COLLEGE OF PUBLIC HEALTH CURRICULUM VITAE

T Renée Anthony

January 4, 2022

I. EDUCATION AND PROFESSIONAL HISTORY

A. Education

Institution	Field of Study	Degree <u>Obtained</u>	Degree <u>Date</u>
California Polytechnic State University	Environmental Engineering	BS	1988
University of North Carolina, Chapel Hill	Air Pollution, Radiation, and Industrial Hygiene	MS	1992
University of North Carolina, Chapel Hill	Occupational Hygiene, Exposure Assessment, Fluid Mechanics	PhD	2005

Certification/Licensure

Board	<u>Date</u>
Certified Industrial Hygienist, American Board of Industrial Hygiene	1994 - Present
Certified Safety Professional, Board of Certified Safety Professionals	2001 - Present

B. Professional and Academic Positions

Position Title	Dates of <u>Service</u>	Location/Institution
Technical Assistant	1985	Virginia Water Quality Control Board, Richmond
Student Assistant	1986-1987	California Water Quality Control Board, San Luis Obispo
Associate Engineer	1988-1990	Engineering-Science, Inc, Pasadena
Student Industrial Hygienist	1991	IBM, Research Triangle Park

Position Title	Dates of <u>Service</u>	Location/Institution
Industrial Hygienist	1992-1998	International Paper, Memphis
Manager Safety and Health-West	1998-2000	Fort James Corp, Camas
Research Assistant/Research Fellow	2001-2005	University of North Carolina, Chapel Hill
Assistant Professor	2005-2008	Division of Environmental and Community Health, College of Public Health, University of Arizona, Tucson
Assistant Professor	2014-Present	Department of Occupational and Environmental Health, College of Public Health, University of Iowa, Iowa City
Associate Professor	2014-2018	Department of Occupational and Environmental Health, College of Public Health, University of Iowa, Iowa City
Professor	2018-Present	Department of Occupational and Environmental Health, College of Public Health, University of Iowa, Iowa City

C. Honors, Awards, Recognitions, and Outstanding Achievements

Year	Title
2001-2002	Graduate Assistance in Areas of National Need (GAANN) Fellow
2002	Industrial Hygiene Scholar, 3M
2003-2005	Doctoral Students Training Grant Fellow, NIEHS
2005-2006	Learner Centered Education Grant Participant, University of Arizona
2007	Outstanding Teaching Award for Graduate Teaching, Mel and Enid Zuckerman College of Public Health (MEZCOPH)
2008	Student Section of the Year Award Winner (Faculty Advisor), National AIHA
2010	AIHA Outstanding Committee 2009, Students and Early Career Professionals Volunteer Group (Chair)
2010	Best Seller Publication Award, Mathematical Models for Estimating Occupational Exposure to Chemicals, 2nd Edition (Editor)

Year	Title
2010	Cover image, Annals of Occupational Hygiene, 54(4)
2011	Outstanding Project Team for the Inhalable Sampling Symposium, American Industrial Hygiene Association
2015	Best Paper in the Journal of Occupational and Environmental Hygiene, Michigan Industrial Hygiene Society
2015	Alice Hamilton Award, American Industrial Hygiene Association
2017	Faculty Teaching Award, College of Public Health, University of Iowa
2017	AIHA Fellow, American Industrial Hygiene Association
2017	David L. Swift Memorial Outstanding Aerosol Paper Award 2016, Aerosol Technology Committee of the American Industrial Hygiene Association
2018	Superior Paper Award, ASABE

II. TEACHING

A. **Teaching Assignments** on a semester-by-semester basis (*classroom, seminar, teaching lab*)

1. University of Iowa

	O sums a T itle (Number	Semester	#	Data	Percent
<u>Semester/Year</u>	<u>Course Title/Number</u>	<u>Hours</u>	Students	<u>Role</u>	<u>Responsible</u>
Fall 2009	175:192 Occupational Safety	3	12		100%
Fall 2009	175:230 Occupational Health	3	16		40%
Spring 2010	175:101 Work, Health and the Environment			Guest Lecturer	
Spring 2010	175:233 Control of Occupational Hazards	3	11	Primary Instructor	20%
Fall 2010	175:230 Occupational Health	3	19		53%
Fall 2010	175:230:EXW Occupational Health	3	19		53%
Spring 2011	175:101 Work, Health and the Environment			Guest Lecturer	

<u>Semester/Year</u>	<u>Course Title/Number</u>	Semester <u>Hours</u>	# <u>Students</u>	Role	Percent <u>Responsible</u>
Spring 2011	175:201 Research in Occupational and Environmental Health	1	5		100%
Spring 2011	175:232 Assessing Physical Agent Hazards	3	8		58%
Fall 2011	175:192 Occupational Safety	3	13	Primary Instructor	100%
Fall 2011	175:230 Occupational Health	3	22	Team Teacher	58%
Spring 2012	175:101 Work, Health and the Environment			Guest Lecturer	
Fall 2012	175:230 Occupational Health	3	20	Team Teacher	58%
Spring 2013	175:232:001 Assessing Physical Agent Hazards	3	10	Team Teacher	10%
Spring 2014	OEH:5410 Occupational Safety	3	12	Primary Instructor	100%
Spring 2014	OEH:6110 Rural Health and Agricultural Medicine	3	20	Team Teacher	11%
Summer 2014	OEH:6110 Rural Health and Agricultural Medicine	3	35	Team Teacher	9%
Fall 2014	OEH:5620:0001 Occupational Health	3	15	Primary Instructor	70%
Spring 2015	OEH:6110 Rural Health and Agricultural Medicine	3	20	Team Teacher	6%
Spring 2015	OEH:6460:0001 Quant Exposure Assess: Study Dsgn & Eval	3	6	Primary Instructor	79%
Spring 2015	OEH:7000:0164 Thesis/Dissertation		1	Primary Instructor	100%

<u>Semester/Year</u>	<u>Course Title/Number</u>	Semester <u>Hours</u>	# <u>Students</u>	Role	Percent <u>Responsible</u>
Fall 2015	OEH:5620:0001 Occupational Health	3	21	Primary Instructor	70%
Spring 2016	OEH:5410:0001 Occupational Safety	3	20	Primary Instructor	100%
Fall 2016	OEH:5620:0001 Occupational Health	3	17	Primary Instructor	70%
Fall 2016	OEH:7000:1749 Thesis/Dissertation		2	Primary Instructor	100%
Spring 2017	OEH:6460:0001 Quant Exposure Assess: Study Dsgn & Eval	3	8	Primary Instructor	79%
Spring 2017	OEH:7000:3975 Thesis/Dissertation		5	Primary Instructor	100%
Fall 2017	OEH:5620:0001 Occupational Health	3	19	Primary Instructor	100%
Fall 2017	OEH:7000:7711 Thesis/Dissertation		1	Primary Instructor	100%
Spring 2018	OEH:5410:0001 Occupational Safety	3	18	Primary Instructor	100%
Spring 2018	OEH:7000:8437 Thesis/Dissertation		3	Primary Instructor	100%
Fall 2018	OEH:7000:0679 Thesis/Dissertation		1	Primary Instructor	100%
Spring 2019	CPH:3200:0001 Death at Work	3	11	Primary Instructor	100%
Spring 2019	OEH:7000:3329 Thesis/Dissertation		1	Primary Instructor	100%
Spring 2020	CPH:3200:0001 Death at Work	3	30	Primary Instructor	100%
Spring 2020	CPH:4990:8117 Mentored Indep Undergrad Research in PH		1	Primary Instructor	100%

Semester/Year	Course Title/Number	Semester <u>Hours</u>	# <u>Students</u>	Role	Percent <u>Responsible</u>
Spring 2020	OEH:5410:0001 Occupational Safety	3	24	Primary Instructor	100%
Fall 2020	OEH:6460:0001 Quant Exposure Assess: Study Dsgn & Eval	3	5	Primary Instructor	79%
Spring 2021	CPH:3200:0001 Death at Work	3	48	Primary Instructor	100%
Spring 2022	OEH:5410:0001	3	24	Primary Instructor	100%

B. Students Advised – Removed for public CV

C. Course Materials (syllabi, instructional web pages, computer lab materials) (Description only - *full materials to be included in promotion dossier*)

2005-2008 *At University of Arizona:* Generated all course materials for 3 full courses (CPH 582, 653, 422/522) and for my lesson materials in CPH 575 (radiation). Coordinated course, directed syllabus, and prepared course material for my lectures in CPH 502 (air sampling techniques).

2009-2010 Revised and updated Industrial Hygiene portion of Occupational Health course (175:230); updated materials and course web site (ICON) for 2009.

2009-2010 Revised Occupational Safety (175:192) course, including syllabus, learning objectives, course lessons, ICON course site, problem sets, and exams.

2009-2010 Sought course approval for new course (Quantitative Exposure Assessment). Developed outline for Spring 2011 offering; materials in development.

2010-2011 Developed course materials for 1-credit version of Quantitative Exposure Assessment class offered as 175:201; this will be rolled into Spring 2012 offering of 175:234.

2010-2011 Updated course materials for Assessing Physical Agent Hazards (175:232) course, including syllabus, lectures (9 of 20), labs (4 of 8), homework, exam #1, and ICON course site. Course to be taught Spring 2011.

