



# Stacey M Benson, PhD

## Current Position

Principal Health Scientist

## Discipline Areas

- > Epidemiology
- > Occupational and Health Safety Sciences

## Years' Experience

16

## Joined Cardno

2014

## Education

- > PhD, Epidemiology, University of Pittsburgh Graduate School of Public Health, Pittsburgh, PA, 2011 – 2014
- > MS, Exercise Physiology, University of Pittsburgh, School of Education, Pittsburgh, PA, 2005 - 2007
- > BS, Physics, St. Lawrence University, Canton, New York, 1996-2000

## Summary of Experience

Dr. Stacey M. Benson is a Principal Health Scientist with Cardno ChemRisk in the Pittsburgh, PA office. She received her undergraduate training in physics from St. Lawrence University, completed a Master's of Exercise Physiology from the University of Pittsburgh in 2005, and completed her doctorate in Environmental Epidemiology from the University of Pittsburgh in 2014. The focus of her dissertation was to assess the relationship between industrial and aviation ambient air lead emissions and blood lead levels in children between 0 and 5 years of age. Prior to joining Cardno ChemRisk, Dr. Benson worked as an Associate Service Fellow for the National Institute of Occupational Safety and Health, National Personal Protective Technology Laboratory. During her work with NIOSH, she applied skills in technical writing and editing, data analysis, and 3-D anthropometric computer modeling in an effort to improve respirator headform designs for civilian workers in the U.S. and China. In addition, Dr. Benson's role also included recruiting hundreds of participants for participation in several human subject research studies, drafting research proposals and IRBs, working with participants to ensure understanding of their voluntary involvement in their respective study according to IRB regulations, coordinating participant schedules, addressing participant questions and concerns, and collecting physiological and anthropometric data from the participants.

## Significant Projects

### Regulatory Work

#### *Pre-Market Tobacco Applications*

Dr. Benson is responsible for leading the clinical team to support PMTA submissions. She is responsible for clinical study design and research strategies for human subject research that informs on the health effects of new tobacco products (e.g. electronic nicotine delivery systems, oral nicotine products). These submissions are complex and require systematic literature reviews, pharmacokinetic studies, behavioral surveys, biomonitoring studies, and population modeling to evaluate the overall impact of new tobacco products on population health. Clients also need to test their products for harmful or potentially harmful constituents, conduct leachable and extractable studies, and toxicological evaluations of their products. Dr. Benson works closely with the non-clinical team who provide support on chemistry and toxicology testing for our PMTA clients. As a research group, we provide clinical and non-clinical study oversight, we synthesize research findings, draft briefing packages, and draft full PMTA submissions.

#### *Threshold Limit Value – Arsenic*

Worked with the risk assessment team to evaluate and critique the Expert Committee on Occupational Safety of the Health Council of the Netherlands (DECOS) approach to calculating the threshold limit value for arsenic. Dr. Benson was responsible for conducting a systematic literature review of cohort studies assessing occupational exposures to arsenicals experienced during copper smelting or working with coal fly ash and the development of cancer. The data from the literature review was used to calculate

new threshold limit values which considered additional occupational cohorts and reductions in exposures due to the use of personal protective equipment.

### Litigation Support

Testifying expert in litigation regarding patent infringement for a product that acts as an alternative source of nicotine to replace combustible cigarettes. Focus on the testimony was on the scientific testing and evaluation required for pre-market tobacco applications (PMTA) and modified risk tobacco product applications (MRTP). Topics considered included the clinical (e.g. nicotine pharmacokinetic and pharmacodynamic) response to alternative tobacco products, the behavioral patterns associated with the use of these products (e.g. initiation, cessation, transition, and perception), and the chemical composition of inhaled and oral products.

Testifying expert in litigation regarding lead exposures in adults and children and various health outcomes including but not limited to neurocognitive, neurobehavioral, cardiovascular, and renal endpoints.

Authored affidavits for litigation associated with premarket tobacco applications for electronic nicotine delivery systems.

As project manager, directed project staff to review and summarize case materials, including deposition transcripts and MSDSs.

Prepared case summaries, expert reports, and affidavits for toxic tort litigation cases involving occupational exposures to asbestos fibers, diesel, fiberglass, benzene, and formaldehyde.

Conducted literature reviews to provide litigation support on cases with alleged exposure to asbestos, benzene, diesel, fiberglass, and other chemical agents.

