonallergic individuals. *Clin Immunol*. 2002 Sep;104(3):217-20. PubMed PMID: 12217330.
118. **Peden DB**. Pollutants and asthma: role of air toxics. *Environ Health Perspect*. 2002 Aug;110 Suppl 4:565-8. Review. PubMed PMID: 12194888; PubMed Central PMCID: PMC1241207.
119. **Peden DB**. Effect of pollutants in rhinitis. *Curr Allergy Asthma Rep*. 2001 May;1(3):242-6. Review. PubMed PMID: 11892042.

120. **Peden DB**. Air pollution in asthma: effect of pollutants on airway inflammation. *Ann Allergy Asthma Immunol*. 2001 Dec;87(6 Suppl 3):12-7. Review. PubMed PMID: 11770676.
121. Alexis NE, **Peden DB**. Blunting airway eosinophilic inflammation results in a decreased airway neutrophil response to inhaled LPS in patients with atopic asthma: a role for CD14. *J Allergy Clin Immunol*. 2001 Oct;108(4):577-80. PubMed PMID: 11590384.
122. Alexis N, Eldridge M, Reed W, Bromberg P, **Peden DB**. CD14-dependent airway neutrophil response to inhaled LPS: role of atopy. *J Allergy Clin Immunol*. 2001 Jan;107(1):31-5. PubMed PMID: 11149987.
123. Eldridge MW, **Peden DB**. Airway response to concomitant exposure with endotoxin and allergen in atopic asthmatics. *J Toxicol Environ Health A*. 2000 Sep 15;61(1):27-37. Review. PubMed PMID: 10990161.
124. Dietert RR, Etzel RA, Chen D, Halonen M, Holladay SD, Jarabek AM, Landreth K, **Peden DB**, Pinkerton K, Smialowicz RJ, Zoetis T. Workshop to identify critical windows of exposure for children's health: immune and respiratory systems work group summary. *Environ Health Perspect*. 2000 Jun;108 Suppl 3:483-90. Review. PubMed PMID: 10852848; PubMed Central PMCID: PMC1637823.
125. **Peden DB**. Development of atopy and asthma: candidate environmental influences and important periods of exposure. *Environ Health Perspect*. 2000 Jun;108 Suppl 3:475-82. Review. PubMed PMID: 10852847; PubMed Central PMCID: PMC1637811.
126. Eldridge MW, **Peden DB**. Allergen provocation augments endotoxin-induced nasal inflammation in subjects with atopic asthma. *J Allergy Clin Immunol*. 2000 Mar;105(3):475-81. PubMed PMID: 10719296.
127. Kehrl HR, **Peden DB**, Ball B, Folinsbee LJ, Horstman D. Increased specific airway reactivity of persons with mild allergic asthma after 7.6 hours of exposure to 0.16 ppm ozone. *J Allergy Clin Immunol*. 1999 Dec;104(6):1198-204. PubMed PMID: 10589001.
128. **Peden DB**, Tucker K, Murphy P, Newlin-Clapp L, Boehlecke B, Hazucha M, Bromberg P, Reed W. Eosinophil influx to the nasal airway after local, low-level LPS challenge in humans. *J Allergy Clin Immunol*. 1999 Aug;104(2 Pt 1):388-94. PubMed PMID: 10452761.
129. Michelson PH, Dailey L, Devlin RB, **Peden DB**. Ozone effects on the immediate-phase response to allergen in the nasal airways of allergic asthmatic subjects. *Otolaryngol Head Neck Surg*. 1999 Feb;120(2):225-32. PubMed PMID:9949357.
130. **Peden DB**, Berger WE, Noonan MJ, Thomas MR, Hendricks VL, Hamedani AG, Mahajan P, House KW. Inhaled fluticasone propionate delivered by means of two different multidose powder inhalers is effective and safe in a large pediatric population with persistent asthma. *J Allergy Clin Immunol*. 1998 Jul;102(1):32-8. PubMed PMID: 9679845.

131. **Peden DB**, Boehlecke B, Horstman D, Devlin R. Prolonged acute exposure to 0.16 ppm ozone induces eosinophilic airway inflammation in asthmatic subjects with allergies. *J Allergy Clin Immunol.* 1997 Dec;100(6 Pt 1):802-8. PubMed PMID: 9438490.
132. **Peden DB**, Dailey L, Wortman I, Madden M, Bromberg PA. Epithelial cell-conditioned media inhibits degranulation of the RBL-2H3 rat mast cell line. *Am J Physiol.* 1997 Jun;272(6 Pt 1):L1181-8. PubMed PMID: 9227521.
133. **Peden DB**. Mechanisms of pollution-induced airway disease: in vivo studies. *Allergy.* 1997;52(38 Suppl):37-44; discussion 57-8. Review. PubMed PMID: 9208058.
134. Ball BA, Folinsbee LJ, **Peden DB**, Kehrl HR. Allergen bronchoprovocation of patients with mild allergic asthma after ozone exposure. *J Allergy Clin Immunol.* 1996 Sep;98(3):563-72. PubMed PMID: 8828534.
135. **Peden DB**. The use of nasal lavage for objective measurement of irritant-induced nasal inflammation. *Regul Toxicol Pharmacol.* 1996 Aug;24(1 Pt 2):S76-8. Review. PubMed PMID: 8921560.
136. **Peden DB**. Effect of air pollution in asthma and respiratory allergy. *Otolaryngol Head Neck Surg.* 1996 Feb;114(2):242-7. Review. PubMed PMID: 8637742.
137. Noah TL, Henderson FW, Henry MM, **Peden DB**, Devlin RB. Nasal lavage cytokines in normal, allergic, and asthmatic school-age children. *Am J Respir Crit Care Med.* 1995 Oct;152(4 Pt 1):1290-6. PubMed PMID: 7551384.
138. **Peden DB**, Dailey L. Modulation of mast cell functions by in vitro ozone exposure. *Am J Physiol.* 1995 Jun;268(6 Pt 1):L902-10. PubMed PMID: 7611432.
139. **Peden DB**, Setzer RW Jr, Devlin RB. Ozone exposure has both a priming effect on allergen-induced responses and an intrinsic inflammatory action in the nasal airways of perennially allergic asthmatics. *Am J Respir Crit Care Med.* 1995 May;151(5):1336-45. PubMed PMID: 7735583.
140. **Peden DB**, Dailey L, DeGraff W, Mitchell JB, Lee JG, Kaliner MA, Hohman RJ. Hydrogen peroxide effects on rat mast cell function. *Am J Physiol.* 1994 Jul;267(1 Pt 1):L85-93. PubMed PMID: 8048546.
141. **Peden DB**, Swiersz M, Ohkubo K, Hahn B, Emery B, Kaliner MA. Nasal secretion of the ozone scavenger uric acid. *Am Rev Respir Dis.* 1993 Aug;148(2):455-61. PubMed PMID: 8342911.
142. Emery BE, White MV, Igarashi Y, Mullol J, Berkebile C, **Peden D**, Lotze MT, Kaliner MA. The effect of IL-4 on human nasal mucosal responses. *J Allergy Clin Immunol.* 1992 Nov;90(5):772-81. PubMed PMID: 1430703.
143. **Peden DB**, Brown ME, Wade Y, Raphael GD, Berkebile C, Kaliner MA. Human nasal glandular secretion of novel antioxidant activity: cholinergic control. *Am Rev Respir Dis.* 1991 Mar;143(3):545-52. PubMed PMID: 2001065.

144. Cannon RO 3rd, **Peden DB**, Berkebile C, Schenke WH, Kaliner MA, Epstein SE. Airway hyperresponsiveness in patients with microvascular angina. Evidence for a diffuse disorder of smooth muscle responsiveness. *Circulation*. 1990 Dec;82(6):2011-7. PubMed PMID: 2242525.
145. **Peden DB**, Hohman R, Brown ME, Mason RT, Berkebile C, Fales HM, Kaliner MA. Uric acid is a major antioxidant in human nasal airway secretions. *Proc Natl Acad Sci U S A*. 1990 Oct;87(19):7638-42. PubMed PMID: 2217195; PubMed Central PMCID: PMC54803.
146. Baraniuk JN, Lundgren JD, Goff J, **Peden D**, Merida M, Shelhamer J, Kaliner M. Gastrin-releasing peptide in human nasal mucosa. *J Clin Invest*. 1990 Apr;85(4):998-1005. PubMed PMID: 2318984; PubMed Central PMCID: PMC296528.
147. Baraniuk JN, Lundgren JD, Mizoguchi H, **Peden D**, Gawin A, Merida M, Shelhamer JH, Kaliner MA. Bradykinin and respiratory mucous membranes. Analysis of bradykinin binding site distribution and secretory responses in vitro and in vivo. *Am Rev Respir Dis*. 1990 Mar;141(3):706-14. PubMed PMID: 2178531.
148. **Peden DB**, VanDyke K, Ardekani A, Mullett MD, Myerberg DZ, VanDyke C. Diminished chemiluminescent responses of polymorphonuclear leukocytes in severely and moderately preterm neonates. *J Pediatr*. 1987 Dec;111(6 Pt 1):904-6. PubMed PMID: 3681560.
149. **Peden D**, Van Dyke K, Ardekani A, Mullett M, and Neal W: Studies of neonatal polymorphonuclear leukocyte function using a novel microanalytic chemiluminescence technique. *Microchemical J.*, 34:222- 229, 1987
150. **Peden D**, Van Dyke K, Edinboro L, Wierda D, and Castranova V: The measurement of chemiluminescence, aggregation and 5-hydroxy-6,8,11,14-eicosatetraenoic acid production of n-formal-methanyl-leucyl- phenylalanin-stimulated human polymorphonuclear leukocytes. *Microchemical J.*, 34:22-85, 1985.
151. Edinboro LE, Van Dyke K, **Peden D**, Castranova V, and Wierda D: Studies of luminol dependent whole blood chemiluminescence induced by platelet activating factor. *Microchemical J.*, 1984.
152. **Peden D**, Van Dyke K, Pekoe G, and Castranova V: Temporal sequence of chemiluminescence and aggregation of human neutrophils and platelets after stimulation by arachidonic acid. *Microchemical J.*, 28:91-98, 1983.
153. Pekoe GM, **Peden D**, Van Dyke K. Impairment of leukocyte myeloperoxidase bactericidal mechanisms with ketamine (Ketalar). *Agents Actions*. 1983 Feb;13(1):59-62. PubMed PMID: 6305176.
154. Pekoe G, Van Dyke K, **Peden D**, Mengoli H, English D. Antioxidation theory of non-steroidal anti-inflammatory drugs based upon the inhibition of luminol-enhanced chemiluminescence from the myeloperoxidase reaction. *Agents Actions*. 1982 Jul;12(3):371-6. PubMed PMID: 6291348.

155. Pekoe G, Van Dyke K, Mengoli H, **Peden D**, English D. Comparison of the effects of antioxidant non-steroidal anti-inflammatory drugs against myeloperoxidase and hypochlorous acid luminol-enhanced chemiluminescence. *Agents Actions*. 1982 Apr;12(1-2):232-8. PubMed PMID: 6282074.
156. Van Dyke K, **Peden D**, Van Dyke C, Jones G, Castranova V, Ma J. Inhibition by nonsteroidal antiinflammatory drugs of luminol-dependent human-granulocyte chemiluminescence and [3H]FMLP binding. Effect of sulindac sulfide, indomethacin metabolite, and optical enantiomers (+) and (-) MK830. *Inflammation*. 1982 Mar;6(1):113-25. PubMed PMID: 7085041.
157. Van Dyke K, Pekoe G, **Peden D**, Mengoli H, Castranova V, and English D: Multipurpose radiomatic automated flow liquid scintillation counter system for measurement of burst of delayed chemiluminescence reaction: model drug inhibition with luminol-dependent myeloperoxidase. *Microchemical J.*, 27:276-289, 1982.
158. Pekoe G, Van Dyke K, and **Peden D**: A novel method for measuring initial burst chemiluminescence in a liquid scintillation counter using the myeloperoxidase-H₂O₂-CL reaction: *Microchemical J.*, 27:221-230, 1982
159. Castranova V, Jones GS, Phillips RM, **Peden D**, Vandyke K. Abnormal responses of granulocytes in chronic granulomatous disease. *Biochim Biophys Acta*. 1981 Jul 6;645(1):49-53. PubMed PMID: 6789879.
160. Van Dyke K, Van Dyke C, **Peden D**, Jones G, Castranova V, Brestel E, and Ringrose M: Luminol dependent chemiluminescence analysis of human platelets. *Microchemical J.* 25:514-523, Dec. 1980.

