

December 9, 2021

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[Fine Particulate Matter and Dementia Incidence in the Adult Changes in Thought Study.](#)

Shaffer RM, Blanco MN, Li G, Adar SD, Carone M, Szpiro AA, Kaufman JD, Larson TV, Larson EB, Crane PK, **Sheppard L**. Environ Health Perspect. 2021 Aug;129(8):87001. doi: 10.1289/EHP9018. Epub 2021 Aug 4. PMID: 34347531 Free PMC article.

RESULTS: We report 1,136 cases of incident dementia among 4,166 individuals with nonmissing APOE status. Mean [mean standard deviation (SD)] 10-y average **PM2.5** was 10.1 (2.9) mug/m³. Each 1-mug/m³ increase in the moving average of 10-y **PM2.5** was associ ...

□ 2

[Depression and anxiety in a manganese-exposed community.](#)

Racette BA, Nelson G, Dlamini WW, Hershey T, Prathibha P, Turner JR, Checkoway H, **Sheppard L**, Searles Nielsen S. Neurotoxicology. 2021 Jul;85:222-233. doi: 10.1016/j.neuro.2021.05.017. Epub 2021 Jun 2. PMID: 34087333

To document community-level differences in Mn exposure, we measured airborne PM(2.5)-Mn. RESULTS: Meyerton residents had BDI scores **5.63** points (95 % CI 3.07, 8.20) higher than Ethembalethu residents, with all questions contributing to this significant difference. S ...

□ 3

[Fine Particulate Matter and Markers of Alzheimer's Disease Neuropathology at Autopsy in a Community-Based Cohort.](#)

Shaffer RM, Li G, Adar SD, Dirk Keene C, Latimer CS, Crane PK, Larson EB, Kaufman JD, Carone M, **Sheppard L**. J Alzheimers Dis. 2021;79(4):1761-1773. doi: 10.3233/JAD-201005. PMID: 33459717

BACKGROUND: Evidence links fine particulate matter (**PM2.5**) to Alzheimer's disease (AD), but no community-based prospective cohort studies in older adults have evaluated the association between long-term exposure to **PM2.5** and markers of AD neuropatholog ...

□ 4

[Concentrations of criteria pollutants in the contiguous U.S., 1979 - 2015: Role of prediction model parsimony in integrated empirical geographic regression.](#)

Kim SY, Bechle M, Hankey S, **Sheppard L**, Szpiro AA, Marshall JD. PLoS One. 2020 Feb 18;15(2):e0228535. doi: 10.1371/journal.pone.0228535. eCollection 2020. PMID: 32069301 Free PMC article.

We compute annual-average concentrations from regulatory monitoring data for PM10, **PM2.5**, NO₂, SO₂, CO, and ozone at all monitoring sites for 1979-2015. ...

□ 5

[Fine Particulate Matter Exposure and Cerebrospinal Fluid Markers of Vascular Injury.](#)

Shaffer RM, **Sheppard L**, Peskind ER, Zhang J, Adar SD, Li G. J Alzheimers Dis. 2019;71(3):1015-1025. doi: 10.3233/JAD-190563. PMID: 31476158 Free PMC article.

A **5** mug/m³ increase in 1-year average **PM2.5**, but not 7-day average, was associated with elevated e-selectin (53.3 (11.0, 95.5) pg/ml). ...These results are aligned with prior research linking **PM2.5** to vascular damage in other biofluids as ...

□ 6

[Association Between Long-term Exposure to Ambient Air Pollution and Change in Quantitatively Assessed Emphysema and Lung Function.](#)

Wang M, Aaron CP, Madrigano J, Hoffman EA, Angelini E, Yang J, Laine A, Vetterli TM, Kinney PL, Sampson PD, **Sheppard LE**, Szpiro AA, Adar SD, Kirwa K, Smith B, Lederer DJ, Diez-Roux AV, Vedal S, Kaufman JD, Barr RG. JAMA. 2019 Aug 13;322(6):546-556. doi: 10.1001/jama.2019.10255. PMID: 31408135 Free PMC article.

Ambient concentrations of O₃, **PM_{2.5}**, NO_x, and black carbon at study baseline were significantly associated with greater increases in percent emphysema per 10 years (O₃: 0.13 per 3 parts per billion [95% CI, 0.03-0.24]; **PM_{2.5}**: 0.11 per 2 mug/m³ [95% CI, ...

□ 7

[Vulnerability to the Cardiovascular Effects of Ambient Heat in Six US Cities: Results from the Multi-Ethnic Study of Atherosclerosis \(MESA\).](#)

Gronlund CJ, **Sheppard L**, Adar SD, O'Neill MS, Auchincloss A, Madrigano J, Kaufman J, Diez Roux AV. Epidemiology. 2018 Nov;29(6):756-764. doi: 10.1097/EDE.0000000000000910. PMID: 30113342 Free PMC article.

OBJECTIVES: To assess whether (1) heat (2-day mean temperature above local 75th percentiles) is associated with increased heart rate and decreased blood pressure, controlling for age, time, season, daily ozone, and daily particulate matter (**PM_{2.5}**) and (2) associatio ...

□ 8

[Estimated Changes in Life Expectancy and Adult Mortality Resulting from Declining **PM_{2.5}** Exposures in the Contiguous United States: 1980-2010.](#)

Fann N, Kim SY, Olives C, **Sheppard L**. Environ Health Perspect. 2017 Sep 6;125(9):097003. doi: 10.1289/EHP507. PMID: 28934094 Free PMC article.

Estimating the corresponding change in population exposure and **PM_{2.5}**-attributable risk of death prior to the year 2000 is made difficult by the lack of **PM_{2.5}** monitoring data.

OBJECTIVES: We used a new technique to estimate historical **PM_{2.5}** ...

□ 9

[Historical Prediction Modeling Approach for Estimating Long-Term Concentrations of **PM_{2.5}** in Cohort Studies before the 1999 Implementation of Widespread Monitoring.](#)

Kim SY, Olives C, **Sheppard L**, Sampson PD, Larson TV, Keller JP, Kaufman JD. Environ Health Perspect. 2017 Jan;125(1):38-46. doi: 10.1289/EHP131. Epub 2016 Jun 24. PMID: 27340825 Free PMC article.

INTRODUCTION: Recent cohort studies have used exposure prediction models to estimate the association between long-term residential concentrations of fine particulate matter (**PM_{2.5}**) and health. Because these prediction models rely on **PM_{2.5}** monitoring da ...

□ 10

[Association between air pollution and coronary artery calcification within six metropolitan areas in the USA \(the Multi-Ethnic Study of Atherosclerosis and Air Pollution\): a longitudinal cohort study.](#)

Kaufman JD, Adar SD, Barr RG, Budoff M, Burke GL, Curl CL, Daviglius ML, Diez Roux AV, Gassett AJ, Jacobs DR Jr, Kronmal R, Larson TV, Navas-Acien A, Olives C, Sampson PD, **Sheppard L**, Siscovick DS, Stein JH, Szpiro AA, Watson KE. Lancet. 2016 Aug 13;388(10045):696-704. doi: 10.1016/S0140-6736(16)00378-0. Epub 2016 May 24. PMID: 27233746 Free PMC article.

BACKGROUND: Long-term exposure to fine particulate matter less than 2.5 µm in diameter (**PM2.5**) and traffic-related air pollutant concentrations are associated with cardiovascular risk. ...Participant-specific pollutant concentrations averaged over the years ...

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[Prediction of fine particulate matter chemical components with a spatio-temporal model for the Multi-Ethnic Study of Atherosclerosis cohort.](#)

Kim SY, **Sheppard L**, Bergen S, Szpiro AA, Sampson PD, Kaufman JD, Vedal S. J Expo Sci Environ Epidemiol. 2016 Sep;26(5):520-8. doi: 10.1038/jes.2016.29. Epub 2016 May 18. PMID: 27189258 Free PMC article.

Although cohort studies of the health effects of **PM2.5** have developed exposure prediction models to represent spatial variability across participant residences, few models exist for **PM2.5** components. We aimed to develop a city-specific spatio-temporal ...

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[The short-term association of selected components of fine particulate matter and mortality in the Denver Aerosol Sources and Health \(DASH\) study.](#)

Kim SY, Dutton SJ, **Sheppard L**, Hannigan MP, Miller SL, Milford JB, Peel JL, Vedal S. Environ Health. 2015 Jun 6;14:49. doi: 10.1186/s12940-015-0037-4. PMID: 26047618 Free PMC article.

BACKGROUND: Associations of short-term exposure to fine particulate matter (**PM2.5**) with daily mortality may be due to specific **PM2.5** chemical components. Daily concentrations of **PM2.5** components were measured over five years in Denver to ...

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[Combining PM2.5 Component Data from Multiple Sources: Data Consistency and Characteristics Relevant to Epidemiological Analyses of Predicted Long-Term Exposures.](#)

Kim SY, **Sheppard L**, Larson TV, Kaufman JD, Vedal S. Environ Health Perspect. 2015 Jul;123(7):651-8. doi: 10.1289/ehp.1307744. Epub 2015 Feb 27. PMID: 25738509 Free PMC article.

BACKGROUND: Regulatory monitoring data have been the exposure data resource most commonly applied to studies of the association between long-term **PM2.5** components and health. However, data collected for regulatory purposes may not be compatible with epidemiological ...

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[Individual-level concentrations of fine particulate matter chemical components and subclinical atherosclerosis: a cross-sectional analysis based on 2 advanced exposure prediction models in the multi-ethnic study of atherosclerosis.](#)

Kim SY, **Sheppard L**, Kaufman JD, Bergen S, Szpiro AA, Larson TV, Adar SD, Diez Roux AV, Polak JF, Vedal S. Am J Epidemiol. 2014 Oct 1;180(7):718-28. doi: 10.1093/aje/kwu186. Epub 2014 Aug 26. PMID: 25164422 Free PMC article.

Long-term exposure to outdoor particulate matter with an aerodynamic diameter less than or equal to 2.5 µm (**PM2.5**) has been associated with cardiovascular morbidity and mortality. The chemical composition of **PM2.5** that may be most responsible for ...

15

[Estimating acute air pollution health effects from cohort study data.](#)

Szpiro AA, **Sheppard L**, Adar SD, Kaufman JD. Biometrics. 2014 Mar;70(1):164-74. doi: 10.1111/biom.12125. Epub 2013 Dec 10. PMID: 24571570 Free PMC article.

A recently published article found evidence of an association between short-term exposure to ambient fine particulate matter (**PM2.5**) and retinal arteriolar diameter as measured by retinal photography in the Multi-Ethnic Study of Atherosclerosis (MESA). ...

16

[Exposure measurement error in **PM2.5** health effects studies: a pooled analysis of eight personal exposure validation studies.](#)

Kioumourtzoglou MA, Spiegelman D, Szpiro AA, **Sheppard L**, Kaufman JD, Yanosky JD, Williams R, Laden F, Hong B, Suh H. Environ Health. 2014 Jan 13;13(1):2. doi: 10.1186/1476-069X-13-2. PMID: 24410940 Free PMC article.

True exposure was defined as personal exposure to **PM2.5** of ambient origin. Since **PM2.5** of ambient origin could only be determined for five cities, personal exposure to total **PM2.5** was also considered. ...Between-city heterogeneity was not ...

17

[National Particle Component Toxicity \(NPACT\) initiative report on cardiovascular effects.](#)

Vedal S, Campen MJ, McDonald JD, Larson TV, Sampson PD, **Sheppard L**, Simpson CD, Szpiro AA. Res Rep Health Eff Inst. 2013 Oct;(178):5-8. PMID: 24377210

In the epidemiologic studies, individual-level residential concentrations of fine PM, that is, PM with an aerodynamic diameter of 2.5 microm or smaller (**PM2.5**), **PM2.5** components (primarily elemental carbon [EC] and organic carbon [OC], silicon, ...

18

[Air pollution and individual and neighborhood socioeconomic status: evidence from the Multi-Ethnic Study of Atherosclerosis \(MESA\).](#)

Hajat A, Diez-Roux AV, Adar SD, Auchincloss AH, Lovasi GS, O'Neill MS, **Sheppard L**, Kaufman JD. Environ Health Perspect. 2013 Nov-Dec;121(11-12):1325-33. doi: 10.1289/ehp.1206337. Epub 2013 Sep 27. PMID: 24076625 Free PMC article.

RESULTS: A 1-unit increase in the z-score for family income was associated with 0.03-mug/m³ lower **PM2.5** (95% CI: -0.05, -0.01) and 0.93% lower NO_x (95% CI: -1.33, -0.53) after adjustment for covariates. A 1-SD-unit increase in the neighborhood's percentage of person ...

19

[A national prediction model for **PM2.5** component exposures and measurement error-corrected health effect inference.](#)

Bergen S, **Sheppard L**, Sampson PD, Kim SY, Richards M, Vedal S, Kaufman JD, Szpiro AA. Environ Health Perspect. 2013 Sep;121(9):1017-25. doi: 10.1289/ehp.1206010. Epub 2013 Jun 11. PMID: 23757600 Free PMC article.

METHODS: We built national spatial exposure models that used partial least squares and universal kriging to estimate annual average concentrations of four **PM2.5** components: elemental carbon (EC), organic carbon (OC), silicon (Si), and sulfur (S). We predicted **PM2** ...

20

[The sensitivity of health effect estimates from time-series studies to fine particulate matter component sampling schedule.](#)

Kim SY, **Sheppard L**, Hannigan MP, Dutton SJ, Peel JL, Clark ML, Vedal S. J Expo Sci Environ Epidemiol. 2013 Sep-Oct;23(5):481-6. doi: 10.1038/jes.2013.28. Epub 2013 May 15. PMID: 23673462 Free PMC article.

The US Environmental Protection Agency air pollution monitoring data have been a valuable resource commonly used for investigating the associations between short-term exposures to **PM2.5** chemical components and human health. However, the temporally sparse sampling on ...

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[Fine particulate air pollution and the progression of carotid intima-medial thickness: a prospective cohort study from the multi-ethnic study of atherosclerosis and air pollution.](#)

Adar SD, **Sheppard L**, Vedal S, Polak JF, Sampson PD, Diez Roux AV, Budoff M, Jacobs DR Jr, Barr RG, Watson K, Kaufman JD. PLoS Med. 2013;10(4):e1001430. doi:

10.1371/journal.pmed.1001430. Epub 2013 Apr 23. PMID: 23637576 Free PMC article.

PM2.5 was estimated over the year preceding baseline and between ultrasounds using a spatio-temporal model. ...CONCLUSIONS: This early analysis from MESA suggests that higher long-term **PM2.5** concentrations are associated with increased IMT progression ...

22

[Positive matrix factorization of a 32-month series of daily PM\(2.5\) speciation data with incorporation of temperature stratification.](#)

Xie M, Piedrahita R, Dutton SJ, Milford JB, Hemann JG, Peel JL, Miller SL, Kim SY, Vedal S, **Sheppard L**, Hannigan MP. Atmos Environ (1994). 2013 Feb 1;65:11-20. doi:

10.1016/j.atmosenv.2012.09.034. PMID: 25214809 Free PMC article.

This study presents source apportionment results for PM(2.5) from applying positive matrix factorization (PMF) to a 32-month series of daily PM(2.5) compositional data from Denver, CO, including concentrations of sulfate, nitrate, bulk elemental carbon (EC) and orga ...

23

[Assessing the impact of a wood stove replacement program on air quality and children's health.](#)

Noonan CW, Ward TJ, Navidi W, **Sheppard L**, Bergauff M, Palmer C; HEI Health Review Committee. Res Rep Health Eff Inst. 2011 Dec;(162):3-37; discussion 39-47. PMID: 22852484

A wood stove change-out program was implemented in a community heavily affected by wood-smoke-derived **PM2.5** (PM < or = 2.5 microm in aerodynamic diameter). The objectives of this study were to evaluate the impact of this intervention program on ambient and

...

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[The temporal lag structure of short-term associations of fine particulate matter chemical constituents and cardiovascular and respiratory hospitalizations.](#)

Kim SY, Peel JL, Hannigan MP, Dutton SJ, **Sheppard L**, Clark ML, Vedal S. Environ Health Perspect. 2012 Aug;120(8):1094-9. doi: 10.1289/ehp.1104721. Epub 2012 May 18. PMID: 22609899 Free PMC article.

The lag pattern of **PM2.5** chemical constituents has not been well investigated, largely because daily data have not been available. OBJECTIVES: We explored the lag structure for hospital admissions using daily **PM2.5** chemical constituent data for 5 ...

25

[Residential indoor **PM2.5** in wood stove homes: follow-up of the Libby changeout program.](#)

Noonan CW, Navidi W, **Sheppard L**, Palmer CP, Bergauff M, Hooper K, Ward TJ. *Indoor Air*. 2012 Dec;22(6):492-500. doi: 10.1111/j.1600-0668.2012.00789.x. Epub 2012 Jun 18. PMID: 22607315 Free PMC article.

We report here on follow-up of the experiences in these and other homes over three winters of sample collection. In 21 homes, we compared pre-changeout **PM(2.5)** concentrations [mean (s.d.) = 45.0 (33.0) mug/m(3)] to multiple post-changeout measures of **PM(2.5)** concent ...

26

[Ambient carbon monoxide and fine particulate matter in relation to preeclampsia and preterm delivery in western Washington State.](#)

Rudra CB, Williams MA, **Sheppard L**, Koenig JQ, Schiff MA. *Environ Health Perspect*. 2011 Jun;119(6):886-92. doi: 10.1289/ehp.1002947. Epub 2011 Jan 24. PMID: 21262595 Free PMC article.

OBJECTIVES: We aimed to prospectively examine relations between exposures to ambient carbon monoxide (CO) and fine particulate matter [2.5 mum in aerodynamic diameter (**PM2.5**)] and risks of preeclampsia and preterm delivery. METHODS: We used data from 3,509 w ...

27

[Approach to estimating participant pollutant exposures in the Multi-Ethnic Study of Atherosclerosis and Air Pollution \(MESA Air\).](#)

Cohen MA, Adar SD, Allen RW, Avol E, Curl CL, Gould T, Hardie D, Ho A, Kinney P, Larson TV, Sampson P, **Sheppard L**, Stukovsky KD, Swan SS, Liu LJ, Kaufman JD. *Environ Sci Technol*. 2009 Jul 1;43(13):4687-93. doi: 10.1021/es8030837. PMID: 19673252 Free PMC article.

This project improves on prior work by implementing an extensive exposure assessment program to characterize long-term average concentrations of ambient-generated **PM2.5**, specific **PM2.5** chemical components, and copollutants, with particular emphasis on ...

28

[Health effects of long-term air pollution: influence of exposure prediction methods.](#)

Kim SY, **Sheppard L**, Kim H. *Epidemiology*. 2009 May;20(3):442-50. doi: 10.1097/EDE.0b013e31819e4331. PMID: 19289962

For each structure, annual average **PM2.5** was generated at 22 monitoring sites and 2000 preselected individual locations in Los Angeles. Associated survival time until cardiovascular event was simulated for 10,000 hypothetical subjects. Using **PM2.5** gene ...

29

[Fine particulate matter air pollution, proximity to traffic, and aortic atherosclerosis.](#)

Allen RW, Criqui MH, Diez Roux AV, Allison M, Shea S, Detrano R, **Sheppard L**, Wong ND, Stukovsky KH, Kaufman JD. *Epidemiology*. 2009 Mar;20(2):254-64. doi: 10.1097/EDE.0b013e31819644cc. PMID: 19129730 Free PMC article.

RESULTS: We observed a slightly elevated risk of aortic calcification (RR = 1.06; 95% confidence interval = 0.96-1.16) with a 10 microg/m contrast in **PM2.5**. The **PM2.5**-associated risk of aortic calcification was stronger among participants with long-ter ...

30

[Long-term exposure to air pollution and incidence of cardiovascular events in women.](#)

Miller KA, Siscovick DS, **Sheppard L**, Shepherd K, Sullivan JH, Anderson GL, Kaufman JD. N Engl J Med. 2007 Feb 1;356(5):447-58. doi: 10.1056/NEJMoa054409. PMID: 17267905 Free article.

We examined the association of long-term exposure to particulate matter of less than 2.5 microm in aerodynamic diameter (**PM2.5**) with cardiovascular events. ...RESULTS: A total of 1816 women had one or more fatal or nonfatal cardiovascular events, as confirmed ...

☐ 31

[Effects of ambient air pollution on symptom severity and medication use in children with asthma.](#)

Slaughter JC, Lumley T, **Sheppard L**, Koenig JQ, Shapiro GG. Ann Allergy Asthma Immunol. 2003 Oct;91(4):346-53. doi: 10.1016/S1081-1206(10)61681-X. PMID: 14582813 Clinical Trial. RESULTS: Our results indicate that a 10-microg/m³ increase in particulate matter less than or equal to 2.5 microm (**PM2.5**) lagged 1 day was associated with a 1.20 times increased odds of having a more serious asthma attack [95% confidence interval (CI), 1.05 t ...

☐ 32

[Exposure assessment of particulate matter for susceptible populations in Seattle.](#)

Liu LJ, Box M, Kalman D, Kaufman J, Koenig J, Larson T, Lumley T, **Sheppard L**, Wallace L. Environ Health Perspect. 2003 Jun;111(7):909-18. doi: 10.1289/ehp.6011. PMID: 12782491 Free PMC article.

The average personal exposures to PM with aerodynamic diameters < 2.5 microm (**PM2.5**) were similar to the average outdoor **PM2.5** concentrations but significantly higher than the average indoor concentrations. ...The increase in outdoor PM10 in

☐ 33

[An association between fine particles and asthma emergency department visits for children in Seattle.](#)

Norris G, YoungPong SN, Koenig JQ, Larson TV, **Sheppard L**, Stout JW. Environ Health Perspect. 1999 Jun;107(6):489-93. doi: 10.1289/ehp.99107489. PMID: 10339450 Free PMC article.

There was no stronger association between ED visits for asthma and air pollution in the higher hospital utilization area than in the lower utilization area. These findings were seen when estimated **PM2.5** concentrations were below the newly adopted annual National Amb ...

☐ 34

[Episodes of high coarse particle concentrations are not associated with increased mortality.](#)

Schwartz J, Norris G, Larson T, **Sheppard L**, Claiborne C, Koenig J. Environ Health Perspect. 1999 May;107(5):339-42. doi: 10.1289/ehp.99107339. PMID: 10210688 Free PMC article.

Fine particle concentration (i.e., particles <2.5 microm in aerodynamic diameter; **PM2.5**), but not coarse particle concentration, was associated with increased mortality in six U.S. cities. ...Fine particles are primarily from combustion of fossil fuel, whe ...

☐ 35

[Effects of ambient air pollution on nonelderly asthma hospital admissions in Seattle, Washington, 1987-1994.](#)

Sheppard L, Levy D, Norris G, Larson TV, Koenig JQ. *Epidemiology*. 1999 Jan;10(1):23-30. PMID: 9888276

We regressed daily hospital admissions to local hospitals for area residents from 1987 through 1994 on particulate matter less than 10 and 2.5 microm in aerodynamic diameter (PM10 and **PM2.5**, respectively); coarse particulate mass; sulfur dioxide (SO₂); ozone ...

<https://pubmed.ncbi.nlm.nih.gov/?term=bell+ml+PM2.5&sort=date>

Results by year

Table representation of search results timeline featuring number of search results per year.

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[Air pollution from wildfires and human health vulnerability in Alaskan communities under climate change.](#)

Woo SHL, Liu JC, Yue X, Mickley LJ, **Bell ML**. Environ Res Lett. 2020 Sep;15(9):094019. doi: 10.1088/1748-9326/ab9270. Epub 2020 Aug 19. PMID: 34413900 Free PMC article.