### Occupational Safety and Health

#### *Laboratory Study to Assess Causative Factors Affecting Temporal Changes in Filtering-Facepiece Respirator Fit (2009-2011)*

Dr. Benson's role included recruiting over 200 participants for a multi-visit 3-year study. She ensured that each participant met specific study criteria, worked with participants to ensure understanding of their voluntary involvement in the study according to IRB regulations, coordinated participant schedules for their bi-annual visits and addressed participants questions and concerns. She collected several types of data: physiological, anthropometric facial measurements, 3-D scans using 3dMD technology and fit tests. She was responsible for data analysis and technical writing acting as a co-author on several publications and presentations for national and international conferences.

#### *NIOSH Anthropometric Studies to Develop Headforms for U.S. and Chinese Civilian Populations (2007 – 2010)*

Dr. Benson was responsible for developing headforms that adequately represent the U.S. workforce. In 2003, NIOSH conducted an anthropometric survey of 3,997 subjects and collected data on 26 landmark locations. A subset of the sample (n = 973) were scanned with a Cyberware 3-D Rapid Digitizer. As a certified Polyworks user, she developed modeling techniques that converted scans of 5 subjects whose facial measurements most closely matched criteria indicating a specific head size into a single representative

headform. Five unique sizes were constructed: small, medium, large long/narrow and short/wide. Since their development these headforms have been incorporated into a technical specification standard for ISO TC94 Personal Protective Equipment, SC15 Respiratory Protective Devices, WG1 General, PG5 Human Factors. That standard is titled "ISO 16976-2 Respiratory Protective Devices — Human Factors — Part 2: Anthropometrics". This methodology was then used to construct 5 representative headforms for Chinese civilian workers based on an anthropometric survey of 3000 Chinese civilian workers of whom 350 received scans.

#### Statistical Analysis

Used survey weighted analytical techniques to evaluate nicotine containing product use from nationally representative surveys conducted in the US (e.g. NHANES, PATH, and NYTS).

Performed systematic review and meta-analysis of occupational exposure to diesel exhaust in the railroad industry and the risk of lung cancer.

Used indirect adjustment techniques to evaluate the influence of smoking on lung cancer risk estimates for occupational exposure studies that could not account for such behavior due to a lack of smoking data for individuals included in the original studies.

Conducted quasi-experimental design using logistic and Poisson regression techniques to determine if a chemical spill affected the prevalence of adverse birth outcomes in the potentially exposed population.

Performed a systematic review and meta-analyses of occupational exposure to asbestos and the risk of laryngeal and pharyngeal cancer by fiber type.

Used NHANES data and survey weighted regression analyses to evaluate environmental exposures and childhood blood lead levels.

#### Environmental Sampling

Conducted area sampling on a hydraulic fracturing site to collect background data on total VOCs, 75 individual VOCs, hydrogen sulfide, nitrogen oxides, carbon monoxide, PM2.5, PM10 and ambient noise.

Conducted personal air and area dust sampling to evaluate potential crystalline silica and mineral wool fiber exposures of commercial ceiling installers during simulated ceiling tile installation and removal.

Conducted area sampling for VOCs, SVOCs, sulfur compounds, amines, nitrosamines, and general air quality in a residential setting with alleged paint off-gases.

- > American Thoracic Society (ATS), 2015 – Current
- > International Council on Surgical Plume, Inc. (ICSP), 2015 – Current
  - Inaugural member of the Clinical Advisory Committee
- > International Society of Environmental Epidemiology (ISEE), 2012 – 2013