Submitted papers/articles (in reverse chronological order):

Abstracts (Since 1996):

1. Alexis NE, Zhou Q, **Peden D**, Zhou H. Stability of baseline measures of sputum cell counts in healthy individuals over 12 months: Practical implications for Study design. Abstract P196 presented at the American Thoracic Society International Conference, May 21, 2017, Washington, DC
2. Hernandez ML, Burbank A, Alexis NE, Duran CG, Bennett WD, Jiang Q, Wang T, Zhou H, **Peden D**. Gamma tocopherol (Vitamin E) reduces acute airway neutrophilia in mild asthmatics. Abstract 611, presented at the American Thoracic Society International Conference, May 22, 2017, Washington, DC
3. Bennett WD, Wu J, Lay JC, Burns PE, Jones SK, Almond M, Burbank A, Hernandez ML, **Peden D**. Vitamin E prevents the slowing of mucociliary clearance associated with inhaled endotoxin challenge in mild asthmatics. Abstract 622, presented at the American Thoracic Society International Conference, May 22, 2017, Washington, DC
4. N.E. Alexis, H.B. Wells, S. Miller, B. Goldstein, Y. Saini, S., Donaldson, **D. Peden**. Sputum Macrophage Profiles in Healthy Individuals, Airway Disease, Tobacco Smokers and Alternative Tobacco Users. Abstract 4347 presented at the American Thoracic Society International Conference, May 16, 2016, San Francisco, CA

5. Chervinskiy SK, Smeester L, Kulis MD, **Peden DB**, Vickery, BP, Fry, RC. Glutathione S-Transferase Mu 1 (GSTM1) Gene Associated with Allergic Rhinitis in a Food Allergy Cohort J.Allergy Clin Immunol Meeting Abstract: 32 Volume: 135 Issue: 2 Pages: AB10-AB10 Supplement: S Published: FEB 2015 Conference Title: Annual Meeting of the American-Academy-of-Allergy-Asthma-and-Immunology (AAAAI) Conference Date: FEB 20-24, 2015 Houston, TX
6. Hernandez ML, Todoric K, Mills K, Zhou HB, **Peden DB**. Impact Of BMI On Ozone-Induced IL-1 beta In The Airways Of Human Volunteers. J.Allergy Clin Immunol Meeting Abstract: 802 Volume: 133 Issue: 2 Pages: AB232-AB232 Supplement: S Published: FEB 2014 Annual Meeting of the American-Academy-of-Allergy-Asthma-and-Immunology (AAAAI) FEB 28-MAR 04, 2014, San Diego, CA
7. Todoric K, Hernandez ML, Zhou HB, **Peden DB**. Impact Of Energy Expenditure On Ozone-Induced Inflammation. J.Allergy Clin Immunol, Meeting Abstract: 342 Volume: 133 Issue: 2 Pages: AB99-AB99 Supplement: S Published: FEB 2014 Conference Title: Annual Meeting of the American-Academy-of-Allergy-Asthma-and-Immunology (AAAAI), FEB 28-MAR 04, 2014, San Diego, CA
8. Bennett WD, Herbst M, Almond M, Zeman KL, Wu J, Duckworth H, Hernandez M, **Peden DB**. EFFECT OF INHALED ENDOTOXIN (LPS) ON REGIONAL PARTICLE DEPOSITION AND MUCOCILIARY CLEARANCE IN HEALTHY NONSMOKERS, SMOKERS, AND MILD ASTHMATICS. JOURNAL OF AEROSOL MEDICINE AND PULMONARY DRUG DELIVERY Volume: 26 Issue: 2 Pages: A60-A60 APR 2013
9. Ferris M, Alexander T, Iglesia E, Duncan D, **Peden D**, Sheikh S, Park Y. Severe DRESS syndrome managed with therapeutic plasma exchange, PEDIATRIC NEPHROLOGY Meeting Abstract: 14 Volume: 28 Issue: 1 Pages: 173-173 Published: JAN 2013
10. William D. Bennett, M Herbst, M Almond, K L. Zeman, J Wu, M Hernandez, and **D B. Peden**. Effect Of Inhaled Endotoxin On Regional Particle Deposition And Mucociliary Clearance In Healthy Nonsmokers, Smokers, And Mild Asthmatics. Am. J. Respir. Crit. Care Med. 185: A1302 2012 American Thoracic Society International Conference, San Francisco, CA
11. Kelly E. Duncan, Lisa A. Dailey, Johnny L. Carson, Michelle L. Hernandez, **David B. Peden**, and Robert Devlin. Cultured Basal Airway Epithelial Cells From Asthmatics Display Baseline Gene Expression Profiles That Differ From Normal Healthy Cells And Exhibit Differential Responses To Ambient Air Pollution Particles. Am. J. Respir. Crit. Care Med. 185: A4291. 2012 American Thoracic Society International Conference, San Francisco, CA
12. A. R. Auerbach, W. Wu, **D. Peden**, M. Hernandez. Endotoxin Challenge Increases Production of IL-1 β in the Peripheral Blood but not in Sputum of Allergic Asthmatics. Presented at the 2012 meeting of the American Academy of Allergy, Asthma and Immunology, Orlando, FL, March 2012.
13. R. Fry, H. Zhou, B. Zou, J. Rager, J. Brickey, J. Ting, **D. Peden**, N. Alexis. Inflammatory Gene Expression Differentiates With Airway Neutrophil Response To

Ozone. Presented at the 2012 meeting of the American Academy of Allergy, Asthma and Immunology, Orlando, FL, March 2012.

14. Hernandez ML, Alexis NE, Lay JC, Zhou H, Jiang Q, **Peden DB**. Vitamin E Reduces Airway Granulocyte Recruitment after Inhaled Endotoxin Challenge in Normal Volunteers. Presented at the 2012 meeting of the American Academy of Allergy, Asthma and Immunology, Orlando, FL, March 2012.
15. R.N. Bauer, L. Brighton, J.P. Ting, **D. Peden**, I. Jaspers. Influenza-Induced Expression Of Inflammasome Components Is Enhanced In The Asthmatic Airway Epithelium. 2011 American Thoracic Society International Conference, Denver, CO
16. S. Jones, M. Kesic, M. Sanders, I. Jaspers, B. Joyner, S. Ortiz-Pujols, K. Short, A. Meyer, B. Cairns, **D. Peden**, T.L. Noah. Bacterial Infection And Airway Inflammation In Acute Inhalational Injury, 2011 American Thoracic Society International Conference, Denver, CO
17. W. Wu, **D. Peden**, R. McConnell, L. Dailey, W. Zhang, M. Jardim, M. Kesic, A. Eiguren-Fernandez, S. Fruin, D. Diaz-Sanchez. Modulation Of Pro-Inflammatory Mediator Expression By GSTM11 In Diesel Exhaust Particle-Treated Normal Human Bronchial Epithelial Cells. 2011 American Thoracic Society International Conference, Denver, CO
18. Doreswamy V, Alexis N, **Peden DB**. Nasal Response to Repeated Challenge with Endotoxin in Healthy Volunteers. 2010 Annual Meeting AAAAI. J Allergy Clin Immunol 125(2) Pages: AB127-AB127 Supplement: Suppl. 1 Published: FEB 2010
19. Kwan M, Allen IC, Brickey WJ, **Peden DB**, Ting JP. The Nlrp3 Inflammasome Affects Airway Inflammation, IgE/IL-13 Production And Mast Cell Function In A Subchronic Model Of Asthma 2010 Annual Meeting AAAAI. J Allergy Clin Immunol 125(2)Pages: AB237-AB237 Supplement: Suppl. 1 Published: FEB 2010
20. N.E. Alexis, H. Zhou, J.C. Lay, R. Devlin, S. Kleeberger, **D.B. Peden**. GSTM1(null) Has No Effect on the FEV1 Response to Acute Ozone Exposure but Significantly Affects the Proportion of Inflammatory Cells in the Airways of Allergic and Non Allergic Individuals J Allergy Clin Immunol Vol 123 (2) pp: S139-S139, 2009
21. M.L. Chou, M.L. Hernandez, W. Wu, **D. Peden**. Gamma And Alpha-Carboxyethylhydroxymethane Inhibit Basophil Degranulation After Stimulation With DerF1 J Allergy Clin Immunol Vol 123 (2) pp: S197-S197, 2009
22. M. Kwan, J. Wisner, W.J. Brickey, N.E. Alexis, C. Robinette, R.A. Roubey, J.P.Y. Ting, **D.B. Peden**. Gamma-tocopherol Treatment Alters Expression of Cytokine and Major Histocompatibility Molecules J Allergy Clin Immunol Vol 123 (2) pp: S201-S201, 2009
23. Jiang Q, Moreland M, Ames B, Illek B, Wagner J, **Peden DB** (2008) Vitamin E forms inhibited IL-13 induced eotaxin secretion by blocking stat6 activation in human lung epithelial A549 cells. (*Experimental Biology* 2008)

24. Illek B, Fischer H, Streich-Tilles T, Cheng A, Ames BN, Jiang Q, **Peden DB** (2007) Duox1-mediated release of hydrogenperoxide is modified by vitamin C. *Resp Crit Care Med* 175, A126. (*American Thoracic Society 2007, poster presentation*)
25. Schwarzer C, Kim EJ, Fischer H, Gruenert DC, Ames BN, **Peden DB**, Machen TE, Illek B (2007) Dual effects of pyocyanin-induced oxidative stress on CFTR chloride transport. *Ped Pulmonol suppl* 30, 251. (*North American Cystic Fibrosis Conference 2007, oral presentation*)
26. Wu W, Alexis NE, Bromberg P, **Peden DB**. Involvement of Toll-like Receptor 4 and MAPK Pathways in LPS-induced CD40 Expression of Monocytes. 2006 International Conference of the American Thoracic Society, San Diego, CA.
27. Wu W, Alexis N, Dimeo F, Almond M, Bromberg PA, **Peden DB**. Cell-cell Contact Plays a Major Role in the Inhibitory Effect of Neutrophils on Monocyte Functions. 2006 International Conference of the American Thoracic Society, San Diego, CA
28. N. Alexis, JC. Lay, K. Zeman, **Peden, DB**, W. Bennett. Particle Uptake by Airway Macrophages is Enhanced in Asthmatics *In Vivo*: Use of Radiolabeled Aerosol Inhalation Delivery and Induced Sputum Techniques. 2006 International Conference of the American Thoracic Society, San Diego, CA
29. J.G. Wagner, PhD, J.R. Harkema, DVM, PhD, D. Patel, MD PhD, **D.B. Peden**, MD Treatment with α -Tocopherol Protects from Ozone-Induced Exacerbation of Allergic Airway Responses in Brown Norway Rats. 2006 International Conference of the American Thoracic Society, San Diego, CA
30. G.S. Backus, A.K. Bauer, H.-Y. Cho, **D.B. Peden**, S.R. Kleeberger. Protective Role of IL-10 in Ozone-Induced Inflammation. 2006 International Conference of the American Thoracic Society, San Diego, CA
31. K. Yeatts, PhD, E. Svendsen, PhD, J. Creason, PhD, R. Williams, BS, N. Alexis, PhD, P. Herbst, MS, L. Neas, PhD, B. Devlin, PhD, W. Cascio, MD, **D. Peden, MD**. Ambient Coarse Particulate Matter Associated with Heart Rate Variability, Blood Coagulation, and Blood Lipids in Adult Asthmatics. 2006 International Conference of the American Thoracic Society, San Diego, CA
32. B. Illek, Ph.D., E.J. Kim, Ph.D., H. Fischer, Ph.D., Q. Jiang, Ph.D., B. Ames, Ph.D., **D. Peden, M.D.** Vitamin C and Other Antioxidants Support CFTR Cl Transport in Airways,. 2006 International Conference of the American Thoracic Society, San Diego, CA
33. N E Alexis, John C Lay, **David B Peden**. Low Dose Inhaled Endotoxin Induces Elevated Neutrophils in the Airways of Asthmatics, A Response not Observed in Normals. Submitted for presentation, Meeting of the American Academy of Allergy, Asthma and Immunology Miami Beach, FL, 2006
34. N E Alexis, M Almond, **D B Peden**. Body Mass Index (BMI) in Asthmatics is Associated with Airway Neutrophil Response to Inhaled Endotoxin: A role for Atopic Inflammation. JACI, 2005. Submitted for presentation, Meeting of the American Academy of Allergy, Asthma and Immunology Miami Beach, FL, 2006