2010-2011 Updated new materials for Control of Occupational Exposures (175:233) course for last third of materials, including HVAC/IAQ, respiratory protection, personal protective equipment, control banding, and computational fluid dynamics introduction.

2010-2011 Updated new materials for Industrial Hygiene Fundamentals (175:231) course, including syllabus, lectures (12 of 27), labs (4 of 6), homework, and exam #1.

2014-2015 Developed course materials for new 3-credit Quantitative Exposure Assessment class offered as OEH:6460.

2018-2019 Developed course materials for new 3-credit Death at Work undergraduate course (CPH:3600)

2020-21: Revised curriculum for online offerings of Death at Work (CPH:3600) and Quantitative Exposure Assessment (OEH:6460) for distance offerings during COVID pandemic

III. SCHOLARSHIP

A. Publications or Creative Works

1. Peer-Reviewed Papers

1. Anthony TR, Flynn MR, Eisner A (2005). Evaluation of facial features on particle inhalation. *Annals of Occupational Hygiene* 49(2):179-193. PMID: 15734830 10.1093/annhyg/meh082

Contribution: Designed study, developed and performed simulations and field data collection, developed method to analyze data; wrote and edited manuscript.

 Anthony TR, Flynn MR (2006). CFD Model for a 3-D inhaling mannequin: Verification and validation of fluid flow. *Annals of Occupational Hygiene* 50(2):149-156. PMID: 16157607 http://annhyg.oxfordjournals.org/content/50/2/157.short

Contribution: Designed study, developed and performed simulations and field data collection, developed method to analyze data; wrote and edited manuscript

 Anthony TR, Flynn MR (2006). Computational fluid dynamics investigation of particle inhalability. *Journal of Aerosol Science* 37(6):750-765. http://www.sciencedirect.com/science/article/pii/S0021850205001308

Contribution: Designed study, developed and performed simulations, developed method to analyze data; wrote and edited manuscript.

 Anthony TR, Joggerst P, James L, Stephen L, Shogren E, Burgess J (2007). Method development study for APR cartridge evaluation in fire overhaul exposures. *Annals of Occupational Hygiene* 51(8):703-716. PMID: 17989724 http://annhyg.oxfordjournals.org/content/51/8/703.short

Contribution: Study design; developed procedure and setup; completed data analysis; wrote and edited manuscript. (2nd, 3rd authors: MPH advisees)

 Robinson M, Anthony TR, Littau SR, Herckes P, Nelson X, Poplin GS, Burgess JL (2008). Occupational PAH exposures during prescribed pile burns. *Annals of Occupational Hygiene* 52(6):497-508. PMC: PMC2732184 http://annhyg.oxfordjournals.org/content/52/6/497.abstract

Contribution: Analyzed data, prepared manuscript.

 Currie J, Caseman D, Anthony TR (2009). The evaluation of CBRN canisters for use by firefighters during overhaul. *Annals of Occupational Hygiene* 53(5):523-538. PMC: Publisher Provided access, PMID: 19443851 http://annhyg.oxfordjournals.org/content/53/5/523.short

Contribution: Study design; data quality control; oversaw data analysis; reviewed and edited manuscript. (1st and 2nd authors: MPH advisees)

7. Anthony TR, Landazuri AC, Van Dyke M, Volckens J (2010). Design and Computational Fluid Dynamics investigation of a personal, high flow inhalable sampler. *Annals of Occupational Hygiene* 54(4):427-442. PMC: PMC4780251, PMID: 20418278 http://annhyg.oxfordjournals.org/content/54/4/427

Contribution: Study design; generated geometry, simulations, analysis methodology; performed data analysis and prepared manuscript. (2nd author: PhD student)

- 8. Anthony TR (2010). Contribution of facial feature dimensions and velocity parameters on particle inhalability. *Annals of Occupational Hygiene* 54(6):710-725. PMC: PMC4780249, PMID: 20457783 http://annhyg.oxfordjournals.org/content/54/6/710.short
- Koehler KA, Anthony TR, Van Dyke M, Volckens J (2011). A rotating, bluff-body disc for reduced variability in wind tunnel aerosol studies. *Annals of Occupational Hygiene* 55(1):86-96. PMC: PMC4780254, PMID: 21097990 http://annhyg.oxfordjournals.org/content/55/1/86.short

Contribution: Provided input on experimental setup and design; evaluated data and assisted with interpretation, manuscript review and edit.

 Cena L, Anthony TR, Peters TM (2011). A personal nanoparticle respiratory deposition (NRD) sampler. *Environmental Science and Technology* 45(15):6483-6490. PMC: PMC4751023, PMID: 21718022 http://pubs.acs.org/doi/abs/10.1021/es201379a

Contribution: Reviewed data and analysis; reviewed and edited manuscript. (1st author PhD student)

11. Peters TM, Anthony TR, Taylor C, Altmaier R, Anderson KR, O'Shaughnessy PT (2012). Distribution of particle and gas concentrations in a swine gestation confinement animal feeding operations. *Annals of Occupational Hygiene* 56(9):1080-1090. PMC: PMC4777339, PMID: 22904211 http://annhyg.oxfordjournals.org/content/56/9/1080.short

Contribution: Reviewed data and analysis; reviewed and edited manuscript.

 Koehler KA, Anthony TR, Van Dyke M, Volckens J (2012). Solid versus liquid particle sampling efficiency of three personal aerosol samplers when facing the wind. *Annals of Occupational Hygiene* 56(2):194-206. PMC: PMC4776657, PMID: 21965462 http://annhyg.oxfordjournals.org/content/56/2/194.short

Contribution: Provided input on experimental setup and design; evaluated data and assisted with interpretation, manuscript review and edit.

13. Anderson KR, Anthony TR (2013). Uncertainty in aspiration efficiency estimates due to torso simplifications in computational fluid dynamics (CFD) simulations. *Annals of Occupational*

Hygiene 57(2):184-199. PMC: PMC3634334, PMID: 23006817 https://doi.org/10.1093/annhyg/mes063

Contribution: Study design; generated baseline geometry, and simulation protocols, and analysis methodology; reviewed data and analysis, reviewed and edited manuscript. (Lead author: MS advisee)

 Vosburgh DJ, Klein T, Sheehan M, Anthony TR, Peters TM (2013). Design and evaluation of a personal diffusion battery. *Aerosol Science and Technology* 47(4):435-443. PMC: PMC4758324, PMID: 23548103 http://www.tandfonline.com/doi/abs/10.1080/02786826.2012.762757

Contribution: Reviewed data acquisition, analysis and manuscript. (Lead author: PhD student)

 Pavilonis B, Anthony TR, Humann M, Merchant JA, Moore G, Thorne PS, Weisel C, Sanderson W (2013). Indoor and outdoor particulate matter and endotoxin concentrations in an intensely agricultural county. *Journal of Exposure Science and Environmental Epidemiology* 23(3):299-305. PMC: PMC3977744, PMID: 23321860 http://www.nature.com/jes/journal/v23/n3/abs/jes2012123a.html

Contribution: Reviewed and guided final manuscript. (Lead author: PhD student)

16. Anthony TR, Anderson KR (2013). Computational fluid dynamics investigation of human aspiration in low velocity air: Orientation effects on mouth breathing simulations. *Annals of Occupational Hygiene* 57(6):740-757. PMC: PMC3916737, PMID: 23316076 http://annhyg.oxfordjournals.org/content/57/6/740.full.pdf+html

Contribution: Study design; generated geometry and simulations; developed methodology; analyzed data and prepared manuscript.

 Reeve KA, Peters TM, Anthony TR (2013). Wintertime factors affecting contaminant distribution in a swine farrowing room. *Journal of Occupational and Environmental Hygiene* 10(6):287-296. PMC: PMC4753562, PMID: 23316076 http://www.tandfonline.com/doi/abs/10.1080/15459624.2013.777303

Contribution: Designed study, reviewed data quality and analysis, reviewed, edited and prepared final manuscript. (Lead author: MS advisee)

18. Park JH, Peters TM, Altmaier R, Sawvel RA, Anthony TR (2013). Simulation of air quality and cost to ventilate swine farrowing facilities in winter. *Journal of Computers and Electronics in Agriculture*, 98:136-145. PMC: PMC4770838, PMID: 24433305

Contribution: Study design, simulation inputs, validation data, revision, final edits.

 Ramirez MR, Bedford R, Sullivan R, Anthony TR, Kraemer J, Faine B, Peek-Asa C (2013). Toxicology Testing in Fatally Injured Workers: A Review of Five Years of Iowa FACE Cases. Int J Environ Res Public Health 10(11):6154-6168. PMC: PMC3863892 http://www.mdpi.com/1660-4601/10/11/6154/htm

Contribution: Reviewed case information, reviewed and edited manuscript

 Anderson KR, Anthony T (2014). Computational fluid dynamics investigation of human aspiration in low velocity air: Orientation effects on nose breathing simulations. *Annals of Occupational Hygiene* 58(5):625-645. PMC: PMC4305117, PMID: 24665111 http://annhyg.oxfordjournals.org/content/early/2014/03/23/annhyg.meu018.full.pdf+html

Contribution: Assisted with study design; provided simulation codes, geometry, and analysis methodology; guided and troubleshot simulations, reviewed and edited manuscript. (Lead author: PhD advisee)

 Anthony TR, Park JH, Altmaier R, Peters TM (2014). Modeled effectiveness of ventilation with contaminant control devices on indoor air quality in swine farrowing facility. *Journal of Occupational and Environmental Hygiene* 11(7):434-449. PMC: PMC4753560, PMID: 24433305 http://www.tandfonline.com/doi/pdf/10.1080/15459624.2013.875186

Contribution: Developed study design, analyzed simulation output, wrote and edited manuscript.