## Publications

### Peer-Reviewed Publications

- > Towle, K.M., S.M. Benson, N.S. Egnot, and G.M. Marsh. 2021. An Ecological Evaluation of Vinyl Chloride Exposure and Liver Cancer Incidence and Mortality in Texas. *J. Clin Trans Hep.* 9(1), 99.
- > Egnot, N.S., S.M. Benson, M.F. Vater, R. Hazan, O. Patel, and G.M. Marsh. 2020. Systematic review and meta-analysis of epidemiological literature evaluating the association between exposure to man-made vitreous fibers and respiratory tract cancers. *Reg Tox Pharm.* Advance online publication, Jan. 25, 2020. doi: 10.1016/j.yrtph.2020.104585.
- > Marsh, G.M., A.M. Ierardi, S.M. Benson, and B.L. Finley. 2019. Response to letters regarding "Occupational exposures to cosmetic talc and risk of mesothelioma: an updated pooled cohort and statistical power analysis with consideration of latency period." *Inhal Tox.* Advance online publication, Dec. 18, 2019. doi: 10.1080/08958378.2019.1702744.
- > Benson, S.M., J.R. Maskrey, M.D. Nembhard, K.M. Unice, M.A. Shirley, and J.M. Panko. 2019. Evaluation of personal exposure to surgical smoke generated from electrocautery instruments: A pilot study. *Ann Work Exp Health.* Advance online publication, Oct. 3, 2019. doi: 10.1093/annweh/wxz070.
- > Marsh, G.M., A.M. Ierardi, S.M. Benson, and B.L. Finley. 2019. Occupational exposures to cosmetic talc and risk of mesothelioma: An updated pooled cohort and statistical power analysis with consideration of latency period. *Inhal Tox.* Advance online publication August 5, 2019. doi: 10.1080/08958378.2019.1645768.
- > Marsh, G.M., K.A. Keeton, A.S. Riordan, E.A. Best, and S.M. Benson. 2019. Ethylene oxide and risk of lympho-hematopoietic cancer and breast cancer: A systematic literature review and meta-analysis. *Int Arch Occup Env Health.* Advance online publication, May 20, 2019. doi: 10.1007/s00420-019-01438-z.
- > Benson, S.M., K.M. Unice, and M.E. Glynn. 2019. Hourly and daily intake patterns among U.S. caffeinated beverage consumers based on the National Health and Nutrition Examination Survey (NHANES, 2013-2016). *Food Chem Tox.* 125, 271-278.
- > Barlow, C.A., G.M. Marsh, S. Benson, and B.L. Finley. 2018. The mineralogy and epidemiology of cosmetic talc. *Tox Appl Pharm.* Advance online publication, May 30, 2018. doi: 10.1016/j.taap.2018.05.036.
- > Marsh, G.M., A.S. Riordan, K.A. Keeton, and S.M. Benson. 2018. Response to: 'Reanalysis of non-occupational exposure to asbestos and the risk of pleural mesothelioma' by Finkelstein. *Occup Env Med.* Advance online publication, March 24, 2018. doi: 10.1136/oemed-2018-105020.
- > Finley, B.L., S.M. Benson, and G.M. Marsh. 2018. Response to letters regarding "Cosmetic talc as a risk factor for pleural mesothelioma: A weight of evidence evaluation of the epidemiology." *Inhal Tox.* Advance online publication, Feb. 21, 2018. doi: 10.1080/08958378.2018.143850.
- > Marsh, G.M., A.S. Riordan, K.A. Keeton, and S.M. Benson. 2017. Non-occupational exposure to asbestos and risk of pleural mesothelioma: Review and meta-analysis. *Occup Env Med.* 74:838-846.
- > Finley, B.L., S.M. Benson, and G.M. Marsh. 2017. Cosmetic talc as a risk factor for pleural mesothelioma: A weight of evidence evaluation of the epidemiology. *Inhal Tox.* 29(4):179-185.