First, we assessed wildfire-PM(2.5) exposure by estimating monthly-average wildfire-specific PM(2.5) levels across 1997-2010 for 158 Alaskan census tracts, using atmospheric transport modelling based on observed area-burned data. Second, we estimated changes in futu ...

2

[Long-term Exposure to PM2.5 and Mortality for the Older Population: Effect Modification by Residential Greenness.](#)

Son JY, Sabath MB, Lane KJ, Miranda ML, Dominici F, Di Q, Schwartz J, **Bell ML**. Epidemiology. 2021 Jul 1;32(4):477-486. doi: 10.1097/EDE.0000000000001348. PMID: 33788795

CONCLUSIONS: In our study, those in low SES and high-greenness areas had lower associations between **PM2.5** and mortality than those in low SES and low greenness areas. ...Findings should be considered in light of uncertainties, such as our use of modeled **PM2.5**. ...

3

[Do fine particulate air pollution \(PM\(2.5\)\) exposure and its attributable premature mortality differ for immigrants compared to those born in the United States?](#)

Fong KC, **Bell ML**. Environ Res. 2021 May;196:110387. doi: 10.1016/j.envres.2020.110387. Epub 2020 Oct 28. PMID: 33129853

We then calculated the premature mortality attributed to PM(2.5) for each population group, assessing disparities by immigrant status in PM(2.5) exposure and attributable premature mortality in the US as a whole and in each US county to evaluate spatial heterogene ...

4

[How urban characteristics affect vulnerability to heat and cold: a multi-country analysis.](#)

Sera F, Armstrong B, Tobias A, Vicedo-Cabrera AM, Åström C, **Bell ML**, Chen BY, de Sousa Zanotti Stagliorio Coelho M, Matus Correa P, Cruz JC, Dang TN, Hurtado-Diaz M, Do Van D, Forsberg B, Guo YL, Guo Y, Hashizume M, Honda Y, Iñiguez C, Jaakkola JJK, Kan H, Kim H, Lavigne E, Michelozzi P, Ortega NV, Osorio S, Pascal M, Ragettli MS, Ryti NRI, Saldiva PHN, Schwartz J, Scortichini M, Seposo X, Tong S, Zanobetti A, Gasparrini A. Int J Epidemiol. 2019 Aug 1;48(4):1101-1112. doi: 10.1093/ije/dyz008. PMID: 30815699

RESULTS: Heat- and cold-related deaths amounted to 0.54% (95% confidence interval: 0.49 to 0.58%) and 6.05% (5.59 to 6.36%) of total deaths, respectively. Several city indicators modify the effect of heat, with a higher mortality impact associated with increases in populat ...

5

[The January 2013 Beijing "Airpocalypse" and its Acute Effects on Emergency and Outpatient Visits at a Beijing Hospital.](#)

Ferreri JM, Peng RD, **Bell ML**, Liu Y, Li T, Anderson GB. Air Qual Atmos Health. 2018 Apr;11(3):301-309. doi: 10.1007/s11869-017-0538-0. Epub 2017 Dec 29. PMID: 31853329 Free PMC article.

The episode brought exceptionally high **PM2.5** (peak daily average, 569 µg/m³). Risk increased during the episode for all-cause (relative risk 1.29 [95% CI 1.13, 1.46]), cardiovascular (1.55 [0.90, 2.68]) and respiratory (1.33 [1.10, 1.62]) emergency medical visits ...

6

[Pregnancy and Lifetime Exposure to Fine Particulate Matter and Infant Mortality in Massachusetts, 2001-2007.](#)

Son JY, Lee HJ, Koutrakis P, **Bell ML**. Am J Epidemiol. 2017 Dec 1;186(11):1268-1276. doi: 10.1093/aje/kwx015. PMID: 29121205 Free PMC article.

Many studies have found associations between particulate matter having an aerodynamic diameter of 2.5 µm (**PM2.5**) and adult mortality. Comparatively few studies evaluated particles and infant mortality, although infants and children are particularly vulnerabl ...

7

[Particulate Air Pollution from Wildfires in the Western US under Climate Change.](#)

Liu JC, Mickley LJ, Sulprizio MP, Dominici F, Yue X, Ebisu K, Anderson GB, Khan RFA, Bravo MA, **Bell ML**. *Clim Change*. 2016 Oct;138(3):655-666. doi: 10.1007/s10584-016-1762-6. Epub 2016 Jul 30. PMID: 28642628 Free PMC article.

We create a new term "Smoke Wave," defined as 2 consecutive days with high wildfire-specific PM(2.5), to describe episodes of high air pollution from wildfires. We develop an interactive map to demonstrate the counties likely to suffer from future high wildfire pollution e ...

8

[Who Among the Elderly Is Most Vulnerable to Exposure to and Health Risks of Fine Particulate Matter From Wildfire Smoke?](#)

Liu JC, Wilson A, Mickley LJ, Ebisu K, Sulprizio MP, Wang Y, Peng RD, Yue X, Dominici F, **Bell ML**. *Am J Epidemiol*. 2017 Sep 15;186(6):730-735. doi: 10.1093/aje/kwx141. PMID: 28525551 Free PMC article.

9

[Wildfire-specific Fine Particulate Matter and Risk of Hospital Admissions in Urban and Rural Counties.](#)

Liu JC, Wilson A, Mickley LJ, Dominici F, Ebisu K, Wang Y, Sulprizio MP, Peng RD, Yue X, Son JY, Anderson GB, **Bell ML**. *Epidemiology*. 2017 Jan;28(1):77-85. doi: 10.1097/EDE.0000000000000556. PMID: 27648592 Free PMC article.

BACKGROUND: The health impacts of wildfire smoke, including fine particles (**PM2.5**), are not well understood and may differ from those of **PM2.5** from other sources due to differences in concentrations and chemical composition. ...We did not observe an as ...

10

[Exposure to coarse particulate matter during gestation and birth weight in the U.S.](#)

Ebisu K, Berman JD, **Bell ML**. *Environ Int*. 2016 Sep;94:519-524. doi:

10.1016/j.envint.2016.06.011. Epub 2016 Jun 18. PMID: 27324566 Free PMC article.

A linear regression model was applied, adjusted by potential confounders. As sensitivity analyses, we explored alternative PM10-2.5 estimations, adjustment for **PM2.5**, and stratification by regions. ...Our results suggest that PM10-2.5 is associated wit ...

11

[Racial isolation and exposure to airborne particulate matter and ozone in understudied US populations: Environmental justice applications of downscaled numerical model output.](#)

Bravo MA, Anthopolos R, **Bell ML**, Miranda ML. *Environ Int*. 2016 Jul-Aug;92-93:247-55. doi: 10.1016/j.envint.2016.04.008. Epub 2016 Apr 23. PMID: 27115915

METHODS: Long-term (5year average) census tract-level **PM2.5** and O3 concentrations were calculated using output from a downscaler model (2002-2006). ...The largest association between **PM2.5** and RI was observed in the rural Midwest, where a one quintile ...

12

[Association between greenness, urbanicity, and birth weight.](#)

Ebisu K, Holford TR, **Bell ML**. *Sci Total Environ*. 2016 Jan 15;542(Pt A):750-6. doi:

10.1016/j.scitotenv.2015.10.111. Epub 2015 Nov 5. PMID: 26546769 Free PMC article.

Results were generally robust with different buffer sizes and controlling for fine particles (**PM2.5**) and traffic. CONCLUSIONS: We found protective associations by green space on birth outcomes. ...

13

[Fine Particulates, Preterm Birth, and Membrane Rupture in Rochester, NY.](#)

Pereira G, Evans KA, Rich DQ, Bracken MB, **Bell ML**. Epidemiology. 2016 Jan;27(1):66-73. doi: 10.1097/EDE.0000000000000366. PMID: 26247489

BACKGROUND: It remains unclear whether fine particulate (**PM2.5**) exposure affects risk of preterm birth and prelabor rupture of membranes. ...We did not observe an association between **PM2.5** concentrations and prelabor rupture of membranes....

14

[Ambient **PM2.5** and Risk of Hospital Admissions: Do Risks Differ for Men and Women?](#)

Bell ML, Son JY, Peng RD, Wang Y, Dominici F. Epidemiology. 2015 Jul;26(4):575-9. doi: 10.1097/EDE.0000000000000310. PMID: 25906368 Free PMC article.

BACKGROUND: While strong evidence exists for associations between fine particles (**PM2.5**) and health, less is known about whether associations differ by sex. ...Differences remained after stratification by age and season. CONCLUSIONS: Women may be more susceptible to ...

15

[Ambient Coarse Particulate Matter and Hospital Admissions in the Medicare Cohort Air Pollution Study, 1999-2010.](#)

Powell H, Krall JR, Wang Y, **Bell ML**, Peng RD. Environ Health Perspect. 2015 Nov;123(11):1152-8. doi: 10.1289/ehp.1408720. Epub 2015 Apr 14. PMID: 25872223 Free PMC article.

After adjusting for **PM2.5**, this association remained significant (0.63%; 95% PI: 0.38, 0.88). ...This association was robust to adjustment for concentrations of **PM2.5**. CITATION: Powell H, Krall JR, Wang Y, Bell ML, Peng RD. 2015. ...

16

[Associations between long-term exposure to chemical constituents of fine particulate matter \(**PM2.5**\) and mortality in Medicare enrollees in the eastern United States.](#)

Chung Y, Dominici F, Wang Y, Coull BA, **Bell ML**. Environ Health Perspect. 2015 May;123(5):467-74. doi: 10.1289/ehp.1307549. Epub 2015 Jan 6. PMID: 25565179 Free PMC article.

BACKGROUND: Several epidemiological studies have reported that long-term exposure to fine particulate matter (**PM2.5**) is associated with higher mortality. Evidence regarding contributions of **PM2.5** constituents is inconclusive. OBJECTIVES: We assembled a ...

17

[The Association between Airborne **PM\(2.5\)** Chemical Constituents and Birth Weight- Implication of Buffer Exposure Assignment.](#)

Ebisu K, Belanger K, **Bell ML**. Environ Res Lett. 2014 Aug 15;9(8):084007. doi: 10.1088/1748-9326/9/8/084007. PMID: 26594233 Free PMC article.

Several papers reported associations between airborne fine particulate matter (**PM(2.5)**) and birth weight, though findings are inconsistent across studies. ...We estimated the association between each pollutant and term birth weight applying buffers of 5 to 30km in C ...

18

[Fine particulate matter and risk of preterm birth and pre-labor rupture of membranes in Perth, Western Australia 1997-2007: a longitudinal study.](#)

Pereira G, **Bell ML**, Belanger K, de Klerk N. Environ Int. 2014 Dec;73:143-9. doi: 10.1016/j.envint.2014.07.014. Epub 2014 Aug 10. PMID: 25118087 Free PMC article.

OBJECTIVE: A recent longitudinal study reported an association between fine particulate (**PM2.5**) exposure and preterm birth (PTB) in a US cohort. We applied the same design to an Australian cohort to investigate associations with PTB and pre-labor rupture of membrane ...

□ 19

[Sources of fine particulate matter and risk of preterm birth in Connecticut, 2000-2006: a longitudinal study.](#)

Pereira G, **Bell ML**, Lee HJ, Koutrakis P, Belanger K. Environ Health Perspect. 2014 Oct;122(10):1117-22. doi: 10.1289/ehp.1307741. Epub 2014 May 23. PMID: 24911470 Free PMC article.

BACKGROUND: Previous studies have examined fine particulate matter (2.5 µm; **PM2.5**) and preterm birth, but there is a dearth of longitudinal studies on this topic and a paucity of studies that have investigated specific sources of this exposure. ...CONCLUSIO ...

□ 20

[Assessment of primary and secondary ambient particle trends using satellite aerosol optical depth and ground speciation data in the New England region, United States.](#)

Lee HJ, Kang CM, Coull BA, **Bell ML**, Koutrakis P. Environ Res. 2014 Aug;133:103-10. doi: 10.1016/j.envres.2014.04.006. Epub 2014 Jun 4. PMID: 24906074 Free PMC article. Clinical Trial.

In addition, the highest and lowest **PM2.5** decreases (g/m³) were observed for winter and summer, respectively. ...This novel approach of investigating spatially varying concentration trends, in combination with ground **PM2.5** species trends, can be of s ...

□ 21

[PM2.5 exposure and birth outcomes: use of satellite- and monitor-based data.](#)

Hyder A, Lee HJ, Ebisu K, Koutrakis P, Belanger K, **Bell ML**. Epidemiology. 2014 Jan;25(1):58-67. doi: 10.1097/EDE.0000000000000027. PMID: 24240652 Free PMC article.

RESULTS: Overall, the exposure assessment method modified the magnitude of the effect estimates of **PM2.5** on birth outcomes. Change in birth weight per interquartile range (2.41 µg/m) increase in **PM2.5** was -6 g (95% confidence interval = -8 to -5 ...

□ 22

[Associations of PM2.5 constituents and sources with hospital admissions: analysis of four counties in Connecticut and Massachusetts \(USA\) for persons 65 years of age.](#)

Bell ML, Ebisu K, Leaderer BP, Gent JF, Lee HJ, Koutrakis P, Wang Y, Dominici F, Peng RD. Environ Health Perspect. 2014 Feb;122(2):138-44. doi: 10.1289/ehp.1306656. Epub 2013 Nov 8. PMID: 24213019 Free PMC article.

OBJECTIVES: We examined pollutant sources for associations with risk of hospital admissions for cardiovascular and respiratory causes. METHODS: We obtained **PM2.5** filter samples for four counties in Connecticut and Massachusetts and analyzed them for **PM2.5** ...

□ 23

[Fine particulate matter and risk of preterm birth in Connecticut in 2000-2006: a longitudinal study.](#)

Pereira G, Belanger K, Ebisu K, **Bell ML**. Am J Epidemiol. 2014 Jan 1;179(1):67-74. doi: 10.1093/aje/kwt216. Epub 2013 Sep 25. PMID: 24068199 Free PMC article.

Several studies have examined associations between particulate matter with aerodynamic diameter of 2.5 μ m or less (**PM2.5**) and preterm birth, but it is uncertain whether results were affected by individual predispositions (e.g., genetic factors, social conditio ...

□ 24

[Short-term exposure to particulate matter constituents and mortality in a national study of U.S. urban communities.](#)

Krall JR, Anderson GB, Dominici F, **Bell ML**, Peng RD. Environ Health Perspect. 2013 Oct;121(10):1148-53. doi: 10.1289/ehp.1206185. Epub 2013 Aug 2. PMID: 23912641 Free PMC article.

BACKGROUND: Although the association between **PM2.5** mass and mortality has been extensively studied, few national-level analyses have estimated mortality effects of **PM2.5** chemical constituents. Epidemiologic studies have reported that estimated effects ...

□ 25

[Evidence on vulnerability and susceptibility to health risks associated with short-term exposure to particulate matter: a systematic review and meta-analysis.](#)

Bell ML, Zanobetti A, Dominici F. Am J Epidemiol. 2013 Sep 15;178(6):865-76. doi: 10.1093/aje/kwt090. Epub 2013 Jul 25. PMID: 23887042 Free PMC article. Review.

□ 26

[Accountability analysis of title IV phase 2 of the 1990 Clean Air Act Amendments.](#)

Morgenstern RD, Harrington W, Shih JS, **Bell ML**; HEI Health Review Committee. Res Rep Health Eff Inst. 2012 Nov;(168):5-35. PMID: 23409509

In this study, we sought to assess what portion, if any, of the reductions in ambient concentrations of particulate matter (PM^*) ≤ 2.5 microm in aerodynamic diameter (**PM2.5**) that occurred in the United States between the years 1999 and 2006 can be att

□ 27

[Ambient air pollution and term birth weight in Texas from 1998 to 2004.](#)

Geer LA, Weedon J, **Bell ML**. J Air Waste Manag Assoc. 2012 Nov;62(11):1285-95. doi: 10.1080/10962247.2012.707632. PMID: 23210220 Free PMC article.

Pollutants examined included particulate matter with aerodynamic diameter ≤ 10 and ≤ 2.5 microm (PM_{10} and **PM2.5**), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), and ozone (O_3). ...Lower birth weight was associated with exp

□ 28

[Airborne **PM2.5** chemical components and low birth weight in the northeastern and mid-Atlantic regions of the United States.](#)

Ebisu K, **Bell ML**. Environ Health Perspect. 2012 Dec;120(12):1746-52. doi: 10.1289/ehp.1104763. Epub 2012 Sep 20. PMID: 23008268 Free PMC article.

BACKGROUND: Previous studies on air pollutants and birth outcomes have reported inconsistent results. Chemical components of particulate matter 2.5 μ m (**PM2.5**) composition are spatially -heterogeneous, which might contribute to discrepancies across **PM2.5** ...

□ 29

[Environmental inequality in exposures to airborne particulate matter components in the United States.](#)

Bell ML, Ebisu K. Environ Health Perspect. 2012 Dec;120(12):1699-704. doi: 10.1289/ehp.1205201. Epub 2012 Aug 10. PMID: 22889745 Free PMC article.

BACKGROUND: Growing evidence indicates that toxicity of fine particulate matter 2.5 µm in diameter (**PM2.5**) differs by chemical component. Exposure to components may differ by population. ...We compared population characteristics for tracts with and without ...

□ 30

[Use of satellite-based aerosol optical depth and spatial clustering to predict ambient **PM2.5** concentrations.](#)

Lee HJ, Coull BA, **Bell ML**, Koutrakis P. Environ Res. 2012 Oct;118:8-15. doi: 10.1016/j.envres.2012.06.011. Epub 2012 Jul 28. PMID: 22841416 Free PMC article.

Satellite-based PM(2.5) monitoring has the potential to complement ground PM(2.5) monitoring networks, especially for regions with sparsely distributed monitors. ...Overall, for the years 2000-2008, our statistical models predicted surface PM(2.5) concentrati ...

□ 31

[Assessment of the health impacts of particulate matter characteristics.](#)

Bell ML; HEI Health Review Committee. Res Rep Health Eff Inst. 2012 Jan;(161):5-38. PMID: 22393584

Environmental Protection Agency (U.S. EPA) monitoring networks. Components that covary with **PM2.5** total mass and/or are large contributors to **PM2.5**, total mass were identified using actual and seasonally detrended data. ...Higher **PM2.5** ef ...

□ 32

[Effects of ambient pollen concentrations on frequency and severity of asthma symptoms among asthmatic children.](#)

DellaValle CT, Triche EW, Leaderer BP, **Bell ML**. Epidemiology. 2012 Jan;23(1):55-63. doi: 10.1097/EDE.0b013e31823b66b8. PMID: 22082997 Free PMC article.

We adjusted analyses for maximum daily temperature, maximum 8-hour average ozone, fine particles (**PM2.5**), season, and antibiotic use. RESULTS: Associations were observed among children sensitized to specific pollens; these associations varied by use of asthma mainte ...

□ 33

[Prenatal exposure to fine particulate matter and birth weight: variations by particulate constituents and sources.](#)

Bell ML, Belanger K, Ebisu K, Gent JF, Lee HJ, Koutrakis P, Leaderer BP. Epidemiology. 2010 Nov;21(6):884-91. doi: 10.1097/EDE.0b013e3181f2f405. PMID: 20811286 Free PMC article.

BACKGROUND: Exposure to fine particles (**PM2.5**) during pregnancy has been linked to lower birth weight; however, the chemical composition of **PM2.5** varies widely. The health effects of **PM2.5** constituents are unknown. METHODS: We investigate ...

□ 34

[Emergency admissions for cardiovascular and respiratory diseases and the chemical composition of fine particle air pollution.](#)

Peng RD, **Bell ML**, Geyh AS, McDermott A, Zeger SL, Samet JM, Dominici F. Environ Health Perspect. 2009 Jun;117(6):957-63. doi: 10.1289/ehp.0800185. Epub 2009 Feb 11. PMID: 19590690 Free PMC article.

BACKGROUND: Population-based studies have estimated health risks of short-term exposure to fine particles using mass of PM(2.5) (particulate matter \leq 2.5 microm in aerodynamic diameter) as the indicator. Evidence regarding the toxicity of the chemical componen ...

□ 35

[Adverse health effects of particulate air pollution: modification by air conditioning.](#)

Bell ML, Ebisu K, Peng RD, Dominici F. Epidemiology. 2009 Sep;20(5):682-6. doi: 10.1097/EDE.0b013e3181aba749. PMID: 19535984 Free PMC article.

METHODS: Bayesian hierarchical modeling was used to explore whether AC prevalence modified day-to-day associations between PM10 and mortality, and between **PM2.5** and cardiovascular or respiratory hospitalizations, for those 65 years and older. ...Each additional 20% ...

□ 36

[The relationship between air pollution and low birth weight: effects by mother's age, infant sex, co-pollutants, and pre-term births.](#)

Bell ML, Ebisu K, Belanger K. Environ Res Lett. 2008 Oct;3(4):44003. doi: 10.1088/1748-9326/3/4/044003. PMID: 23930137 Free PMC article.

We explored potential uncertainties in earlier work and further explored associations between air pollution and birth weight for PM(10), PM(2.5), CO, NO(2), and SO(2). Specifically we investigated: (1) whether infants of younger (24 years) and older (40 years) mothers are ...

□ 37

[A comparison of particulate matter from biomass-burning rural and non-biomass-burning urban households in northeastern China.](#)

Jiang R, **Bell ML**. Environ Health Perspect. 2008 Jul;116(7):907-14. doi: 10.1289/ehp.10622. PMID: 18629313 Free PMC article.

The highest **PM2.5** exposures occurred during cooking periods for urban and rural cooks. However, rural cooks had 5.4 times higher **PM2.5** levels during cooking than did urban cooks. ...

□ 38

[Coarse particulate matter air pollution and hospital admissions for cardiovascular and respiratory diseases among Medicare patients.](#)

Peng RD, Chang HH, **Bell ML**, McDermott A, Zeger SL, Samet JM, Dominici F. JAMA. 2008 May 14;299(18):2172-9. doi: 10.1001/jama.299.18.2172. PMID: 18477784 Free PMC article.

CONTEXT: Health risks of fine particulate matter of 2.5 microm or less in aerodynamic diameter (**PM2.5**) have been studied extensively over the last decade. ...However, when adjusted for **PM2.5**, the association was no longer statistically significa ...

□ 39

[Does the effect of PM10 on mortality depend on PM nickel and vanadium content? A reanalysis of the NMMAPS data.](#)

Dominici F, Peng RD, Ebisu K, Zeger SL, Samet JM, **Bell ML**. Environ Health Perspect. 2007 Dec;115(12):1701-3. doi: 10.1289/ehp.10737. PMID: 18087586 Free PMC article.

They found that average concentrations of nickel or vanadium in **PM2.5** (PM with aerodynamic diameter < 2.5 microm) positively modified the lag-1 day association between PM10 and all-cause mortality. ...METHODS: We estimated long-term average county-level ni

□ 40

[Potential confounding of particulate matter on the short-term association between ozone and mortality in multisite time-series studies.](#)

Bell ML, Kim JY, Dominici F. Environ Health Perspect. 2007 Nov;115(11):1591-5. doi: 10.1289/ehp.10108. PMID: 18007990 Free PMC article.

OBJECTIVES: We investigated whether particulate matter < 10 and < 2.5 microm in aerodynamic diameter (PM(10) and PM(2.5)) is a confounder of the ozone and mortality association using data for 98 U.S. urban communities from 1987 to 2000. ...In the 93 communitie

□ 41

[Fine particulate air pollution and hospital admission for cardiovascular and respiratory diseases.](#)

Dominici F, Peng RD, **Bell ML**, Pham L, McDermott A, Zeger SL, Samet JM. JAMA. 2006 Mar 8;295(10):1127-34. doi: 10.1001/jama.295.10.1127. PMID: 16522832 Free PMC article.