 Anderson KR, Oleson JJ, Anthony TR (2014). Variability of coefficients of restitution in human facial skin. *Skin Research and Technology* 20(3):335-362. PMC: PMC4753564, PMID: 23006817 http://onlinelibrary.wiley.com/doi/10.1111/srt.12126/pdf

Contribution: Assisted with study design, data analysis, reviewed and edited manuscript. (Lead author: PhD advisee)

23. Anderson KR, Anthony TR (2014). Influence of secondary aspiration on human aspiration efficiency. *Journal of Aerosol Science*, 75:65-80. PMC: PMC4711272 http://www.sciencedirect.com/science/article/pii/S0021850214000640

Contribution: Assisted with study design, provided simulation codes and geometry, guided and troubleshot simulations, reviewed and edited manuscript. (Lead author: PhD advisee)

 Park JH, Mudunkotuwa IA, Mines LW, Anthony TR, Grassian VH, Peters TM (2015). A granular bed for use in a nanoparticle respiratory deposition (NRD) sampler. *Aerosol Science and Technology* 49(3):179-187. PMC: PMC4756655 http://www.tandfonline.com/doi/pdf/10.1080/02786826.2015.1013521

Contribution: Reviewed data throughout study, reviewed and edited manuscript.

 Peters TM, Sawvel RA, Park JH, Anthony TR (2015). Evaluation of a Shaker Dust Collector for Use in a Recirculating Ventilation System. *Journal of Occupational and Environmental Hygiene* 12(9):D201-D210. PMC: PMC4753559, PMID: 25955507 http://www.tandfonline.com/doi/abs/10.1080/15459624.2015.1043056

Contribution: Reviewed study design, provided field performance data, reviewed and edited manuscript.

 Anthony TR, Anderson KR (2015). An empirical model of human aspiration in low velocity air using CFD investigations. *Journal of Occupational and Environmental Hygiene* 12(4):245-255. PMC: PMC47353566, PMID: 2543803 http://www.tandfonline.com/doi/full/10.1080/15459624.2014.970273 Contribution: Designed study, ran simulations, compiled all post-processed data, completed analyses, prepared manuscript. Note: Awarded Best JOEH paper 2015

 Anthony TR, Altmaier R, Jones S, Gassman R, Park JH, Peters TM (2015). Use of recirculating ventilation with dust filtration to improve wintertime air quality in swine farrowing room. *Journal of Occupational and Environmental Hygiene* 12(9):635-646. PMC: PMC4756717, PMID: 25950713 http://oeh.tandfonline.com/doi/pdf/10.1080/15459624.2015.1029616

Contribution: Designed study, processed data, completed analyses, prepared manuscript.

 Green DR, Anthony TR (2015). Occupational noise exposures of employees at locally-owned restaurants in a college town. *Journal of Occupational and Environmental Hygiene* 12(7):489-499. PMC: PMC4753563, PMID: 25738733 http://www.tandfonline.com/doi/pdf/10.1080/15459624.2015.1018517

Contribution: Designed study, reviewed and revised data analysis, heavily edited manuscript. (Lead author: MS advisee)

29. Mudunkotuwa IA, Anthony TR, Grassian VH, Peters TM (2016). Accurate quantification of TiO2 nanoparticles collected on air filters using a microwave-assisted acid digestion method. *Journal of Occupational and Environmental Hygiene* 13(1):30-39. PMC: PMC4706812, PMID: 26181824 http://www.tandfonline.com/doi/abs/10.1080/15459624.2015.1072278

Contribution: Guided study design, reviewed data throughout study, reviewed and edited manuscript.

 Anthony TR, Sleeth DK, Volckens J (2016). Sampling efficiency of modified 37-mm sampling cassettes using computational fluid dynamics. *Journal of Occupational and Environmental Hygiene* 13(2):148-158. PMC: PMC4706812, PMID: 26513395 http://www.tandfonline.com/doi/abs/10.1080/15459624.2015.1091961

Contribution: Conducted study and prepared manuscript.

 L'Orange C, Anderson KR, Sleeth D, Anthony TR, Volckens J (2016). A simple and disposable sampler for inhalable aerosol. *Annals of Occupational Hygiene* 60(2):150-160. PMC: PMC4753567, PMID: 26467335 https://doi.org/10.1093/annhyg/mev065

Contribution: Recommended sampler geometry parameters, reviewed lab methods and data analyses; reviewed and edited manuscript.

32. Landazuri AC, Anthony TR, Saez E (2016). Three-Dimensional Computational Fluid Dynamics Modelling of Particle Uptake by an Occupational Air Sampler using Manually-Scaled and Adaptive Grids. *Journal of Aerosol Sciences*, 95:54-66. PMC: PMC4774053 https://doi.org/10.1016/j.jaerosci.2016.01.004

Contribution: Simulation guidance and geometry, experimental design factors, interpretation of findings and analysis, reviewed and edited manuscript.

33. Jones S, Anthony TR, Sousan S, Altmaier R, Park JH, Peters TM (2016). Evaluation of a lowcost aerosol sensor to assess dust concentrations in a swine building. *Annals of Occupational* *Hygiene* 60(5):597-607. PMC: PMC4879606, PMID: 26944922 https://doi.org/10.1093/annhyg/mew009

Contribution: Field sampling design, participation, coordination; guided data analysis; reviewed and edited manuscript. (Lead author: MS student)

34. Mines LW, Park JH, Mudunkotuwa IA, Anthony TR, Grassian VH, Peters TM (2016). Porous polyurethane foam for use as a particle collection substrate in a nanoparticle respiratory deposition sampler. *Aerosol Science and Technology*, 50(5):497-506. PMC: 5580938 http://dx.doi.org/10.1080/02786826.2016.1164828

Contribution: Study design and feedback on experimental results; reviewed and edited manuscript. (Lead author: MS student)

 Park J, Mudunkotuwa I, Crawford KK, Anthony TR, Grassian VH, Peters TM (2017). Rapid Analysis of the Size Distribution of Metal-Containing Aerosol Aerosol Science & Technology 51(1):108-155. http://dx.doi.org/10.1080/02786826.2016.1245406

Contribution: Contributed to study design and interpretation of results.

 Stewart J, Sleeth D, Handy R, Pahler L, Anthony T, Volckens J (2017). Assessment of increased sampling pump flow rates in a disposable, inhalable aerosol sampler. *Journal of Occupational and Environmental Health*, 14(3):207-213. http://dx.doi.org/10.1080/15459624.2016.1237028

Contribution: Collaboration on sampler design, collaborated on study design, reviewed and edited manuscript.

 Park J, Peters TM, Altmaier R, Jones SM, Gassman R, Anthony TR (2017). Simulation of air quality and operational cost to ventilate swine farrowing facilities in Midwest U.S. during winter. *Transactions of the ASABE*, 60(2):465-477. PMC: PMC4770838 https://elibrary.asabe.org/azdez.asp?AID=47722&t=2

Contribution: Overall study design and direction of study factors; reviewed, edited, and coordinated internal revisions and improve generalizability.

 Vosburgh DJ, Hong Park J, Mines LW, Mudunkotuwa I, Anthony TR, Peters TM (2017). Nonwoven Textile for Use in a Nanoparticle Respiratory Deposition Sampler. *Journal of Occupational and Environmental Hygiene*, 14(5):368-376. http://dx.doi.org/10.1080/15459624.2016.1263391

Contribution: Provided input on data analysis; reviewed and revised manuscript with reinterpretation of findings.

 Anthony TR, Cai C, Mehaffey J, Sleeth DK, Volckens J (2017). Performance of a Prototype High-Flow Inhalable Dust Sampler in a Livestock Production Building. *Journal of Occupational and Environmental Hygiene*, 14(5):313-322. PMC: 27792469 https://doi.org/10.1080/15459624.2016.1240872

Contribution: Design, sample, analyze data, write and edit

40. Anthony TR, Yang AY, Peters TM (2017). Assessment of Recirculating Ventilation with Dust Control

and Heater Replacement to Improve Air Quality in Livestock

Buildings. ASABE, Journal of Agricultural Safety and Health, 23(4):248-263. PMC: PMC5536187, PMID: 29140643 https://doi.org/10.13031/jash.12426

Contribution: Author, design, mentor student, field assessments, data analysis

41. Beswick-Honn JM, Peters TM, Anthony TR (2017). Evaluation of Low-cost Hydrogen Sulfide Monitors for Use in Livestock Production. *Journal of Agricultural Safety and Health, ASABE*, 23(4):265-279. PMC: PMC5704997, PMID: 29140644 10.13031/jash.12530

Contribution: Study design, data analysis, editing, submission. Recipeint of 2018 Superior Paper Award by ASABE.