35. Esch R, Bush RK, **Peden D**, Lockey RF. Sublingual-oral administration of standardized allergenic extracts/vaccines: Safety and dosing studies Meeting of the American Academy of Allergy, Asthma and Immunology Miami Beach, FL, 2006
36. Yeatts K, Svendsen E, Creason J, Williams R, Alexis N, Bromberg P, Neas L, **Peden, D** Ambient Course Particles Associated with Change in Hemataologic Factors in Adult Asthmatics. Presented at the 2005 Annual Meeting of the International Society of Environmental Epidemiology, South Africa
37. Relationship Between Induced Oxidant Generation and Asthma Severity. Yeatts K, Svendsen E, Heidenfelder B, Williams A, Inmon J, Devlin B, Neas L, **Peden D**, Gallagher J. Abstract Accepted, 2005 International Conference of the American Thoracic Society. Am J Respir. Crit Care Med.
38. Yeatts K, Svendsen E, Alexis N, Reed W, Harder S, Lay J, Bromberg P, Neas L, Devlin R, **Peden D**. CD11b expression in the airway is associated with asthma severity, airway inflammation, and reduced percentage of CD54-positive blood lymphocytes in asthmatics. Abstract Accepted, 2005 International Conference of the American Thoracic Society. Am J Respir. Crit Care Med.
39. Yeatts KB, Svendsen E, Alexis N, Williams R, Creason J, Reed W, Harder S, Bromberg P, Neas L, Devlin R, **Peden DB**. Fine particulate matter associated with airway neutrophilia in a subpopulation of adult asthmatics. Abstract Accepted, 2005 International Conference of the American Thoracic Society. Am J Respir. Crit Care Med.
40. Alexis NE, Almond M, Dimeo F, **Peden DB**. Effect of Escalating Doses of LPS on Markers of Airways Inflammation and Innate Immunity in Healthy Volunteers. Accepted abstract, Annual Meeting of the American Academy of Allergy, Asthma and Immunology 3/2003, Denver, Colorado
41. N. Alexis, **D. Peden**. IL-4 Induces an Enhanced IL-6 Response and Signs of Allergic-Type Inflammation in the Nasal Airways of Non-Allergic, Non-Asthmatic Individuals. Abstract, 2nd Annual Meeting of The Federation of Clinical Immunology Societies, June, 2002
42. N. Alexis, **D. Peden**. Inducible Tachyphylaxis to Inhaled LPS in Healthy Volunteers. Submitted Abstract, 1st Annual Meeting of The Federation of Clinical Immunology Societies, May 2001
43. Eldridge M, Alexis N, Arnold R, **Peden, D**. Inhaled endotoxin induces a monocyte dependant peripheral blood granulocyte activation in atopic asthmatics. Abstract 2000 International Conference of the American Thoracic Society. Am J Respir. Crit Care Med. A844, 161 (3) 2000.
44. Eldridge, M and **Peden D**. Allergen provocation augments endotoxin-Induced nasal inflammation in atopic asthmatics. 2000 Meeting of the American Academy of Allergy, Asthma and Immunology.
45. Tucker K, Boehlecke B, **Peden D**. Effect of nasal endotoxin on eosinophil influx in allergic subjects Abstract, J Allergy and Clin Immunol. 1999 AAAAI meeting.

46. **Peden D**, Boehlecke B, Horstman D, Devlin RB. Effect of acute prolonged ozone exposure on inflammatory mediators in allergic asthmatics. Abstract, Am J. Respir. Crit Care Med 1997
47. **Peden D**. Boehlecke B, Horstman D, Devlin RB. Ozone induces eosinophil influx into the bronchial airways of mite-sensitive asthmatics. Abstract, J. Allergy Clin Immunol 1997
48. **Peden, D**, Boehlecke B, Horstman D, RB Devlin. Influx of Bronchial neutrophils and eosinophils in asthmatics after exposure to 0.16 ppm ozone. Am J Respir. Crit Care Med. 153, A700, 1996
49. **Peden, D**, Wortman, I, Dailey L. Epithelial inhibition of mast cell activity, J. Allergy Clin Immunol. 97, 265 (A332), 1996

TEACHING RECORD:

Current Recurring Lectures:

1. Lectures for Allergy fellows: Asthma, Sinusitis, Immunodeficiency, Food Allergy, Drug Allergy (annually)
2. Graduate Course lecture: "Susceptible Populations" & "Air Pollution and Asthma" lectures in the Envr 732 course "Health effects of air pollution" in the School of Public Health (annually).

UNC & AHEC Grand Rounds (1996-Present):

1. Peden DB. Air Pollution and Asthma. Mountain AHEC, Asheville, NC, 3/9/13
2. Peden DB. "Air Pollution and Asthma" UNC Department of Pediatrics, UNC CH 9/27/12
3. Peden DB. "Acetaminophen and Asthma. Pediatrics Grand Rounds at Moses Cone Hospital, 6/6/2012
4. Peden DB. "Acetaminophen and Asthma" Pediatrics Grand Rounds, Wake AHEC, 3/21/12
5. Peden DB "Translational studies of innate and IgE mediated airway inflammation in asthma" Department Seminar, Department of Microbiology and Immunology, UNC CH 3/31/08
6. Peden, D. "Air Pollution and Asthma". AHEC Grand Rounds Presentation, Department of Pediatrics Moses Cone Hospital, Greensboro, NC 11/10/04
7. Peden D. "Asthma Update and New Therapies" AHEC Grand Rounds, Department of Pediatrics. New Hanover Regional Hospital, Wilmington, NC, 11/02/04
8. Peden, D. and Donohue, J. "New Developments in Adult and Pediatric Asthma" Combined Medicine/Pediatrics Grand Rounds UNC School of Medicine Chapel Hill NC, April 3, 2003

9. Peden D, Asthma and Allergy Update: Chronic Control Therapy, AHEC Pediatric Grand Rounds, New Hanover Medical Center, Wilmington, NC, Feb 4, 2003
10. Peden, D. and Donohue, J. "New, Newer and Future Therapies for Asthma ". Student Health Grand Rounds, UNC School of Medicine, Chapel Hill NC, March 20, 2002
11. Peden, D. and Donohue, J. "New, Newer and Future Therapies for Asthma ". Combined Medicine/Pediatrics Grand Rounds , UNC School of Medicine, Chapel Hill NC, Nov 1, 2001
12. Peden, D., Overview of Asthma Disease/Update in Pediatric Asthma Management presented in "Respiratory Disease Update: Focus on COPD and Asthma" program School of Nursing Continuing Education Program William and Ida Friday Center Chapel Hill, NC, Oct 19, 2001
13. Peden, D., Asthma and Allergy Update: Chronic Controller Medication Pediatric Grand Rounds, WakeMed Raleigh, NC, Oct 17, 2001
14. Peden, D. Asthma and Allergy Update, Grand Rounds, Maria Parham Hospital, Henderson, NC, May 1, 2001
15. Peden, D. "Update on asthma and allergy" Student Health Service Grand Rounds, Chapel Hill, NC Feb 14, 2001
16. Peden, D. "Pediatric Asthma Program at UNC" Pediatric Grand Rounds-UNC School of Medicine, Chapel Hill, NC, November, 1999
17. Cross, A., Ingram, D., Gold, S., and Peden, D. "Eosinophilia in a 14 year old boy", Pediatric Grand Rounds-UNC School of Medicine, Chapel Hill, NC, October, 1999
18. Peden, D. "Update in Management of Asthma & Allergy", Pediatric Grand Rounds Wake Medical Center (WakeMed), Raleigh, NC, August 18, 1999
19. Peden, D. "Update in Asthma Management", Telelecture, Mountain AHEC, August 24, 1999
20. Peden, D. "Air Pollution and Asthma", Pediatric Grand Rounds-UNC School of Medicine, Chapel Hill, NC, July, 1999
21. Peden, D. "Asthma Update", Pediatric Grand Rounds, Maria Parham Hospital, Henderson, NC, April, 1999
22. Peden, D. "Asthma Therapy" Student Health Colloquium, North Carolina State University, Wake AHEC, Raleigh, NC. March, 1999
23. Peden, D. "Use of Inhaled Steroids in Asthma" Pediatric Grand Rounds, Randolph Memorial Hospital, Asheboro, NC. March, 1999

24. Peden, D. and Henke D. "Review of Allergic Diseases", Combined Medicine/Pediatric Grand Rounds, UNC School of Medicine. Oct 1, 1998.
25. Peden D. "Asthma Update 97", Pediatric Grand Rounds, Dept. of Pediatrics, UNC School of Medicine. August 21, 1997.

Invited Regional, National and International Presentations (1996-present):

1. Peden DB. "Pharmaceutical and Nutraceutical Interventions for Air Pollution induced Lung Disease". Research Seminar, Xinxiang Medical University, School of Public Health, Xinxiang, Henan Province, China, September 20, 2017
2. Peden DB. "Environmental Impacts on Allergic Disease" Asthma & Allergy Foundation of America, Alaska Chapter 12th Annual Alaska Asthma & Allergy Conference, Girdwood, AK, September 8-9, 2017
3. Peden DB. "Interventions to reduce the impact of pollutants on allergic disease", Presented at the Annual Meeting of the European Academy of Allergy and Clinical Immunology, June 18, 2017
4. Peden DB. "Pollutants and Asthma", Presented at Allergy/Immunology Grand Rounds, University of Wisconsin, Madison, Wisconsin, February 1, 2017
5. Peden DB. "Immunomodulation of Allergic Diseases". Presented at the Current Topics in Allergy and Clinical Immunology CME course, Division of Immunology, Department of Internal Medicine Grand Rounds, Carver College of Medicine, University of Iowa, Iowa City, Iowa. September 23, 2016
6. Peden DB. Paul M. and Dorothy E. Seebohm Visiting Lectureship in Allergy "Environmental Impact on Asthma and Allergic Diseases", Presented at the Department of Internal Medicine Grand Rounds, Carver College of Medicine, University of Iowa, Iowa City, Iowa. September 22, 2016
7. Peden DB. "Influence of Environmental Factors on Asthma and COPD". Presented at the Life Spectrum of Asthma Meeting of the American Academy of Allergy, Asthma and Immunology, Chicago, IL, July 31, 2016
8. Peden DB. "Adverse health effects and disease due to air pollution" 2016 Frank P. Anderson, MD Memorial Lecture, Children's Hospital of Georgia & Department of Pediatrics, Medical College of Georgia, Augusta University, Augusta, Georgia, June 17, 2016
9. Peden DB. Development of Interventions for PM Induced Airway and Systemic Diseases, NIEHS Symposium "Indoor exposure to biomass/woodsmoke exposure and pulmonary health" at the American Thoracic Society International Conference, May 15, 2016, San Francisco, CA
10. Peden DB. Translational studies of air pollution-induced inflammation. Invited Speaker, National Jewish Health, January 14, 2016, Denver, CO