- > Benson, S.M., P. Ruestow, K.A. Keeton, R.M. Novick, G.M. Marsh, and D.J. Paustenbach. 2017. The 2014 crude 4-methylcyclohexanemethanol chemical release and birth outcomes in West Virginia. *Arch Env Occup Health*. Advance online publication, July 10, 2017. doi: 10.1080/19338244.2017.1350132.
- > Cowan, D.M., S. Benson, T.J. Cheng, S. Hecht, N.M. Boulos, and J. Henshaw. 2017. Evaluation of reported fatality data associated with workers using respiratory protection in the United States (1990-2012). *Arch Env Occup Health*. 72(4):235-246.
- > Finley, B.L., S.M. Benson, and G.M. Marsh. 2017. Cosmetic talc as a risk factor for pleural mesothelioma: A weight of evidence evaluation of the epidemiology. *Inhal Tox*. 29(4):179-185.
- > Marsh, G. and S. Benson. 2017. Response to: 'Pleural mesothelioma and occupational and non-occupational asbestos exposure: A case-control study with quantitative risk assessment' by Ferrante et al. *Occup Env Med*. 74:156-157.
- > Benson, SM, EO Talbott, LL Brink, WC Wu, RK Sharma and GM Marsh. 2016. Environmental Lead and Childhood Blood Lead Levels in US Children: NHANES, 1999-2006. *Archives of environmental & occupational health*, (*accepted*).
- > Brink, LL, EO Talbott, GM Marsh, R Sharma, SM Benson, WC Wu and C Duan. 2016. Revisiting Nonresidential Environmental Exposures and Childhood Lead Poisoning in the US: Findings from Kansas, 2000–2005. *Journal of Environmental and Public Health*.
- > Talbott EO, JR Rager, SM Benson, L Brink, RA Bilonick and C Wu. 2014. A case-crossover analysis of the impact of PM2.5 on cardiovascular disease hospitalizations for selected CDC tracking states. *Environmental Research*. 134:455-465.
- > Brink LL, SM Benson, LP Marshall and EO Talbott. 2014. Environmental Inequality, adverse birth outcomes, and exposure to ambient air pollution in Allegheny County, PA, USA. *J Racial and Ethnic Health Disparities*: 1-6.
- > Talbott EO, JR Rager, LL Brink, SM Benson, RA Bilonick, WC Wu and YY Han. 2013. Trends in acute myocardial infarction hospitalization rates for US states in the CDC tracking network. *PLoS one*. 8(5):e64457.
- > Niezgodna G, Kim JH, Roberge RJ, and Benson SM. 2013. Flat Fold and Cup-Shaped N95 Filtering Facepiece Respirator Face Seal Area and Pressure Determinations: A Stereophotogrammetry Study. *Journal of Occupational and Environmental Hygiene*. 10(8):419-424.
- > Benson SM, JCZgibor, and LL Brink. 2013. Can 8-hydroxy-20-deoxyguanosine be used to assess oxidative stress caused by particulate matter air pollution in the general population? *IJPH*. (2013):1-11. DOI 10.1007/s00038-013-0491-0
- > Benson SM, DA Novak, and MJ Ogg. 2013. Proper use of surgical N95 respirators and surgical masks in the OR. *AORN*. 97(4):457-467.
- > Roberge R, SM Benson, JH Kim. 2012. Thermal burden of N95 filtering facepiece respirators. *Ann. Occup. Hyg*. 56(7): 808-814.
- > Roberge R, G Niezgodna, and SM Benson. 2012. Analysis of forces generated by N95 filtering facepiece respirator tethering devices: A pilot study. *Journal of Occupational and Environmental Hygiene*. 9(8): 517-523.
- > Roberge, RJ, JH Kim, and SM Benson. 2012. N95 filtering facepiece respirator deadspace temperature and humidity. *Journal of occupational and environmental hygiene*, 9(3), 166-171.



- > Kim JH, SM Benson, and RJ Roberge. 2012. Pulmonary and heart rate responses to wearing N95 filtering facepiece respirators. *American journal of infection control*.
- > Roberge, RJ, JH Kim, and SM Benson. 2012. Absence of consequential changes in physiological, thermal and subjective responses from wearing a surgical mask. *Respiratory Physiology & Neurobiology*, 181(1), 29-35.
- > Novak DA and SM Benson. 2011. Understanding the Hazards of Surgical Smoke. *APIC*. Winter 2010/2011: 1-5.
- > Roberge, RJ, E Bayer, JB Powell, A Coca, MR Roberge and SM Benson. 2010. Effect of exhaled moisture on breathing resistance of N95 filtering facepiece respirators. *Annals of occupational hygiene*, 54(6), 671-677.
- > Zhuang Z., SM Benson and D Viscusi. 2010. Digital 3-D headforms with facial features representative of the current US workforce. *Ergonomics*, 53(5), 661-671.
- > Zhuang Z, D Landisittel, SM Benson, R Roberge, and R Shaffer. 2010. Facial Anthropometric Differences among Gender, Ethnicity, and Age Groups. *Annals of Occupational Hygiene* 54(4): 391-402.
- > Zhuang Z, D Slice, SM Benson, S Lynch and D Viscusi. 2010. Shape analysis of 3D head scan data for U.S. respirator users. *EURASIP Journal on Advances in Signal Processing* 2010: 2.
- > Zhuang Z, D Slice, SM Benson, D Landsittel and D Viscusi. 2009. Facial shape variation of U.S. respirator users. *Digital Human Modeling, HCII, LNCS 5620:578-587*.
- > Chen W, Z Zhuang, SM Benson, et al. 2009. New respirator fit test panels representing the current Chinese civilian workers. *Ann. Occup. Hyg.*, Vol. 53:297-305.
- > Zhuang Z, D Groce, A Ahlers, et al. 2008. Correlation between respirator fit and respirator fit test panel cells by respirator size. *J Occup. Evnmt Hyg*. Vol. 5:617-628.
- > Du L, Z Zhuang, H Guan, et al. 2008. Head-and-face anthropometric survey of Chinese workers. *Ann. Occup. Hyg.*, Vol. 52:773-782.
  