 Stebounova LV, Gonzalez-Pech NI, Park JH, Anthony TR, Grassian VH, Peters TM (2018). Particle Concentrations in Occupational Settings Measured with a Nanoparticle Respiratory Deposition (NRD) Sampler. *Annals of Work Exposures and Health*, 62(6):699-710. PMID: 29788211 https://academic.oup.com/annweh/article/62/6/699/4999327

Contribution: Study design, mentoring field assessment, review and edit manuscript.

43. Suhl J, Leonard S, Weyer P, Rhoads A, Siega-Riz A, Anthony TR, Burns TL, Conway KM, Langolis PH, Romitti PA (2018). Maternal Arsenic Exposure and Nonsyndromic Orofacial Clefts. *Birth Defects Research*, 110:1455-1467. https://doi.org/10.1002/bdr2.1386

Contribution: Review and edit manuscript focusing on exposure assessment (Lead author: Epi PhD student.)

44. Gonzalez-Pech NI, Stebounova LV, Ustunol IB, Hong Park J, Anthony T, Peters TM, Grassian VH (2019). Size, Composition, Morphology and Health Implications of Airborne Incidental Metal-Containing Nanoparticles. *Journal of Occupational and Environmental Hygiene*, 16(6):387-399. PMID: 30570411

Contribution: Article part of special welding Issue

45. Aurora K, Cheyney M, Gerr FE, Bhagianadh D, Gibbs J, Anthony TR (2020). Assessing Health and Safety Needs and Psychological Stressors among Agricultural Workers in the Midwest. *Journal of Agricultural Safety and Health*, 26(1):45-58. PMC: PMC7250162

Contribution: Advised design, provided content-based interpretation for ASABE readers, provided AG specific context on market, weather, and political factors concurrent with survey deployment and response dates.

 Crawford KJ, Fethke N, Peters TM, Anthony T (2021). Assessment of Occupational Personal Sound Exposures for Music Instructors. *Journal of Occupational and Environmental Hygiene*, 18(3):139-148. PMID: 33507840 (NIHMS 1693860)

Contribution: Assisted with study design and guided data analysis; reviewed and edited manuscript. (Lead author: PhD advisee)

2. Non-Peer-Reviewed Papers (reports, proceedings, etc.)

- DiGiano F, Leith D, Elliot D, Pate B, Napfel CM, Anthony TR (1992). Application of passive dosimetry for detection of leaking underground storage tanks. Water Resources Research Institute Report No. 268, The University of North Carolina https://www.researchgate.net/profile/T_Renee_Anthony/publication/237401457_Application_o f_passive_dosimetry_for_detection_of_leaking_underground_storage_tanks/links/0deec52e6b 4440bcad000000.pdf
- 2. Leonard S, Anthony T, Ramirez MR (2012). FACE Report Case 2012IA009: Bathtub refinishing technician died from inhalation of paint strippers. http://www.cdc.gov/niosh/face/pdfs/12IA009.pdf
- 3. Ramirez MR, Anthony T, Leonard S (2012). FACE Report Case 2011IA075: Truck driver died of thermal injuries. http://www.cdc.gov/niosh/face/pdfs/11IA075.pdf
- 4. Leonard S, Anthony T, Ramirez MR (2012). FACE Report Case 2010IA054: Construction laborer fell from ladder. http://www.cdc.gov/niosh/face/pdfs/10IA054.pdf
- Anthony T, Leonard S, Ramirez MR (2012). FACE Report Case 2011IA035: Convenience store cook died from smoke inhalation.(2011 IA 035). http://www.cdc.gov/niosh/face/pdfs/11IA035.pdf
- Anthony T, Ramirez MR (2012). FACE Report Case 2008IA0: Farmer crushed by corn header when attempting to disengage it from a combine. http://www.cdc.gov/niosh/face/pdfs/08IA081.pdf
- 7. Anthony T, Madsen M, Ramirez MR (2012). FACE Report Case 2009IA037: Farmer caught in compression rollers of hay baler. http://www.cdc.gov/niosh/face/pdfs/09IA037.pdf

3. Books/Monographs

1. (2009). C. B. Keil, C. E. Simmons, & T. R. Anthony (Eds.), Mathematical Models for Estimating Occupational Exposures to Chemicals., Fairfax, VA: *AIHA Press*, ISBN: 978-1-935082-10-1, (2nd ed.).

4. Chapters

- 1. Anthony TR (2009). Computational Fluid Dynamics Modeling for Use in Exposure Assessments. Keil, Simmons, & Anthony (Eds.), Mathematical Models for Estimating Occupational Exposure to Chemicals, Fairfax, VA: *AIHA Press* (2nd ed.).
- 2. Jayjock M, Stenzel M, Anthony TR, Arnold S (2009). Why Model? Keil, Simmons, & Anthony (Eds.), Mathematical Models for Estimating Occupational Exposure to Chemicals, Fairfax, VA: *AIHA Press*, ISBN: 978-1-935082-10-1, (2nd ed.).
- Buikema BS, Anthony T, Gerr FE (2015). Occupational and Environmental Health. S. M. Roberts, R. C. James, & P. L. Williams (Eds.), Toxicology: Environmental and Industrial Applications, Hoboken, NJ: *John Whiley & Sons*, ISBN: 978-0-470-90791-7, (3rd ed.):411-424.

5. Electronic Publications

6. Abstracts

7. Other

- 1. Anthony T (2018). From the Editor: Progress on JOEH procedural changes *Journal of Occupational and Environmental Hygiene* 15(10):D65-D66. https://doi.org/10.1080/15459624.2018.1503029
- Anthony T (2018). From the Editor: Research manuscripts Short report versus technical manuscript, Iowa City,: *Journal of Occupational and Environmental Hygiene* 15(11):D69-D70. https://doi.org/10.1080/15459624.2018.1513253
- 3. Anthony T (2018). From the Editor: Review articles and commentaries *Journal of Occupational and Environmental Hygiene* 15(12):D69-D70. https://doi.org/10.1080/15459624.2018.1513254
- 4. Anthony T (2019). From the Editor: What's a letter to the editor? *Journal of Occupational and Environmental Hygiene* 16(1):D1-D2. https://doi.org/10.1080/15459624.2018.1526008
- 5. Anthony T (2019). From the Editor: JOEH Supplemental Materials *Journal of Occupational and Environmental Hygiene* 16(2):D13-14. https://doi.org/10.1080/15459624.2019.1546040
- 6. Anthony T (2019). From the Editor: Welding Fume Issue *Journal of Occupational and Environmental Hygiene* 16(6):D23-24. https://doi.org/10.1080/15459624.2019.1546040
- 7. Anthony T (2021). From the Editor: Special Topics Issue: Health Inequalities and Impact on Workers, *Journal of Occupational and Environmental Hygiene* 18(5): in press

B. Areas of Research Interest/Current Projects

- 1. Aerosol sampler design and exposure assessment techniques
- 2. Design, evaluation and validation of aerosol samplers
- 3. Engineering interventions to reduce indoor exposure to hazardous air contaminants
- 4. Exposure modeling
- 5. Occupational and community exposure assessment
- 6. Using computational fluid dynamics (CFD) to investigate aerosol transport and exposures

C. Sponsored Research (<u>ALL grants</u>)

(if you are not the PI, state your role or contributions - in a few sentences)

1. Grants Received

Source Title	Number of Months % Effort	Direct Funds Period of Fundi
P.I.		
254-2007-M-19684		\$50,000
CDC/NIOSH/NPPTL AHRQ		06/16/2005-
Development of Test Methods for Evaluating Air-		07/01/2006
Purifying Respirator Cartridge for Firefighting		01/01/2000
Operations		
Jeffrey Burgess, Principal Investigator		
T R. Anthony, <i>Co-Investigator</i>		
T. Anthony, Co-investigator		
The bench-top study developed methods to		
assess contaminant penetrations of firefighting		
smoke through multigas air-purifying respirator		
cartridges.		
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254-2007-M-19684		\$41,997
CDC/NIOSH/NPPTL AHRQ		02/01/2007-
Air Purifying Respirator Cartridge Evaluation for		01/30/2008
Firefighting Operations (Phase II)		
T R. Anthony, Principal Investigator		
The goal of this work is to evaluate the		
performance of CBRN canisters when		
challenged with smoke representative of		
firefighter exposures during overhaul activities.		
R210H009114-01		\$172,835
CDC/NIOSH		08/10/2007-
A High-Flow Personal Sampler for Inhalable		07/31/2009
Aerosol		
John Volckens, Principal Investigator		
T R. Anthony, Co-Investigator		
The major goal of this project was to develop an		
inhalable sampler capable of meeting the ACGIH		
inhalable curve when operated at 10 Lpm. My		
work focused on 3D computational modeling of a		
prototype sampling head developed by the team		
to evaluate its performance and refine the		
prototype design based on these simulations.		