11. Peden DB. Environmental factors contributing to severe asthma. Duke University Severe Asthma Conference—Mechanisms, Diagnosis, and Treatments, October 3, 2015. Searle Conference Center, Duke University, Durham, NC
12. Peden DB, Clinical Relevance of Juvenile Toxicity Studies, Society of Toxicologic Pathology Regional Meeting, National Institute of Environmental Health Sciences / National Toxicology Program, Research Triangle Park, NC, March 13, 2015
13. Peden DB, Population Health and Bridging Community-Clinical Connections. 2015 Summit of the Asthma Alliance of North Carolina, 3/4/2015, Burlington, NC
14. Farooqui N and Peden DB, Difficult Cases: Occupational Asthma in the Difficult Cases Symposia Presentation, The American Academy of Allergy, Asthma & Immunology Annual Meeting, February 20, 2015, Houston Texas
15. Peden DB, Literature Review on Air Pollution's Effects on Atopic Disease, Winter Meeting of the NC Asthma, Allergy and Immunology Society, January 31, 2015, Greensboro, NC
16. Peden DB, Smoking, Air Pollution, Indoor Triggers. 2014 the "Great Raft Debate", Annual Meeting of the American College of Allergy, Asthma and Immunology, 11/8/14, Atlanta, Georgia
17. Peden DB, Development of interventions to mitigate adverse health effects caused by pollution. 2014 International Symposium on Environmental Pollution and Health, Xixiang, China, 9/15/2014
18. Peden DB, Asthma Literature Review, Annual Meeting of the NC Asthma, Allergy and Immunology Society, July 12, 2014, Greensboro, NC
19. Peden DB, Air Pollution Effects in Asthma and Human Health, Annual Meeting of Southeastern Allergy, Asthma and Immunology Society, Asheville, NC, September 20, 2013
20. Peden DB: Plenary presentation, "How do different factors such as genetics, age, and nutrition impact human responses to chemical exposures?". ICCA-LRI and NCATS Workshop "What is Normal? Implications for Chemical Safety Assessment. Santa Fe, NM June 11-12, 2013
21. Peden DB: Grand Rounds, Allegheny General Hospital and West Penn Allegheny Health System Asthma Summit: "National Impact of Air Pollution on Asthma", Pittsburgh, PA 5/17/2012
22. Peden DB. "Report of the Asthma Exacerbations Sub-Committee", in the symposium NIH Asthma Outcomes". World Allergy Organization Meeting, 12/6/2011, Cancun, Mexico
23. Peden DB. "Human Studies of GSTM1 and Response to Pollutants"; Mailman School of Public Health, Columbia University, 10/27/2011

24. Peden DB. "Report of the Asthma Exacerbations Sub-Committee" Part of the symposium on the NIH Asthma Outcomes Workshop, International Meeting of the American Thoracic Society, Denver, CO, 5/2011
25. Peden DB "Immunobiology of Acute Environmental Asthma". Presented in the Postgraduate Course Advances by the NIAID Asthma and Allergic Diseases Cooperative Research Centers, International Meeting of the American Thoracic Society, Denver, CO, 5/2011
26. Peden DB "Air Pollution and Asthma" NIAID Grand Rounds, Bethesda, MD, 1/21/2011
27. Peden DB, "Environmental and Oxidant Stress in Asthma". Aspen Allergy Meeting, Aspen, CO. July 29,2010
28. Peden DB, "Environmental Pollutants and Asthma" Boston City-Wide Allergy and Immunology Rounds, Boston, MA, April 13, 2010
29. Peden DB, "Environmental Influences on Respiratory Disease" Spring Meeting of the West Virginia Chapter of the American Academy of Pediatrics, Morgantown, WV, April 10, 2010
30. Peden DB, "Translational Research for Environmental Health" NC TraCS Symposium: Translational Research to Address Health Disparities across the Lifespan, Chapel Hill, NC March 19, 2010
31. Peden DB, "Health Effects of Air Pollution" 2010 National Air Quality Conferences Air Quality Forecasting, Mapping, and Monitoring and Communicating Air Quality. Sponsored by the US Environmental Protection Agency, March 17, 2010, Raleigh, NC
32. Peden DB, "Health Impacts of Climate Change in Allergy and Asthma" presented at the Plenary Session "New Environmental Aspects in Allergy and Asthma" of the 2009 World Allergy Conference of the World Allergy Organization, Buenos Aires, Argentina, December 9, 2009
33. Peden DB, "Environmental Influences on Airway Disease: Gene X Environment Interactions" presented at the 36th Annual Postgraduate Course of the Alexander Spock Symposium| "Genetic & Public Health Frontiers of Pediatric Medicine", Duke University Medical Center, Durham, NC, November 7, 2009
34. Peden DB, "Oxidant Stress and Airway Disease" presented at the 4th International Conference on Oxidative/Nitrosative Stress and Disease", New York Academy of Sciences, New York, NY, October 30, 2009
35. Peden DB, "Immunobiology of Acute Environmental Asthma". Course presentation at the 2009 International Conference of the American Thoracic Society, May 2009
36. Peden DB, "The Biology of Antioxidant Complementary and Alternative Medicine Approaches in Allergy". Presented in the Symposium "The Science of Alternative Medicine in Allergy: A Tribute to Stephen Straus" at the Annual Meeting of the American Academy of Allergy, Asthma and Immunology March 14, 2009

37. Peden DB "Patient/Physician Perspective - The Environment / Immune System Interface - How it fits together" Presented at the "Environment, Public Policy and Human Health Emerging Trends" forum sponsored by the American Academy of Allergy, Asthma and Immunology at the Cannon Caucus Room of the US House of Representatives, Washington DC, March 13, 2009
38. Peden DB. "Mechanisms of Asthma Exacerbation due to Air Pollution". 2008 Southeast Allergy, Asthma & Immunology Society Annual Meeting, October 18, 2008, The Homestead, Hot Springs, VA
39. Peden DB. What Is The Role Of Environmental Exposures In Predisposing To Bronchiectasis? Presentation in the Symposium "Childhood bronchiectasis: views from around the world" 2008 ATS International Conference, May 18,2008, Toronto, Ont., Canada
40. Peden D. "Endotoxin: Mechanisms at Play (in causing asthma exacerbation)". Workshop presentation, The American Academy of Allergy, Asthma & Immunology Annual Meeting, Philadelphia, PA 3/15/2008
41. Peden D. "Monocyte and Macrophage Biology in Asthma", Research Seminar, Division of Allergy and Immunology, Creighton University, Omaha, NE 11/16/07
42. Peden D. "Air Pollution and Asthma". Nebraska Academy of Allergy, Asthma & Immunology 11/15/07, Omaha, NE
43. Peden D. " The changing prevalence of asthma, atopic allergy and autoimmune diseases" 44th Congress of the European Societies for Toxicology, Amsterdam, The Netherlands, 10/08/2007
44. Peden DB. Upregulation of Airway Macrophages and Monocytes by Environmental Agents in Asthma. Research Seminar, Department of Pediatrics, Mount Sinai School of Medicine, New York, NY , 6/14/2007
45. Peden, DB " Endotoxins Can Modulate Allergic Inflammatory Responses" in the Symposium "What Makes an Allergen Allergenic?" The American Academy of Allergy, Asthma & Immunology Annual Meeting, San Diego, CA, 2/27/2007
46. Peden, D., "The Impact of Poor Air Quality in Asthma (and what you can do about it)" Pediatric Grand Rounds, Duke University, Durham, NC 1/23/2007
47. Peden, D. "The Environment and Asthma", 2006 Dees Symposium on Allergy and Immunology, Duke University, Durham, NC 10/28/2006
48. Peden, D. "Monocytes and Macrophages in Asthma" Airway Biology Forum, Duke University, Durham, NC 9/15/2006
49. Peden, D. Invited Workshop Participant, "Enhancing Capacity to Study Gene-Environment Interactions in Complex Traits". Harvard School of Public Health, Cambridge, MA 6/18/2006

50. Peden, D. "Environmental Causes of COPD: Outdoor Environment" Invited Speaker, "COPD in Never Smokers" Workshop, NHLBI/NIOSH, Bethesda, MD 5/1-2/2006
51. Peden, D. "Translational Research on the Biology of Response to Pollutants". Environmental Cardiology Research Group, Department of Medicine, East Carolina University, Greenville, NC 4/27/06
52. Peden, D. "Pollution, air quality and asthma" Pediatric Grand Rounds, East Carolina University, Greenville, NC 4/27/06
53. Peden, D. "Environmental Influences on the Biology of Asthma", Invited Speaker, Asthma and the Environment Seminar Series, Asthma Program, NHEERL, US EPA, Research Triangle Park, NC 4/10/2006
54. Peden, D. "Air pollution and asthma" Long Island Allergy & Asthma Society Meeting, Long Island, NY 1/26/2006
55. Peden, D. "What causes asthma and what can we do about it? Environmental Influences" American College of Chest Physicians Annual Meeting, Montreal, CA, Oct 31, 2005
56. Peden, D. "The Air that Children Breathe: Not All is Healthy". Invited Seminar Presentation, American Academy of Pediatrics Annual Meeting, Washington DC, Oct 9, 2005
57. Peden, D. Health effects of inhaled endotoxin. University of Southern California Department of Preventive Medicine Seminar. Los Angeles, CA, Oct 8, 2005
58. Peden, D. Environment, Lifestyle, Genetics and Asthma Development. Invited Speaker, JRC (of the EU) /EOHSI International Workshop "Modifiers of Chemical Toxicity: Implications for Human Health Risk Assessment" June, 2005, Poros, Greece.
59. Peden D. "Environmental Modulation of Allergic Disease" Invited Plenary Presentation, 62nd Annual Meeting of the American Academy of Allergy, Asthma and Immunology, San Antonio, TX, March 19, 2005
60. Peden D. "Air Pollution-Is the air safe to breathe?" Alexander Spock Symposium, Duke University Department of Pediatrics, Durham, NC, 10/30/04
61. Peden, D. "*In vivo* studies of inhaled endotoxin on airway inflammation in humans". Lung Biology Research Seminar Series, University of Rochester School of Medicine & Dentistry, Rochester NY, 1/6/04.
62. Peden D. "The Impact of Air Pollution in Asthma" Greater Washington Allergy, Asthma & Immunology Society Conference Series, 12/3/03, (DC Area), Vienna, VA
63. Peden, D "Endotoxin exposure in asthma" Workshop presentation, World Allergy Organization meeting, Vancouver, BC, Canada, 9/8/03

64. Peden, D. "Effect of ozone and bioaerosols in asthma" Invited presentation Pennsylvania Asthma and Allergy Association, Hershey, PA 6/21/03
65. Peden, D. "Immunological Lung Development And Exposure Timing Aspects Relevant To Potential Air Pollution Mechanisms" Invited presentation in the symposium "Air Pollution as a Cause of Childhood Asthma and Chronic Airway Disease" 99th International Conference of the American Thoracic Society, Seattle, WA, May 21, 2003
66. Peden, D. "Endotoxin and Allergic Diseases: A Two Edged Sword" April 2003 Meeting of the American Association of Veterinary Dermatology, Monterey, CA
67. Peden, D. "Environmental Ozone as a Predictor of Exercise-Related Lung Symptoms" Workshop Presentation, 60th Annual Meeting of the American Academy of Allergy, Asthma and Immunology, Denver, CO March 12, 2003
68. Peden, D. Visiting Professor, Houston Allergy Society (Baylor University, University of Texas at Houston, University of Texas-Medical Branch), Houston, Texas Dec 3-5,2002.
69. Peden, D. "Short and Long Term Risks of Undertreatment of Pediatric Asthma" Invited Speaker, Annual Meeting of the American College of Chest Physicians, San Diego, CA Nov 4, 2002.
70. Peden, D. "Mechanisms of increased susceptibility of children to air pollution" Invited Speaker, European Respiratory Society Meeting, Stockholm, Sweden, September 16, 2002 (Invited Speaker)
71. Peden, D. "Allergies and Asthma", Invited Guest, "The People's Pharmacy", National Public Radio, August, 2002
72. Peden, D "Asthma" North Carolina Asthma Summit, Friday Center, Chapel Hill, NC, July, 2002
73. Peden, D. "The Impact of Pollution on Allergy and Asthma: An Epidemiological and Clinical Studies Overview", Invited presentation in the symposium "Allergens and Air Pollutants: Co-Exposures and Airway Responses" 98th International Conference of the American Thoracic Society, Atlanta, Georgia, May 19, 2002
74. Peden, D. "Endotoxin and Diesel Effects on Airway Inflammation" Invited presentation in the mini-symposium "Airway Responsiveness and non-allergic stimuli: Irritants, Endotoxin and other agents" 98th International Conference of the American Thoracic Society, Atlanta, Georgia, May 19, 2002
75. Peden, D. "Allergic Rhinitis" Invited Speaker, 9th Annual Allergy Fellows Symposium Atlanta, Georgia May 17, 2002
76. Peden, D. "Development and sensitivity of the immune system" Invited Speaker Health Effects Institute Annual Conference 2002 Seattle, Washington, April 28,2002