CONTEXT: Evidence on the health risks associated with short-term exposure to fine particles (particulate matter < or =2.5 microm in aerodynamic diameter [**PM2.5**]) is limited. Results from the new national monitoring network for **PM2.5** make poss

...

<https://pubmed.ncbi.nlm.nih.gov/?term=boylan+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2009 2

2015 1

2021 0

Search Results

3 results

Page

of 1

Select search result to email or save

1

[Air quality impacts and health-benefit valuation of a low-emission technology for rail yard locomotives in Atlanta Georgia.](#)

Galvis B, Bergin M, **Boylan J**, Huang Y, Bergin M, Russell AG. Sci Total Environ. 2015 Nov 15;533:156-64. doi: 10.1016/j.scitotenv.2015.06.064. Epub 2015 Jul 4. PMID: 26151659

We calculate 2011 **PM2.5** and BC emissions from the rail yards and primary industrial and on-road mobile sources in the area and determine their impact on local air quality using Gaussian dispersion modeling. ...Upgrading the switcher locomotives at the yards with a 1 ...

2

[Quantifying the sources of ozone, fine particulate matter, and regional haze in the Southeastern United States.](#)

Odman MT, Hu Y, Russell AG, Hanedar A, **Boylan JW**, Brewer PF. J Environ Manage. 2009 Jul;90(10):3155-68. doi: 10.1016/j.jenvman.2009.05.028. Epub 2009 Jun 24. PMID: 19556055

A detailed sensitivity analysis was conducted to quantify the contributions of various emission sources to ozone (O₃), fine particulate matter (**PM2.5**), and regional haze in the Southeastern United States. O₃ and particulate matter (PM) levels were estimated using th ...

3

[Assessment of biomass burning emissions and their impacts on urban and regional **PM2.5**: a Georgia case study.](#)

Tian D, Hu Y, Wang Y, **Boylan JW**, Zheng M, Russell AG. Environ Sci Technol. 2009 Jan 15;43(2):299-305. doi: 10.1021/es801827s. PMID: 19238955

Biomass burning is a major and growing contributor to particulate matter with an aerodynamic diameter less than 2.5 microm (**PM2.5**). Such impacts (especially individual impacts from each burning source) are quantified using the Community Multiscale Air Quality ...

<https://pubmed.ncbi.nlm.nih.gov/?term=chow+jc+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

1994 1
2000 1
2001 3
2002 5
2003 3
2004 3
2005 6
2006 6
2007 5
2008 2
2009 3
2010 2
2011 4
2012 1
2014 2
2015 5
2016 2
2018 1
2019 1
2021 0

Search Results

55 results

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of 1

Select search result to email or save

1

[Season and size of urban particulate matter differentially affect cytotoxicity and human immune responses to *Mycobacterium tuberculosis*.](#)

Sarkar S, Rivas-Santiago CE, Ibronke OA, Carranza C, Meng Q, Osornio-Vargas Á, Zhang J, Torres M, **Chow JC**, Watson JG, Ohman-Strickland P, Schwander S. PLoS One. 2019 Jul 11;14(7):e0219122. doi: 10.1371/journal.pone.0219122. eCollection 2019. PMID: 31295271
Free PMC article.

PM10 from cold-dry and warm-dry seasons induced the highest cytotoxicity in PBMC. With the exception of **PM2.5** from the cold-dry season, pre-exposure to all seasonal PM reduced M.tb phagocytosis by PBMC. ...Pre-exposure to PM10 compared to **PM2.5** led to ...

2

[Temporal and spatial variations of PM\(2.5\) organic and elemental carbon in Central India.](#)

Sahu RK, Pervez S, **Chow JC**, Watson JG, Tiwari S, Panicker AS, Chakrabarty RK, Pervez YF. Environ Geochem Health. 2018 Oct;40(5):2205-2222. doi: 10.1007/s10653-018-0093-0. Epub 2018 Mar 30. PMID: 29603086

Each site was equipped with two portable, battery-powered, miniVol air samplers with PM(2.5) inlets. Annual average PM(2.5) mass concentrations were 71.8 27 g m(-3) at the rural site, 133 51 g m(-3) at the urban site, and 244.5 63.3 g m(-3) at the industrial ...

3

[Inter-annual variability of wintertime PM2.5 chemical composition in Xi'an, China: Evidences of changing source emissions.](#)

Xu H, Cao J, **Chow JC**, Huang RJ, Shen Z, Chen LW, Ho KF, Watson JG. Sci Total Environ. 2016 Mar 1;545-546:546-55. doi: 10.1016/j.scitotenv.2015.12.070. Epub 2016 Jan 4. PMID: 26760274

Chemical characteristics of **PM2.5** in Xi'an in wintertime of 2006, 2008, and 2010 were investigated. Markers of OC2, EC1, and NO3(-)/SO4(2-) ratio were calculated to investigate the changes in **PM2.5** emission sources over the 5-year period. Positi ...

4

[Collocated comparisons of continuous and filter-based PM2.5 measurements at Fort McMurray, Alberta, Canada.](#)

Hsu YM, Wang X, **Chow JC**, Watson JG, Percy KE. J Air Waste Manag Assoc. 2016 Mar;66(3):329-39. doi: 10.1080/10962247.2015.1136362. PMID: 26727574 Free PMC article. Extremely cold winters (down to approximately -40C) coupled with low PM(2.5) concentrations present a challenge for continuous measurements. ...IMPLICATIONS: Consistency in PM(2.5) measurements are needed for trend analysis. Collocated comparison among the three PM(...

5

[Characterization of PM2.5 and PM10 fugitive dust source profiles in the Athabasca Oil Sands Region.](#)

Wang X, **Chow JC**, Kohl SD, Percy KE, Legge AH, Watson JG. J Air Waste Manag Assoc. 2015 Dec;65(12):1421-33. doi: 10.1080/10962247.2015.1100693. PMID: 26453048

Geological samples were collected from 27 representative locations in the Athabasca Oil Sands Region (AOSR) in Alberta, Canada. These samples were resuspended onto filter substrates for **PM2.5** and PM10 size fractions. Samples were analyzed for 229 chemical species, c ...

6

[PM2.5 source apportionment with organic markers in the Southeastern Aerosol Research and Characterization \(SEARCH\) study.](#)

Watson JG, **Chow JC**, Lowenthal DH, Antony Chen LW, Shaw S, Edgerton ES, Blanchard CL. J Air Waste Manag Assoc. 2015 Sep;65(9):1104-18. doi: 10.1080/10962247.2015.1063551. PMID: 26102211

Positive matrix factorization (PMF) and effective variance (EV) solutions to the chemical mass balance (CMB) were applied to PM(2.5) (particulate matter with an aerodynamic diameter <2.5 µm) mass and chemically speciated measurements for samples taken from 2008 ...

7

[Source and risk apportionment of selected VOCs and PM2.5 species using partially constrained receptor models with multiple time resolution data.](#)

Liao HT, Chou CC, **Chow JC**, Watson JG, Hopke PK, Wu CF. Environ Pollut. 2015 Oct;205:121-30. doi: 10.1016/j.envpol.2015.05.035. Epub 2015 Jun 6. PMID: 26057474
Hourly VOC, 12-h and 24-h **PM2.5** speciation data were collected during three seasons in 2013. ...Results showed that the evaporative emission factor was the largest contributor (25%) to VOC mass concentration, while the largest contributor to **PM2.5** mass ...

8

[Mass reconstruction methods for PM\(2.5\): a review.](#)

Chow JC, Lowenthal DH, Chen LW, Wang X, Watson JG. Air Qual Atmos Health. 2015;8(3):243-263. doi: 10.1007/s11869-015-0338-3. Epub 2015 May 7. PMID: 26052367 Free PMC article.

9

[Air pollution particulate matter alters antimycobacterial respiratory epithelium innate immunity.](#)

Rivas-Santiago CE, Sarkar S, Cantarella P 4th, Osornio-Vargas Á, Quintana-Belmares R, Meng Q, Kirn TJ, Ohman Strickland P, **Chow JC**, Watson JG, Torres M, Schwander S. Infect Immun. 2015 Jun;83(6):2507-17. doi: 10.1128/IAI.03018-14. Epub 2015 Apr 6. PMID: 25847963 Free PMC article.

Here, we examined the effect of PM from Iztapalapa, a municipality of Mexico City, with aerodynamic diameters below 2.5 µm (**PM2.5**) and 10 µm (PM10) on innate antimycobacterial immune responses in human alveolar type II epithelial cells of the A549 cell line ...

10

[Characterization and seasonal variations of levoglucosan in fine particulate matter in Xi'an, China.](#)

Zhang T, Cao JJ, **Chow JC**, Shen ZX, Ho KF, Ho SS, Liu SX, Han YM, Watson JG, Wang GH, Huang RJ. J Air Waste Manag Assoc. 2014 Nov;64(11):1317-27. doi: 10.1080/10962247.2014.944959. PMID: 25509553

PM2.5 (particulate matter with an aerodynamic diameter <2.5 µm) samples (n = 58) collected every sixth day in Xi'an, China, from 5 July 2008 to 27 June 2009 are analyzed for levoglucosan (1,6-anhydro-beta-D-glucopyranose) to evaluate the impacts ...

11

[Ambient particulate matter air pollution in Mpererwe District, Kampala, Uganda: a pilot study.](#)

Schwander S, Okello CD, Freers J, **Chow JC**, Watson JG, Corry M, Meng Q. J Environ Public Health. 2014;2014:763934. doi: 10.1155/2014/763934. Epub 2014 Feb 17. PMID: 24693293 Free PMC article.

We made spot measurements in Mpererwe district for airborne particulate matter **PM2.5** (fine particles) and coarse particles. PM was collected on Teflon-membrane filters and analyzed for mass, 51 elements, 3 anions, and 5 cations. ...Over 90% of the measured ...

12

[Winter and summer **PM2.5** chemical compositions in fourteen Chinese cities.](#)

Cao JJ, Shen ZX, **Chow JC**, Watson JG, Lee SC, Tie XX, Ho KF, Wang GH, Han YM. J Air Waste Manag Assoc. 2012 Oct;62(10):1214-26. doi: 10.1080/10962247.2012.701193. PMID: 23155868

PM2.5 in 14 of China's large cities achieves high concentrations in both winter and summer with averages > 100 microg m⁻³ being common occurrences. ...Multipollutant control strategies will be needed that address both primary **PM2.5** emissions and g ...

□ 13

[PM\(2.5\) source apportionment: reconciling receptor models for U.S. nonurban and urban long-term networks.](#)

Chen LW, Watson JG, **Chow JC**, DuBois DW, Herschberger L. J Air Waste Manag Assoc. 2011 Nov;61(11):1204-17. doi: 10.1080/10473289.2011.619082. PMID: 22168104

Chemical mass balance (CMB) and trajectory receptor models were applied to speciated particulate matter with aerodynamic diameter < or =2.5 microm (**PM2.5**) measurements from Speciation Trends Network (STN; part of the Chemical Speciation Network [CSN]) and

□ 14

[Concentrations of air toxics in motor vehicle-dominated environments.](#)

Fujita EM, Campbell DE, Zielinska B, Arnott WP, **Chow JC**. Res Rep Health Eff Inst. 2011 Feb;(156):3-77. PMID: 21608416

We at the Desert Research Institute (DRI*) measured volatile organic compounds (VOCs), including several mobile-source air toxics (MSATs), particulate matter with a mass mean aerodynamic diameter < or = 2.5 pm (**PM2.5**), black carbon (BC), nitrogen oxides (N

□ 15

[Chemical compositions and source identification of **PM2.5** aerosols for estimation of a diesel source surrogate.](#)

Sahu M, Hu S, Ryan PH, Le Masters G, Grinshpun SA, **Chow JC**, Biswas P. Sci Total Environ. 2011 Jun 1;409(13):2642-51. doi: 10.1016/j.scitotenv.2011.03.032. Epub 2011 Apr 14. PMID: 21496880

A detailed receptor model analyses was undertaken by applying positive matrix factorization (PMF) and UNMIX receptor models to two **PM2.5** data sets: one consisting of two carbon fractions and the other of eight temperature-resolved carbon fractions. ...The source fac ...

□ 16

[Size-differentiated chemical characteristics of Asian paleo dust: records from aeolian deposition on Chinese Loess Plateau.](#)

Wu F, **Chow JC**, An Z, Watson JG, Cao J. J Air Waste Manag Assoc. 2011 Feb;61(2):180-9. doi: 10.3155/1047-3289.61.2.180. PMID: 21387935

The samples were resuspended and then sampled through total suspended particulates (TSP), PM10, **PM2.5**, and PM1 (PM with aerodynamic diameters < approximately 30, 10, 2.5, and 1 microm, respectively) inlets onto filters for mass, elemental, ionic, and carbo

□ 17

[Filter light attenuation as a surrogate for elemental carbon.](#)

Chow JC, Watson JG, Green MC, Frank NH. J Air Waste Manag Assoc. 2010 Nov;60(11):1365-75. doi: 10.3155/1047-3289.60.11.1365. PMID: 21141430

Light attenuation (b(att)) measured from filter light transmission is compared with elemental carbon (EC) measurements for more than 180,000 collocated **PM_{2.5}** (particulate matter [PM] < or = 2.5 microm in aerodynamic diameter) and PM₁₀ (PM < or = 10 micr

□ 18

[Black and organic carbon emission inventories: review and application to California.](#)

Chow JC, Watson JG, Lowenthal DH, Chen LW, Motallebi N. J Air Waste Manag Assoc. 2010 Apr;60(4):497-507. doi: 10.3155/1047-3289.60.4.497. PMID: 20437785 Review.

Recent estimates of global BC and OC emissions range from 8 to 24 and 33 to 62 Tg (1012 g) per year, respectively. U.S. BC emissions account for 5.6% of the global total emissions. Uncertainties in global BC emission estimates are a factor of 2 or more. ...California's bot ...

□ 19

[Fine particle receptor modeling in the atmosphere of Mexico City.](#)

Vega E, Lowenthal D, Ruiz H, Reyes E, Watson JG, **Chow JC**, Viana M, Querol X, Alastuey A. J Air Waste Manag Assoc. 2009 Dec;59(12):1417-28. doi: 10.3155/1047-3289.59.12.1417. PMID: 20066907

Source apportionment analyses were carried out by means of receptor modeling techniques to determine the contribution of major fine particulate matter (**PM_{2.5}**) sources found at six sites in Mexico City. Thirty-six source profiles were determined within Mexico City to ...

□ 20

[Remote sensing of particulate pollution from space: have we reached the promised land?](#)

Hidy GM, Brook JR, **Chow JC**, Green M, Husar RB, Lee C, Scheffe RD, Swanson A, Watson JG. J Air Waste Manag Assoc. 2009 Oct;59(10):1130-9. doi: 10.3155/1047-3289.59.10.1130. PMID: 19842321

They correlate **PM_{2.5}** mass with optical depth, although visibility assessments show that light extinction is better represented by a weighted sum of **PM_{2.5}** sulfate, nitrate, organic carbon, elemental carbon, and soil dust. ...Spatial outliers for ground- ...

□ 21

[Methods to assess carbonaceous aerosol sampling artifacts for IMPROVE and other long-term networks.](#)

Watson JG, **Chow JC**, Chen LW, Frank NH. J Air Waste Manag Assoc. 2009 Aug;59(8):898-911. doi: 10.3155/1047-3289.59.8.898. PMID: 19728484

Volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs) adsorb to quartz fiber filters during fine and coarse particulate matter (**PM_{2.5}** and PM₁₀, respectively) sampling for thermal/optical carbon analysis that measures organic carbon (OC) and e ...

□ 22

[Hot filter/impinger and dilution sampling for fine particulate matter characterization from ferrous metal casting processes.](#)

Sheya SA, Glowacki C, Chang MC, **Chow JC**, Watson JG. J Air Waste Manag Assoc. 2008 Apr;58(4):553-61. doi: 10.3155/1047-3289.58.4.553. PMID: 18422042

The shakeout process contributed more to PM emissions than the metal pouring and cooling processes. Particulate matter less than 2.5 microm in aerodynamic diameter (**PM2.5**) mass emissions for the entire casting cycle ranged from 3.4 to 4.7 lb/t of metal for th ...

23

[Advances in integrated and continuous measurements for particle mass and chemical composition.](#)

Chow JC, Doraiswamy P, Watson JG, Chen LW, Ho SS, Sodeman DA. J Air Waste Manag Assoc. 2008 Feb;58(2):141-63. doi: 10.3155/1047-3289.58.2.141. PMID: 18318335 Review. Recent improvements in integrated and continuous **PM2.5** mass and chemical measurements from the Supersite program and related studies in the past decade are summarized. ...

24

[Evaluations of the chemical mass balance method for determining contributions of gasoline and diesel exhaust to ambient carbonaceous aerosols.](#)

Fujita EM, Campbell DE, Arnott WP, **Chow JC**, Zielinska B. J Air Waste Manag Assoc. 2007 Jun;57(6):721-40. doi: 10.3155/1047-3289.57.6.721. PMID: 17608007

Department of Energy Gasoline/Diesel PM Split Study was conducted to assess the sources of uncertainties in using an organic compound-based chemical mass balance receptor model to quantify the relative contributions of emissions from gasoline (or spark ignition [SI]) and diesel (

25

[Variations in speciated emissions from spark-ignition and compression-ignition motor vehicles in California's south coast air basin.](#)

Fujita EM, Zielinska B, Campbell DE, Arnott WP, Sagebiel JC, Mazzoleni L, **Chow JC**, Gabele PA, Crews W, Snow R, Clark NN, Wayne WS, Lawson DR. J Air Waste Manag Assoc. 2007 Jun;57(6):705-20. doi: 10.3155/1047-3289.57.6.705. PMID: 17608006

Department of Energy Gasoline/Diesel PM Split Study examined the sources of uncertainties in using an organic compound-based chemical mass balance receptor model to quantify the contributions of spark-ignition (SI) and compression-ignition (CI) engine exhaust to ambient fine part ...

26

[Quantifying **PM2.5** source contributions for the San Joaquin Valley with multivariate receptor models.](#)

Chen LW, Watson JG, **Chow JC**, Magliano KL. Environ Sci Technol. 2007 Apr 15;41(8):2818-26. doi: 10.1021/es0525105. PMID: 17533844

Six and seven factors were determined by UNMIX for the low_**PM2.5** period (February to October) and high_**PM2.5** period (November to January), respectively. ...These factors are attributed to marine sea salt, fugitive dust, agriculture-dairy, cooking, seco ...

27

[Dilution-based emissions sampling from stationary sources: Part 2--Gas-fired combustors compared with other fuel-fired systems.](#)

England GC, Watson JG, **Chow JC**, Zielinska B, Chang MC, Loos KR, Hidy GM. J Air Waste Manag Assoc. 2007 Jan;57(1):79-93. doi: 10.1080/10473289.2007.10465304. PMID: 17269233

With the recent focus on fine particle matter (**PM_{2.5}**), new, self-consistent data are needed to characterize emissions from combustion sources. ...Even higher mass emission rates are found in coal-fired systems, with rates of approximately 0.07 lb/MMBTU for a bag-fil ...

☐ 28

[Dilution-based emissions sampling from stationary sources: Part 1--Compact sampler methodology and performance.](#)

England GC, Watson JG, **Chow JC**, Zielinska B, Chang MC, Loos KR, Hidy GM. J Air Waste Manag Assoc. 2007 Jan;57(1):65-78. doi: 10.1080/10473289.2007.10465291. PMID: 17269232

The performance data indicate that lower detection limits can be achieved relative to current regulatory methods for particulate emissions. Test data for the fine particulate matter (**PM_{2.5}**) emissions are provided for comparison with U.S. Environment Protection Agenc ...

☐ 29

[Exposure to **PM_{2.5}** and PAHs from the Tong Liang, China epidemiological study.](#)

Chow JC, Watson JG, Chen LW, Ho SS, Koracin D, Zielinska B, Tang D, Perera F, Cao J, Lee SC. J Environ Sci Health A Tox Hazard Subst Environ Eng. 2006;41(4):517-42. doi: 10.1080/10934520600564253. PMID: 16779929

Ambient sampling was based on 72-hr averages between 3/2/2002 and 2/26/2003. Elevated **PM_{2.5}** and PAH concentrations were observed at all three sites, with the highest concentrations found in winter and the lowest in summer. ...Ambient particle-bound PAHs of molecular ...

☐ 30

[Nanoparticle and ultrafine particle events at the Fresno supersite.](#)

Watson JG, **Chow JC**, Park K, Lowenthal DH, Park K. J Air Waste Manag Assoc. 2006 Apr;56(4):417-30. doi: 10.1080/10473289.2006.10464526. PMID: 16681207

Continuous measurements of particle size distributions of 3-407 nm were collected from August 2002 to July 2004 at the Fresno Supersite to understand their number concentrations, size distributions, and formation processes. Measurements for fine particulate matter (**PM_{2.5}**). ...

☐ 31

[Comparison of particle light scattering and fine particulate matter mass in central California.](#)

Chow JC, Watson JG, Park K, Lowenthal DH, Robinson NF, Park K, Magliano KA. J Air Waste Manag Assoc. 2006 Apr;56(4):398-410. doi: 10.1080/10473289.2006.10464515. PMID: 16681205

The relationship is described using particle mass scattering efficiency (sigmasp) derived from linear regression of Bsp on **PM_{2.5}** that can be applied to estimated **PM_{2.5}** from nephelometer data within the 24-hr filter sampling periods and between the ever ...

☐ 32

[Correlation of in vitro cytokine responses with the chemical composition of soil-derived particulate matter.](#)

Veranth JM, Moss TA, **Chow JC**, Labban R, Nichols WK, Walton JC, Watson JG, Yost GS. Environ Health Perspect. 2006 Mar;114(3):341-9. doi: 10.1289/ehp.8360. PMID: 16507455 Free PMC article.

We treated human lung epithelial cells, type BEAS-2B, with 10-80 microg/cm² of dust from soils and road surfaces in the western United States that contained particulate matter (PM) < 2.5 microm aerodynamic diameter. Cell viability and cytokine secretion responses were m

□ 33

[Loss of PM_{2.5} nitrate from filter samples in central California.](#)

Chow JC, Watson JG, Lowenthal DH, Magliano KL. J Air Waste Manag Assoc. 2005 Aug;55(8):1158-68. doi: 10.1080/10473289.2005.10464704. PMID: 16187585

Accurate estimation of nitrate volatilization requires a detailed thermodynamic model and comprehensive chemical measurements. For the 14-month average of **PM_{2.5}** acquired on Teflon-membrane filters, measured **PM_{2.5}** mass was 8-16% lower than actual **PM_{2.5}** ...

□ 34

[Particulate carbon measurements in California's San Joaquin Valley.](#)

Chow JC, Watson JG, Lowenthal DH, Chen LW, Magliano KL. Chemosphere. 2006 Jan;62(3):337-48. doi: 10.1016/j.chemosphere.2005.04.094. Epub 2005 Jun 28. PMID: 15990153

Aerosol carbon sampling methods and biases were evaluated during the California Regional PM₁₀/PM_{2.5} Air Quality Study (CRPAQS) and Fresno Supersite programs. **PM_{2.5}** sampling was conducted using Desert Research Institute (DRI) sequential filter samplers ...