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
R01 OH009290 CDC/NIOSH <i>CFD Investigation of Particle Inhalability in Low</i> <i>Wind Speed</i> T R. Anthony, <i>Principal Investigator</i>	30%	\$625,000 06/01/2008- 05/31/2013
This work proposed to use CFD to investigate particle aspiration in low velocity environments, typical of the occupational environment. The long-term objective of this work was to provide guidance to the development of an international performance criterion for inhalable particle samplers when used indoors with little air movement.		
R21-OH009920-01 CDC/NIOSH <i>Methods to Assess Personal Exposures to</i> <i>Airborne Metallic Nanoparticles</i> Thomas M. Peters, <i>Principal Investigator</i> T R. Anthony, <i>Co-Investigator</i>		\$300,000 06/01/2010- 05/31/2012
This work developed a method to sample and analyze metallic nanoparticle exposures. My work focuses on developing and implementing a sound strategy to assess exposures in the field.		
R01 ES015241-04S1 NIEHS - VICTER <i>Bioengineering Partnership to Improve Chemical</i> <i>Hazard Testing Paradigms</i> Ivan Rusyn, <i>Principal Investigator</i> T R. Anthony, <i>Investigator</i>		\$16,695 09/21/2010- 11/30/2012
This subcontract focused on investigating the fluid flow and aerosol transport into a prototype sampler developed by the University of North Carolina. My work focused on CFD simulations inside the sampler based on 3 inlets to optimize particle transport into the electrostatic region of the sampler.		

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
R01 OH010295 CDC/NIOSH Design, Evaluation, and Validation of a Next- Generation Inhalable Aerosol Sampler T R. Anthony, Principal Investigator Volckens, Principal Investigator	30%	\$338,600 07/01/2012- 05/30/2016
This work proposed to design and optimize an inlet cap for the 37-mm sampler cassette to match the inhalable particulate mass criterion with high sample rate. Dr. Anthony's lab will conduct CFD modeling to investigate entry shape into the sampler and test the performance of the final design.		
R01 OH010238 CDC/NIOSH <i>A Nanoparticle Respiratory Dose Sampler for</i> <i>Metal-based Nanoparticles</i> Thomas M. Peters, <i>Co-Principal</i> Vicki Grassian, <i>Co-Principal</i> T R. Anthony, <i>Co-Principal</i>	1.2 months	\$331,092 09/01/2013- 08/31/2017
This work will result in methodologies to measure personal exposures to airborne metal-based nanoparticles by particle calls. As such, it is applicable to assessing worker exposures to engineered nanomaterial in the burgeoning field of nanotechnology and more traditional occupational settings such as where welding occurs.		
U54 OH007548 CDC/NIOSH Great Plains Center for Agricultural Health & Safety T Renee Anthony, Co-Investigator Matt Nonnenmann, Principal Investigator, University of Iowa	0.72 months 6%	\$900,000 09/30/2016- 09/28/2022

Air Quality Investigation in Livestock Production

Source Title P.I.	Number of Months % Effort	Direct Funds Period of Funding
T42 OH008491 CDC/NIOSH Heartland Center Occupational Safety and Health Training Grant-Education and Research Center Patrick T. O'Shaughnessy, Principal Investigator T R. Anthony, Supporting		\$1,574,524 07/01/2000- 06/30/2019

CDC/NIOSH 21% Great Plains Center for Agricultural Health & Safety T Renee Anthony, Director	09/30/2016- 09/28/2022
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Administration (planning, evaluation) of the GPCAH.

D. Presentations

1. Invited Presentations

<u>Year</u>	<u>Title</u>	Organization	Presentation Type
May 15, 2020	Human Health: Pathogens and Contaminants in Livestock Systems (Anthony TR)	Livestock and Poultry Environmental Learning Community, University of Utah, LPELC, Webinar	Invited Lecture
2. Conference	Presentations/Posters		
<u>Year</u>	<u>Title</u>	Organization	Presentation Type
May 26, 1994	NORM in Pulp and Paper Manufacturing (Anthony TR)	American Industrial Hygiene Conference and Exposition, Forest Products Forum / AIHA, Anaheim, California	Oral
March 6, 1997	Health Hazards in the Paper Industry (Anthony TR)	TN AIHA Local Section Meeting, AIHA Mid-South, Memphis, Tennessee	Oral
June 13, 1997	Evaluating the Effectiveness of Industrial Hygiene Programs (Anthony TR)	Region IV VPPA Annual Conference, VPPPA, Atlanta, Georgia	Oral

Year	<u>Title</u>	Organization	Presentation Type
May 13, 1998	Performance Excellence Programs: Industry Perspective of VPP (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Atlanta, Georgia	Oral
December 4, 1998	VPP: What's In It for Me? (Anthony TR)	Oregon Pulp and Paper Occupational Safety Association Conference, Portland, Oregon	Oral
June 3, 2002	A Comparative Study of Various CFD Models of the Assessment of Breathing Zone Site (Richmond-Bryant J, Anthony TR, Flynn M)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, San Diego, California	Oral
May 10, 2004	Effects of Facial Features on Velocity Field for Inhaling Mannequins (Anthony TR, Flynn M)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Atlanta, Georgia	Oral
May 22, 2005	Development of a CFD Model for Particle Inhalability Studies (Anthony TR, Flynn M)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Anaheim, California	Oral
October 18, 2005	CFD Investigation of Particle Inhalability (Anthony TR, Flynn M)	AAAR Conference, AAAR, Austin, Texas	Poster
October 31, 2005	Modeling Aerosol Inhalation: Evaluating the ACGIH Inhalability Curve (Anthony TR)	Internation Society of Exposure Asssessment Conference, ISEA, Tucson, Arizona	Oral
March 24, 2006	Exposure Modeling with Computational Fluid Dynamics (Anthony TR)	Department of Environmental Health Sciences, University of Michigan, Ann Arbor, Michigan	Oral
May 17, 2006	Development of a Chamber System to Test CBRN Respirators for Firefighting Operations (James L, Joggerst P, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Chicago, Illinois	Poster
May 3, 2007	Fire Overhaul Characterization and Exposure Assessment (Anthony TR)	Workshop for Real-Time Particulate Monitoring, National Institute for Standards and Technology	Oral

Year	<u>Title</u>	Organization	Presentation Type
June 6, 2007	Exposure Assessment at the University of Arizona SX Mine (Blomquist E, Campos D, Currie J, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Philadelphia, Pennsylvania	Poster
June 4, 2008	Evaluation of CBRN Canisters for Use by Firefighters During Overhaul (Caseman D, Curry J, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Minneapolis, Minnesota	Poster
October 3, 2008	Engineering Applications in Public Health (Anthony TR)	Ecosystems Seminar, Arizona State University, Tempe, Arizona, United States	Oral
October 22, 2008	A Rotary Sampling Disc for Unbiased Measurements of Large Particle Aerosols in Wind Tunnel (Koehler KA, Anthony TR, VanDyke M, Volckens J)	AAAR Conference, AAAR, Orlando, Florida	Oral
May 2009	Investigation the Aspiration Efficiency of a New High-Flow Inhalable Aerosol Sampler (Anthony TR, VanDyke M, Volckens J)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Canada	Oral
March 2010	Respiratory Protection of Firefighters During Overhaul (Lutz E, Currie J, Caseman D, Burgess J, Anthony TR)	Stakeholder Meeting, NIOSH Personal Protective Technology Program, Pennsylvania	Poster
May 26, 2010	Computational Fluid Dynamics Investigation of Airflow into the Inhaling Mouth: Effects of Torso Geometry Simplification (Anderson KR, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Denver, Colorado	Poster
May 26, 2010	Development of a Gas Chromatographic Method for Identification of the Herbicide Glyphosate and Its Metabolite Aminomethylphosphonic Acid Using Mass Selective Detection (Lebeck MG, Anthony TR, Sanderson W, Lehmler H)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Denver, Colorado	Poster

Year	<u>Title</u>	Organization	Presentation Type
October 2010	A Sampling Criterion for Nanoparticles (Peters TM, Kim, Chena L, Anthony TR)	AAAR Conference, American Association For Aerosol Research	Oral
October 2010	Characterization of Airborne Particles Emitted During Sanding of Carbon Nanotube Nanocomposite Material (Cena, Cassuccio, Anthony T, Peters)	AAAR Conference	Oral
October 2010	Differences Between Solid and Liquid Particle Aspiration Efficiency for Personal Aerosol Samplers (Koehler, Anthony T, Van Dyke M, Volckens J)	AAAR Conference, AAAR	Oral
May 2011	How to Relate Total and Inhalable Dust Exposures (Anthony TR)	AIHce: Science Symposium 001, AIHA / ACGIH, Portland, Oregon	Oral
May 2011	So, You Are Thinking About Academia? (Anthony TR)	AIHce, AIHA / ACGIH, Portland, Oregon	Oral
May 2011	A Personal Nanoparticle Respiratory Deposition (NRD) Sampler (Cena L, Peters TM, Anthony TR)	AIHce, AIHA / ACGIH, Oregon	Poster
May 2011	Exposure Assessment for Automotive Repair Tasks in an Attached Garage (Krzystowczyk, Anthony T)	AIHce, AIHA / ACGIH, Oregon	Poster
May 18, 2011	Capture Velocity for a Slotted Conical Hood (Hibbs M, Peters TM, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Portland, Oregon	Poster
May 18, 2011	Investigation of Particle Bounce on Human Aspiration Efficiency: A CFD Study (Anderson KR, Anthony T)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Oregon	Poster