77. Peden, D. "Impact of Air Pollution on Allergic Respiratory Diseases" Workshop Presentation, 58th Annual Meeting of the American Academy of Allergy, Asthma and Immunology, New York, NY, March 6, 2002
78. Peden, D. "New Advances in Asthma and Allergies" Presented at the "Masters of Pediatrics" Conference University of Miami School of Medicine Miami Beach, FL, Jan 15, 2002
79. Peden, D. "Air Pollution and Asthma...a Red Air Day Really Matters!!" Presented at the "Frontiers of Pediatrics" Conference Medical University of South Carolina Charleston, SC, Dec 2, 2001
80. Peden, D. "New Therapies for Asthma and Allergies" Presented at the "Frontiers of Pediatrics" Conference Medical University of South Carolina Charleston, SC, Dec 1, 2001
81. Peden, D. Asthma and Allergy Update:Chronic Controller Medication Medicine/Pediatric Grand Rounds, Womack Army Medical Center Ft. Bragg, NC, Oct 17, 2001
82. Peden, D. "Sinusitis and Asthma" Presented in the *Current Strategies in the Management of Asthma: From the Infant to the Elderly* conference, presented by the National Institute of Allergy and Infectious Diseases (NIAID) and the National Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health (NIH), Chaired by William Busse, MD and Sally Wenzel, MD. Washington, DC, June 18-19, 2001
83. Peden, D "Role of Pollutants in Asthma" Presented in the *Current Strategies in the Management of Asthma: From the Infant to the Elderly* conference, presented by the National Institute of Allergy and Infectious Diseases (NIAID) and the National Institute of Environmental Health Sciences (NIEHS) of the National Institutes of Health (NIH), Chaired by William Busse, MD and Sally Wenzel, MD. Washington, DC, June 18-19, 2001
84. Peden D. "Environmental influences on the development of allergy and asthma" presented in the "Respiratory allergies: Paradoxes and controversies" workshop of the International Congress of Toxicology, Brisbane, Australia July 8-13, 2001.
85. Peden, D. "Inhalation studies of air pollutants in asthma" 8th International Inhalation Symposium "Crucial Issues in Inhalation Research -Mechanistic, Clinical and Epidemiologic" Hanover, Germany, 6 - 9 June, 2001
86. Peden, D. Invitation. "Air pollution effects on asthma -role of air toxics in asthma pathogenesis vs. biological allergens" presentation in the symposium, "Environmental Air Toxics: Role is Asthma Occurrence" sponsored by The Mickey Leland National Urban Air Toxics Research Center, School of Public Health, University of Texas at Houston, Houston Texas, May 30-31, 2001

87. Peden, D. "Respiratory Health and Air Quality" Invited presentation-Conference: Dispelling the Fear and Discovering the Truth: Linking the Environment and Health. Sustainable Universities Initiative of the State University System of South Carolina. Columbia, SC, April 6, 2001
88. Peden, D "The Role of Ozone in Augmenting Allergic Responses", presentation in the Workshop entitled "Interaction Between Allergens and Irritants in Airway Inflammation", Annual Meeting of the American Academy of Allergy, Asthma and Immunology, New Orleans, LA, March 19, 2001
89. Peden, D., Visiting Professor, NIEHS Seminar Series at UTMB in Galveston, TX, Dec 6, 2000
90. Peden D., "Air Pollution in Asthma" in the Environment and Allergy symposium of the Annual Meeting of the American College of Allergy, Asthma and Immunology, Seattle, WA, November 3, 2000
91. Peden D. "Little Particles, Big Effects" New Trends in Allergy V International Symposium, Davos, Switzerland, September 15-17, 2000
92. Peden D., "Atmospheric Contaminants and Human Health" Ecology and Health 2000 Conference, Mr. William Friday and Dr. Dennis McBride Co-Chairs, UNC School of Public Health and NC Division of Health, Sponsors, June 29, 2000, Raleigh, NC
93. Peden D., "Food Allergies in Pediatrics" Combined Duke-UNC Primary Care Conference. April 7, 2000, Friday Center, Chapel Hill, NC
94. Peden D., "The Role of Endotoxin in Asthma and Allergy" Invited presentation, Symposium presentation: The role of endotoxin in occupational and environmental lung disease: exposure-response relationships and susceptibility factors, Society of Toxicology, Philadelphia, PA 3/21/00
95. Peden D., Nel, A. and Balmes J., "Air Pollution and Asthma" Workshop at the 2000 annual meeting of the American Academy of Allergy, Asthma & Immunology, San Diego, CA, 3/4/00 (Workshop Chairman)
96. Peden D. "Health Effects of Air Pollution" Public hearing before the Environmental Resources Board, State of North Carolina, Invited by Secretary Holman of the State Department of the Environment and Natural Resources. January, 2000
97. Peden, D. "Exercise-induced Asthma" Pediatric Oktoberfest, West Virginia University School of Medicine Morgantown, WV, October, 1999
98. Peden, D. "Air Pollution and Asthma" Grand Rounds, Gundersen Lutheran Medical Center La Crosse, WI, August 30, 1999
99. Peden, D. "Update in Asthma Treatment" Pediatric Grand Rounds, Texas Tech School of Medicine Lubbock Texas, June, 1999

100. Peden, D. "Ozone and Asthma" Governor's Summit: Clearing the Air Asheville, NC 4/7/99
101. Peden, D. "Air Quality and Asthma" "Breathing New Life into North Carolina's Childhood Asthma Care: Maximizing Local Resources" Friday Center, Chapel Hill, NC March 18, 1999
102. Peden, D. Environmental Modulation of Allergic Inflammation. EOD Workshop, 1999 Annual Meeting of the American Academy of Asthma, Allergy and Immunology, March 2, 1999
103. Peden, D. Air Pollution and Asthma. Invited Speaker. EOD Symposium, 1999 Annual Meeting of the American Academy of Asthma, Allergy and Immunology, February 28, 1999
104. Peden, D. Controversies in Asthma Therapy. Invited speaker. Infectious Diseases in Children Symposium 98, sponsored by Pediatric Infectious Diseases. New York, NY. November 1998
105. Peden D. Effect of Air Pollution in Asthma. Invited speaker, Biannual Susan B. Dees Allergy and Immunology Symposium, sponsored by Duke University Medical Center and the American Academy of Asthma, Allergy & Immunology. Durham, NC, November, 1998
106. Peden D. Effect of ozone on asthma in children. Invited speaker, Annual meeting of the National Capital Area Chapter of the Society of Toxicology. Bethesda, MD, May 1998
107. Peden D. Quality of Life: The patient's bottom line. Invited Speaker, Symposium: Allergic Rhinitis: Charting a Course for the 21st century. Washington, DC, May 1998
108. Boehlecke B, Peden D. Endotoxin and Asthma. Center for Indoor Air Research Symposium, Aug, 1997, Jackson Hole, WY
109. Peden D. Interaction of asthma, allergies and the environment on the lower respiratory tract. Guest faculty: Allergies, Asthma and the Environment Symposium, University of Chicago, May, 1997, Chicago, Illinois
110. Peden D. Effect of Air Pollution in Asthma. Invited speaker: Effect of infection and irritants in asthma symposium; 1997 ATS/ALA International Conference, May 1997, San Francisco, CA, 1997
111. Peden, D. In vivo studies of pollutants in asthma. International roundtable on the effect of pollutants in asthma. Salzburg, Austria, Sept, 1996
112. Peden, D. The use of nasal lavage in assessing the effect of pollutants on allergen-induced airway inflammation. Invited speaker: Asthma & the environment workshop, US EPA National Health and Environmental Effects Research Laboratory, Chapel Hill, NC, May, 1996

113. Peden, D. Interactions between allergen and air pollutants in atopic asthmatics. Invited speaker: Biomarkers of upper airway responses to irritants symposium; 1996 ATS/ALA International Conference, May 1996, New Orleans, LA, 1996
114. Peden, D, Boehlecke B, Horstman D, RB Devlin. Influx of bronchial neutrophils and eosinophils in asthmatics after exposure to 0.16 ppm ozone. 1996 ATS/ALA International Conference, May 1996, New Orleans, LA
115. Peden, D. Impact of ozone on the upper and lower airways; interaction with allergens. 35th Annual Swineford Allergy Conference, The University of Virginia Asthma and Allergic Disease Center, Charlottesville, VA , April 19, 1996
116. Peden, D, Wortman, I, Dailey L. Epithelial inhibition of mast cell activity, 52nd annual meeting, American Academy of Allergy, Asthma & Immunology, New Orleans, LA. March,1996
117. Peden, D.B. Ozone. Workshop on Air Pollution & Asthma.52nd annual meeting, American Academy of Allergy, Asthma & Immunology, New Orleans, LA. March,1996

Training grant director:

National Institute of Allergy and Infectious Diseases-Joint Allergy/Immunology Training Grant (Duke University, Sleasman, J, PI, D Peden mPI at UNC) 2T32AI007062 "Research Training in Allergy and Clinical Immunology" Role: multi-Principal Investigator, \$371,126/year, 9/1/2016-8/31/2021

Research Teaching/Mentorships:

Junior Faculty Mentor for:

1. Jada Brooks, PhD, RN, Assistant Professor, School of Nursing, Primary Mentor, K23 "Inflammatory Mediators, Hazardous Air Pollutants, and Positivity", 6/2016-present
2. Samuel Jones, MD (Burn Surgeon, KL2 program-current, K08, Co-Primary Mentor, with Bruce Cairns, MD)
3. Bradford Harris, MD (Pediatric Critical Care Medicine, K30 program 1/2004-1/2006)-currently an FDA review officer
4. Matt Laughon, MD (Neonatology, K30 program 1/2006 to 12/2008)-Associate Professor of Pediatrics-Neonatology
5. Marianne Muhlebach, MD (Pediatric Pulmonology, K30 program)-Associate Professor of Pediatrics-Pulmonary Medicine
6. Michelle Hernandez, MD (Allergy & Immunology, K30 program, KL2 program, K23 primary mentor)-Associate Professor of Pediatrics
7. Maureen Su, MD (Pediatric Endocrinology), Co-Mentor at UNC, Associate Professor of Pediatrics, member of mentoring committee

8. Brian Vickery, MD (Allergy/Immunology)-Assistant Professor, Chair of Mentoring Committee
9. Ian Davis, MD, PhD (Hemtaology/Oncology)-Associate Professor, Chair of Mentoring Committee
10. Timothy Moran, MD, PhD-current, primary mentor, KL2 program
11. Ilona Jaspers, PhD-currently a tenured professor in the CEMALB, I have been a primary administrative and team science mentor for her.

Primary Research Advisor for:

1. Allison Burbank, MD, Allergy/Immunology fellow (7/2015-present)
2. Aaron Kobernick, MD, MPH, Allergy/Immunology fellow (7/2015-6/30/2016)
3. Robin Muller, MS Toxicology program/MD school (9//2011-7/2014)
4. Madeline Adams, MD (Allergy and Immunology Fellow, 7/2008-2010, Private Practice)
5. Vinod Doreswamy, MD (Allergy and Immunology Fellow, 7/2007-2010, Private Practice)
6. Michael Chou, MD (Allergy and Immunology Fellow, 7/2007-6/2009, Private Practice)
7. Taryn Richardson, MD (Allergy and Immunology Fellow 7/2007-6/2009, Private Practice)
8. Ceila Loughlin, MD (Pediatric Pulmonary Fellow, 7/05-6/08, Assistant Professor of Pediatrics, Pediatric Pulmonology, UNC)
9. Reuben Howden, Ph.D (NIEHS postdoctoral fellow in the joint CEMALB/LRB research program 7/2002-2007, currently Assistant Professor, UNC Charlotte)
10. Stephen Parsons, M.D, Ph.D (Resident in Pediatrics-Senior Research Project-winner of the 2002 Outstanding Resident Research Award1/2002-6/2002, Neonatologist, WakeMed)
11. Kelly Griffith, Pharm.D. candidate, School of Pharmacy 2/2001-4/2002, Private Practice
12. Marlowe Eldridge, M.D. (UNC GCRC/NIEHS Fellow, 7/98-8/2000)
13. Gregory Bensch, M.D. (Resident, Internal Medicine, 8/95-7/97)
14. Peter Michelson, M.D. (Pediatric Pulmonary Fellow, 7/93-7/95)
15. Greg Bottei, M.D. (Adult Pulmonary Fellow, 7/93-7/95)

Assistant preceptor:

1. Malinda Longphre, Ph.D., Visiting Postdoctoral Fellow from the laboratory of Steven Kleeberger, Ph.D, School of Hygiene and Public Health, Johns Hopkins University 5/98-7/98
2. Franciose Pradel, Candidate for the M.S. in Pharmacy Administration, School of Pharmacy (Project: The pharmacological and sociocultural management of childhood asthma, Dr. Hartzema-major professor, School of Pharmacy) -completed.