□ 35

[Comparison of PM_{2.5} carbon measurement methods in Hong Kong, China.](#)

Chow JC, Watson JG, Louie PK, Chen LW, Sin D. Environ Pollut. 2005 Sep;137(2):334-44. doi: 10.1016/j.envpol.2005.01.006. PMID: 15963372

Hong Kong experienced OC levels similar to those at US sites, but has much higher EC concentrations. OC/EC ratios range from 2 to 5 at two US sites and from 0.2 to 1.2 at three Hong Kong sites....

□ 36

[Seasonal variations and mass closure analysis of particulate matter in Hong Kong.](#)

Ho KF, Lee SC, Cao JJ, **Chow JC**, Watson JG, Chan CK. Sci Total Environ. 2006 Feb 15;355(1-3):276-87. doi: 10.1016/j.scitotenv.2005.03.013. PMID: 15901488

A monitoring program starting from November 2000 to February 2001 (winter) and June 2001 to August 2001 (summer) for PM₁₀ and **PM_{2.5}** was performed at three monitoring stations in Hong Kong. Twenty-four-hour PM₁₀ and **PM_{2.5}** samples were collected once eve ...

□ 37

[Indoor/outdoor relationships for PM_{2.5} and associated carbonaceous pollutants at residential homes in Hong Kong - case study.](#)

Cao JJ, Lee SC, **Chow JC**, Cheng Y, Ho KF, Fung K, Liu SX, Watson JG. Indoor Air. 2005 Jun;15(3):197-204. doi: 10.1111/j.1600-0668.2005.00336.x. PMID: 15865619

The average indoor and outdoor concentrations of 24 h PM(2.5) were 56.7 and 43.8 microg/m(3), respectively. The short-term PM(2.5) profiles indicated that the penetration of outdoor particles was an important contributor to indoor PM(2.5), and a household sur ...

□ 38

[Seasonal and spatial variation of solvent extractable organic compounds in fine suspended particulate matter in Hong Kong.](#)

Sin DW, Fung WH, Choi YY, Lam CH, Louie PK, **Chow JC**, Watson JG. J Air Waste Manag Assoc. 2005 Mar;55(3):291-301. doi: 10.1080/10473289.2005.10464621. PMID: 15828671

The results of a 12-month study of more than 100 solvent extractable organic compounds (SEOC) in particulate matter (PM) less than or equal to 2.5 microm (**PM2.5**) collected at three air monitoring stations located at roadside, urban, and rural sites in Hong Ko ...

□ 39

[PM2.5 chemical composition in Hong Kong: urban and regional variations.](#)

Louie PK, **Chow JC**, Chen LW, Watson JG, Leung G, Sin DW. *Sci Total Environ.* 2005 Feb 15;338(3):267-81. doi: 10.1016/j.scitotenv.2004.07.021. PMID: 15713334

Chemically speciated **PM2.5** measurements were made at roadside, urban, and rural background sites in Hong Kong for 1 year during 2000/2001 to determine the spatial and temporal variations of **PM2.5** mass and chemical composition in this highly populated r ...

□ 40

[Emissions of air pollutants from household stoves: honeycomb coal versus coal cake.](#)

Ge S, Xu X, **Chow JC**, Watson J, Sheng Q, Liu W, Bai Z, Zhu T, Zhang J. *Environ Sci Technol.* 2004 Sep 1;38(17):4612-8. doi: 10.1021/es049942k. PMID: 15461170

In the present study, we measured emissions of particulate matter (PM) and gaseous pollutants from burning a specially formulated honeycomb coal (H-coal) and a coal cake (C-coal). Flue gas samples for **PM2.5**, PM coarse (**PM2.5-10**), and TSP were collected ...

□ 41

[Analysis of PM2.5 and PM10 in the atmosphere of Mexico City during 2000-2002.](#)

Vega E, Reyes E, Ruiz H, García J, Sánchez G, Martínez-Villa G, González U, **Chow JC**, Watson JG. *J Air Waste Manag Assoc.* 2004 Jul;54(7):786-98. doi: 10.1080/10473289.2004.10470952. PMID: 15303291

Results of gravimetric and chemical analyses of 330 samples of particulate matter (PM) with an aerodynamic diameter less than 2.5 microm (**PM2.5**) and PM with an aerodynamic diameter less than 10 microm (PM10) indicate that (1) **PM2.5**/PM10 average ...

□ 42

[Source profiles for industrial, mobile, and area sources in the Big Bend Regional Aerosol Visibility and Observational study.](#)

Chow JC, Watson JG, Kuhns H, Etyemezian V, Lowenthal DH, Crow D, Kohl SD, Engelbrecht JP, Green MC. *Chemosphere.* 2004 Jan;54(2):185-208. doi: 10.1016/j.chemosphere.2003.07.004. PMID: 14559270

Representative **PM2.5** and PM10 source emissions were sampled in Texas during the Big Bend Regional Aerosol Visibility and Observa (BRAVO) study. ...

□ 43

[Air pollution and heart rate variability among the elderly in Mexico City.](#)

Holguín F, Téllez-Rojo MM, Hernández M, Cortez M, **Chow JC**, Watson JG, Mannino D, Romieu I. *Epidemiology.* 2003 Sep;14(5):521-7. doi: 10.1097/01.ede.0000081999.15060.ae. PMID: 14501266

METHODS: In Mexico City, residents from a nursing home underwent heart rate variability analysis every other day for 3 months. Indoor and outdoor **PM2.5** (particulate matter less than 2.5 mm in diameter) were measured daily at the nursing home. ...RESULTS: Of t ...

□ 44

[Analysis of a summertime PM2.5 and haze episode in the mid-Atlantic region.](#)

Chen LW, **Chow JC**, Doddridge BG, Dickerson RR, Ryan WF, Mueller PK. J Air Waste Manag Assoc. 2003 Aug;53(8):946-56. doi: 10.1080/10473289.2003.10466240. PMID: 12943314
Observations of the mass and chemical composition of particles less than 2.5 microm in aerodynamic diameter (**PM2.5**), light extinction, and meteorology in the urban Baltimore-Washington corridor during July 1999 and July 2000 are presented and analyzed to stud ...

45

[Emissions from charbroiling and grilling of chicken and beef.](#)

McDonald JD, Zielinska B, Fujita EM, Sagebiel JC, **Chow JC**, Watson JG. J Air Waste Manag Assoc. 2003 Feb;53(2):185-94. doi: 10.1080/10473289.2003.10466141. PMID: 12617292
Emission rates for fine particle (<2.5 microm) mass (**PM2.5**), carbon (organic/elemental), inorganic ions (SO4(2-), NO3-, NH4+), elements (primarily metals), and speciated organic compounds are reported for charbroiling hamburger, steak, and chicken. The ...

46

[Receptor modeling application framework for particle source apportionment.](#)

Watson JG, Zhu T, **Chow JC**, Engelbrecht J, Fujita EM, Wilson WE. Chemosphere. 2002 Dec;49(9):1093-136. doi: 10.1016/s0045-6535(02)00243-6. PMID: 12492167 Review.
While elements, ions, and carbons were often used to apportion TSP, PM10, and **PM2.5** among many source types, many of these components have been reduced in source emissions such that more complex measurements of carbon fractions, specific organic compounds, single pa ...

47

[Monitoring of particulate matter outdoors.](#)

Wilson WE, **Chow JC**, Claiborn C, Fusheng W, Engelbrecht J, Watson JG. Chemosphere. 2002 Dec;49(9):1009-43. doi: 10.1016/s0045-6535(02)00270-9. PMID: 12492163 Review.
Techniques for monitoring fine and coarse particles, including the US Federal Reference Method for **PM2.5** and several techniques for PM10-2.5, are presented. Problems encountered in collecting semivolatile PM and in weighing atmospheric PM collected on a filte ...

48

[Comparability between **PM2.5** and particle light scattering measurements.](#)

Chow JC, Watson JG, Lowenthal DH, Richards LW. Environ Monit Assess. 2002 Oct;79(1):29-45. doi: 10.1023/a:1020047307117. PMID: 12381021
Particle light scattering and **PM2.5** (particles with aerodynamic diameters less than 2.5 microm) concentration data from air quality studies conducted over the past ten years were examined. ...The resulting fine particle scattering efficiencies ranged from 1.7 ...

49

[Particle size relationships at the Fresno Supersite.](#)

Watson JG, **Chow JC**, Lowenthal DH, Stolzenburg MR, Kreisberg NM, Hering SV. J Air Waste Manag Assoc. 2002 Jul;52(7):822-7. doi: 10.1080/10473289.2002.10470817. PMID: 12139347
The size distributions were consistent with and predictive for continuous **PM2.5** measured by beta attenuation. They varied temporally with respect to source type and intensity, with the smallest mean diameters associated with high NOx concentrations during weekday mo ...

50

[Chemical composition of **PM2.5** and PM10 in Mexico City during winter 1997.](#)

Chow JC, Watson JG, Edgerton SA, Vega E. Sci Total Environ. 2002 Mar 27;287(3):177-201. doi: 10.1016/s0048-9697(01)00982-2. PMID: 11993962

PM2.5 and **PM10** were measured over 24-h intervals at six core sites and at 25 satellite sites in and around Mexico City from 23 February to 22 March 1997. ...The largest fine-particle components were carbonaceous aerosols, constituting approximately 50% of **PM2** ...

□ 51

[Aerosol chemical and optical properties during the Mt. Zirkel Visibility Study.](#)

Watson JG, **Chow JC**, Lowenthal DH, Cahill CF, Blumenthal DL, Richards LW, González Jorge H. *J Environ Qual.* 2001 Jul-Aug;30(4):1118-25. doi: 10.2134/jeq2001.3041118x. PMID: 11476487

Aerosol chemical and optical properties were measured near the Mt. Zirkel Wilderness Area in northwestern Colorado. Six-hour **PM2.5** (particles with aerodynamic diameters less than 2.5 microm) mass concentrations and **PM2.5** dry particle light scatt ...

□ 52

[PM2.5 and PM10 concentrations from the Qalabotjha low-smoke fuels macro-scale experiment in South Africa.](#)

Engelbrecht JP, Swanepoel L, **Chow JC**, Watson JG, Egami RT. *Environ Monit Assess.* 2001 Jun;69(1):1-15. doi: 10.1023/a:1010786615180. PMID: 11393541

Source impacts from residential coal combustion are also found to be influenced by changes in meteorology, especially wind velocity. **PM2.5** and **PM10** mass, elements, water-soluble cations (sodium, potassium, and ammonium), anions (chloride, nitrate, and sulfate), as w ...

□ 53

[PM2.5 chemical source profiles for vehicle exhaust, vegetative burning, geological material, and coal burning in Northwestern Colorado during 1995.](#)

Watson JG, **Chow JC**, Houck JE. *Chemosphere.* 2001 Jun;43(8):1141-51. doi: 10.1016/s0045-6535(00)00171-5. PMID: 11368231

PM2.5 (particles with aerodynamic diameters less than 2.5 microm) chemical source profiles applicable to speciated emissions inventories and receptor model source apportionment are reported for geological material, motor vehicle exhaust, residential coal (RCC ...

□ 54

[Air quality measurements from the Fresno Supersite.](#)

Watson JG, **Chow JC**, Bowen JL, Lowenthal DH, Hering S, Ouchida P, Oslund W. *J Air Waste Manag Assoc.* 2000 Aug;50(8):1321-34. doi: 10.1080/10473289.2000.10464184. PMID: 11002595

Supersite observables include in-situ, continuous, short-duration measurements of 1) **PM2.5**, **PM10**, and coarse (**PM10** minus **PM2.5**) mass; 2) **PM2.5** SO₄(⁻²), NO₃⁻, carbon, light absorption, and light extinction; 3) numbers of particles in discr ...

□ 55

[Evaluation of filter-based aerosol measurements during the 1987 Southern California Air Quality Study.](#)

Chow JC, Fujita EM, Watson JG, Lu Z, Lawson DR, Ashbaugh LL. *Environ Monit Assess.* 1994 Mar;30(1):49-80. doi: 10.1007/BF00546199. PMID: 24213708

Extensive gaseous (i.e. nitric acid, ammonia, sulfur dioxide) and particle (i.e. **PM2.5** and **PM10** mass, elements, ions, carbon) measurements were acquired for 11 days during the summer at nine locations, and six days during the fall at six locations. ...Coarse particl ...

<https://pubmed.ncbi.nlm.nih.gov/?term=frampton+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2007 1
2012 1
2014 1
2016 3
2021 0

Search Results

6 results

Page

of 1

Select search result to email or save

1

[Ambient and Controlled Particle Exposures as Triggers for Acute ECG Changes.](#)

Rich DQ, Peters A, Schneider A, Zareba W, Breitner S, Oakes D, Wiltshire J, Kane C, **Frampton MW**, Hampel R, Hopke PK, Cyrus J, Utell MJ. Res Rep Health Eff Inst. 2016 May;(186):5-75. PMID: 28661614

In the REHAB study, IQR increases in **PM2.5** concentrations lagged **5** and 6 hours and AMP concentrations in the concurrent hour and lagged up to **5** hours were associated with 1%-2% decreases in SDNN (e.g., **PM2.5** lagged 4 hours: -2.13%; 95% ...

2

[Does total antioxidant capacity modify adverse cardiac responses associated with ambient ultrafine, accumulation mode, and fine particles in patients undergoing cardiac rehabilitation?](#)

Wang M, Utell MJ, Schneider A, Zareba W, **Frampton MW**, Oakes D, Hopke PK, Wiltshire J, Kane C, Peters A, Breitner S, Chalupa D, Rich DQ. Environ Res. 2016 Aug;149:15-22. doi: 10.1016/j.envres.2016.04.031. Epub 2016 May 10. PMID: 27174779 Free PMC article.

RESULTS: Based on subject-visits with available TAC, we observed increases in SBP, C-reactive protein, and fibrinogen, and decreases in rMSSD (square root of the mean of the sum of the squared differences between adjacent normal to normal intervals) and SDNN (standard deviation o ...

3

[Increases in ambient particulate matter air pollution, acute changes in platelet function, and effect modification by aspirin and omega-3 fatty acids: A panel study.](#)

Becerra AZ, Georas S, Brenna JT, Hopke PK, Kane C, Chalupa D, **Frampton MW**, Block R, Rich DQ. J Toxicol Environ Health A. 2016;79(6):287-98. doi: 10.1080/15287394.2016.1157539. Epub 2016 Mar 30. PMID: 27029326 Free PMC article.

Using linear mixed models, adjusted for relative humidity, temperature, visit number, and season, changes in three platelet function measures including (1) aggregation induced by adenosine diphosphate (ADP), (2) aggregation induced by collagen, and (3) thromboxane B2 production w ...

4

[Ambient fine particulate air pollution triggers ST-elevation myocardial infarction, but not non-ST elevation myocardial infarction: a case-crossover study.](#)

Gardner B, Ling F, Hopke PK, **Frampton MW**, Utell MJ, Zareba W, Cameron SJ, Chalupa D, Kane C, Kulandhaisamy S, Topf MC, Rich DQ. Part Fibre Toxicol. 2014 Jan 2;11:1. doi: 10.1186/1743-8977-11-1. PMID: 24382024 Free PMC article.

METHODS: Using data from acute coronary syndrome patients with STEMI (n = 338) and NSTEMI (n = 339) and case-crossover methods, we estimated the risk of STEMI and NSTEMI associated with increased ambient fine particle (<2.5 um) concentrations, ultrafine particle (10-100 ...

5

[Are ambient ultrafine, accumulation mode, and fine particles associated with adverse cardiac responses in patients undergoing cardiac rehabilitation?](#)

Rich DQ, Zareba W, Beckett W, Hopke PK, Oakes D, **Frampton MW**, Bisognano J, Chalupa D, Bausch J, O'Shea K, Wang Y, Utell MJ. Environ Health Perspect. 2012 Aug;120(8):1162-9. doi: 10.1289/ehp.1104262. Epub 2012 Apr 27. PMID: 22542955 Free PMC article.

Ambient ultrafine particle (UFP; 10-100 nm), accumulation mode particle (AMP; 100-500 nm), and fine particle concentrations (**PM2.5**; 2.5 mum in aerodynamic diameter) were monitored continuously. ...RESULTS: Using mixed effects models, we observed adverse chang ...

6

[Ultrafine particles and platelet activation in patients with coronary heart disease--results from a prospective panel study.](#)

Rückerl R, Phipps RP, Schneider A, **Frampton M**, Cyrus J, Oberdörster G, Wichmann HE, Peters A. Part Fibre Toxicol. 2007 Jan 22;4:1. doi: 10.1186/1743-8977-4-1. PMID: 17241467 Free PMC article.

Fixed effects linear regression models were applied, adjusting for trend, weekday and meteorological parameters.Hourly data on ultrafine particles (UFP, number concentration of particles from 0.01 to 0.1 microm), mass concentration of particles less than 10 and 2.5 microm ...

<https://pubmed.ncbi.nlm.nih.gov/?term=fuller+ch&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

1959 2
1960 2
1962 2
1965 1
1971 3
1973 1
1974 1
2012 1
2013 3
2015 1
2016 1
2017 2
2018 3
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1

[Green infrastructure can limit but not solve air pollution injustice.](#)

Jennings V, Reid CE, **Fuller CH**. Nat Commun. 2021 Aug 3;12(1):4681. doi: 10.1038/s41467-021-24892-1. PMID: 34344872 Free PMC article.

2

[Pollen Exposure and Associated Healthcare Utilization: A Population-based Study Using Health Maintenance Organization Data in the Washington, DC, Area.](#)

Roblin DW, Jones JW, **Fuller CH**. Ann Am Thorac Soc. 2021 Oct;18(10):1642-1649. doi: 10.1513/AnnalsATS.202008-976OC. PMID: 33794139 Free PMC article.

3

[Participatory research in Northwest Atlanta's Proctor Creek Watershed: Using photovoice to explore environmental health risks at the water's edge.](#)

Jelks NO, Smith-Perry DJ, **Fuller CH**, Stauber C. Health Place. 2020 Nov;66:102444. doi: 10.1016/j.healthplace.2020.102444. Epub 2020 Sep 30. PMID: 33010659

4

[Evaluating changes in ambient ozone and respiratory-related healthcare utilization in the Washington, DC metropolitan area.](#)

Fuller CH, Jones JW, Roblin DW. Environ Res. 2020 Jul;186:109603. doi: 10.1016/j.envres.2020.109603. Epub 2020 Apr 26. PMID: 32668548 Free PMC article.

5

[Sex differences in the interaction of short-term particulate matter exposure and psychosocial stressors on C-reactive protein in a Puerto Rican cohort.](#)

Fuller CH, Appleton AA, Bulsara PJ, O'Neill MS, Chang HH, Sarnat JA, Falcón LM, Tucker KL, Brugge D. SSM Popul Health. 2019 Oct 13;9:100500. doi: 10.1016/j.ssmph.2019.100500. eCollection 2019 Dec. PMID: 31709298 Free PMC article.

6

[Using Syndromic Surveillance to Evaluate the Respiratory Effects of Fine Particulate Matter.](#)

Fuller CH, Roblin D, Jones J. Ann Am Thorac Soc. 2019 Jul;16(7):930-933. doi: 10.1513/AnnalsATS.201902-118RL. PMID: 30840829 Free PMC article. No abstract available.

7

[Urban environment as an independent predictor of insulin resistance in a South Asian population.](#)

Thanikachalam M, **Fuller CH**, Lane KJ, Sunderarajan J, Harivanzan V, Brugge D, Thanikachalam S. Int J Health Geogr. 2019 Feb 12;18(1):5. doi: 10.1186/s12942-019-0169-9. PMID: 30755210 Free PMC article.

8

[Short-and medium-term associations of particle number concentration with cardiovascular markers in a Puerto Rican cohort.](#)

Fuller CH, O'Neill MS, Sarnat JA, Chang HH, Tucker KL, Brugge D. Environ Res. 2018 Oct;166:595-601. doi: 10.1016/j.envres.2018.06.042. Epub 2018 Jun 30. PMID: 29982147 Free PMC article.

9

[Mapping the Hidden Hazards: Community-Led Spatial Data Collection of Street-Level Environmental Stressors in a Degraded, Urban Watershed.](#)

Jelks NO, Hawthorne TL, Dai D, **Fuller CH**, Stauber C. Int J Environ Res Public Health. 2018 Apr 22;15(4):825. doi: 10.3390/ijerph15040825. PMID: 29690570 Free PMC article.

10

[An Integrated Socio-Environmental Model of Health and Well-Being: a Conceptual Framework Exploring the Joint Contribution of Environmental and Social Exposures to Health and Disease Over the Life Span.](#)

Olvera Alvarez HA, Appleton AA, **Fuller CH**, Belcourt A, Kubzansky LD. Curr Environ Health Rep. 2018 Jun;5(2):233-243. doi: 10.1007/s40572-018-0191-2. PMID: 29574677 Review.

11

[Air pollution, cardiovascular endpoints and susceptibility by stress and material resources: a systematic review of the evidence.](#)

Fuller CH, Feeser KR, Sarnat JA, O'Neill MS. Environ Health. 2017 Jun 14;16(1):58. doi: 10.1186/s12940-017-0270-0. PMID: 28615066 Free PMC article. Review.

12

[Phenology of a Vegetation Barrier and Resulting Impacts on Near-Highway Particle Number and Black Carbon Concentrations on a School Campus.](#)

Fuller CH, Carter DR, Hayat MJ, Baldauf R, Watts Hull R. Int J Environ Res Public Health. 2017 Feb 8;14(2):160. doi: 10.3390/ijerph14020160. PMID: 28208726 Free PMC article.

13

[Socio-demographic Differences in Toxic Release Inventory Siting and Emissions in Metro Atlanta.](#)

Johnson R, Ramsey-White K, **Fuller CH**. Int J Environ Res Public Health. 2016 Jul 23;13(8):747. doi: 10.3390/ijerph13080747. PMID: 27455302 Free PMC article.

14

[Response of biomarkers of inflammation and coagulation to short-term changes in central site, local, and predicted particle number concentrations.](#)

Fuller CH, Williams PL, Mittleman MA, Patton AP, Spengler JD, Brugge D. Ann Epidemiol. 2015 Jul;25(7):505-11. doi: 10.1016/j.annepidem.2015.02.003. Epub 2015 Feb 12. PMID: 25791025 Free PMC article.

15

[Positional error and time-activity patterns in near-highway proximity studies: an exposure misclassification analysis.](#)

Lane KJ, Kangsen Scammell M, Levy JI, **Fuller CH**, Parambi R, Zamore W, Mwamburi M, Brugge D. Environ Health. 2013 Sep 8;12(1):75. doi: 10.1186/1476-069X-12-75. PMID: 24010639 Free PMC article.

16

[Estimation of ultrafine particle concentrations at near-highway residences using data from local and central monitors.](#)

Fuller CH, Brugge D, Williams P, Mittleman M, Durant JL, Spengler JD. Atmos Environ (1994). 2012 Sep;57:257-265. doi: 10.1016/j.atmosenv.2012.04.004. PMID: 23645993 Free PMC article.

17

[A community participatory study of cardiovascular health and exposure to near-highway air pollution: study design and methods.](#)

Fuller CH, Patton AP, Lane K, Laws MB, Marden A, Carrasco E, Spengler J, Mwamburi M, Zamore W, Durant JL, Brugge D. Rev Environ Health. 2013;28(1):21-35. doi: 10.1515/reveh-2012-0029. PMID: 23612527 Free PMC article. Review.

18

[Indoor and outdoor measurements of particle number concentration in near-highway homes.](#)

Fuller CH, Brugge D, Williams PL, Mittleman MA, Lane K, Durant JL, Spengler JD. J Expo Sci Environ Epidemiol. 2013 Sep-Oct;23(5):506-12. doi: 10.1038/jes.2012.116. Epub 2013 Jan 16. PMID: 23321863 Free PMC article.