- > Benson, S.M., A. Bowman, K.A. Keeton, R.C.D. Reid, E.S. Fung, N.S. Egnot. 2019. The Risk of Lung Cancer Due to Occupational Exposure to Talc: a Meta-Analysis of Miners and Millers. Poster Presentation at the 2019 Society of Toxicology Conference (SOT) Annual Meeting, March 10-14, Baltimore, MD.
- > Egnot, N.S., S.M. Benson, M.F. Vater, R. Hazan, O. Patel, A. Bowman, G.M. Marsh. 2019. Systematic Review and Meta-Analysis of Epidemiological Literature Evaluating the Association Between Exposure to Man-Made Vitreous Fibers and Respiratory System Cancers. Poster Presentation at the 2019 Society of Toxicology Conference (SOT) Annual Meeting, March 10-14, Baltimore, MD.
- > Towle, K.M., S.M. Benson, N.S. Egnot, G.M. Marsh. 2019. An Ecological Evaluation of Vinyl Chloride Exposure and Liver Cancer Incidence and Mortality in Texas. Poster Presentation at the 2019 Society of Toxicology Conference (SOT) Annual Meeting, March 10-14, Baltimore, MD.
- > Marsh, G.M., K.A. Keeton, A. Riordan, E. Best and S.M. Benson. 2018. Ethylene Oxide and Human Cancer Risk: A Systematic Literature Review and Meta-Analysis. Accepted for presentation at American Industrial Hygiene Conference & Exposition (AIHce), Philadelphia, PA, May 20-23.

## Presentations

- > Benson, S.M., J.R. Maskrey, M. Nembhard, and J.M. Panko. 2018. Characterization of Surgical Smoke Generated from Electrocautery Instruments: A Pilot Study. Poster Presentation at the 2018 American Occupational Health Conference (AOHC) 103rd Annual Meeting, April 29-May2, 2018, New Orleans, LA.
- > Burns; A.M., S.M. Benson, E. Best; D.M. Hollins and B.L. Finley. 2018. An Ecological Epidemiology Investigation of Talc Consumption in the US and Trends in Female Cancer Rates. Accepted for Presentation at Society of Toxicology Annual Meeting, March 11-15, 2018, San Antonio, TX.
- > Keeton, KA, SM Benson, RM Novick, GM Marsh and DJ Paustenbach. 2017. The 2014 Crude 4-Methylcyclohexanemethanol Chemical Release and Birth Outcomes in West Virginia. Poster presentation at Society of Epidemiologic Research. June 20-23, 2017, Seattle, WA.
- > Benson, S.M., G.M. Marsh and B.L. Finley. 2017. Cosmetic Talc as a Risk Factor for Mesothelioma: A Weight-of-Evidence Evaluation. Abstract #1290. Poster Presentation at Society of Toxicology Annual Meeting. March 12-16, 2017. Baltimore, Maryland.
- > Burns, A.M., S.M. Benson. 2017. Emerging Litigations: Cosmetic Talc and Hydraulic Fracturing. Session 1: State of Science in Cosmetic Talc Litigation. Continuing Legal Education (CLE) Seminar provided by Dickie, McCamey & Chilcote, P.C. August 23, 2017, Pittsburgh, PA.
- > Benson, SM, S Batdorf, KM Hitchcock, DA Galbraith and BL Finley. 2016. Asbestos exposure and pharyngeal and laryngeal cancer risk: A fiber-type specific meta-analysis. Abstract #2974. Poster Presentation at Society of Toxicology Annual Meeting. March 13-17, 2016. New Orleans, Louisiana.
- > Panko, JM, SM Benson and ML Kreider. 2016. Meta-analysis of lung cancer risk related to diesel exposure by occupation and evaluation of exposure response. Abstract #2976. Poster Presentation at Society of Toxicology Annual Meeting. March 13-17, 2016. New Orleans, Louisiana.
- > Benson SM, P Ruestow, T Duke and PK Scott. 2015. "Influence of asthma, smoking, and obesity on lung function parameters in the US adult population: NHANES 2007-2012." Poster at the annual American Thoracic Society conference.
- > Brink L, L Marshall, SM Benson and E Talbott. 2013. "Adverse Birth Outcomes Associated with Exposure to Ambient Air Pollution in Allegheny County, PA, US" Poster at the annual International Society for Environmental Epidemiology conference.
- > Sharma R, E Talbott, L Brink, G Marsh, SM Benson and W Wu. 2013. "Geospatial Modeling of Elevated Blood Lead Levels in Children" Poster at the annual International Society for Environmental Epidemiology conference.
- > Talbott E, J Rager, L Brink and SM Benson. 2013. "The Relationship of Ambient Fine Particulate Pollution (PM2.5) and Cardiovascular Disease Hospitalizations" Poster at the annual International Society for Environmental Epidemiology conference.
- > Benson S, R Sharma and E Talbott. 2012. "Estimated Risk of Fatal Cancer due to the Nuclear Emergency at the Fukushima Daiichi Plant" Poster at the annual International Society for Environmental Epidemiology conference.
- > Benson S, T Rozzi, J Snyder, and D Novak. 2011. "Aromatic Hydrocarbon Adsorption Characteristics of Disposable Filtering Facepiece Respirators that Contain Activated