Clinical Teaching /Attending on Clinical Service

1. Primary preceptor for the Allergy/Immunology Fellows in the pediatric allergy/immunology continuity clinic
2. Preceptor for the Pediatric Immunology Service.

Graduate Supervision, Committees

Graduate Dissertation Committee Chair:

1. Gillian Backus-Hazzard, Candidate for the Ph.D degree, Curriculum in Toxicology School of Medicine, University of North Carolina (Graduated 2006)
2. Johnathan Ciencewicky, Candidate for the Ph.D degree, Curriculum in Toxicology School of Medicine, University of North Carolina (Graduated 2007)
3. Tina Stevens, Candidate for the Ph.D degree, Curriculum in Toxicology School of Medicine, University of North Carolina (graduated 2008)
4. Monica High, Candidate for the Ph.D. degree, Curriculum in Toxicology School of Medicine, University of North Carolina (Graduated 2010)
5. Jennifer Nichols, Candidate for the Ph.D. degree, Curriculum in Toxicology School of Medicine, University of North Carolina (Graduated, 2012)
6. Nicole Kurhanewicz, Candidate for the Ph.D degree, Curriculum in Toxicology School of Medicine, University of North Carolina (Graduated 2016)

Graduate Dissertation Committee Member:

1. Katherine Horvath, Candidate for the Ph.D. degree, Curriculum in Toxicology School of Medicine, University of North Carolina (Graduated, Ilona Jaspers, Chair)
2. Rachel Cote, Candidate for the PhD degree, Curriculum of Genetics (present, B Koller, Chair)
3. Maria Mirabelli, MS, Candidate for the Ph.D. degree, Department of Epidemiology, School of Public Health, University of North Carolina (S Wing, Chair).
4. Leslie (Goodno) Elliott, MS, Candidate for the Ph.D degree, Department of Epidemiology, School of Public Health, University of North Carolina (D Loomis, Chair)
5. Mark Sortir, MS, Candidate for the Ph.D degree, Department of Epidemiology, School of Public Health, University of North Carolina

6. Tom Heil, BS, Candidate for the Ph.D degree, Department of Biomedical Engineering (Steve Downs, MD-major professor)

7. Marc Cribbs, B.A., Candidate for the M.S. degree in the Oral Biology Program of the School of Dentistry (Roland Arnold, Ph. D-major professor, School of Dentistry)-7/99

8. H. Henry Liu, DDS, Candidate for the Ph. D. degree in the Oral Biology Program of the School of Dentistry (Project: Role of Neutrophils in Periodontal Disease, Roland Arnold, Ph. D-major professor, School of Dentistry)-5/99

GRANTS:

Grants & Contracts Funded (Active):

US Environmental Protection Agency:

Environmental Protection Agency Cooperative Agreement CR 83578501 "Human Health Effects of Environmental Pollutants" (Catalog of Federal Domestic Assistance Number: 66.511) for the Office of Research and Development Consolidated Research, US EPA. Role: Principal Investigator, Percent Effort 15%. \$800,000 base funding annual total costs, up to \$600,000 annual total costs for supplemental projects (proposed funding period 4/1/2015-3/31/2022).

National Institutes of Health:

National Heart Lung and Blood Institute P01-HL108808- Development of Novel Mucolytic Therapies for Lung Disease (Boucher/Peden). 9/1/2017-6/30/2022. This is a renewal application for a translational program project grant from NHLBI focused on developing and testing thiol based mucolytics for treatment of CF and asthma. CEMALB and Marsico Lung Institute investigators will undertake these studies. The study will involve 2 phase I safety studies and 3 phase II studies in CF and asthma patients. Annual award \$2,656,117/year total costs. Role: multi-PI, 3 calendar months.

National Heart Lung and Blood Institute U24HL138998-01 Title: Data, Modeling and Coordination Center For Precise Network (Ivanova/Couper). UNC serves as the Data Coordinating Center for NHLBI's Precision Interventions for Severe and/or Exacerbation-Prone Asthma (PreclSE) Network. The objective of PreclSE is to conduct sequential, adaptive, phase II/proof of concept trials with precision interventions in stratified patient with severe asthma populations. Patients with severe asthma are heterogeneous, and thus a hard to treat population. This group coordinates the PreclSE network and Drs. Ivanova, Couper, Peden and Kosorok on the PreclSE executive committee. Role: Key Personnel, 10% effort (grant period 9-23-17 to 6-30-23).

National Institute of Environmental Health Sciences Grant R01-ES023349. "Phase II studies of gamma tocopherol as an intervention for environmental asthma". Role: Principal Investigator, Percent Effect 15%, \$2,562,381 total costs throughout the entire grant period (grant period 9/12/2013-4/30/18).

National Center for Advancing Translational Sciences/National Institutes of Health-NCATS UL1TR001111 "UNC Clinical and Translational Science Award" (Institutional Clinical and Translational Science Award). Total Direct Costs \$11,497,887/year (9-26-13 to 4-30-18, J Buse and T Carey, co-PI). Role: Deputy Director for Team Science Services, Percent Effort 20%

National Institutes of Allergy and Infectious Diseases (NIH/Benaroya Res Inst Subcontract) 1UM1AI1109565-01 (Nepom) 5/1/14-1/31/18 \$162,419. The Collaborative Network for Clinical Research in Immune Tolerance. The purpose of this study is to determine if anti-TSLP in conjunction with antigen-specific Immunotherapy can induce tolerance to cat allergen. Role: Site Principal Investigator

National Institute of Environmental Health Sciences R01ES025124, "Gamma tocopherol chemoprevention of wood smoke PM2.5-induced airway inflammation". Role: Principal Investigator Percent Effort 15% \$2,826,485 total costs for entire grant period (3/1/2016-2/28/2021).

National Institute of Allergy and Infectious Diseases (Duke University, Sleasman, J PI) 2T32AI007062 "Research Training in Allergy and Clinical Immunology" Role: multi-Principal Investigator, \$371,126/year, 9/1/2016-8/31/2021

National Center for Advancing Translational Sciences 1-OT3-TR002020 (Ahalt) Carolina Biomedical Data Translator 09/01/16-08/31/18 NIH \$682,061 This proposal focuses on building a pilot that uses data drawn from electronic health records, molecular data, and environmental exposure data. Role: Investigator, 15% effort, Role: Key Personnel

National Science Foundation:

NSF Nanosystems Engineering Research Center for Advanced Self-Sustaining Integrated Sensor Technologies (ASSIST); Total budget annually \$4,000,000, (10/1/2012-9/30/2017) UNC subcontract: \$140,000. Role: UNC Principal Investigator/Medical Director (V. Misra, Lead PI, North Carolina State University, Prime account). Percent Effort 5%.

Grants & Contracts Funded (Pending):

1T32HD094671-01 Unified Program in Therapeutics in Children (UPTiC, Benjamin/Peden mPIs). Submitted to NICHD, training grant to fund pediatric fellows as physician scientists. Role, mPI

Grants & Contracts Funded (Completed):

Environmental Protection Agency CR 83346301 "Health effects of exposure to air pollutants in humans." Total Funds Requested \$17,999,995 over entire funding period (7-1-2007 to 1-31-2015). Maximum direct costs/year \$1,800,000. Role: Principal Investigator, Percent effort: 15%

National Institutes of Health-NIAID. U19AI077437-05S1 in the NIAID Asthma and Allergic Diseases Cooperative Research Center (AADCRC) Program. "Immunobiology of Acute Environmental Asthma" Role: PI. Percent Effort: 5%. Total costs for administrative supplement \$186,113; 3-1-2013 to 2-28-2014).

National Institutes of Health-NIAID. U19AI077437-05 in the NIAID Asthma and Allergic Diseases Cooperative Research Center (AADCRC) Program. "Immunobiology of Acute Environmental Asthma" Role: PI. Percent Effort: 25%. \$1,200,000/year direct costs for project (3-1-2008 to 2-28-2013, on NCE through 2-28-2014).

National Institutes of Health (NIEHS-1RC1ES018417) Investigating gene x environment interaction using human exposures to O3 & LPS. Funding period 10-1-2009 to 9-30-2011. Total Direct Costs: \$660,000 over entire funding period. Role: Principal Investigator Percent effort: 15% on No Cost Extension to 9/30/2012

National Institutes of Health-NHLBI P50HL084934 "SCCOR in Host Factors in Chronic Lung Diseases" Project IV "Smoking and airway innate host defense: in vivo studies" (R Boucher PI). Role Project Leader, Percent Effort: 20% \$300,000 direct costs for project. (9-1-2006 to 9-1-2011, on No Cost Extension to 9/30/2012)

National Institutes of Health (NCCAM- P01AT002620) of the NCCAM Centers for Excellence in CAM Research, "Translational Research Center for CAM Therapy of Asthma" \$998,069/year direct costs, Role Principal Investigator/PPG Program Director. Percent Effort 25% (9/30/2004-9/30/2009)

National Institutes of Health (NIEHS-R01ES012706) "O₃ & LPS-induced airway inflammation in humans *in vivo*" \$205,632/year direct costs 5 year project, Role Principal Investigator, Percent Effort: 5% (9/1/2004-8/31/2009)

National Institutes of Health (NHLBI-RO1 HL080337) Airway Biology of Acute Asthma: Translational Studies. \$350,000/year direct costs, 4 year project, Role Principal Investigator. Percent Effort 15% 4/1/2005-3/31/2009.

Environmental Protection Agency CR829522 "Health effects of environmental pollutants in humans." Includes NIEHS IAG Supplement to Environmental Protection Agency (Philip Bromberg, M.D., Project Manager.; David B. Peden, MD Deputy Project Manager-essential personnel), 5/15/01-5/15/06 Direct costs of entire project \$1.2 million/year: Role: Deputy Principal Investigator, Percent effort: 10%

National Institutes of Health (NIAMS) 1U01AR052181-01. Health and Literacy in Child and Adult Assessment (Guess, H, PI). Role: Co-Investigator Percent Effort (5%)

National Institutes of Health: (NHLBI-R01HL062624). "Endotoxin and Bronchial Inflammation in Asthma" 2 R01 HL62624-04. Total Direct Costs: \$800,000 , 1/1/02-12/31/05 (on no cost extension through 12/06), Role PI, 20% effort.

Glaxo Smith Kline (D. Peden, PI). A 2-period, double-blind, randomized, clean air controlled, crossover study to evaluate the airway inflammation following challenge with inhaled ozone or clean air and intermittent exercise in patients with mild to moderated chronic obstructive pulmonary disease (COPD). \$260,000 direct costs 7/1/03-12/05

National Institutes of Health-NHLBI "CD14 and LPS-induced inflammation in chronic bronchitis". RO1-HL66559 Role, PI: Total direct costs: \$900,000.00, 9/29/00-9/28/04, 25% effort

Cystic Fibrosis Foundation (Wanda O'Neal, PI) 03/01/01 - 02/29/04 CF Therapeutic Targets Revealed by Expression Arrays Project 2: Differential Expression of Inflammation Related Genes Annual direct costs: \$91,401 Unpaid Consultant

Cystic Fibrosis Foundation (Carla Ribiero, PI) 11/15/00 - 11/14/03 Ca²⁺ Signals and Cystic Fibrosis Airway Inflammation Annual direct costs: \$125,000 5% Effort

Center for Indoor Air Research: "Effect of airborne endotoxin exposure on bronchial reactivity to mite allergen in mild allergic asthmatics" (PI: Brian Boehlecke, M.D.) Role: Investigator, Total Direct Costs: \$370,803.00, Active through 12/98, 5% Effort.

"A Randomized, Double-Blind, Double-Dummy, Parallel-Group Trial Assessing the Efficacy and Safety of Fluticasone Propionate 50 or 100 mcg BID Via the Multi-Dose Powder Inhaler, Fluticasone Propionate 50 or 100 mcg BID Via the Diskhaler« and Placebo in Subjects Aged 4-11 Years With Chronic Asthma", Glaxo Research Institute-FLTA2006, Role: P.I., Total costs: \$56,000.10% Effort. 3/13/95-12/96.