<https://pubmed.ncbi.nlm.nih.gov/?term=Ponette-Gonzalez&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

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2021 2

Search Results

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1

[Ambient urban N deposition drives increased biomass and total plant N in two native prairie grass species in the U.S. Southern Great Plains.](#)

Ponette-González AG, Green ML, McCullars J, Gough L. PLoS One. 2021 May 6;16(5):e0251089. doi: 10.1371/journal.pone.0251089. eCollection 2021. PMID: 33956866 Free PMC article.

2

[Bird feathers are potential biomonitors for airborne elemental carbon.](#)

Pitre C, **Ponette-González AG**, Rindy JE, Lee A, Doherty D, Fry M, Johnson JA. Environ Monit Assess. 2021 Jan 6;193(1):35. doi: 10.1007/s10661-020-08804-2. PMID: 33409602

3

[Accuracy of long-term volunteer water monitoring data: A multiscale analysis from a statewide citizen science program.](#)

Albus KH, Thompson R, Mitchell F, Kennedy J, **Ponette-González AG**. PLoS One. 2020 Jan 29;15(1):e0227540. doi: 10.1371/journal.pone.0227540. eCollection 2020. PMID: 31995580 Free PMC article.

4

[The value of hydrologic information for watershed management programs: The case of Camboriú, Brazil.](#)

Hamel P, Bremer LL, **Ponette-González AG**, Acosta E, Fisher JRB, Steele B, Cavassani AT, Klemz C, Blainski E, Brauman KA. *Sci Total Environ.* 2020 Feb 25;705:135871. doi: 10.1016/j.scitotenv.2019.135871. Epub 2019 Dec 2. PMID: 31836212 Free article.

□ 5

[Urban Trees Are Sinks for Soot: Elemental Carbon Accumulation by Two Widespread Oak Species.](#)

Rindy JE, **Ponette-González AG**, Barrett TE, Sheesley RJ, Weathers KC. *Environ Sci Technol.* 2019 Sep 3;53(17):10092-10101. doi: 10.1021/acs.est.9b02844. Epub 2019 Aug 22. PMID: 31403775

□ 6

[Assessing the influence of topography and canopy structure on Douglas fir throughfall with LiDAR and empirical data in the Santa Cruz mountains, USA.](#)

Griffith KT, **Ponette-González AG**, Curran LM, Weathers KC. *Environ Monit Assess.* 2015 May;187(5):270. doi: 10.1007/s10661-015-4486-6. Epub 2015 Apr 18. PMID: 25893759

□ 7

[Managing water services in tropical regions: From land cover proxies to hydrologic fluxes.](#)

Ponette-González AG, Brauman KA, Marín-Spiotta E, Farley KA, Weathers KC, Young KR, Curran LM. *Ambio.* 2015 Sep;44(5):367-75. doi: 10.1007/s13280-014-0578-8. Epub 2014 Nov 29. PMID: 25432319 Free PMC article.

□ 8

[Fracking vs faucets: balancing energy needs and water sustainability at urban frontiers.](#)

Fry M, Hoeninghaus DJ, **Ponette-González AG**, Thompson R, La Point TW. *Environ Sci Technol.* 2012 Jul 17;46(14):7444-5. doi: 10.1021/es302472y. Epub 2012 Jul 2. PMID: 22746694 No abstract available.

□ 9

[Tropical land-cover change alters biogeochemical inputs to ecosystems in a Mexican montane landscape.](#)

Ponette-González AG, Weathers KC, Curran LM. *Ecol Appl.* 2010 Oct;20(7):1820-37. doi: 10.1890/09-1125.1. PMID: 21049872

<https://pubmed.ncbi.nlm.nih.gov/?term=adams+pj+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2007 1
2010 1
2014 1
2015 1
2016 1
2021 0

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[Public Health Costs of Primary **PM2.5** and Inorganic **PM2.5** Precursor Emissions in the United States.](#)

Heo J, **Adams PJ**, Gao HO. Environ Sci Technol. 2016 Jun 7;50(11):6061-70. doi: 10.1021/acs.est.5b06125. Epub 2016 May 17. PMID: 27153150

Emission-weighted seasonal averages were estimated at \$88,000-130,000/t **PM2.5** (inert primary), \$14,000-24,000/t SO₂, \$3,800-14,000/t NO_x, and \$23,000-66,000/t NH₃. ...Compared to other studies, our estimates have similar magnitudes and spatial distributions for prim ...

2

[Implications of ammonia emissions from post-combustion carbon capture for airborne particulate matter.](#)

Heo J, McCoy ST, **Adams PJ**. Environ Sci Technol. 2015 Apr 21;49(8):5142-50. doi: 10.1021/acs.est.5b00550. Epub 2015 Apr 7. PMID: 25811231

Wintertime **PM2.5** increases in nonattainment areas were fairly linear at a rate of 3.4 mug **PM2.5**/m(3) per 1 Tg NH₃, allowing these results to be applied to other CCS emissions scenarios. The **PM2.5** impacts are modestly uncertain (20%) depen ...

3

[Air pollutant emissions from the development, production, and processing of Marcellus Shale natural gas.](#)

Roy AA, **Adams PJ**, Robinson AL. J Air Waste Manag Assoc. 2014 Jan;64(1):19-37. doi: 10.1080/10962247.2013.826151. PMID: 24620400

It includes estimates of the emissions of oxides of nitrogen (NO_x), volatile organic compounds (VOCs), and primary fine particulate matter (< or = 2.5 microm aerodynamic diameter; **PM_{2.5}**) from major activities such as drilling, hydraulic fracturing, compres ...

4

[Using backup generators for meeting peak electricity demand: a sensitivity analysis on emission controls, location, and health endpoints.](#)

Gilmore EA, **Adams PJ**, Lave LB. J Air Waste Manag Assoc. 2010 May;60(5):523-31. doi: 10.3155/1047-3289.60.5.523. PMID: 20480851

The NO_x emissions also caused O₃ decreases in the urban centers and increases in the surrounding areas. For **PM_{2.5}**, a social cost of approximately \$2/kWh was calculated for uncontrolled diesel generators in highly populated cities but was under 10 cent/kWh with **PM ...**

5

[Ammonia emission controls as a cost-effective strategy for reducing atmospheric particulate matter in the Eastern United States.](#)

Pinder RW, **Adams PJ**, Pandis SN. Environ Sci Technol. 2007 Jan 15;41(2):380-6. doi: 10.1021/es060379a. PMID: 17310695

Current regulation aimed at reducing inorganic atmospheric fine particulate matter (**PM_{2.5}**) is focused on reductions in sulfur dioxide (SO₂) and oxides of nitrogen (NO(x) = NO + NO₂); however, controls on these pollutants are likely to increase in cost and decrease i ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Allen+GA+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

1997 1
1998 1
1999 1
2000 1
2001 1
2021 0

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[Laboratory and field evaluation of measurement methods for one-hour exposures to O3, PM2.5, and CO.](#)

Chang LT, Suh HH, Wolfson JM, Misra K, **Allen GA**, Catalano PJ, Koutrakis P. J Air Waste Manag Assoc. 2001 Oct;51(10):1414-22. PMID: 11686245

The limits of detection (LOD) of this method were 9 ppb-hr for the chamber tests and approximately 16 ppb-hr for the field comparison tests. **PM2.5** and CO concentrations were measured using modified continuous monitors--the DustTrak and the Langan, respectively. ...Du

...

2

[Calibration of sharp cut impactors for indoor and outdoor particle sampling.](#)

Turner WA, Olson BA, **Allen GA**. J Air Waste Manag Assoc. 2000 Apr;50(4):484-7. doi: 10.1080/10473289.2000.10464043. PMID: 10785998

Particle interstage losses for all of the impactors were very low, with the exception of the 10-micron cut size 20 L/min impactor, which had greater losses due to the higher flow rate. All of the 2.5-micron cut nozzle laboratory calibrations compare favorably to the U.S. E ...

3

[Techniques for High-Quality Ambient Coarse Particle Mass Measurements.](#)

Allen GA, Oh JA, Koutrakis P, Sioutas C. J Air Waste Manag Assoc. 1999 Sep;49(9):133-141. doi: 10.1080/10473289.1999.10463893. PMID: 29073869

These studies have raised the issue of quality of coarse mass (CM, PM between 2.5 and 10 m) data used for these purposes. CM data may have precision three or more times worse than the associated PM (2.5) or PM(10) data, depending on the measurement method, PM (2. ...

□ 4

[Effects of ozone and other pollutants on the pulmonary function of adult hikers.](#)

Korrick SA, Neas LM, Dockery DW, Gold DR, **Allen GA**, Hill LB, Kimball KD, Rosner BA, Speizer FE. Environ Health Perspect. 1998 Feb;106(2):93-9. doi: 10.1289/ehp.9810693. PMID: 9435151 Free PMC article. Clinical Trial.

This study evaluated the acute effects of ambient ozone (O₃), fine particulate matter (**PM_{2.5}**), and strong aerosol acidity on the pulmonary function of exercising adults. ...Hikers with asthma or a history of wheeze (n = 40) had fourfold greater responsiveness to ozo ...

□ 5

[The metropolitan acid aerosol characterization study: results from the summer 1994 Washington, D.C. field study.](#)

Suh HH, Nishioka Y, **Allen GA**, Koutrakis P, Burton RM. Environ Health Perspect. 1997 Aug;105(8):826-34. doi: 10.1289/ehp.97105826. PMID: 9347898 Free PMC article.

Results from this study show strong correlations among the particulate measures, PM₁₀, **PM_{2.5}**, SO₄(²⁻), and H⁺. These strong correlations resulted from the fact that **PM_{2.5}** comprised 77% of PM₁₀, with SO₄(²⁻)-related species accounting for 49% of total ...

<https://pubmed.ncbi.nlm.nih.gov/?term=balmes+j+PM2.5&sort=date>

Results by year

Table representation of search results timeline featuring number of search results per year.

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[Identifying impacts of air pollution on subacute asthma symptoms using digital medication sensors.](#)

Su JG, Barrett MA, Combs V, Henderson K, Van Sickle D, Hogg C, Simrall G, Moyer SS, Tarini P, Wojcik O, Sublett J, Smith T, Renda AM, **Balmes J**, Gondalia R, Kaye L, Jerrett M. Int J Epidemiol. 2021 Oct 19:dyab187. doi: 10.1093/ije/dyab187. Online ahead of print. PMID: 34664072

In the generalized linear mixed model, an interquartile range (IQR) increase in pollutant exposure was associated with a mean rescue medication use increase per person per day of 0.201 [95% confidence interval (CI): 0.189-0.214], 0.153 (95% CI: 0.136-0.171), 0.131 (95% CI: 0.115- ...

2

[Association of Wildfire Air Pollution and Health Care Use for Atopic Dermatitis and Itch.](#)

Fadadu RP, Grimes B, Jewell NP, Vargo J, Young AT, Abuabara K, **Balmes JR**, Wei ML. JAMA Dermatol. 2021 Jun 1;157(6):658-666. doi: 10.1001/jamadermatol.2021.0179. PMID: 33881450

EXPOSURES: Wildfire-associated air pollution was characterized using 3 metrics: fire status, concentration of particulate matter less than 2.5 µm in diameter (**PM2.5**), and satellite-based smoke plume density scores. ...The adjusted rate ratios for itch clinic ...

□ 3

[The relationship between air pollutants and maternal socioeconomic factors on preterm birth in California urban counties.](#)

Mekonnen ZK, Oehlert JW, Eskenazi B, Shaw GM, **Balmes JR**, Padula AM. J Expo Sci Environ Epidemiol. 2021 May;31(3):503-513. doi: 10.1038/s41370-021-00323-7. Epub 2021 Apr 15. PMID: 33859340 Free PMC article.

METHODS: We conducted a retrospective study using geocoded birth certificate data between 2007 and 2011, daily ambient air quality data on PM(2.5) and O(3), and American Community Survey (2007-2011 5-year estimates) data to assess census tract-level socioeconomic fa ...

□ 4

[Accelerated lung function decline in an aluminium manufacturing industry cohort exposed to PM\(2.5\): an application of the parametric g-formula.](#)

Neophytou AM, Costello S, Picciotto S, Noth EM, Liu S, Lutzker L, **Balmes JR**, Hammond K, Cullen MR, Eisen EA. Occup Environ Med. 2019 Dec;76(12):888-894. doi: 10.1136/oemed-2019-105908. Epub 2019 Oct 14. PMID: 31615860 Free PMC article.

In the current study, we assess potential benefits on lung function of hypothetical interventions that would reduce occupational exposure to fine particulate matter (PM(2.5)) while adjusting for the healthy worker survivor effect. METHODS: Analyses were performed in a coho ...

□ 5

[Cooking behaviors are related to household particulate matter exposure in children with asthma in the urban East Bay Area of Northern California.](#)

Holm SM, **Balmes J**, Gillette D, Hartin K, Seto E, Lindeman D, Polanco D, Fong E. PLoS One. 2018 Jun 6;13(6):e0197199. doi: 10.1371/journal.pone.0197199. eCollection 2018. PMID: 29874253 Free PMC article. Clinical Trial.

Exposure data included measurements every 5 minutes for a month. RESULTS: In the entire study population, a large contributor to elevations in indoor PM2.5 above 35 mug/m3 was not using the stove hood when cooking (8.5% higher, CI 3.1-13.9%, p<0.005 ...

□ 6

[Differential respiratory health effects from the 2008 northern California wildfires: A spatiotemporal approach.](#)

Reid CE, Jerrett M, Tager IB, Petersen ML, Mann JK, **Balmes JR**. Environ Res. 2016 Oct;150:227-235. doi: 10.1016/j.envres.2016.06.012. Epub 2016 Jun 15. PMID: 27318255 Free article.

We then used Poisson generalized estimating equations to calculate the effect of exposure to 24-hour average PM2.5 on cardiovascular and respiratory hospitalizations and ED visits. ...We observed a linear increase in risk for asthma hospitalizations (RR=1.07, 95% CI ...

□ 7

[Decreased lung function in 7-year-old children with early-life organophosphate exposure.](#)

Raanan R, **Balmes JR**, Harley KG, Gunier RB, Magzamen S, Bradman A, Eskenazi B. Thorax. 2016 Feb;71(2):148-53. doi: 10.1136/thoraxjnl-2014-206622. Epub 2015 Dec 3. PMID: 26634937 Free article.

Regression models controlled for maternal smoking during pregnancy, season of birth, particulate matter concentrations with aerodynamic diameter 2.5 mum (PM2.5), breast feeding duration, mould and pets at home, distance of home from a highway, food insecurity ...

□ 8

[Spatiotemporal prediction of fine particulate matter during the 2008 northern California wildfires using machine learning.](#)

Reid CE, Jerrett M, Petersen ML, Pfister GG, Morefield PE, Tager IB, Raffuse SM, **Balmes JR**. Environ Sci Technol. 2015 Mar 17;49(6):3887-96. doi: 10.1021/es505846r. Epub 2015 Feb 27. PMID: 25648639

Chemical transport models (CTMs) and satellite retrievals provide spatiotemporal data that may be useful in predicting **PM2.5** during wildfires. We estimated **PM2.5** concentrations during the 2008 northern California wildfires using 10-fold cross-validation ...

□ 9

[Early-life exposure to organophosphate pesticides and pediatric respiratory symptoms in the CHAMACOS cohort.](#)

Raanan R, Harley KG, **Balmes JR**, Bradman A, Lipsett M, Eskenazi B. Environ Health Perspect. 2015 Feb;123(2):179-85. doi: 10.1289/ehp.1408235. Epub 2014 Nov 4. PMID: 25369257 Free PMC article.

Mothers reported their child's respiratory symptoms at 5 and 7 years of age. We used generalized estimating equations (GEE) to examine associations of prenatal and childhood DAP concentrations with repeated measures of respiratory symptoms and exercise-induced coughing at ...

□ 10

[An integrated risk function for estimating the global burden of disease attributable to ambient fine particulate matter exposure.](#)

Burnett RT, Pope CA 3rd, Ezzati M, Olives C, Lim SS, Mehta S, Shin HH, Singh G, Hubbell B, Brauer M, Anderson HR, Smith KR, **Balmes JR**, Bruce NG, Kan H, Laden F, Prüss-Ustün A, Turner MC, Gapstur SM, Diver WR, Cohen A. Environ Health Perspect. 2014 Apr;122(4):397-403. doi: 10.1289/ehp.1307049. Epub 2014 Feb 11. PMID: 24518036 Free PMC article.

BACKGROUND: Estimating the burden of disease attributable to long-term exposure to fine particulate matter (**PM2.5**) in ambient air requires knowledge of both the shape and magnitude of the relative risk (RR) function. ...AS exposures were converted to estimated annual ...

□ 11

[Ambient air pollution associated with suppressed serologic responses to *Pneumocystis jirovecii* in a prospective cohort of HIV-infected patients with *Pneumocystis pneumonia*.](#)

Blount RJ, Djawe K, Daly KR, Jarlsberg LG, Fong S, **Balmes J**, Miller RF, Walzer PD, Huang L; International HIV-associated Opportunistic Pneumonias Study. PLoS One. 2013 Nov 13;8(11):e80795. doi: 10.1371/journal.pone.0080795. eCollection 2013. PMID: 24236202 Free PMC article.

Our AAP predictors were ambient air concentrations of particulate matter of < 10 μm in diameter (PM10) and < 2.5 μm in diameter (**PM2.5**), nitrogen dioxide (NO2), ozone (O3), and sulfur dioxide (SO2) measured immediately prior to hospital admission and 2 weeks

□ 12

[The association between chronic exposure to traffic-related air pollution and ischemic heart disease.](#)

Beckerman BS, Jerrett M, Finkelstein M, Kanaroglou P, Brook JR, Arain MA, Sears MR, Stieb D, **Balmes J**, Chapman K. J Toxicol Environ Health A. 2012;75(7):402-11. doi: 10.1080/15287394.2012.670899. PMID: 22524595

Local (NO₂) exposures were modeled using land use regression based on extensive field monitoring. Regional exposures (**PM_{2.5}**, O₃) were modeled as confounders using inverse distance weighted interpolation based on government monitoring data. ...Subjects living near ma

□ 13

[Outdoor air pollution and uncontrolled asthma in the San Joaquin Valley, California.](#)

Meng YY, Rull RP, Wilhelm M, Lombardi C, **Balmes J**, Ritz B. J Epidemiol Community Health. 2010 Feb;64(2):142-7. doi: 10.1136/jech.2009.083576. PMID: 20056967

Based on residential zip code, subjects were assigned annual average concentrations of ozone, PM(10) and PM(2.5) for the 1-year period prior to the interview date from their closest government air monitoring station within an 8 km (5 miles) radius. RESULTS: Adjustin ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Clougherty+J+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

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2016 5
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[Long-Term Ambient Air Pollution Exposures and Circulating and Stimulated Inflammatory Mediators in a Cohort of Midlife Adults.](#)

Tripathy S, Marsland AL, Kinnee EJ, Tunno BJ, Manuck SB, Gianaros PJ, **Clougherty JE**. Environ Health Perspect. 2021 May;129(5):57007. doi: 10.1289/EHP7089. Epub 2021 May 17. PMID: 34014775 Free PMC article.

Fine particulate matter [particulate matter with aerodynamic diameter less than or equal to 2.5 μm (**PM2.5**)] and constituents [black carbon (BC), and lead (Pb), manganese (Mn), zinc (Zn), and iron (Fe)] were estimated for each residential address using hybrid ...

2

[Association of Fine Particulate Matter and Risk of Stroke in Patients With Atrial Fibrillation.](#)

Rhinehart ZJ, Kinnee E, Essien UR, Saul M, Guhl E, **Clougherty JE**, Magnani JW. JAMA Netw Open. 2020 Sep 1;3(9):e2011760. doi: 10.1001/jamanetworkopen.2020.11760. PMID: 32930777 Free PMC article.

IMPORTANCE: Air pollution is associated with cardiovascular outcomes. Specifically, fine particulate matter measuring 2.5 μm or less (**PM_{2.5}**) is associated with thrombosis, stroke, and myocardial infarction. ...Exposure to **PM_{2.5}** was estimated an ...

□ 3

[Spatial Patterns in Rush-Hour vs. Work-Week Diesel-Related Pollution across a Downtown Core.](#)

Tunno BJ, Michanowicz DR, Shmool JLC, Tripathy S, Kinnee E, Cambal L, Chubb L, Roper C, **Clougherty JE**. *Int J Environ Res Public Health*. 2018 Sep 10;15(9):1968. doi: 10.3390/ijerph15091968. PMID: 30201856 Free PMC article.

Programmable monitors were used to collect integrated work-week and rush-hour samples of fine particulate matter (**PM_{2.5}**), black carbon (BC), trace elements, and diesel-related organics (polycyclic aromatic hydrocarbons (PAHs), hopanes, steranes), in summer and winter 201 ...

□ 4

[Framework for using deciduous tree leaves as biomonitors for intraurban particulate air pollution in exposure assessment.](#)

Gillooly SE, Shmool JL, Michanowicz DR, Bain DJ, Cambal LK, Shields KN, **Clougherty JE**. *Environ Monit Assess*. 2016 Aug;188(8):479. doi: 10.1007/s10661-016-5482-1. Epub 2016 Jul 23. PMID: 27450373 Review.

Fine particulate matter (**PM_{2.5}**) air pollution, varying in concentration and composition, has been shown to cause or exacerbate adverse effects on both human and ecological health. ...

□ 5

[Intraurban Variation of Fine Particle Elemental Concentrations in New York City.](#)

Ito K, Johnson S, Kheirbek I, **Clougherty J**, Pezeshki G, Ross Z, Eisl H, Matte TD. *Environ Sci Technol*. 2016 Jul 19;50(14):7517-26. doi: 10.1021/acs.est.6b00599. Epub 2016 Jul 8. PMID: 27331241

Few past studies have collected and analyzed within-city variation of fine particulate matter (**PM_{2.5}**) elements. We developed land-use regression (LUR) models to characterize spatial variation of 15 **PM_{2.5}** elements collected at 150 street-level locations ...

□ 6

[Ambient Fine Particulate Matter, Nitrogen Dioxide, and Preterm Birth in New York City.](#)

Johnson S, Bobb JF, Ito K, Savitz DA, Elston B, Shmool JL, Dominici F, Ross Z, **Clougherty JE**, Matte T. *Environ Health Perspect*. 2016 Aug;124(8):1283-90. doi: 10.1289/ehp.1510266. Epub 2016 Feb 5. PMID: 26862865 Free PMC article.

Spatial and temporal components of estimated exposures were also separately analyzed.

RESULTS: **PM_{2.5}** was not significantly associated with spontaneous preterm birth.

...CONCLUSION: Neither **PM_{2.5}** nor NO₂ was positively associated with spontaneous preter ...

□ 7

[Spatial patterning in **PM_{2.5}** constituents under an inversion-focused sampling design across an urban area of complex terrain.](#)

Tunno BJ, Dalton R, Michanowicz DR, Shmool JL, Kinnee E, Tripathy S, Cambal L, **Clougherty JE**. *J Expo Sci Environ Epidemiol*. 2016 Jun;26(4):385-96. doi: 10.1038/jes.2015.59. Epub 2015 Oct 28. PMID: 26507005 Free PMC article.

Health effects of fine particulate matter (**PM2.5**) vary by chemical composition, and composition can help to identify key **PM2.5** sources across urban areas. ...We designed a 2-year monitoring campaign to capture fine-scale intra-urban variability in P ...

□ 8

[Characterization of ambient and extracted **PM2.5** collected on filters for toxicology applications.](#)

Roper C, Chubb LG, Cambal L, Tunno B, **Clougherty JE**, Mischler SE. *Inhal Toxicol.*

2015;27(13):673-81. doi: 10.3109/08958378.2015.1092185. Epub 2015 Oct 8. PMID: 26446919

Free PMC article.