Year	<u>Title</u>	Organization	Presentation Type
May 18, 2011	Recruitment and Enrollment of Rural Non-Farming Iowa Households for the Evaluation of Agrichemical Exposures (Lebeck M, Lehmler H, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Portland, Oregon	Poster
August 2011	A Personal Nanoparticle Respiratory Deposition (NRD) Sampler (Cena L, Peters TM, Anthony TR)	NanoEHS, Boston, Massachusetts	Oral
October 18, 2011	Investigation of Particle Bounce on Human Aspiration Efficiency: A CFD Study (Anderson KR, Anthony TR)	American Association of Aerosol Research Conference, AAAR, Orlando, Florida	Poster
June 20, 2012	Incorporating CFD into Exposure Assessments: An Introduction (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Indianapolis, Indiana	Oral
June 20, 2012	Wintertime factors affecting contaminant concentration in farrowing barns (Reeve K, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Indianapolis, Indiana	Poster
October 9, 2012	Evaluation of a Personal Diffusion Battery (Vosburgh D, Peters TM, Sheehan M, Klein T, Anthony TR)	American Association For Aerosol Research, American Association For Aerosol Research, Minneapolis, Minnesota	Poster
May 20, 2013	Top 10 list of IH slip-ups (Round Table 203) (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Montreal, Canada	Oral
May 21, 2013	Human aspiration efficiency estimates: Orientation- averaged, slow-moving air, mouth-breathing (Anderson KR, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Montreal, Canada	Oral
May 22, 2013	Do hat wearers have reduced exposures? An examination of particle aspiration by head coverings (Anderson, Anthony) (Anderson KR, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Montreal, Canada	Poster

<u>Year</u>	<u>Title</u>	Organization	Presentation Type
May 22, 2013	Evaluation of the validity of the inhalable and "total" dust concentration ratio (Getschman B, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Montreal, Canada	Poster
May 22, 2013	Serving more than food: Noise exposures in local restaurants (Green DR, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Montreal, Canada	Poster
June 26, 2013	Improving indoor air quality in swine CAFO using enhance ventilation and engineering controls (Anthony TR, Park JH, Peters TM, Altmaier R, Sawvel R)	International Society of Agricultural Safety and Health, ISASH, Sandusky, Ohio	Oral
September 23, 2013	Development of a Disposable Cassette Inlet for Measuring Inhalable Particles (Sleeth DK, L'Orange C, Volckens J, Anthony TR)	Inhaled Particles XI, British Occupational Hygiene Society, Nottingham, United Kingdom	Oral
September 23, 2013	Sampler efficiencies of 37-mm cassette with inlets modified to collect inhalable particles (Anthony TR, Sleeth, Volckens)	Inhaled Particles XI, British Occupational Hygiene Society, Nottingham, United Kingdom	Oral
October 3, 2013	Effect of secondary aspiration on low velocity human aspiration efficiency estimates: CFD investigation (Anderson KR, Anthony TR)	AAAR, Portland, Oregon	Oral
June 2, 2014	A disposable inhalable aerosol sampler designed to fit a 37- mm cassette (L'Orange C, Anderson KR, Volckens J, Sleeth DK, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, San Antonio, Texas	Oral
June 2, 2014	Investigation of 37-mm CFC inlet modifications on the sampling efficiency of inhaled particles (Anthony TR, Sleeth DK, Volckens J)	American Industrial Hygiene Conference and Exposition, AIHA, San Antonio, Texas	Oral

<u>Year</u>	<u>Title</u>	Organization	Presentation Type
June 2, 2014	Omnidirectional estimates in human aspiration efficiency in low velocity air using CFD (Anthony TR, Anderson KR)	American Industrial Hygiene Conference and Exposition, AIHA, San Antonio, Texas	Oral
June 23, 2014	Improving indoor air quality of swine farrowing buildings (Anthony TR, Gasman R, Sawvel R, Jones S, Altmaier R, Park JH, Peters TM)	International Society of Agricultural Health and Safety, ISASH, Omaha, Nebraska	Oral
June 23, 2014	A method to assess air quality in swine CAFO (Gassman R, Altmaier R, Jones S, Anthony TR)	International Society of Agricultural Health and Safety, ISASH, Omaha, Nebraska	Poster
June 23, 2014	Recirculating ventilation system design for use in swine farrowing barn (Sawvel R, Jones S, Altmaier R, Peters TM, Anthony TR)	International Society of Agricultural Health and Safety, ISASH, Omaha, Nebraska	Poster
November 19, 2014	Evaluation of Air Quality Improvements in a Swine Farrowing CAFO (Anthony TR, Altmaier R, Jones S, Gassman R, Sawvel R, Peters TM)	Midwest Rural Agricultural Safety and Health Conference, GPCAH / ISASH, Ankeny, Iowa	Oral
June 2, 2015	Using CFD to understand large particle inhalability (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Salt Lake City, Utah, United States	Oral
June 3, 2015	Controlling exposures in CAFOs: An engineering approach (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Salt Lake City, Utah, United States	Oral
November 17, 2015	Improving Air Quality in Swine Barns: Results of Intervention Study (Anthony TR)	Midwest Rural Agricultural Safety and Health Conference, ICASH / GPCAH, Decorah, Iowa, United States	Oral
June 23, 2016	Evaluation of Heaters on Air Quality in a Swine Farrowing Barn (Trenkamp E, Altmaier R, Anthony TR)	International Society of Agricultural Safety and Health, International Society of Agricultural Safety and Health, Lexington, Kentucky	Poster

<u>Year</u>	<u>Title</u>	Organization	Presentation Type
November 15, 2016	Evaluation of Heaters on Air Quality in a Swine Farrowing Barn (Trenkamp E, Altmaier R, Anthony TR)	Midwest Rural Agricultural Safety and Health Conference, GPCAH / ICASH, Sioux Center, Iowa	Poster
November 15, 2016	Personal Attenuation Ratings of Farmers: How Well Do Earplugs Really Fit? (De Vito C, Gibbs J, Anthony TR)	Midwest Rural Agricultural Safety and Health Conference, GPCAH / ICASH, Sioux Center, Iowa	Poster
June 7, 2017	Air Quality in Livestock Production Buildings: Developing a Sampling Strategy for Measuring Concentrations of CO2 and Dust in a Commercial Swine Farrowing Building (Knight K, Anthony T, Peters TM, Altmaier R, Gibbs J, Ramirez A, Nonnenmann M)	American Industrial Hygiene Conference and Exposition, AIHA, Seattle, Washington	Poster
June 7, 2017	Design and Evaluation of a High-Flowrate (10 LPM) Nanoparticle Respiratory Deposition (NRD) Sampler (McCollom T, Park JH, Stebounova L, Anthony T, Peters TM)	American Industrial Hygiene Conference and Exposition, AIHA, Seattle, Washington	Poster
June 7, 2017	Evaluating Personal Attenuation Ratings of Midwest Agricultural and Industrial Workers (De Vito C, Gibbs J, Anthony T)	American Industrial Hygiene Conference and Exposition, AIHA, Seattle, Washington	Poster
June 7, 2017	Evaluation of a Prototype Inhalable Sampler: Metal Aerosols (Tompkins A, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Seattle, Washington	Poster
June 7, 2017	Pesticide drift in the Midwest: Database development for tracking events and contributing factors (Ricchio J, Gibbs J, Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA, Seattle, Washington	Poster

<u>Year</u>	<u>Title</u>	Organization	Presentation Type
June 22, 2017	Improving Air Quality in Swine Farrowing Operations: Results of Engineering Interventions (Anthony TR, Peters TM)	2017 Expanding Research Partnerships: State of the Science:, National Institute of Occupational Safety and Health, Aurora, Colorado	Poster
June 22, 2017	Personal Attenuation Ratings (PAR) of Agricultural Workers: How Well Do Earplugs Really Fit (Gibbs J, De Vito C, Anthony TR)	2017 Expanding Research Partnerships: State of the Science:, National Institute of Occupational Safety and Health, Aurora, Colorado	Poster
May 21, 2018	Assessment of occupational personal sound exposures for music instructors (Crawford KJ, Anthony T)	American Industrial Hygiene Conference and Exposition, AIHA/ACGIH, Philadelphia, Pennsylvania	Poster
May 21, 2018	Noise exposure for bus drivers (Pierson A, Anthony T)	American Industrial Hygiene Conference and Exposition, AIHA/ACGIH, Philadelphia, Pennsylvania	Poster
May 21, 2018	Pesticide drift in the Midwest: Database development for tracking events and contributing factors (Ricchio JL, Gibbs JL, Anthony T)	American Industrial Hygiene Conference and Exposition, AIHA/ACGIH, Philadelphia, Pennsylvania	Poster
May 20, 2019	Evaluation of Hearing Protection Device Effectiveness for Musicians (Crawford KJ, Willenbring K, Fleckstein S, Anthony T)	American Industrial Hygiene Conference and Exposition, AIHA/ACGIH, Minneapolis, Minnesota	Poster
November 13, 2019	Community Outreach Grant Writing Skills for Rural Health Professionals (Fethke N, Anthony TR)	Midwest Rural and Agricultural Safety and Health Conference, ICASH/GPCAH, Marshalltown, Iowa	Oral
November 13, 2019	What is hurting farmers in lowa? Data for injury prevention conversations with rural farmers (Anthony TR, Aurora K)	What is hurting farmers in Iowa? Data for injury prevention conversations with rural farmers, ICASH/GPCAH, Marshalltown, Iowa	Oral