"A 12 month, open-label trial to assess the long-term safety of albuterol 200 mcg QID in GR016642x propellant via the MDI in adolescent and adult subjects with asthma" Glaxo Wellcome Inc-SALA3003, Role: P.I., Total costs \$72,976. 10% effort 8/8/96-6/98

"A Randomized, Double-Blind, Double-Dummy, Parallel-Group, Clinical Trial Assessing the Safety and Efficacy of Albuterol Powder 200 mcg QID Via the Discus Versus Albuterol Aerosol 200 mcg (180 ex-actuator) QID via the Metered Dose Inhaler Versus Placebo in Pediatric Subjects Aged 4-11 Years with Asthma" Glaxo Wellcome Inc-SALA 3008, Role: PI, Total Direct Costs: \$46,700, 10% Effort

Glaxo Wellcome Protocol SAS30001: "A stratified, randomized, double-blind, placebo controlled parallel group 12 week trial evaluating the safety and efficacy of the Salmeterol/Fluticasone Propionate combination in GR106642X MDI, 42/88 mcg BID and Salmeterol in propellant 11/12 MDI, 42mcg BID, Fluticasone Propionate in propellant 11/12 MDI, 88mcg BID, and placebo propellant GR106642X MDI in adult and adolescent subjects with asthma" Role: Principal Investigator (for this site), Total Direct Costs: \$51,420 Begins 12/98-completion, 5% effort

Merck: "A randomized, double blind, multicenter study to evaluate the effect of adding either montelukast or salmeterol xinafoate to inhaled fluticasone in adult asthmatics" Role Principal Investigator (for this site), Budget Role: Principal Investigator (for this site), Total costs \$62,712.00 5% effort

Centers for Disease Control and Prevention & National Heart Lung and Blood Institute (DHHS). 1-R01 HL62624-04 "Endotoxin and Bronchial Inflammation in Asthma" Total Direct Costs: \$732,100, 1/1/99-12/31/01, Role PI, 35% effort.

Environmental Protection Agency "Health effects of exposure to air pollutants in humans." (Philip Bromberg, M.D., P.I.), U.S. CR-824915 5/16/96-5/15/01 Direct costs of entire project: \$1,448,389.00/year Role: Co-Principal Investigator, Percent effort: 31.5%

National Institutes of Health (NHLBI) "Viruses and Epithelial Chemokines in Asthmatic Children" (PI: Terry Noah, MD) Role: Co-Investigator, Total Direct Costs: \$675,000 7/01/98-6/30/03, 10% Effort

Investigational New Drug Applications with the FDA:

BB-9998: "Airway Response to Clinical Center Reference Endotoxin in Healthy Adults"

BB-10790: "Airway Response to House Dust Mite Allergen"

71475: "Airway Response to Ozone Exposure"

BB-13004: "Airway response to Clinical Center Reference Endotoxin in Adults using Vitamin and Nutritional Supplements".

BB-13010: "Effect of house dust mite allergen challenge in persons using nutritional supplements"

BB-13086: "Phase 1 Study of *Dermatophagoides farinae* inhalation in humans"

PROFESSIONAL SERVICE:

State of North Carolina

Commissioner on the North Carolina Environmental Management Commission 5/8/2008-6/30/2013

To discipline (Pediatrics, Allergy & Immunology, and Environmental Research):

Professional Society Memberships:

Fellow, American Academy of Pediatrics
Fellow, American Academy of Allergy, Asthma and Immunology
Fellow, American College of Allergy, Asthma and Immunology
Member, American Thoracic Society
Member, North Carolina Thoracic Society
Member, Society for Pediatric Research
Member, Clinical Immunology Society
Member, Society of Toxicology
Member, American Pediatric Society

American Board of Allergy and Immunology (1/1/2003-12/31/2008):

Elected Co-chair elect, 2004, Co-chair 2005 and Chair for 2006
Examination Co-Chair for the 2006 examination
Elected as a Director of the American Board of Allergy and Immunology, term 1/1/2003-12/31/2008

ACGME-Residency Review Committee for Allergy and Immunology

Elected as Vice Chair & Committee Member, 1/2008-6/2014
Elected as Chair of the RRC for the term 7/1/2011-6/30/2014

United States Environmental Protection Agency Regulatory Review Panels

Appointed to the EPA Clean Air Science Advisory Committee-Augmented for Sulfur Oxides Panel, 2/2014, still serving
Appointed to the EPA Clean Air Science Advisory Committee Particulate Matter Review Panel (2015-2018)

Food and Drug Administration Regulatory Review Panels:

Appointed to the Allergenic Products Advisory Committee, October, 2014

National Institutes of Health/EPA Funding reviews:

Regular member, Infectious Diseases, Reproductive Health, Asthma and Pulmonary (IRAP) Conditions Study Section, CSR, NIH term 7/1/2012-6/30/2016

Individual Meetings:

Member, Meeting 2017/12, HLBP, 11/3/2017 (P01, NHLBI)
Chair, Meeting 2017/09 ZAI1-PA-I-J1 (AADCRC U19, NIAID)
Member, Meeting 2017/08 ZHL1-CSR-Q-S1, NHLBI 7/17/2017
Member, Meeting 2017/05, ZTR1-CI-8-01, NCATS (CTSA review) 2/16/2017
Member, Meeting 2017/05, HLBP, 1/11/2017 (translational P01, NHLBI)
Member, Meeting 2017/01, HLBP, 10/4/2016 (P01, NHLBI)
Co-Chair, Meeting 2016/10 IRAP
Member, Meeting 2016/05 ZHL1-PPG-S-M1
Chair, Meeting 2016/05 ZAI1-LAR-I-M1 (AADCRC U19, NIAID)
Member, Meeting 2016/05 IRAP
Member, Meeting 2016/01 ZAT1-SM-38, NCCIH
Member, Meeting 2016/01 IRAP

Member, Meeting 2015/10 IRAP
Member, Meeting 2015/10 HLBP
Member, Meeting 2015/10 IRAP
Member, Meeting 2015/01 ZAI1-QV-I-J1, NIAID
Member, Meeting 2015/01 IRAP
Member, Meeting 2015/01 HLBP
Member, Meeting 2014/10 IRAP
Member, Meeting 2014/10 HLBP, NHLBI
Member, Meeting 2014/05 ZAI1-MM-I-M2, NIAID
Member, IRAP, 12/17/2013, CSR
Member, ZAI1-QV-I-J2, 12/11/2013, NIAID
Member, IRAP, 06/25/2013, CSR
Member, HLBP, 05/13/2013, NHLBI
Chair, ZTR1-CI-2-01, 02/13/2013, NCATS
Member, HLBP, 10/17/2012, NHLBI
Member, IRAP, 10/04/2012, CSR
Member, ZAI1-MFH-I-J2, 09/27/2012, NIAID
Member, HLBP, 08/31/2012, NHLBI
Member, HLBP, 04/27/2012, NHLBI
Member, ZHL1 -CSR -J -(M3), 04/16/2012, NHLBI
Member, HLBP, 04/27/2012, NHLBI
Member, ZHL1 -CSR -H -(M1) 03/04/2011, NHLBI
Member, 2012/01 HLBP 10/06/2011, NHLBI PPG
Member, 2011/05 ZAI1 -WFD -I -(M2), 03/14/2011, NIAID
Member, 2011/05 ZHL1 -CSR -H -(M1) 03/04/2011, NHLBI
Member, ZRG1 CVRS-J 02 M, Member Conflicts: Asthma, Lung Immunology, and Lung Physiology 2/23/2011
Member, 2011/05 HLBP -(02), PPG Review 1/27/2011
Member, NIH/NHLBI PPG review, 9/14/2010
Member, NIH/NHLBI PPG review, 2/18/2010
NHLBI RO1 Review, 12/14/2009
NCCAM, ZAT1 -RB -(02), 2009/10
NCCAM Review Meeting, 7/15/2009
Chair, Clinical Science SEP ZAT1, NCCAM RB 01 6/12/2009
Member, NCCR Special Emphasis Panel, ZRR1 CR-1(01) CTSA 1 02/10/09
Member, Clinical Trials Review Group, NHLBI, June 2008
Chair, Clinical Science Study Section (R21), NCCAM June, 2008
Chair, Clinical Science Study Section (R21), NCCAM Feb, 2008
Chair, Clinical Science Study Section (R21), NCCAM Oct, 2007
Chair, Clinical Science Study Section (R21) 2007/1 ZAT1 NCCAM June 4-5, 2007
Member, PPG review, HLBP workgroup, NHLBI, April 3, 2007
Chair, ZAT1 JH (21) Special Emphasis Panel (Teleconference), NCCAM, 3/14/2007
Chair, Clinical Science Study Section (R21) 2007/1ZAT1JH (18), NCCAM 10/30/06
Member, Special Emphasis Panel DCES-001 Directors Challenge, NIEHS, 8/15/06
Chair, Clinical Science Study Section (R21) 2006/10 ZAT1 JH (16), June 12-13 2006
Member, NCCAM Clinical Science Study Section (R21) ZAT1 JH (15), Feb13 2006
Participant, NIEHS Strategic Planning Forum, Oct 17-18, 2005
Chair; Special Emphasis Panel (ZAT G 15 1) CERC Program 7/12/2005
Member: K23 Award Review Special Emphasis Panel (ZES1 LKB-A) 12/6/2004
Ad hoc Member: Lung Injury, Repair and Remodeling (LIRR) Study Section, 6/8/04
Member: NIEHS Special Emphasis Panel (ZES1 LKB-E(CA)) for RFA ES-03-010 The role of Air Pollutants in Cardiovascular Disease, March 4-5, 2004

Member: NHLBI SEP (ZHL1 CSR-L (M1)) NHLBI Childhood Asthma Research and Education (CARE) Network, February 22, 2004
Member: EPA Review panel of the National Urban Air Toxics Center, 9/17/2003
Member: NIH, CSR Conflict Special Emphasis Panel ZRG1 SSS3 02, 6/17/2003
Member: NIEHS Special Study Section (ZES1 LWJ-B-(DU)) PO1 application, February 26-28, 2003 NIEHS
Member: NHLBI Special Emphasis Panel (ZHL1 CSR - P(S2)) Centers for Reducing Asthma Disparities 02-006, July 18, 2002
Member: Immunology IRG Special Study Section 4 (ZRG1 SSS-4) PO1 application, April 23, 2002, NIH
Member: EPA Grant Review Panel for the Mickey Leland Air Toxics Center, Houston, TX, 2001
Member: Special Emphasis Panel: RFA AI-00-012: Asthma and Allergic Diseases Centers; April 9-11, 2001, NIAID
Chairman: Special Emphasis Panel for SBIR: Topics 72 and 73, NIEHS; 2/2000
Member: Special Emphasis Panel: RFA AI-96-005: Asthma, Allergic and Immunologic Diseases Cooperative Research Centers (AAIDCRC); NIAID, 6/1997

Editorial Appointments:

3/13-date: Editor-in-Chief, ***Current Allergy and Asthma Reports***
3/05-date: Associate Editor for the ***Journal of Allergy and Clinical Immunology***
3/03-date: Editorial Board for the ***Journal of Allergy and Clinical Immunology***
5/04-2010: Editorial Board for the ***Annals of Allergy and Clinical Immunology***
1/02-12/2004: Immunotoxicology/Environmental Section Editor for ***Clinical Immunology***

Ad Hoc Reviewer:

Science Translational Research
New England Journal of Medicine
American Journal of Respiratory and Critical Care Medicine
Journal of Pediatrics
American Journal of Respiratory Cell and Molecular Biology
Journal of Applied Physiology
American Journal of Physiology
Environmental Health Perspectives
Journal of Clinical Investigation
Experimental Lung Research
Journal of the American Medical Association
Clinical and Experimental Allergy
Journal of Immunology
Journal of Allergy and Clinical Immunology
Toxicological Sciences
Environmental Research
Annals of Allergy, Asthma and Immunology

Committee duties in national organizations:

American Academy of Allergy, Asthma and Immunology:

1. Elected to the Presidential Track of the American Academy of Allergy, Asthma and Immunology, Secretary-Treasurer 2015-2016, President-Elect 2016-2017, President 2017-2018, and Past President 2018-2019.
2. At large member, Executive Committee Board of Directors, the American Academy of Allergy, Asthma and Immunology 3/2012-3/2013

3. Board of Directors, the American Academy of Allergy, Asthma and Immunology, term 3/2010-3/2014
4. Pediatric Councilor, Executive Committee-Program Directors Assembly 3/2008-3/2010.
5. Member: Air Pollution Committee 1993-date
6. Prior member of the following Committees:
 - a. Vice Chair; Complementary and Alternative Medicine Committee 3/2008-3/2009
 - b. Rhinitis, Academic Grants, ERT Grants
 - c. Chair: Air Pollution Committee through 2002
 - d. Officer of the Environmental and Occupational Diseases Interest Section:
 - i. Chair, 3/2005-2007,
 - ii. Vice Chair 3/2003-2005,
 - iii. Secretary 2001-2003
 - e. Chair: Workshops Committee through 2001