Research on the health effects of fine particulate matter (**PM2.5**) frequently disregards the differences in particle composition between that measured on an ambient filter versus that measured in the corresponding extraction solution used for toxicological testing. . . .

□ 9

[Ambient Fine Particulate Matter, Nitrogen Dioxide, and Hypertensive Disorders of Pregnancy in New York City.](#)

Savitz DA, Elston B, Bobb JF, **Clougherty JE**, Dominici F, Ito K, Johnson S, McAlexander T,

Ross Z, Shmool JL, Matte TD, Wellenius GA. *Epidemiology.* 2015 Sep;26(5):748-57. doi:

10.1097/EDE.0000000000000349. PMID: 26237745 Free PMC article.

The New York City Community Air Survey provided refined estimates of **PM2.5** and NO₂ at the maternal residence. We estimated the association between exposures to **PM2.5** and NO₂ in the first and second trimester and risk of gestational hypertension, mild p ...

□ 10

[Indoor air sampling for fine particulate matter and black carbon in industrial communities in Pittsburgh.](#)

Tunno BJ, Kyra Naumoff Shields, Cambal L, Tripathy S, Holguin F, Lioy P, **Clougherty JE**. *Sci*

Total Environ. 2015 Dec 1;536:108-115. doi: 10.1016/j.scitotenv.2015.06.117. Epub 2015 Jul

21. PMID: 26204046 Free article.

In the models, an outdoor infiltration component explained 10 to 39% of variability in indoor air pollution for **PM2.5**, and 33 to 42% for BC. For both **PM2.5** models and the summer BC model, smoking was a stronger predictor than outdoor pollution, as grea ...

□ 11

[Fine particulate matter and the risk of autism spectrum disorder.](#)

Talbott EO, Arena VC, Rager JR, **Clougherty JE**, Michanowicz DR, Sharma RK, Stacy SL.

Environ Res. 2015 Jul;140:414-20. doi: 10.1016/j.envres.2015.04.021. Epub 2015 May 15.

PMID: 25957837

Recent investigations have suggested that air pollution, including **PM2.5**, may play a role in the onset of this condition. The objective of the present work was to investigate the association between prenatal and early childhood exposure to fine particulate matter (...

□ 12

[Spatial variation in inversion-focused vs 24-h integrated samples of **PM2.5** and black carbon across Pittsburgh, PA.](#)

Tunno BJ, Michanowicz DR, Shmool JL, Kinnee E, Cambal L, Tripathy S, Gillooly S, Roper C,

Chubb L, **Clougherty JE**. *J Expo Sci Environ Epidemiol.* 2016 Jun;26(4):365-76. doi:

10.1038/jes.2015.14. Epub 2015 Apr 29. PMID: 25921079 Free PMC article.

Land use regression (LUR) models were developed and compared by pollutant, season, and sampling method. As expected, we found stronger spatial contrasts in **PM2.5** and BC using inversion-focused sampling, suggesting greater differences in peak exposures across urban a ...

□ 13

[Saturation sampling for spatial variation in multiple air pollutants across an inversion-prone metropolitan area of complex terrain.](#)

Shmool JL, Michanowicz DR, Cambal L, Tunno B, Howell J, Gillooly S, Roper C, Tripathy S, Chubb LG, Eisl HM, Gorczynski JE, Holguin FE, Shields KN, **Clougherty JE**. Environ Health. 2014 Apr 16;13(1):28. doi: 10.1186/1476-069X-13-28. PMID: 24735818 Free PMC article. METHODS: We designed a spatial saturation monitoring study to target local air pollution sources, and to understand the role of topography and temperature inversions on fine-scale pollution variation by systematically allocating sampling locations across gradients in key local em ...

□ 14

[Spatial and temporal estimation of air pollutants in New York City: exposure assignment for use in a birth outcomes study.](#)

Ross Z, Ito K, Johnson S, Yee M, Pezeshki G, **Clougherty JE**, Savitz D, Matte T. Environ Health. 2013 Jun 27;12:51. doi: 10.1186/1476-069X-12-51. PMID: 23802774 Free PMC article. We characterized temporal variation of exposure estimates, correlation between **PM2.5** and NO₂, and correlation of exposures across trimesters. RESULTS: The LUR models of average annual concentrations explained a substantial amount of the spatial variation ($R^2 = 0.79$...

□ 15

[Understanding intra-neighborhood patterns in PM2.5 and PM10 using mobile monitoring in Braddock, PA.](#)

Tunno BJ, Shields KN, Liroy P, Chu N, Kadane JB, Parmanto B, Pramana G, Zora J, Davidson C, Holguin F, **Clougherty JE**. Environ Health. 2012 Oct 10;11:76. doi: 10.1186/1476-069X-11-76. PMID: 23051204 Free PMC article.

During summer months, afternoon concentrations were significantly lower than morning for both **PM2.5** and PM₁₀, potentially owing to morning subsidence inversions. ...Temperature, wind speed, and wind direction predicted significant variability in **PM2.5** ...

□ 16

[Evaluating heterogeneity in indoor and outdoor air pollution using land-use regression and constrained factor analysis.](#)

Levy JI, **Clougherty JE**, Baxter LK, Houseman EA, Paciorek CJ; HEI Health Review Committee. Res Rep Health Eff Inst. 2010 Dec;(152):5-80; discussion 81-91. PMID: 21409949 As part of a prospective birth cohort study assessing asthma etiology in urban Boston, we collected indoor and/or outdoor 3-to-4 day samples of nitrogen dioxide (NO₂) and fine particulate matter with an aerodynamic diameter or = 2.5 pm (**PM2.5**) at 44 residence ...

□ 17

[A growing role for gender analysis in air pollution epidemiology.](#)

Clougherty JE. Environ Health Perspect. 2010 Feb;118(2):167-76. doi: 10.1289/ehp.0900994. PMID: 20123621 Free PMC article. Review.

DATA SOURCES AND DATA EXTRACTION: A PubMed literature search was performed in July 2009, using the terms "respiratory" and any of "sex" or "gender" or "men and women" or "boys and girls" and either "PM2.5" (particulate matter <or= 2.5 microm in aerodynamic ...

☐ 18

[Land use regression modeling of intra-urban residential variability in multiple traffic-related air pollutants.](#)

Clougherty JE, Wright RJ, Baxter LK, Levy JI. Environ Health. 2008 May 16;7:17. doi: 10.1186/1476-069X-7-17. PMID: 18485201 Free PMC article.

As part of a study on childhood asthma etiology, we examined variability in outdoor concentrations of multiple traffic-related air pollutants within urban communities, using a range of GIS-based predictors and land use regression techniques. METHODS: We measured fine particulate ...

☐ 19

[Predictors of concentrations of nitrogen dioxide, fine particulate matter, and particle constituents inside of lower socioeconomic status urban homes.](#)

Baxter LK, **Clougherty JE**, Laden F, Levy JI. J Expo Sci Environ Epidemiol. 2007 Aug;17(5):433-44. doi: 10.1038/sj.jes.7500532. Epub 2006 Oct 18. PMID: 17051138

In this study, part of a prospective birth cohort study assessing asthma etiology in urban Boston, we collected indoor and outdoor 3-4 day samples of nitrogen dioxide (NO₂) and fine particulate matter (**PM2.5**) in 43 residences across multiple seasons from 2003 to 200 ...

☐ 20

[The air quality impacts of road closures associated with the 2004 Democratic National Convention in Boston.](#)

Levy JI, Baxter LK, **Clougherty JE**. Environ Health. 2006 May 26;5:16. doi: 10.1186/1476-069X-5-16. PMID: 16729881 Free PMC article.

Continuous monitors measured slightly lower concentrations of elemental carbon and nitrogen dioxide during road closure periods at monitors proximate to closed highway segments, but not for **PM2.5** or further from major highways. CONCLUSION: We conclude that there was ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Cory-Slechta+air+pollution&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

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2014 3
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Search Results

19 results

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1

[Selective memory and behavioral alterations after ambient ultrafine particulate matter exposure in aged 3xTgAD Alzheimer's disease mice.](#)

Jew K, Herr D, Wong C, Kennell A, Morris-Schaffer K, Oberdörster G, O'Banion MK, **Cory-Slechta DA**, Elder A. Part Fibre Toxicol. 2019 Nov 26;16(1):45. doi: 10.1186/s12989-019-0323-3. PMID: 31771615 Free PMC article.

BACKGROUND: A growing body of epidemiological literature indicates that particulate matter (PM) **air pollution** exposure is associated with elevated Alzheimer's disease (AD) risk and may exacerbate AD-related cognitive decline. ...The present study assessed alteration ...

2

[The Impact of Inhaled Ambient Ultrafine Particulate Matter on Developing Brain: Potential Importance of Elemental Contaminants.](#)

Cory-Slechta DA, Sobolewski M, Marvin E, Conrad K, Merrill A, Anderson T, Jackson BP, Oberdorster G. Toxicol Pathol. 2019 Dec;47(8):976-992. doi: 10.1177/0192623319878400. Epub 2019 Oct 14. PMID: 31610749 Free PMC article.

Epidemiological studies report associations between **air pollution** (AP) exposures and several neurodevelopmental disorders including autism, attention deficit disorder, and cognitive delays.

...

□ 3

[Healthy Air, Healthy Brains: Advancing Air Pollution Policy to Protect Children's Health.](#)

Payne-Sturges DC, Marty MA, Perera F, Miller MD, Swanson M, Ellickson K, **Cory-Slechta DA**, Ritz B, Balmes J, Anderko L, Talbott EO, Gould R, Hertz-Picciotto I. Am J Public Health. 2019 Apr;109(4):550-554. doi: 10.2105/AJPH.2018.304902. Epub 2019 Feb 21. PMID: 30789769 Free PMC article.

Evidence is growing on the adverse neurodevelopmental effects of exposure to combustion-related **air pollution**. Project TENDR (Targeting Environmental Neurodevelopmental Risks), a unique collaboration of leading scientists, health professionals, and children's and en ...

□ 4

[Effects of neonatal inhalation exposure to ultrafine carbon particles on pathology and behavioral outcomes in C57BL/6J mice.](#)

Morris-Schaffer K, Merrill A, Jew K, Wong C, Conrad K, Harvey K, Marvin E, Sobolewski M, Oberdörster G, Elder A, **Cory-Slechta DA**. Part Fibre Toxicol. 2019 Feb 18;16(1):10. doi: 10.1186/s12989-019-0293-5. PMID: 30777081 Free PMC article.

BACKGROUND: Recent epidemiological studies indicate early-life exposure to **air pollution** is associated with adverse neurodevelopmental outcomes. ...Defining these neurotoxic components is critical to the formulation of better animal models, more focused mechanistic ...

□ 5

[Limited developmental neurotoxicity from neonatal inhalation exposure to diesel exhaust particles in C57BL/6 mice.](#)

Morris-Schaffer K, Merrill AK, Wong C, Jew K, Sobolewski M, **Cory-Slechta DA**. Part Fibre Toxicol. 2019 Jan 7;16(1):1. doi: 10.1186/s12989-018-0287-8. PMID: 30612575 Free PMC article.

BACKGROUND: Recent epidemiological studies indicate early-life exposure to **pollution** particulate is associated with adverse neurodevelopmental outcomes. The need is arising to evaluate the risks conferred by individual components and sources of **air pollution** ...

□ 6

[Enhanced cerebellar myelination with concomitant iron elevation and ultrastructural irregularities following prenatal exposure to ambient particulate matter in the mouse.](#)

Klocke C, Sherina V, Graham UM, Gunderson J, Allen JL, Sobolewski M, Blum JL, Zelikoff JT, **Cory-Slechta DA**. Inhal Toxicol. 2018 Aug;30(9-10):381-396. doi: 10.1080/08958378.2018.1533053. Epub 2018 Dec 20. PMID: 30572762 Free PMC article.

Accumulating evidence indicates the developing central nervous system (CNS) is a target of **air pollution** toxicity. Epidemiological reports increasingly demonstrate that exposure to the particulate matter (PM) fraction of **air pollution** during neurodevel ...

□ 7

[Cognitive flexibility deficits in male mice exposed to neonatal hyperoxia followed by concentrated ambient ultrafine particles.](#)

Morris-Schaffer K, Sobolewski M, Welle K, Conrad K, Yee M, O'Reilly MA, **Cory-Slechta DA**. Neurotoxicol Teratol. 2018 Nov-Dec;70:51-59. doi: 10.1016/j.ntt.2018.10.003. Epub 2018 Oct 11. PMID: 30316930 Free PMC article.

Epidemiological evidence indicates an association between early-life exposure to **air pollution** and preterm birth. Thus, it is essential to address the subsequent vulnerability of preterm infants, who are exposed to unique factors at birth including hyperoxia, and su ...

□ 8

[Developmental exposures to ultrafine particle **air pollution** reduces early testosterone levels and adult male social novelty preference: Risk for children's sex-biased neurobehavioral disorders.](#)

Sobolewski M, Anderson T, Conrad K, Marvin E, Klocke C, Morris-Schaffer K, Allen JL, **Cory-Slechta DA**. Neurotoxicology. 2018 Sep;68:203-211. doi: 10.1016/j.neuro.2018.08.009. Epub 2018 Aug 23. PMID: 30144459 Free PMC article.

Epidemiological studies have reported associations of **air pollution** exposures with various neurodevelopmental disorders such as autism spectrum disorder (ASD), attention deficit and schizophrenia, all of which are male-biased in prevalence. ...Collectively, these st ...

□ 9

[Effect of neonatal hyperoxia followed by concentrated ambient ultrafine particle exposure on cumulative learning in C57Bl/6J mice.](#)

Morris-Schaffer K, Sobolewski M, Allen JL, Marvin E, Yee M, Arora M, O'Reilly MA, **Cory-Slechta DA**. Neurotoxicology. 2018 Jul;67:234-244. doi: 10.1016/j.neuro.2018.06.006. Epub 2018 Jun 18. PMID: 29920326 Free PMC article.

Hyperoxia during treatment for prematurity may enhance susceptibility to other risk factors for adverse brain development, such as **air pollution** exposure, as both of these risk factors have been linked to a variety of adverse neurodevelopmental outcomes. ...This stu ...

□ 10

[Developmental exposure to low level ambient ultrafine particle **air pollution** and cognitive dysfunction.](#)

Cory-Slechta DA, Allen JL, Conrad K, Marvin E, Sobolewski M. Neurotoxicology. 2018 Dec;69:217-231. doi: 10.1016/j.neuro.2017.12.003. Epub 2017 Dec 13. PMID: 29247674 Free PMC article.

□ 11

[Exposure to fine and ultrafine particulate matter during gestation alters postnatal oligodendrocyte maturation, proliferation capacity, and myelination.](#)

Klocke C, Allen JL, Sobolewski M, Blum JL, Zelikoff JT, **Cory-Slechta DA**. Neurotoxicology. 2018 Mar;65:196-206. doi: 10.1016/j.neuro.2017.10.004. Epub 2017 Oct 24. PMID: 29079486 Free PMC article.

Accumulating studies indicate that the brain is a direct target of **air pollution** exposure during the fetal period. We have previously demonstrated that exposure to concentrated ambient particles (CAPs) during gestation produces ventriculomegaly, periventricular hype ...

□ 12

[Cognitive Effects of Air Pollution Exposures and Potential Mechanistic Underpinnings.](#)

Allen JL, Klocke C, Morris-Schaffer K, Conrad K, Sobolewski M, **Cory-Slechta DA**. Curr Environ Health Rep. 2017 Jun;4(2):180-191. doi: 10.1007/s40572-017-0134-3. PMID: 28435996 Free PMC article. Review.

RECENT FINDINGS: **Air pollution** has been associated with deficits in cognitive functions across a wide range of epidemiological studies, both with developmental and adult exposures. ...Epidemiological studies are consistent with adverse effects of **air pollutant** ...

□ 13

[Neuropathological Consequences of Gestational Exposure to Concentrated Ambient Fine and Ultrafine Particles in the Mouse.](#)

Klocke C, Allen JL, Sobolewski M, Mayer-Pröschel M, Blum JL, Lauterstein D, Zelikoff JT, **Cory-Slechta DA**. *Toxicol Sci*. 2017 Apr 1;156(2):492-508. doi: 10.1093/toxsci/kfx010. PMID: 28087836 Free PMC article.

The current study sought to determine whether vulnerability to fine (2.5 µm) and UFP **air pollution** exposure extends to embryonic periods of brain development in mice, equivalent to human 1st and 2nd trimesters. ...These findings demonstrate that vulnerability of th ...

□ 14

[Developmental neurotoxicity of inhaled ambient ultrafine particle **air pollution**: Parallels with neuropathological and behavioral features of autism and other neurodevelopmental disorders.](#)

Allen JL, Oberdorster G, Morris-Schaffer K, Wong C, Klocke C, Sobolewski M, Conrad K, Mayer-Pröschel M, **Cory-Slechta DA**. *Neurotoxicology*. 2017 Mar;59:140-154. doi: 10.1016/j.neuro.2015.12.014. Epub 2015 Dec 22. PMID: 26721665 Free PMC article. Review.

Accumulating evidence from both human and animal studies show that brain is a target of **air pollution**. Multiple epidemiological studies have now linked components of **air pollution** to diagnosis of autism spectrum disorder (ASD), a linkage with plausible ...

□ 15

[Early postnatal exposure to ultrafine particulate matter **air pollution**: persistent ventriculomegaly, neurochemical disruption, and glial activation preferentially in male mice.](#)

Allen JL, Liu X, Pelkowski S, Palmer B, Conrad K, Oberdorster G, Weston D, Mayer-Pröschel M, **Cory-Slechta DA**. *Environ Health Perspect*. 2014 Sep;122(9):939-45. doi: 10.1289/ehp.1307984. Epub 2014 Jun 5. PMID: 24901756 Free PMC article.

BACKGROUND: **Air pollution** has been associated with adverse neurological and behavioral health effects in children and adults. Recent studies link **air pollutant** exposure to adverse neurodevelopmental outcomes, including increased risk for autism, cognitive dec ...

□ 16

[Developmental exposure to concentrated ambient ultrafine particulate matter **air pollution** in mice results in persistent and sex-dependent behavioral neurotoxicity and glial activation.](#)

Allen JL, Liu X, Weston D, Prince L, Oberdorster G, Finkelstein JN, Johnston CJ, **Cory-Slechta DA**. *Toxicol Sci*. 2014 Jul;140(1):160-78. doi: 10.1093/toxsci/kfu059. Epub 2014 Apr 1. PMID: 24690596 Free PMC article.

The brain appears to be a target of **air pollution**. This study aimed to further ascertain behavioral and neurobiological mechanisms of our previously observed preference for immediate reward (Allen, J. L., Conrad, K., Oberdorster, G., Johnston, C. J., Sleezer, B., an ...

□ 17

[Consequences of developmental exposure to concentrated ambient ultrafine particle **air pollution** combined with the adult paraquat and maneb model of the Parkinson's disease phenotype in male mice.](#)

Allen JL, Liu X, Weston D, Conrad K, Oberdorster G, **Cory-Slechta DA**. *Neurotoxicology*. 2014 Mar;41:80-8. doi: 10.1016/j.neuro.2014.01.004. Epub 2014 Jan 30. PMID: 24486957 Free PMC article.

Current evidence suggests susceptibility of both the substantia nigra and striatum to exposure to components of **air pollution**. Further, **air pollution** has been associated with increased risk of PD diagnosis in humans or PD-like pathology in animals. ...

☐ 18

[Developmental exposure to concentrated ambient particles and preference for immediate reward in mice.](#)

Allen JL, Conrad K, Oberdörster G, Johnston CJ, Sleezer B, **Cory-Slechta DA**. Environ Health Perspect. 2013 Jan;121(1):32-8. doi: 10.1289/ehp.1205505. Epub 2012 Oct 11. PMID: 23063827 Free PMC article.

BACKGROUND: Recent epidemiological studies indicate negative associations between a diverse group of **air** pollutants and cognitive functioning in children and adults, and aspects of attention deficit in children. ...This enhancement does not appear to be the result of hyper ...

☐ 19

[The outdoor **air pollution** and brain health workshop.](#)

Block ML, Elder A, Auten RL, Bilbo SD, Chen H, Chen JC, **Cory-Slechta DA**, Costa D, Diaz-Sanchez D, Dorman DC, Gold DR, Gray K, Jeng HA, Kaufman JD, Kleinman MT, Kirshner A, Lawler C, Miller DS, Nadadur SS, Ritz B, Semmens EO, Tonelli LH, Veronesi B, Wright RO, Wright RJ. Neurotoxicology. 2012 Oct;33(5):972-84. doi: 10.1016/j.neuro.2012.08.014. Epub 2012 Sep 5. PMID: 22981845 Free PMC article. Review.

Accumulating evidence suggests that outdoor **air pollution** may have a significant impact on central nervous system (CNS) health and disease. ...Here, we review recent findings that have established the effects of inhaled **air** pollutants in the brain, explore th ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Gordon+T+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2005 2

2007 1

2008 1

2013 1

2014 2

2015 2

2018 1

2019 1

2021 1

Search Results

11 results

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Select search result to email or save

1

[PM2.5 Concentration and Composition in Subway Systems in the Northeastern United States.](#)

Luglio DG, Katsigeorgis M, Hess J, Kim R, Adragna J, Raja A, Gordon C, Fine J, Thurston G, **Gordon T**, Vilcassim MJR. Environ Health Perspect. 2021 Feb;129(2):27001. doi: 10.1289/EHP7202. Epub 2021 Feb 10. PMID: 33565894 Free PMC article.

Stations serviced by the PATH-NYC/NJ system had the highest mean gravimetric **PM2.5** concentration, 1,020 mug/m³, ever reported for a subway system, including two 1-h gravimetric **PM2.5** values of approximately 1,700 mug/m³ during rush hour at one PATH-NYC ...

2

[Exposure to air pollution is associated with adverse cardiopulmonary health effects in international travellers.](#)

Vilcassim MJR, Thurston GD, Chen LC, Lim CC, Saunders E, Yao Y, **Gordon T**. J Travel Med. 2019 Jun 11;26(5):taz032. doi: 10.1093/jtm/taz032. PMID: 31058996 Free PMC article.

RESULTS: East and South Asian cities had significantly higher **PM2.5** concentrations compared with pre-travel NYC **PM2.5** levels, with maximum concentrations reaching 503 mug/m³.

...Travel to a highly polluted city (**PM2.5** > 100 mug/m³) was ...

3

[Does air pollution contribute to travelers' illness and deaths?-evidence from a case report and need for further studies.](#)

Vilcassim MJR, **Gordon T**, Sanford CA. J Travel Med. 2018 Jan 1;25(1):tay002. doi: 10.1093/jtm/tay002. PMID: 29608735 Free PMC article.

We report the findings of a study in which the peak expiratory flow (PEF) of a traveler decreased in Shanghai relative to baseline in New York City; the decline in PEF correlated to concentration of particulate matter (**PM2.5**). We discuss the health implication of th ...

4

[Repeated measures of inflammation, blood pressure, and heart rate variability associated with traffic exposures in healthy adults.](#)

Mirowsky JE, Peltier RE, Lippmann M, Thurston G, Chen LC, Neas L, Diaz-Sanchez D, Laumbach R, Carter JD, **Gordon T**. Environ Health. 2015 Aug 15;14:66. doi: 10.1186/s12940-015-0049-0. PMID: 26276052 Free PMC article.

METHODS: A repeated-measures, crossover study design was used in which 23 healthy, non-smoking adults had clinical cardiopulmonary and systemic inflammatory measurements taken prior to, immediately after, and 24 hours after intermittent walking for two hours in the summer months ...