<u>Year</u>	<u>Title</u>	Organization	Presentation Type
June 1, 2020	Simulations of Control Strategies to Reduce Sound Exposures for Music Instructors (Crawford K, Anthony TR)	AlHce Exp 2020, American Industrial Hygiene Association / American Conference of Governmentla Industrial Hygienists, Virtual	Poster
3. Other Pres	sentations		
Year	<u>Title</u>	Organization	Presentation Type
March 16, 2006	Particle Size-Selective Sampling Methods (Anthony TR)	AZ AIHA Local Section Meeting/PDC, AIHA Arizona Section, Tucson, Arizona	Continuing Education Talks
June 22, 2007	Exposure Assessment Strategies and Statistics (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Philadelphia, Pennsylvania	Continuing Education Talks
March 28, 2008	Industrial Hygiene Statistics (Anthony TR)	AIHA Local Section PDC, Arizona AIHA, Tucson, Arizona	Continuing Education Talks
May 31, 2008	Exposure Assessment Strategies and Statistics (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Minneapolis, Minnesota	Continuing Education Talks
May 31, 2008	Exposure Modeling: Using Mathematical Models to Estimate Exposure (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Minneapolis, Minnesota	Continuing Education Talks
2009	Public Health Applications for CFD: Particulate Exposure and Sampler Design	Chemical and Biochemical Engineering, University of Iowa, Iowa City, Iowa	Seminar
March 25, 2009	ExposureAssessment Workshop: Statistics (Anthony TR, Sanderson W)	OH Symposium: Exposure Assessment Workshop, Heartland ERC, Iowa City, Iowa	Continuing Education Talks
April 30, 2009	Exposure Modeling: Using Mathematical Models to Estimate Exposure (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Toronto, Canada	Continuing Education Talks

<u>Year</u>	<u>Title</u>	Organization	Presentation Type
May 30, 2009	Exposure Assessment Strategies and Statistics (Anthony TR)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Toronto, Canada	Continuing Education Talks
April 30, 2010	Ventilation Short Course (Anthony TR)	OH Symposium: Industrial Hygiene, Heartland ERC, Iowa City, Iowa	Continuing Education Talks
September 22, 2010	Hearing and Physics of Sound; Noise Analysis and Control (Anthony TR)	Occupational Hearing Conservationist Certification Course, College of Nursing, University of Iowa, Iowa City, Iowa	Continuing Education Talks
May 15, 2011	Particle Size-Selective Aerosol Sampling: Inhalable, Thoracic, and Respirable (Anthony TR, Sleeth D, O'Shaughnessy P)	American Industrial Hygiene Conference and Exposition, AIHA / ACGIH, Portland, Oregon	Continuing Education Talks
September 28, 2011	Hearing and Physics of Sound; Noise Analysis and Control (Anthony TR)	Occupational Hearing Conservationist Certification Course, College of Nursing, University of Iowa, Iowa City, Iowa	Continuing Education Talks
April 4, 2012	Size-Selective Sampling: What, Where, and When? (Anthony TR)	OH Symposium: Session II, Heartland Center, Kirkwood Hotel, Cedar Rapids, Iowa	Continuing Education Talks
June 2012	Particle Size-Selective Aerosol Sampling: Inhalable, Thoracic, and Respirable	AIHce, Indianapolis, Indiana	Continuing Education Talks
September 26, 2012	Hearing and Physics of Sound; Noise Analysis and Control (Anthony TR)	Occupational Hearing Conservationist Certification Course, College of Nursing, University of Iowa, Iowa City, Iowa, United States	Continuing Education Talks
April 8, 2013	Physical Hazards: Introduction to Noise (Anthony TR)	Work, Health and Environment, University of Iowa	Lecture
November 2013	Hearing and Physics of Sound; Noise Analysis and Control (90 min)	Occupational Hearing Conservationist Certification Course, College of Nursing, University of Iowa	Continuing Education Talks

Year	<u>Title</u>	Organization	Presentation Type
March 5, 2014	Hearing and Physics of Sound; Noise Analysis and Control (90 min) (Anthony TR)	Occupational Hearing Conservationist Certification Course, College of Nursing, University of Iowa, Iowa City, Iowa, United States	Continuing Education Talks
April 4, 2014	The Ethical Practice of Occupational Health (3.5 hr) (Anthony TR)	IH Forum, Heartland ERC Continuing Education, Iowa City, Iowa	Continuing Education Talks
September 24, 2014	Hearing and Physics of Sound; Noise Analysis and Control (90 min) (Anthony TR)	Occupational Hearing Conservationist Certification Course, College of Nursing, University of Iowa, Iowa City, Iowa, United States	Continuing Education Talks
March 4, 2015	Hearing and Physics of Sound; Noise Analysis and Control (90 min) (Anthony TR)	Occupational Hearing Conservationist Certification Course, College of Nursing, University of Iowa, Iowa City, Iowa, United States	Continuing Education Talks
September 23, 2015	Hearing and Physics of Sound; Noise Analysis and Control (90 min) (Anthony TR)	Occupational Hearing Conservationist Certification Course, College of Nursing, Iowa City, Iowa, United States	Continuing Education Talks
June 23, 2016	Closing the gap in worker protection: Interventions for manure gas exposures (Anthony TR)	International Society of Agricultural Safety and Health, International Society of Agricultural Safety and Health, Lexington, Kentucky	Conference Presentation
June 23, 2016	Notable Confined Space Events and Issues: Confined Spaces in Agriculture (Anthony TR)	American Industrial Hygiene Conference and Exposition, American Industrial Hygiene Association, Baltimore, Maryland	Roundtable
March 15, 2017	GPCAH: Pit Gases and Testing Equipment (Anthony TR)	Ag Cooperative Safety Directors of Iowa Quarterly Meeting, ACSD-Iowa, Story City, Iowa, United States	Community Requested Presentation
October 3, 2018	GPCAH: Pit Gases and Testing Equipment (Anthony TR)	National Pork Board, Clive, Iowa	Continuing Education Talks

<u>Year</u>	<u>Title</u>	Organization	Presentation Type
May 15, 2020	Building Air Quality and Exposures in Human Health: Pathogens and Contaminants in Livestock Systems (Anthony T)	Livestock and Poultry Environmental Learning Community (LEPC), LEPC	Webinar
June 25, 2020	Preparing to Learn: COVID-19 Health and Safety Precautions for Schools, 25 June 2020 (Anthony T)	College of Public Health Webinar, UI CPH	Webinar
September 20, 2020	CPH Webinar: Facing the Facts - The Role of Face Coverings in Containing COVID-19 (Anthony T)	College of Public Health Webinar, UI CPH	Webinar
October 14, 2020	Facebook Live COVID-19 Update for Iowa State Education Association (Anthony T, Gerr FE)	College of Public Health Webinar, UI CPH	Webinar

IV. SERVICE

A. Offices/appointments held in professional organizations

1. Editorships

Year	<u>Organization</u>	Position
2011-2017	Journal of Occupational and Environmental Hygiene	Editorial Board
2015-2017	Editorial Board, Annals of Occupational Hygiene	Editorial Board
2018-Present	Journal of Occupational and Environmental Hygiene	Editor
2. Review Panels		
Year	<u>Organization</u>	Position

2006	Civilian Research and Development Foundation	Reviewer, Grant Proposals
2008	Research on Diacetyl and Food Flavorings: A Study Protocol, NIOSH Flavorings Research Panel	NIOSH Review Panel Member

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<u>Year</u>	<u>Organization</u>	<u>Position</u>	
2009	Disease, Disability and Injury Prevention and Control Special Emphasis Panel, NIOSH	Reviewer	
2010	Joint Initiative on Environmental Exposure and Health, Jointly sponsored by Medical Research Council, Natural Environment Research Council, Department of Health, Economic and Social Research Council, and Department for Environment, Food and Rural Affairs	Reviewer	
2010	Disease, Disability and Injury Prevention and Control Special Emphasis Panel, NIOSH	Reviewer	
2012	Disease, Disability and Injury Prevention and Control Special Emphasis Panel, NIOSH, Training Project Grants Special Emphasis Panel Workgroup	Reviewer	
2014	Disease, Disability and Injury Prevention and Control Special Emphasis Panel, National Institute of Occupational Safety and Health	Reviewer	
3. Professional Organizations (state and/or national)			
Year	<u>Organization</u>	<u>Position</u>	
1993-Present	American Industrial Hygiene Association		
1997	Mid-South Local Industrial Hygiene Association Section	Director	
2016-Present	American Society of Agricultural and Biological Engineers		
Other Professional Service			
1. Referee Manuscripts/Journal Reviews			
Year	<u>Organization</u>	Position	

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Year	<u>Organization</u>	Position
2008	Chemosphere	Referee Manuscripts
2009-2010	Journal of Air & Waste Management	Reviewer, Publications
2009	Environmental Science and Technology	Reviewer, Publications
2009	Risk Analysis	Referee Manuscripts
2010	Critical Reviews in Toxicology	Referee Manuscripts
2011-Present	Journal of Occupational and Environmental Hygiene	Reviewer, Publications
2011	Science and the Total Environment	Referee Manuscripts
2012-2014	Journal of Aerosol Science	Reviewer, Publications
2015-2016	Journal of Exposure Analysis and Environmental Epidemiology, International Society of Exposure Science	Reviewer, Publications
2016-2017	Journal of Occupational and Environmental Medicine	Reviewer, Publications
2017-Present	Journal of Agricultural Safety and Health	Reviewer, Publications