- Charcoal. Poster at the National Institute of Occupational Safety and Health, Personal Protective Technology Stakeholders Meeting.
- > Roberge RJ, SM Benson, JB Powell and R Shaffer. 2011. "The Impact of a Surgical Mask and Filtering Facepiece Respirators on Human Thermoregulation" Poster at the National Institute of Occupational Safety and Health, Personal Protective Technology Stakeholders Meeting.
  - > Zhuang Z, A Palmiero, SM Benson, M Bergman, R Roberge and J Williams. 2011. Laboratory Study to Assess Causative Factors Affecting Temporal Changes in Filtering-Facepiece Respirator Fit: Part II – One Year Assessment of Fit Changes" Poster at the National Institute of Occupational Safety and Health, Personal Protective Technology Stakeholders Meeting.
  - > Zhuang Z, SM Benson, S Lynch and R Roberge. 2010. "Laboratory study to assess causative factors affecting temporal changes in filter-facepiece respirator fit: a pilot study" Presentation at International Society of Respiratory Protection.
  - > Benson SM, W Chen, J Hsiao, D Yu, H Wang and Z Zhuang. 2010. Digital 3-D headforms representative of the current Chinese workers. Poster at American Industrial Hygiene Conference & Exposition
  - > Zhuang Z, R Roberge, S Lynch and SM Benson. 2010. "Laboratory study to assess the causative factors affecting temporal changes in filtering-facepiece respirator fit: Part I – Study Protocol." Presentation at American Industrial Hygiene Conference & Exposition.
  - > Zhuang Z, D Viscusi and SM Benson. 2009. Digital 3-D Headforms Representative of the Current U.S. Work Force. Presentation at American Industrial Hygiene Conference & Exposition.
  - > Zhuang Z, D Viscusi, SM Benson and R Shaffer. 2009. "Development of Computer-Aided Face-Fit Evaluation Methods. Poster at the National Institute of Occupational Safety and Health, Personal Protective Technology Stakeholders Meeting.
  - > Zhuang Z, D Viscuis, D Slice, SM Benson and D Landsittel. 2009. "Facial shape variation of U.S. respirator users." Presentation at Human-Computer Interaction International 2009.
  - > Zhuang Z, D Viscusi and SM Benson. 2008 "Digital 3-D Headforms representative of the current U.S. work force." Presentation at International Organization for Standardization.
  - > Chen W, Z Zhuang, SM Benson, L Du, D Yu, D Landsittel, et al. 2008. "New Respiratory Fit Test Panels Representing the Current Chinese Civilian Workers" Presentation at International Society of Respiratory Protection.
  - > Zhuang Z, D Groce, HW Ahlers, W Iskander, D Landsittel, S Guffey, et al. 2008. "Correlation between Respiratory fit and respirator fit test panel cells by respirator size". Presentation at International Society of Respiratory Protection.