5

[Black carbon and particulate matter \(PM2.5\) concentrations in New York City's subway stations.](#)

Vilcassim MJ, Thurston GD, Peltier RE, **Gordon T**. Environ Sci Technol. 2014 Dec 16;48(24):14738-45. doi: 10.1021/es504295h. Epub 2014 Nov 26. PMID: 25409007 Free PMC article.

BC and **PM2.5** levels were measured in real time using a Micro-Aethalometer and a PDR-1500 DataRAM, respectively. ...Mean EC levels ranged from 9 to 12.5 mug/m(3). At street level on the same days, the mean BC and **PM2.5** concentrations were below 3 ...

6

[Air quality in New York City hookah bars.](#)

Zhou S, Weitzman M, Vilcassim R, Wilson J, Legrand N, Saunders E, Travers M, Chen LC, Peltier R, **Gordon T**. Tob Control. 2015 Oct;24(e3):e193-8. doi: 10.1136/tobaccocontrol-2014-051763. Epub 2014 Sep 16. PMID: 25232045 Free PMC article.

Along with venue characteristics, real-time measurements of fine particulate matter (**PM2.5**), black carbon (BC), and carbon monoxide (CO), and total gravimetric PM, elemental carbon (EC), organic carbon (OC), and nicotine were collected in 1-2 hour sessions. RESULTS: ...

7

[National Particle Component Toxicity \(NPACT\) Initiative: integrated epidemiologic and toxicologic studies of the health effects of particulate matter components.](#)

Lippmann M, Chen LC, **Gordon T**, Ito K, Thurston GD. Res Rep Health Eff Inst. 2013 Oct;(177):5-13. PMID: 24377209

Both have illuminated the roles of **PM2.5** chemical components and source-related mixtures as potentially causal agents. We also conducted a series of 6-month subchronic inhalation exposure studies (6 hours/day, 5 days/week) of **PM2.5** concentrated ...

8

[Particulate matter inhibits DNA repair and enhances mutagenesis.](#)

Mehta M, Chen LC, **Gordon T**, Rom W, Tang MS. Mutat Res. 2008 Dec 8;657(2):116-21. doi: 10.1016/j.mrgentox.2008.08.015. Epub 2008 Aug 29. PMID: 18804180 Free PMC article.

A recent epidemiology study has established that each 10 microg/m³ elevation in long-term exposure to average **PM_{2.5}** ambient concentration was associated with approximately 8% of lung cancer mortality. ...

☐ 9

[Comparative toxicity of size-fractionated airborne particulate matter obtained from different cities in the United States.](#)

Gilmour MI, McGee J, Duvall RM, Dailey L, Daniels M, Boykin E, Cho SH, Doerfler D, **Gordon T**, Devlin RB. *Inhal Toxicol.* 2007;19 Suppl 1:7-16. doi: 10.1080/08958370701490379. PMID: 17886044

These effects did not correlate with lipopolysaccharide (LPS) or total zinc or sulfate content, but were associated with total iron. Receptor source modeling on the **PM_{2.5}** samples showed that the South Bronx sample was heavily influenced by emissions from coal fired ...

☐ 10

[Effects of subchronic exposures to concentrated ambient particles in mice. IX. Integral assessment and human health implications of subchronic exposures of mice to CAPs.](#)

Lippmann M, **Gordon T**, Chen LC. *Inhal Toxicol.* 2005 Apr;17(4-5):255-61. doi: 10.1080/08958370590912941. PMID: 15804943

In order to examine the biologic plausibility of adverse chronic cardiopulmonary effects in humans associated with ambient particulate matter (PM) exposure, we exposed groups of normal mice (C57) and knockout mice that develop atherosclerotic plaque (ApoE^{-/-} and ApoE^{-/-} LDLr^{-/-}) ...

☐ 11

[Effects of subchronic exposures to concentrated ambient particles \(CAPs\) in mice. I. Introduction, objectives, and experimental plan.](#)

Lippmann M, **Gordon T**, Chen LC. *Inhal Toxicol.* 2005 Apr;17(4-5):177-87. doi: 10.1080/08958370590912716. PMID: 15804935

The average **PM_{2.5}** concentration during exposure was 110 microgram/m³, and the long-term average was 19.7 microg/m³. ...Acute responses were characterized in terms of: (1) short-term electrocardiographic (EKG), core body temperature, and physical activity differences ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Kleinman+M+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2000 1
2004 1
2005 1
2006 1
2016 1
2020 1
2021 0

Search Results

6 results

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1

[Seasonal effects of ambient PM\(2.5\) on the cardiovascular system of hyperlipidemic mice.](#)

Herman DA, Wingen LM, Johnson RM, Keebaugh AJ, Renusch SR, Hasen I, Ting A, **Kleinman MT**. *J Air Waste Manag Assoc*. 2020 Mar;70(3):307-323. doi:

10.1080/10962247.2020.1717674. Epub 2020 Feb 10. PMID: 31951803

The results from this study confirm that ambient photochemical activity can alter the toxicity of ambient PM. Regional and seasonal differences in PM(2.5) composition should be important considerations when evaluating the effects of PM exposure on cardiovascular health. Imp ...

2

[Review of the health effects of wildland fire smoke on wildland firefighters and the public.](#)

Adetona O, Reinhardt TE, Domitrovich J, Broyles G, Adetona AM, **Kleinman MT**, Ottmar RD, Naeher LP. *Inhal Toxicol*. 2016;28(3):95-139. doi: 10.3109/08958378.2016.1145771. PMID: 26915822 Review.

These cardiopulmonary effects were mostly observed in association with ambient air concentrations of fine particulate matter (**PM2.5**). However, research on the health effects of this mixture is currently limited. ...

3

[Personal and ambient air pollution is associated with increased exhaled nitric oxide in children with asthma.](#)

Delfino RJ, Staimer N, Gillen D, Tjoa T, Sioutas C, Fung K, George SC, **Kleinman MT**.

Environ Health Perspect. 2006 Nov;114(11):1736-43. doi: 10.1289/ehp.9141. PMID: 17107861 Free PMC article.

Personal active sampler exposures included continuous particulate matter < 2.5 microm in aerodynamic diameter (**PM2.5**), 24-hr **PM2.5** elemental and organic carbon (EC, OC), and 24-hr nitrogen dioxide. Ambient exposures included **PM2.5**...

4

[Association of FEV1 in asthmatic children with personal and microenvironmental exposure to airborne particulate matter.](#)

Delfino RJ, Quintana PJ, Floro J, Gastañaga VM, Samimi BS, **Kleinman MT**, Liu LJ, Bufalino C, Wu CF, McLaren CE. Environ Health Perspect. 2004 Jun;112(8):932-41. doi: 10.1289/ehp.6815. PMID: 15175185 Free PMC article.

Exposure measurements included continuous PM using a passive nephelometer carried by subjects; indoor, outdoor home, and central-site 24-hr gravimetric **PM2.5** (PM of aerodynamic diameter < 2.5 microm) and PM10; and central-site hourly PM10, nitrogen dioxide...

5

[Evaluation and quality control of personal nephelometers in indoor, outdoor and personal environments.](#)

Wu CF, Delfino RJ, Floro JN, Samimi BS, Quintana PJ, **Kleinman MT**, Liu LJ. J Expo Anal Environ Epidemiol. 2005 Jan;15(1):99-110. doi: 10.1038/sj.jea.7500351. PMID: 15039794 All fixed-site pDRs were collocated with Harvard Impactors for **PM2.5** (HI2.5). By examining the differences between the time-weighted average concentrations calculated from the real-time pDRs' readings and recorded internally by the pDRs, we identified 9.1% of ...

6

[Evaluation of a real-time passive personal particle monitor in fixed site residential indoor and ambient measurements.](#)

Quintana PJ, Samimi BS, **Kleinman MT**, Liu LJ, Soto K, Warner GY, Bufalino C, Valencia J, Francis D, Hovell MH, Delfino RJ. J Expo Anal Environ Epidemiol. 2000 Sep-Oct;10(5):437-45. doi: 10.1038/sj.jea.7500105. PMID: 11051534

In order to assess the ability of the pDR in predicting gravimetric mass, pDRs were collocated with **PM2.5** and PM10 Harvard Impactors (HI) inside and outside nine homes of asthmatic children and at an outdoor central Air Pollution Control District site. ...When used ...

<https://pubmed.ncbi.nlm.nih.gov/?term=lovinsky-desir+s+air+pollution&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2012 1

2014 1

2016 2

2017 3

2018 2

2019 2

2021 2

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1

[The impact of environmental injustice and social determinants of health on the role of **air pollution** in asthma and allergic disease in the United States.](#)

Cook Q, Argenio K, **Lovinsky-Desir S**. J Allergy Clin Immunol. 2021 Nov;148(5):1089-1101.e5. doi: 10.1016/j.jaci.2021.09.018. PMID: 34743831 Review.

There is clear evidence that exposure to environmental **air pollution** is associated with immune dysregulation, asthma, and other allergic diseases. However, the burden of **air pollution** exposure is not equally distributed across the United States. ...



2

[Locations of Adolescent Physical Activity in an Urban Environment and Their Associations with **Air Pollution** and Lung Function.](#)

Lovinsky-Desir S, Jung KH, Montilla M, Quinn J, Cahill J, Sheehan D, Perera F, Chillrud SN, Goldsmith J, Perzanowski M, Rundle A, Miller R. Ann Am Thorac Soc. 2021 Jan;18(1):84-92. doi: 10.1513/AnnalsATS.201910-792OC. PMID: 32813558

Rationale: Physical activity while being exposed to high concentrations of **air pollution** may lead to greater inhalation of pollutant particles and gases. ...Location-specific particulate matter <2.5 microns and nitrogen dioxide (NO₂) was determined based on lan ...



3

[Associations of Timing and Mode of Commuting with In-Transit Black Carbon Exposure and Airway Inflammation: A Pilot Study.](#)

Lovinsky-Desir S, Miller RL, Chillrud SN, Perzanowski MS, Jung KH. Ann Am Thorac Soc. 2019 Jul;16(7):923-927. doi: 10.1513/AnnalsATS.201810-668RL. PMID: 30958965 Free PMC article. No abstract available.

4

[Air pollution, urgent asthma medical visits and the modifying effect of neighborhood asthma prevalence.](#)

Lovinsky-Desir S, Acosta LM, Rundle AG, Miller RL, Goldstein IF, Jacobson JS, Chillrud SN, Perzanowski MS. Pediatr Res. 2019 Jan;85(1):36-42. doi: 10.1038/s41390-018-0189-3. Epub 2018 Oct 18. PMID: 30337671 Free PMC article.

METHODS: Through zip code, home addresses were linked to New York City Community Air Survey's land use regression model for street-level, annual average nitrogen dioxide (NO₂), particulate matter (PM_{2.5}), elemental carbon (EC), summer average ozone (O₃), winter avera

5

[Assessment of exposure to air pollution in children: Determining whether wearing a personal monitor affects physical activity.](#)

Lovinsky-Desir S, Lawrence J, Jung KH, Rundle AG, Hoepner LA, Yan B, Perera F, Perzanowski MS, Miller RL, Chillrud SN. Environ Res. 2018 Oct;166:340-343. doi: 10.1016/j.envres.2018.06.017. Epub 2018 Jun 15. PMID: 29913435 Free PMC article.

Personal **air pollution** monitoring in research studies should not interfere with usual patterns of behavior and bias results. In an urban pediatric cohort study we tested whether wearing an **air** monitor impacted activity time based on continuous watch-based acc ...

6

[Physical activity, black carbon exposure, and DNA methylation in the FOXP3 promoter.](#)

Lovinsky-Desir S, Jung KH, Jezioro JR, Torrone DZ, de Planell-Saguer M, Yan B, Perera FP, Rundle AG, Perzanowski MS, Chillrud SN, Miller RL. Clin Epigenetics. 2017 Jun 13;9:65. doi: 10.1186/s13148-017-0364-0. eCollection 2017. PMID: 28630656 Free PMC article.

This paradoxical relationship may be linked to altered T regulatory (Treg) cell activity, which increases with exercise and suppresses airway inflammation, but decreases in association with exposure to **air pollution**. To clarify these relationships, we investigated b ...

7

[Effect of personal exposure to black carbon on changes in allergic asthma gene methylation measured 5 days later in urban children: importance of allergic sensitization.](#)

Jung KH, **Lovinsky-Desir S**, Yan B, Torrone D, Lawrence J, Jezioro JR, Perzanowski M, Perera FP, Chillrud SN, Miller RL. Clin Epigenetics. 2017 Jun 2;9:61. doi: 10.1186/s13148-017-0361-3. eCollection 2017. PMID: 28588744 Free PMC article.

BACKGROUND: Asthma gene DNA methylation may underlie the effects of **air pollution** on airway inflammation. However, the temporality and individual susceptibility to environmental epigenetic regulation of asthma has not been fully elucidated. ...

8

[Short-term exposure to PM_{2.5} and vanadium and changes in asthma gene DNA methylation and lung function decrements among urban children.](#)

Jung KH, Torrone D, **Lovinsky-Desir S**, Perzanowski M, Bautista J, Jezioro JR, Hoepner L, Ross J, Perera FP, Chillrud SN, Miller RL. *Respir Res.* 2017 Apr 19;18(1):63. doi: 10.1186/s12931-017-0550-9. PMID: 28424066 Free PMC article.

BACKGROUND: Both short and long-term exposure to traffic-related **air** pollutants have been associated with asthma and reduced lung function. ...**CONCLUSIONS:** Exposure to V was associated with altered DNA methylation of allergic and proinflammatory asthma genes implicated in ...

☐ 9

[Physical activity, black carbon exposure and airway inflammation in an urban adolescent cohort.](#)

Lovinsky-Desir S, Jung KH, Rundle AG, Hoepner LA, Bautista JB, Perera FP, Chillrud SN, Perzanowski MS, Miller RL. *Environ Res.* 2016 Nov;151:756-762. doi:

10.1016/j.envres.2016.09.005. Epub 2016 Sep 29. PMID: 27694044 Free PMC article.

OBJECTIVE: Regular physical activity can improve cardiopulmonary health; however, increased respiratory rates and tidal volumes during activity may increase the effective internal dose of **air pollution** exposure. Our objective was to investigate the impact of black c ...

☐ 10

[Differences in Ambient Polycyclic Aromatic Hydrocarbon Concentrations between Streets and Alleys in New York City: Open Space vs. Semi-Closed Space.](#)

Lovinsky-Desir S, Miller RL, Bautista J, Gil EN, Chillrud SN, Yan B, Camann D, Perera FP, Jung KH. *Int J Environ Res Public Health.* 2016 Jan 12;13(1):127. doi: 10.3390/ijerph13010127. PMID: 26771626 Free PMC article.

☐ 11

[Time trends of polycyclic aromatic hydrocarbon exposure in New York City from 2001 to 2012: assessed by repeat **air** and urine samples.](#)

Jung KH, Liu B, **Lovinsky-Desir S**, Yan B, Camann D, Sjodin A, Li Z, Perera F, Kinney P, Chillrud S, Miller RL. *Environ Res.* 2014 May;131:95-103. doi: 10.1016/j.envres.2014.02.017. Epub 2014 Apr 5. PMID: 24709094 Free PMC article.

We hypothesized that PAH levels, measured repeatedly from residential indoor and outdoor monitors, and childrens urinary concentrations of PAH metabolites, would decrease following policy interventions to reduce traffic-related **air pollution**. **METHODS:** Indoor PAH (pa ...

☐ 12

[Epigenetics, asthma, and allergic diseases: a review of the latest advancements.](#)

Lovinsky-Desir S, Miller RL. *Curr Allergy Asthma Rep.* 2012 Jun;12(3):211-20. doi: 10.1007/s11882-012-0257-4. PMID: 22451193 Free PMC article. Review.

<https://pubmed.ncbi.nlm.nih.gov/?term=Peel+jl+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2004 1
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2006 1
2007 2
2012 2
2013 3
2015 2
2016 1
2020 2
2021 0

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1

[Design and Rationale of the HAPIN Study: A Multicountry Randomized Controlled Trial to Assess the Effect of Liquefied Petroleum Gas Stove and Continuous Fuel Distribution.](#)

Clasen T, Checkley W, **Peel JL**, Balakrishnan K, McCracken JP, Rosa G, Thompson LM, Barr DB, Clark ML, Johnson MA, Waller LA, Jaacks LM, Steenland K, Miranda JJ, Chang HH, Kim DY, McCollum ED, Davila-Roman VG, Papageorghiou A, Rosenthal JP; HAPIN Investigators. Environ Health Perspect. 2020 Apr;128(4):47008. doi: 10.1289/EHP6407. Epub 2020 Apr 29. PMID: 32347766 Free PMC article.

We are assessing stove and fuel use, conducting repeated personal and kitchen exposure assessments of fine particulate matter with aerodynamic diameter 2.5 µm (**PM2.5**), carbon monoxide (CO), and black carbon (BC), and collecting dried blood spots (DBS) and ur ...

2

[Air Pollutant Exposure and Stove Use Assessment Methods for the Household Air Pollution Intervention Network \(HAPIN\) Trial.](#)

Johnson MA, Steenland K, Piedrahita R, Clark ML, Pillarisetti A, Balakrishnan K, **Peel JL**, Naeher LP, Liao J, Wilson D, Sarnat J, Underhill LJ, Burrowes V, McCracken JP, Rosa G, Rosenthal J, Sambandam S, de Leon O, Kirby MA, Kearns K, Checkley W, Clasen T; HAPIN

Investigators. Environ Health Perspect. 2020 Apr;128(4):47009. doi: 10.1289/EHP6422. Epub 2020 Apr 29. PMID: 32347764 Free PMC article.

METHODS: Exposure measurements are being conducted over the 3-y time frame of the field study. We are measuring fine particulate matter [PM < 2.5 µm in aerodynamic diameter (**PM2.5**)] with the Enhanced Children's MicroPEM (RTI International), carbon monoxid

...

3

[The Fort Collins Commuter Study: Impact of route type and transport mode on personal exposure to multiple air pollutants.](#)

Good N, Mölter A, Ackerson C, Bachand A, Carpenter T, Clark ML, Fedak KM, Kayne A, Koehler K, Moore B, L'Orange C, Quinn C, Ugave V, Stuart AL, **Peel JL**, Volckens J. J Expo Sci Environ Epidemiol. 2016 Jun;26(4):397-404. doi: 10.1038/jes.2015.68. Epub 2015 Oct 28. PMID: 26507004 Free PMC article.

We analyzed within-person difference in exposures to multiple air pollutants (black carbon (BC), carbon monoxide (CO), ultrafine particle number concentration (PNC), and fine particulate matter (**PM2.5**)) during commutes between the home and workplace for 45 participa ...

4

[The short-term association of selected components of fine particulate matter and mortality in the Denver Aerosol Sources and Health \(DASH\) study.](#)

Kim SY, Dutton SJ, Sheppard L, Hannigan MP, Miller SL, Milford JB, **Peel JL**, Vedal S. Environ Health. 2015 Jun 6;14:49. doi: 10.1186/s12940-015-0037-4. PMID: 26047618 Free PMC article.

BACKGROUND: Associations of short-term exposure to fine particulate matter (**PM2.5**) with daily mortality may be due to specific **PM2.5** chemical components. Daily concentrations of **PM2.5** components were measured over five years in Denver to ...

5

[Errors in coarse particulate matter mass concentrations and spatiotemporal characteristics when using subtraction estimation methods.](#)

Clements N, Milford JB, Miller SL, Navidi W, **Peel JL**, Hannigan MP. J Air Waste Manag Assoc. 2013 Dec;63(12):1386-98. doi: 10.1080/10962247.2013.816643. PMID: 24558702 In studies of coarse particulate matter (PM10-2.5), mass concentrations are often estimated through the subtraction of **PM2.5** from collocated PM10 tapered element oscillating microbalance (TEOM) measurements. ...A regression-based model was developed for remov ...

6

[The sensitivity of health effect estimates from time-series studies to fine particulate matter component sampling schedule.](#)

Kim SY, Sheppard L, Hannigan MP, Dutton SJ, **Peel JL**, Clark ML, Vedal S. J Expo Sci Environ Epidemiol. 2013 Sep-Oct;23(5):481-6. doi: 10.1038/jes.2013.28. Epub 2013 May 15. PMID: 23673462 Free PMC article.

The US Environmental Protection Agency air pollution monitoring data have been a valuable resource commonly used for investigating the associations between short-term exposures to **PM2.5** chemical components and human health. However, the temporally sparse sampling on ...

□ 7

[Positive matrix factorization of a 32-month series of daily PM\(2.5\) speciation data with incorporation of temperature stratification.](#)

Xie M, Piedrahita R, Dutton SJ, Milford JB, Hemann JG, **Peel JL**, Miller SL, Kim SY, Vedal S, Sheppard L, Hannigan MP. Atmos Environ (1994). 2013 Feb 1;65:11-20. doi: 10.1016/j.atmosenv.2012.09.034. PMID: 25214809 Free PMC article.

This study presents source apportionment results for PM(2.5) from applying positive matrix factorization (PMF) to a 32-month series of daily PM(2.5) compositional data from Denver, CO, including concentrations of sulfate, nitrate, bulk elemental carbon (EC) and orga ...

□ 8

[Intra-urban spatial variability of PM\(2.5\)-bound carbonaceous components.](#)

Xie M, Coons TL, Dutton SJ, Milford JB, Miller SL, **Peel JL**, Vedal S, Hannigan MP. Atmos Environ (1994). 2012 Dec;60:486-494. doi: 10.1016/j.atmosenv.2012.05.041. PMID: 25525406 Free PMC article.

The Denver Aerosol Sources and Health (DASH) study was designed to evaluate associations between PM(2.5) species and sources and adverse human health effects. The DASH study generated a five-year (2003-2007) time series of daily speciated PM(2.5) concentration measu ...

□ 9

[The temporal lag structure of short-term associations of fine particulate matter chemical constituents and cardiovascular and respiratory hospitalizations.](#)

Kim SY, **Peel JL**, Hannigan MP, Dutton SJ, Sheppard L, Clark ML, Vedal S. Environ Health Perspect. 2012 Aug;120(8):1094-9. doi: 10.1289/ehp.1104721. Epub 2012 May 18. PMID: 22609899 Free PMC article.

The lag pattern of **PM2.5** chemical constituents has not been well investigated, largely because daily data have not been available. OBJECTIVES: We explored the lag structure for hospital admissions using daily **PM2.5** chemical constituent data for 5 ...

□ 10

[Multipollutant modeling issues in a study of ambient air quality and emergency department visits in Atlanta.](#)

Tolbert PE, Klein M, **Peel JL**, Sarnat SE, Sarnat JA. J Expo Sci Environ Epidemiol. 2007 Dec;17 Suppl 2:S29-35. doi: 10.1038/sj.jes.7500625. PMID: 18079762

Poisson generalized linear models were used to examine outcome counts in relation to 3-day moving average concentrations of pollutants of a priori interest (ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, oxygenated hydrocarbons, PM10, coarse PM, **PM2.5**, an ...

□ 11

[Ambient air pollution and cardiac arrhythmias in patients with implantable defibrillators.](#)

Metzger KB, Klein M, Flanders WD, **Peel JL**, Mulholland JA, Langberg JJ, Tolbert PE. Epidemiology. 2007 Sep;18(5):585-92. doi: 10.1097/EDE.0b013e318124ff0e. PMID: 17700247

The air quality data included daily measurements of PM10, ozone, nitrogen dioxide, carbon monoxide, and sulfur dioxide for the entire study period, as well as speciated measurements of **PM2.5** mass and oxygenated hydrocarbons for the final 4 years of the study. ...