2. Organize Conference, Paper Session, etc.

<u>Year</u>	<u>Organization</u>	Position
2008	Exposure Modeling Professional Development Course, AIHce	Technical Material Coordinator
2011	Professional Development Course 504: Particle Size-Selective Aerosol Sampling: Inhalable, Thoracic and Respirable, AlHce	Arranger

3. State Committees

Year Organization	<u>Position</u>
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4. National Committees

Year	Organization	Position
2000-2009	Exposure Assessment Strategies Committee - Modeling Project Team, American Industrial Hygiene Association	Member
2000-2006	Exposure Assessment Strategies Committee - 3rd Edition Project Team, American Industrial Hygiene Association	Member
2005-2015	Students and Early Career Professionals Committee, American Industrial Hygiene Association	Secretary, 2008; Vice Chair, 2008; Chair, 2009-2010; Past-Chair, 2010- 2011
2009-Present	Aerosol Technologies Committee, American Industrial Hygiene Association	Member
2010	Volunteer Group Experience Task Team, American Industrial Hygiene Association	Member
2020-Present	Academic Advisory Group, American Industrial Hygiene Association	Member
5. Professionally Relev	vant Community Involvement	
Year	<u>Organization</u>	Position
2012	Field exposure assessment monitoring for heavy equipment manager in Iowa	
6. Professional Consu	lting	
<u>Year</u>	<u>Organization</u>	Position
2006	Hygiene training for field personnel (noise, dust, solvents), PacifiCorps, Salt Lake City, UT	Consultant/Trainer
7. Other		
Year	<u>Organization</u>	Position
2013		Facilitator/writer
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<u>Year</u>	<u>Organization</u> IH Student Focus Group for ABET Continuous Improvement	Position	
2013	Healthier Workforce Center for Excellence Pilot Project Proposals, University of Iowa	Reviewer	
2014	Board of Directors, Journal of Occupational and Environmental Health, LLC	Officer, Vice President	
2014-2017	Student Poster Abstract Review Panel, American Industrial Hygiene Association, Conference Committee	Volunteer	
2015	Board of Directors, Journal of Occupational and Environmental Health, LLC	Officer, President	
2018	Monitoring and Sampling Approaches to Assess Underground Coal Mine Dust Exposures, National Academies of Sciences -Engineering - Medicine	Reviewer, Ad-hoc	
Departmental, Collegiate or University Service			
Year	<u>Organization</u>	Position	
2005-2008	University of Arizona, Non-Ionizing Radiation Safety Committee	Member	
2006-2008	University of Arizona, Judge,	Member	

2006-2008	University of Arizona, Judge, Internship Seminar	Member
2006-2008	Mel and Enid Zuckerman College of Public Health, University of Arizona, MPH Admissions Committee	Member

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2006-2007	Mel and Enid Zuckerman College of Public Health, University of Arizona, Annual performance reviews for Division III	Reviewer
2006	Mel and Enid Zuckerman College of Public Health, University of Arizona, Computer Committee	Member

Year	<u>Organization</u>	<u>Position</u>
2006	Environmental and Occupational Health section, Search Committee	Member
2009-2015	Heartland Educational Resource Center, Pilot Project Proposals	Reviewer
2009-2011	Department of Occupational and Environmental Health, College of Public Health, University of Iowa, Search Committee for Assistant/Associate/Full Professor	Member
2010-Present	Great Plains Center for Agricultural Health, Pilot Project Proposals	Reviewer
2011-2014	University of Iowa, Faculty Senate	Member
2011	Health Sciences Research Week, Graduate Student Posters	Judge
2013-Present	Healthier Workforce Center for Excellence, Pilot Project Proposals	Reviewer
2014-2016	University of Iowa, College of Public Health, OEH Scholarship Committee	Chair
2016-2021	University of Iowa, College of Public Health, OEH Scholarship Committee	Member
2016-2018	Statistical Methods Task Force	Member
2016-Present	MPH Program Committee	Member
2018-2019	Department of Occupational and Environmental Health, College of Public Health, University of Iowa, Search Committee for Community and Behavioral Health DEO	Chair
2020	CIMT COVID-19 UI Planning	Member
2020	UI COVID-19 Health and Safety Committee	Member

F. Media Contributions

<u>Name</u>	<u>Date</u>	<u>Media Type</u>
Cloth Face Covering Donning and Doffing Demo: Ear Straps <u>https://youtu.be/H5yt1xARXQ4</u> Video	2020	Internet
Cloth Face Covering Donning and Doffing Demo: Elastic Bands <u>https://youtu.be/uJeGdZd_Q1Q</u> Video	2020	Internet
Cloth Face Coverings Donning and Doffing Demo: One Tie <u>https://youtu.be/a_IDaULpjkg</u> Video	2020	Internet
Cloth Face Coverings Donning and Doffing Demo: Dual Tie <u>https://youtu.be/pn8psY3EmiA</u> Video	2020	Internet
COVID-19 and the Hierarchy of Controls <u>https://youtu.be/FyBMpdaEaD4</u> Video	2020	Internet
COVID-19 Prevention on the Farm Q&A: Addressing Health Concerns (part 2) <u>https://youtu.be/fXSULpMb5JE</u> Video	2020	Internet
COVID-19 Prevention on the Farm Q&A: Face Coverings (part 1) https://youtu.be/rs33MMbiYKI Video	2020	Internet
COVID-19 Prevention on the Farm Q&A: Tips for selecting a Cloth Face Covering (part 3) <u>https://youtu.be/qil3ZL1btZ0</u> Video	2020	Internet
Symptom Screening during the COVID-19 Pandemic <u>https://youtu.be/iJb0TeLcyf8</u> Video	2020	Internet
UI CPH web page <u>https://www.public-health.uiowa.edu/news-items/renee-anthony-on-stopping-covid-19-in-the-workplace/</u> Renee Anthony on stopping COVID-19 in the workplace, assembled with Dan McMillan	March 16, 2020	On-line
KICI-LP Radio <u>https://w.soundcloud.com/player/?visual=true&url=https%3A%2F%2</u> <u>Fapi.soundcloud.com%2Ftracks%2F779923546&show_artwork=t</u> <u>rue&maxwidth=640&maxheight=960&dnt=1%22%3E%3C/iframe</u> <u>%3E</u>	March 27, 2020	Radio

<u>Name</u> Contacted by Craig Jarvie, KICI-LP (105.3 FM) radio on March 17, 2020. These were the early days of the COVID-19 pandemic, and we discussed general public health precautions and face coverings (why they were not recommended for personal protection at the time).	<u>Date</u>	<u>Media Type</u>
 The Appeal <u>https://theappeal.org/grocery-store-employees-essential-workers-emergency-personnel/</u> Contacted by Lizzie Tribone, from the UK, on March 30, 2020, to discuss protecting grocery store workers. Article published April 8, 2020. 	April 8, 2020	Internet
 UI CPH web page <u>https://www.public-health.uiowa.edu/news-items/students-offer-safety-advice-for-at-home-workers/</u> Article sharing student project to provide the community with safety advise those who are new to "at-home work" due to COVID-19 pandemic; this is a part of a class project, OEH:5410, focused on experiential learning and applying lessons from class to help businesses and workers. 	April 9, 2020	On-line
 Wall Street Journal <u>https://www.wsj.com/articles/the-corporate-coronavirus-plan-to-reopen-make-it-up-as-you-go-11587404618</u> Contacted by Mike Colias with the initial question on "how car companies and other manufacturers are going about turning their plants back on amid virus risk". This turned into a broader article, "Businesses Strive to Reopen from Coronavirus Shutdown" 	April 20, 2020	Newspaper
NBC TV <u>https://www.wrcbtv.com/story/42771819/as-dentists-reopened-in-late-spring-very-few-got-covid19-survey-finds</u> Interviewed by Akshay Syal, Contractor for NBC Universal, regarding the JADA COVID dentistry paper, <u>https://doi.org/10.1016/j.adaj.2020.09.005</u>	October 15, 2020	TV
 UI CPH web page <u>https://www.public-health.uiowa.edu/news-items/covid-qa-is-it-time-to-begin-double-masking/</u> COVID Q&A: Is it time to begin double-masking? assembled with Dan McMillan 	February 8 2021	, On-line
Daily Iowan <u>https://dailyiowan.com/2021/02/16/university-of-iowa-public-health-</u> <u>experts-recommend-double-masking-to-prevent-spread-of-new-</u> <u>covid-19-variants/embed/#?secret=PUvPV0xdAM%22%20data-</u> <u>secret=%22PUvPV0xdAM%22%20width=%22600%22%20height</u> <u>=%22338%22%20frameborder=%220%22%20marginwidth=%22</u>	February 16, 2021	Newspaper

<u>Name</u> <u>0%22%20marginheight=%220%22%20scrolling=%22no%22%3E</u> <u>%3C/iframe%3E</u> <u>Media Type</u>

<u>Date</u>

University of Iowa public health experts say double masking could prevent spread of new COVID-19 variants; interview