American Thoracic Society:

Member: Environmental and Occupational Health (EOH) Assembly
Program Committee Member, Environmental and Occupational Health Assembly

Consultancies and Invited Workshops:

1. Executive Committee, NHLBI Precision Interventions for Severe and/or Exacerbation-Prone Asthma (PreCISE) Network 9/2017-date
2. External Advisory Committee, Environmental Polymorphism Registry, NIEHS 11/2016
3. Member, Search Committee, Director for Clinical Research, NIEHS, 2012-13
4. Scientific Advisory Board, NIEHS funded P30 Center, Johns Hopkins University Bloomberg School of Public Health, ongoing through 2013
5. External Advisory Board, NIEHS funded P30 Center, Rutgers University, ongoing through 2016
6. Member, Search Committee, Director of Intramural Research, NIEHS, 2010
7. NIAID/NHLBI Asthma Outcomes Workshop, Co-Chair Exacerbations Committee 3/17/2010, Bethesda, MD
8. Workshop on Harmonization of Human Clinical Chamber Air pollution Exposure Studies, NIEHS, 3/31/2010, RTP, NC
9. Workshop on Environmental Exposure Units, NIAID, 6/18/2010, Bethesda, MD
10. Scientific Advisory Board, Helmholtz Zentrum München-German Research Center for Environmental Health (GmbH), Munich, Bavaria, Germany, through 2012

State Committees:

North Carolina Thoracic Society/American Lung Association:
Chairman: Asthma Camp Committee (9/1992-9/2000)

WITHIN UNC-CHAPEL HILL

University of North Carolina School of Medicine:

Committee Service:

Chair, Review Committee for the Director of the CIDD (5 year review), Fall 2015

Co-Chair, Chair Search Committee, Department of Cell Biology & Physiology, 2012-2013

Co-Chair, Ad Hoc Committee for Review of the Cell & Molecular Physiology Department, Jan-Feb/2013

Member, NC Children's Hospital Strategic Plan Steering Committee, 2012-13

Member, Department of Pediatrics Strategic Plan Steering Committee, 2012-13

Member, School of Medicine Strategic Plan Steering Committee 2012-2013

Ad Hoc Chair, Scientific Integrity Review, UNC School of Medicine, 2009

Member, Research Advisory Committee, UNC School of Medicine (9/2007-date)

Member, Chair Search Committee, Department of Microbiology/Immunology (6/2007-12/2007)

Dean's Advisory Committee (2002-present)

Conflict of Interest Committee (1998-2002)

General Clinical Research Center Advisory Committee (1992-1997)

Attending Duties (Current):

1. Director of the Pediatric Asthma, Allergy & Immunology Clinic (weekly)
2. Pediatric Allergy & Clinical Immunology inpatient consultation and attending service (year round), serves both a clinical and teaching role.

Attending Duties (Previous):

3. General Pediatric Service (supervising and teaching pediatric housestaff and students in required pediatric inpatient service rotation-1month/year 1993-2006)
4. Pediatric Pulmonary Medicine inpatient consultation and admitting service (2 weeks/year 1996-2010, supervising and teaching pediatric house staff and students in this elective pediatric inpatient & outpatient rotation)

Programmatic Activities (Clinical):

1. Chair of the Children's Asthma Management Program Workgroup (Department of Pediatrics and North Carolina Children's Hospital, 2000-2006)
2. UNC Hospitals Asthma Workgroup (ongoing)
3. UNC Children's Hospital Outpatient Children's Implementation Group (January 2015-present)
4. Subspecialty Clinic Task Force for the Department of Pediatrics

University of North Carolina at Chapel Hill-Campus Wide:

Faculty Advisor: Carolina Judo Club at UNC (1994-present)

Faculty Advisory Council, UNC Institute for the Environment (2005-present)

Member, Program Steering Committee, Carolina Environmental Program (7/2003-4/2007)

RESEARCH STATEMENT:

My primary research focus is the impact of environmental agents and pollutants on respiratory and systemic inflammation and physiology, which impacts airway diseases such as asthma, COPD, inhalational injury and airway infection as well as triggering cardiovascular events. Our efforts have led to identification of personal mitigation

strategies (chemoprevention, personal monitoring) for pollutant-induced disease, providing scientific support for regulatory approaches to mitigate pollutant-induced disease at the state and national level. We also have identified and examined genetic, biological, behavioral and societal risk factors that increase risk for pollutant-induced disease. These studies are undertaken within a unique collaborative relationship with the Division of Environmental Public Health of the National Health and Environmental and Effects Research Laboratory of the US EPA. We have also had significant collaborations with NIEHS.

My second (and related) research focus is examination of inflammatory processes and mechanisms in the respiratory tract and extending basic science findings to humans. This includes developing and performing innovative and high quality pre-clinical and clinical investigation of novel treatments for lung and allergic diseases.

These research interests are broadly focused on the biology of airway and systemic inflammation and lung function in humans, with emphasis on asthma, allergic disease and immunological processes in the lung, employing translational, clinical and epidemiological methods to examine these questions with four interrelated foci of interest. Of note, I have developed a number of model airway challenge protocols with ozone, endotoxin, particulate matter and allergen, which allows for screening of potential interventions, testing sensor devices, and identification/confirmation of genetic or physiologic risk factors for pollutant-induced and airway disease. In general, the strength of my research capabilities is in carrying out translational and clinical investigation.

In directing the UNC Center for Environmental Medicine, Asthma and Lung Biology, I also am committed to developing programs and systems by which investigators with translational, cellular, molecular, epidemiological, behavioral and engineering skills work in concert to address these questions. In addition to our long standing collaborations with the EPA, we have undertaken a collaboration with North Carolina State University engineers, resulting in my being named as Medical Director of the NSF Nanosystems Engineering Research Center for Advanced Self-Sustaining Integrated Sensor Technologies (ASSIST) which is led by engineers at North Carolina State University, focused on developing personal monitors for environmental exposures and physiological responses. This effort also involves significant collaborations at the University of Virginia, the Pennsylvania State University, Florida International University and industry partners. Our role is to identify medical applications (mHealth, research and disease specific applications) and do initial phase I testing of developed monitors using our environmental challenge capabilities.

The CEMALB is also one of the founding members of the new Marsico Lung Institute, led by Richard Boucher, MD Director of the Cystic Fibrosis/Pulmonary Research and Treatment Center. This builds on our collaborations with the CF center in translational research on airway diseases, and also includes the medical and pediatric pulmonary divisions. The Marsico Lung Institute has developed a non-profit research company, Spirovention, to catalyze early phase development of lung therapies.

These experiences, coupled with my clinical expertise in pediatrics and allergy/immunology (across all ages) has led to my involvement with the NC Translational and Clinical Sciences Institute, initially leading the Child Health Core, then the Patient and Clinical Interactions Resource (which now includes the Child Health Service, the Clinical and Translational Research Center and Patient Recruitment Service). More recently, my experience in collaborating across a wide range of

disciplines (immunology, cell biology, toxicology, sociology, psychology, burn surgery, and engineering), co-chairing both the review leading to the founding of the Department of Cell Biology and Physiology and the search for its inaugural chair, and the alignment of the Curriculum in Toxicology (Directed by Ilona Jaspers) with the Center for Environmental Medicine, Asthma and Lung Biology have led to my being appointed to an institutional role for translational research.

This role involves my leading the Team Science service of the NC Translational and Clinical Sciences Institute and serving in the School of Medicine Office of Research as Senior Associate Dean for Translational Research. In this research leadership role, I work to identify areas in which multi-disciplinary translational team approaches can be employed to address important health care and environmental questions and needs. This draws on my personal research and leadership experience, with all levels of faculty and researcher.

TEACHING STATEMENT:

During my medical and scientific education, I have had many mentors and role models to look to in developing my teaching style and methods. I have had opportunity to examine teaching in the form of formal lectures, "apprenticeship"-type activities (inpatient ward rotations, graduate school laboratory work), mass media presentations and small group discussion formats. In almost all of these formats, I found that teachers who were able to articulate a respect for the needs and viewpoint of the learners in the audience were almost always the most effective teachers. Their teaching style, be it lecture, ward rotation or other venue, would engage interaction with the audience and invite questions or comments. Conversely, lectures that were essentially restatement of items in textbooks were usually not effective. Using these broad examples, I have tried to employ an interactive, open style of course and subject matter presentation.

In addition to the teaching style, I think it is important to outline how the material being presented may be useful for the learners. That is different from simply mandating that it is important. For example, I will point out examples how the subject matter may be employed in practical situations that may be faced by the members of the learner audience. When presenting a lecture, I try to find areas of common understanding between the learning audience and myself.

Given that my area of expertise is allergy and clinical immunology, this often involves explaining immune response, relating it to clinical states that the learners (usually medical or other health care students) have some experience, and then reinforcing how immune response is relevant to that disease state. I take a similar approach when speaking about allergic disorders. I also invite questions and interaction, both to engage the audience and also to be confident that the initial teaching points are generally understood so that they can be built upon in subsequent discussion.

I also feel it is essential to not simply outline the "basics" of a given topic, but to incorporate very new information, including material from current literature searches. This is important not only to keep the lecture current, but also to demonstrate that no field is ever completely understood and that ongoing review is essential to continued competence in a given area. One very real benefit I get from educational activity is the opportunity to update my own fund of knowledge. Likewise, an interactive teaching style often leads to questions from learners that require real thought and investigation on my

part to address. This process not only allows advancement of didactic knowledge, but also reinforces to the learner the value of their point of view in the learning process.

In 2005, I accepted the first fellows into the Allergy and Immunology Training Program at UNC. We have rapidly grown to become one of the premier programs in the country, especially for persons interested in developing research expertise in phase I human studies focused on either food allergy or on the health effects of environmental pollutants. In the course of developing the allergy program, we have had to develop an entire curriculum which was approved both at the local (UNC) and national (ACGME) levels. This has included a didactic curriculum, methods of evaluation of trainees, faculty and staff, and clinical rotations. Since that time, new recruits (and a program graduate) now lead the program. I remain involved as division chief and as preceptor of the Pediatric Allergy/Immunology Continuity Clinic. To date, we have had 10 graduates and all have passed the national certifying examination.

I am also very involved in graduate student and post-doctoral fellow education. The Curriculum in Toxicology was aligned with the Center for Environmental Medicine, Asthma and Lung Biology in 2012. Even before that time, I was frequently asked to serve as Chair or Member of numerous Toxicology PhD and MS committees. Since then, I remain a frequently called upon member of the Toxicology Curriculum faculty to serve as a mentor or committee chair. I also provide organizational support to the program, which is led by Ilona Jaspers, Deputy Director of the CEMALB. I also have joint faculty status in Microbiology/Immunology and serve on committees for this department as well.

As noted above, we have an active Allergy/Immunology program, with required research activity for trainees. I have been the primary research mentor for a number of these fellows. I also am a senior faculty mentor for a number of junior faculty, who in turn are engaged in education of allergy/immunology and post doctoral fellows. Another significant opportunity for teaching is peer instruction at grand rounds and other didactic presentations (workshops and seminars and national specialty meetings). Key elements in an effective didactic presentation to peers are similar to those cited above. These include using a clear and organized lecture style, identifying key goals of the learners (what do they want out of the experience), addressing the goals of the audience, engaging the audience by asking questions and presenting very novel information. Also important is to be available after the presentation for a time so that people can pose specific questions or discuss specific clinical situations.

Finally, I view teaching for lay populations as a significant portion of my teaching activity. I have been involved in programs for the general public (asthma presentations in the Mini-Medical School program, EPA open house nights) and for school nurses and teachers (I review asthma and allergy issues for the Carrboro-Chapel Hill School System). I have also led development of an asthma action plan form and an asthma education booklet for use by patients (or parents of patients) with asthma. The asthma action plan is also a tool used by housestaff in daily management of their asthma patients.

In summary, I view teaching as a dynamic, interactive process. Engaging the learners and respecting their needs, knowledge and experience are important in developing a comfortable teaching environment. Encouraging active participation by learners and providing cutting edge information on a given topic are the most important goals for teaching.