□ 12

[Effects of instrument precision and spatial variability on the assessment of the temporal variation of ambient air pollution in Atlanta, Georgia.](#)

Wade KS, Mulholland JA, Marmur A, Russell AG, Hartsell B, Edgerton E, Klein M, Waller L, **Peel JL**, Tolbert PE. J Air Waste Manag Assoc. 2006 Jun;56(6):876-88. doi: 10.1080/10473289.2006.10464499. PMID: 16805413

Modified semivariograms are used to quantify the effects of instrument precision and spatial variability on the assessment of daily metrics of ambient gaseous pollutants (SO₂, CO, NO_x, and O₃) and fine particulate matter ([**PM_{2.5}**] **PM_{2.5}** mass, sulfate, n ...

□ 13

[Ambient air pollution and respiratory emergency department visits.](#)

Peel JL, Tolbert PE, Klein M, Metzger KB, Flanders WD, Todd K, Mulholland JA, Ryan PB, Frumkin H. Epidemiology. 2005 Mar;16(2):164-74. doi: 10.1097/01.ede.0000152905.42113.db. PMID: 15703530

More refined assessment has been limited by study size and available air quality data.

METHODS: Measurements of **5** pollutants (particulate matter [PM₁₀], ozone, nitrogen dioxide [NO₂], carbon monoxide [CO], and sulfur dioxide [SO₂]) were available for the entire study period ...

□ 14

[Ambient air pollution and cardiovascular emergency department visits.](#)

Metzger KB, Tolbert PE, Klein M, **Peel JL**, Flanders WD, Todd K, Mulholland JA, Ryan PB, Frumkin H. Epidemiology. 2004 Jan;15(1):46-56. doi: 10.1097/01.EDE.0000101748.28283.97. PMID: 14712146

RESULTS: Using an a priori 3-day moving average in single-pollutant models, CVD visits were associated with NO₂, CO, **PM_{2.5}**, organic carbon, elemental carbon, and oxygenated hydrocarbons. ...CONCLUSIONS: These findings provide evidence for an association between CVD ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Rich+DQ+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2005 1
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2012 1
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2015 3
2016 4
2020 1
2021 1

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Search Results

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1

[Neurodegenerative hospital admissions and long-term exposure to ambient fine particle air pollution.](#)

van Wijngaarden E, **Rich DQ**, Zhang W, Thurston SW, Lin S, Croft DP, Squizzato S, Masiol M, Hopke PK. Ann Epidemiol. 2021 Feb;54:79-86.e4. doi: 10.1016/j.annepidem.2020.09.012. Epub 2020 Sep 30. PMID: 33010415

Increased source-specific **PM2.5** concentrations were associated with both increased (e.g., secondary sulfates and diesel emissions) and decreased rates (e.g., secondary nitrate and spark-ignition vehicular emissions) of neurodegenerative admissions. CONCLUSIONS: We d ...

2

[Ambient and Controlled Particle Exposures as Triggers for Acute ECG Changes.](#)

Rich DQ, Peters A, Schneider A, Zareba W, Breitner S, Oakes D, Wiltshire J, Kane C, Frampton MW, Hampel R, Hopke PK, Cyrus J, Utell MJ. Res Rep Health Eff Inst. 2016 May;(186):5-75. PMID: 28661614

In the REHAB study, IQR increases in **PM2.5** concentrations lagged **5** and 6 hours and AMP concentrations in the concurrent hour and lagged up to **5** hours were associated with 1%-2% decreases in SDNN (e.g., **PM2.5** lagged 4 hours: -2.13%; 95% ...

3

[Does total antioxidant capacity modify adverse cardiac responses associated with ambient ultrafine, accumulation mode, and fine particles in patients undergoing cardiac rehabilitation?](#)

Wang M, Utell MJ, Schneider A, Zareba W, Frampton MW, Oakes D, Hopke PK, Wiltshire J, Kane C, Peters A, Breitner S, Chalupa D, **Rich DQ**. Environ Res. 2016 Aug;149:15-22. doi: 10.1016/j.envres.2016.04.031. Epub 2016 May 10. PMID: 27174779 Free PMC article.

RESULTS: Based on subject-visits with available TAC, we observed increases in SBP, C-reactive protein, and fibrinogen, and decreases in rMSSD (square root of the mean of the sum of the squared differences between adjacent normal to normal intervals) and SDNN (standard deviation o ...

4

[Increases in ambient particulate matter air pollution, acute changes in platelet function, and effect modification by aspirin and omega-3 fatty acids: A panel study.](#)

Becerra AZ, Georas S, Brenna JT, Hopke PK, Kane C, Chalupa D, Frampton MW, Block R, **Rich DQ**. J Toxicol Environ Health A. 2016;79(6):287-98. doi:

10.1080/15287394.2016.1157539. Epub 2016 Mar 30. PMID: 27029326 Free PMC article.

Using linear mixed models, adjusted for relative humidity, temperature, visit number, and season, changes in three platelet function measures including (1) aggregation induced by adenosine diphosphate (ADP), (2) aggregation induced by collagen, and (3) thromboxane B2 production w ...

5

[Urinary polycyclic aromatic hydrocarbon metabolites as biomarkers of exposure to traffic-emitted pollutants.](#)

Gong J, Zhu T, Kipen H, **Rich DQ**, Huang W, Lin WT, Hu M, Zhang JJ. Environ Int. 2015 Dec;85:104-10. doi: 10.1016/j.envint.2015.09.003. Epub 2015 Sep 16. PMID: 26382649 Free PMC article.

Urinés were analyzed for the sum of 1&2-amino-naphthalene (metabolites of 1- and 2-nitro-naphthalene) and 1-amino-pyrene (a metabolite of 1-nitro-pyrene), using an HPLC-fluorescence method. Within the same time periods, **PM2.5** mass and constituents were measured, ...

6

[Fine Particulates, Preterm Birth, and Membrane Rupture in Rochester, NY.](#)

Pereira G, Evans KA, **Rich DQ**, Bracken MB, Bell ML. Epidemiology. 2016 Jan;27(1):66-73. doi: 10.1097/EDE.0000000000000366. PMID: 26247489

BACKGROUND: It remains unclear whether fine particulate (**PM2.5**) exposure affects risk of preterm birth and prelabor rupture of membranes. ...We did not observe an association between **PM2.5** concentrations and prelabor rupture of membranes....

7

[Triggering of myocardial infarction by increased ambient fine particle concentration: Effect modification by source direction.](#)

Hopke PK, Kane C, Utell MJ, Chalupa DC, Kumar P, Ling F, Gardner B, **Rich DQ**. Environ Res. 2015 Oct;142:374-9. doi: 10.1016/j.envres.2015.06.037. Epub 2015 Jul 25. PMID: 26209764 Free PMC article.

We examined if this association was modified by **PM2.5** source direction. METHODS: We used the NOAA HYbrid Single-Particle Lagrangian Trajectory (HYSPLIT) model to calculate each hourly air mass location for the 24 hours before each case or control time period in our ...

□ 8

[Differences in Birth Weight Associated with the 2008 Beijing Olympics Air Pollution Reduction: Results from a Natural Experiment.](#)

Rich DQ, Liu K, Zhang J, Thurston SW, Stevens TP, Pan Y, Kane C, Weinberger B, Ohman-Strickland P, Woodruff TJ, Duan X, Assibey-Mensah V, Zhang J. Environ Health Perspect. 2015 Sep;123(9):880-7. doi: 10.1289/ehp.1408795. Epub 2015 Apr 28. PMID: 25919693 Free PMC article.

We also estimated the difference in birth weight associated with interquartile range (IQR) increases in mean ambient particulate matter 2.5 μm in aerodynamic diameter (**PM2.5**), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), and carbon monoxide (CO) concentrati ...

□ 9

[The cardiopulmonary effects of ambient air pollution and mechanistic pathways: a comparative hierarchical pathway analysis.](#)

Roy A, Gong J, Thomas DC, Zhang J, Kipen HM, **Rich DQ**, Zhu T, Huang W, Hu M, Wang G, Wang Y, Zhu P, Lu SE, Ohman-Strickland P, Diehl SR, Eckel SP. PLoS One. 2014 Dec 12;9(12):e114913. doi: 10.1371/journal.pone.0114913. eCollection 2014. PMID: 25502951 Free PMC article.

Four biomarkers of pulmonary inflammation and oxidative stress, five biomarkers of systemic inflammation and oxidative stress, ten parameters of autonomic function, and three biomarkers of hemostasis were repeatedly measured in 125 young adults, along with daily concentrations of ...

□ 10

[Comparisons of ultrafine and fine particles in their associations with biomarkers reflecting physiological pathways.](#)

Gong J, Zhu T, Kipen H, Wang G, Hu M, Guo Q, Ohman-Strickland P, Lu SE, Wang Y, Zhu P, **Rich DQ**, Huang W, Zhang J. Environ Sci Technol. 2014 May 6;48(9):5264-73. doi: 10.1021/es5006016. Epub 2014 Apr 11. PMID: 24666379 Free PMC article.

We found that the correlation coefficient for UFPs at two locations (9 km apart) was 0.45, and at the same location, the correlation coefficient for **PM2.5** vs UFPs was -0.18. Changes in biomarker levels associated with increases in UFPs and **PM2.5** were ...

□ 11

[Increased ultrafine particles and carbon monoxide concentrations are associated with asthma exacerbation among urban children.](#)

Evans KA, Halterman JS, Hopke PK, Fagnano M, **Rich DQ**. Environ Res. 2014 Feb;129:11-9. doi: 10.1016/j.envres.2013.12.001. Epub 2014 Jan 11. PMID: 24528997 Free PMC article.

We also explored the relationship between asthma exacerbation and ambient concentrations of accumulation mode particles, fine particles (2.5 micrograms [μm]; **PM2.5**), carbon monoxide, sulfur dioxide, and ozone. ...

□ 12

[Ambient fine particulate air pollution triggers ST-elevation myocardial infarction, but not non-ST elevation myocardial infarction: a case-crossover study.](#)

Gardner B, Ling F, Hopke PK, Frampton MW, Utell MJ, Zareba W, Cameron SJ, Chalupa D, Kane C, Kulandhaisamy S, Topf MC, **Rich DQ**. Part Fibre Toxicol. 2014 Jan 2;11:1. doi: 10.1186/1743-8977-11-1. PMID: 24382024 Free PMC article.

METHODS: Using data from acute coronary syndrome patients with STEMI (n = 338) and NSTEMI (n = 339) and case-crossover methods, we estimated the risk of STEMI and NSTEMI associated with increased ambient fine particle (<2.5 um) concentrations, ultrafine particle (10-100 ...

□ 13

[The triggering of myocardial infarction by fine particles is enhanced when particles are enriched in secondary species.](#)

Rich DQ, Özkaynak H, Crooks J, Baxter L, Burke J, Ohman-Strickland P, Thevenet-Morrison K, Kipen HM, Zhang J, Kostis JB, Lunden M, Hodas N, Turpin BJ. Environ Sci Technol. 2013 Aug 20;47(16):9414-23. doi: 10.1021/es4027248. Epub 2013 Jul 30. PMID: 23819750 Free PMC article.

We excluded MI with a diagnosis of a previous MI and MI coded as a subendocardial infarction, leaving n = 1563 transmural infarctions available for analysis. We coupled these health data with **PM2.5** species concentrations predicted by the Community Multiscale Air Qua ...

□ 14

[Refined ambient **PM2.5** exposure surrogates and the risk of myocardial infarction.](#)

Hodas N, Turpin BJ, Lunden MM, Baxter LK, Özkaynak H, Burke J, Ohman-Strickland P, Thevenet-Morrison K, Kostis JB; MIDAS 21 Study Group, **Rich DQ**. J Expo Sci Environ Epidemiol. 2013 Nov-Dec;23(6):573-80. doi: 10.1038/jes.2013.24. Epub 2013 May 29. PMID: 23715082 Free PMC article.

Using a case-crossover study design and conditional logistic regression, we compared the relative odds of transmural (full-wall) myocardial infarction (MI) calculated using exposure surrogates that account for human activity patterns and the indoor transport of ambient **PM(2.5)**

...

□ 15

[Does ambient air pollution trigger stillbirth?](#)

Faiz AS, Rhoads GG, Demissie K, Lin Y, Kruse L, **Rich DQ**. Epidemiology. 2013 Jul;24(4):538-44. doi: 10.1097/EDE.0b013e3182949ce5. PMID: 23676263

METHODS: We used New Jersey linked fetal death and hospital discharge data and hourly ambient air pollution measurements from particulate matter 2.5 mm (**PM2.5**), carbon monoxide (CO), nitrogen dioxide (NO₂), and sulfur dioxide (SO₂) monitors across New Jersey ...

□ 16

[Influence of human activity patterns, particle composition, and residential air exchange rates on modeled distributions of **PM2.5** exposure compared with central-site monitoring data.](#)

Baxter LK, Burke J, Lunden M, Turpin BJ, **Rich DQ**, Thevenet-Morrison K, Hodas N, Özkaynak H. J Expo Sci Environ Epidemiol. 2013 May-Jun;23(3):241-7. doi: 10.1038/jes.2012.118. Epub 2013 Jan 16. PMID: 23321856

Central-site monitors do not account for factors such as outdoor-to-indoor transport and human activity patterns that influence personal exposures to ambient fine-particulate matter (PM(2.5)). We describe and compare different ambient PM(2.5) exposure estimation app ...

☐ 17

[Are ambient ultrafine, accumulation mode, and fine particles associated with adverse cardiac responses in patients undergoing cardiac rehabilitation?](#)

Rich DQ, Zareba W, Beckett W, Hopke PK, Oakes D, Frampton MW, Bisognano J, Chalupa D, Bausch J, O'Shea K, Wang Y, Utell MJ. Environ Health Perspect. 2012 Aug;120(8):1162-9. doi: 10.1289/ehp.1104262. Epub 2012 Apr 27. PMID: 22542955 Free PMC article.

Ambient ultrafine particle (UFP; 10-100 nm), accumulation mode particle (AMP; 100-500 nm), and fine particle concentrations (**PM2.5**; 2.5 µm in aerodynamic diameter) were monitored continuously. ...RESULTS: Using mixed effects models, we observed adverse chang ...

☐ 18

[Acute changes in heart rate variability in subjects with diabetes following a highway traffic exposure.](#)

Laumbach RJ, **Rich DQ**, Gandhi S, Amorosa L, Schneider S, Zhang J, Ohman-Strickland P, Gong J, Lelyanov O, Kipen HM. J Occup Environ Med. 2010 Mar;52(3):324-31. doi: 10.1097/JOM.0b013e3181d241fa. PMID: 20190650 Free PMC article.

METHODS: Twenty-one volunteers with type 2 diabetes were passengers on 90- to 110-minute car rides on a busy highway. We measured in-vehicle particle number and mass (**PM2.5**) nitrogen dioxide, and carbon monoxide and heart rate, heart rate variability (HRV), and bloo ...

☐ 19

[Particulate air pollution and nonfatal cardiac events. Part II. Association of air pollution with confirmed arrhythmias recorded by implanted defibrillators.](#)

Dockery DW, Luttmann-Gibson H, **Rich DQ**, Link MS, Schwartz JD, Gold DR, Koutrakis P, Verrier RL, Mittleman MA. Res Rep Health Eff Inst. 2005 Jun;(124):83-126; discussion 127-48. PMID: 17153518

The positive associations of VAs and SVAs with particulate matter less than 2.5microm in aerodynamic diameter (**PM2.5**; also referred to as fine particles), carbon monoxide (CO), nitrogen dioxide (NO2), BC, and SO2 suggest a link with motor vehicle pollutants. ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Sarnat+J+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

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Search Results

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1

[Air Pollutant Exposure and Stove Use Assessment Methods for the Household Air Pollution Intervention Network \(HAPIN\) Trial.](#)

Johnson MA, Steenland K, Piedrahita R, Clark ML, Pillarisetti A, Balakrishnan K, Peel JL, Naeher LP, Liao J, Wilson D, **Sarnat J**, Underhill LJ, Burrowes V, McCracken JP, Rosa G, Rosenthal J, Sambandam S, de Leon O, Kirby MA, Kearns K, Checkley W, Clasen T; HAPIN Investigators. Environ Health Perspect. 2020 Apr;128(4):47009. doi: 10.1289/EHP6422. Epub 2020 Apr 29. PMID: 32347764 Free PMC article.

METHODS: Exposure measurements are being conducted over the 3-y time frame of the field study. We are measuring fine particulate matter [$PM < 2.5$ μm in aerodynamic diameter (**PM_{2.5}**)] with the Enhanced Children's MicroPEM (RTI International), carbon monoxid...

□ 2

[The use of bluetooth low energy Beacon systems to estimate indirect personal exposure to household air pollution.](#)

Liao J, McCracken JP, Piedrahita R, Thompson L, Mollinedo E, Canuz E, De León O, Díaz-Artiga A, Johnson M, Clark M, Pillarisetti A, Kearns K, Naeher L, Steenland K, Checkley W, Peel J, Clasen TF; HAPIN investigators. *J Expo Sci Environ Epidemiol*. 2020 Nov;30(6):990-1000. doi: 10.1038/s41370-019-0172-z. Epub 2019 Sep 26. PMID: 31558836 Free PMC article. Women wore personal **PM_{2.5}** monitors to compare direct with indirect exposure measurements. Indirect exposure measurements had high correlation with direct measurements ($n = 62$, Spearman $\rho = 0.83$, **PM_{2.5}** concentration range: 5-528 g/m^3). Indirect exposur ...

□ 3

[Modification of Traffic-related Respiratory Response by Asthma Control in a Population of Car Commuters.](#)

Mirabelli MC, Golan R, Greenwald R, Raysoni AU, Holguin F, Kewada P, Winqvist A, Flanders WD, **Sarnat JA**. *Epidemiology*. 2015 Jul;26(4):546-55. doi: 10.1097/EDE.0000000000000296. PMID: 25901844 Free PMC article.

RESULTS: We observed increased exhaled nitric oxide across all levels of asthma control compared with precommute measurements, with largest postcommute increases observed among participants with below-median asthma control (2 hours postcommute: 14.6% [95% confidence interval {CI} ...

□ 4

[Fine particulate matter components and emergency department visits for cardiovascular and respiratory diseases in the St. Louis, Missouri-Illinois, metropolitan area.](#)

Sarnat SE, Winqvist A, Schauer JJ, Turner JR, **Sarnat JA**. *Environ Health Perspect*. 2015 May;123(5):437-44. doi: 10.1289/ehp.1307776. Epub 2015 Jan 9. PMID: 25575028 Free PMC article.

OBJECTIVES: We conducted a time-series study of **PM_{2.5}** and cardiorespiratory emergency department (ED) visits in the St. Louis, Missouri-Illinois metropolitan area, using 2 years of daily **PM_{2.5}** and **PM_{2.5}** component measurements (including i ...

□ 5

[Spatial and temporal variation in fine particulate matter mass and chemical composition: the Middle East Consortium for Aerosol Research Study.](#)

Abdeen Z, Qasrawi R, Heo J, Wu B, Shpund J, Vanger A, Sharf G, Moise T, Brenner S, Nassar K, Saleh R, Al-Mahasneh QM, **Sarnat JA**, Schauer JJ. *ScientificWorldJournal*. 2014;2014:878704. doi: 10.1155/2014/878704. Epub 2014 Jun 18. PMID: 25045751 Free PMC article.

PM_{2.5} concentrations in the spring were greatly impacted by regional dust storms. Carbonaceous mass was the most abundant component, contributing 40% to the total **PM_{2.5}** mass averaged across the eleven sites. Crustal components averaged 19.1% of the ...

□ 6

[Nitrogen dioxide and allergic sensitization in the 2005-2006 National Health and Nutrition Examination Survey.](#)

Weir CH, Yeatts KB, **Sarnat JA**, Vizuete W, Salo PM, Jaramillo R, Cohn RD, Chu H, Zeldin DC, London SJ. *Respir Med.* 2013 Nov;107(11):1763-72. doi: 10.1016/j.rmed.2013.08.010. Epub 2013 Aug 28. PMID: 24045117 Free PMC article.

METHODS: We linked annual average concentrations of nitrogen dioxide (NO₂), particulate matter 10 μm (PM₁₀), particulate matter 2.5 μm (**PM_{2.5}**), and summer concentrations of ozone (O₃), to allergen-specific immunoglobulin E (IgE) data for participants in the ...

□ 7

[Associations between urban air pollution and pediatric asthma control in El Paso, Texas.](#)

Zora JE, Sarnat SE, Raysoni AU, Johnson BA, Li WW, Greenwald R, Holguin F, Stock TH, **Sarnat JA**. *Sci Total Environ.* 2013 Mar 15;448:56-65. doi: 10.1016/j.scitotenv.2012.11.067. Epub 2013 Jan 9. PMID: 23312496

In the main one- and two-pollutant epidemiologic models, we found non-significant, albeit suggestive, positive associations between ACQ scores and respirable particulate matter (PM₁₀), coarse particulate matter (PM_{10-2.5}), fine particulate matter (**PM_{2.5}**), bla ...

□ 8

[Binational school-based monitoring of traffic-related air pollutants in El Paso, Texas \(USA\) and Ciudad Juárez, Chihuahua \(México\).](#)

Raysoni AU, **Sarnat JA**, Sarnat SE, Garcia JH, Holguin F, Luèvano SF, Li WW. *Environ Pollut.* 2011 Oct;159(10):2476-86. doi: 10.1016/j.envpol.2011.06.024. Epub 2011 Jul 20. PMID: 21778001

Paired indoor and outdoor concentrations of fine and coarse particulate matter (PM), **PM_{2.5}** reflectance [black carbon(BC)], and nitrogen dioxide (NO₂) were determined for sixteen weeks in 2008 at four elementary schools (two in high and two in low traffic density z ...

□ 9

[The use of alternative pollutant metrics in time-series studies of ambient air pollution and respiratory emergency department visits.](#)

Darrow LA, Klein M, **Sarnat JA**, Mulholland JA, Strickland MJ, Sarnat SE, Russell AG, Tolbert PE. *J Expo Sci Environ Epidemiol.* 2011 Jan-Feb;21(1):10-9. doi: 10.1038/jes.2009.49. Epub 2009 Sep 16. PMID: 19756042 Free PMC article.

We obtained hourly measurements of ambient particulate matter (**PM_{2.5}**), carbon monoxide (CO), nitrogen dioxide (NO₂), and ozone (O₃) from air monitoring networks in 20-county Atlanta for the time period 1993-2004. For each pollutant, we created (1) a daily 1-h maximu ...

□ 10

[The relationship between averaged sulfate exposures and concentrations: results from exposure assessment panel studies in four U.S. cities.](#)

Sarnat JA, Brown KW, Bartell SM, Sarnat SE, Wheeler AJ, Suh HH, Koutrakis P. *Environ Sci Technol.* 2009 Jul 1;43(13):5028-34. doi: 10.1021/es900419n. PMID: 19673302

This analysis examines differences between measured ambient indoor, and personal sulfate concentrations across cities, seasons, and individuals to elucidate how these differences may impact **PM_{2.5}** exposure measurement error. Data were analyzed from four panel studies ...

□ 11

[Panel discussion review: session 1--exposure assessment and related errors in air pollution epidemiologic studies.](#)

Sarnat JA, Wilson WE, Strand M, Brook J, Wyzga R, Lumley T. J Expo Sci Environ Epidemiol. 2007 Dec;17 Suppl 2:S75-82. doi: 10.1038/sj.jes.7500621. PMID: 18079768
Results from recent panel studies suggest that ambient NO₂ measurements may, in some locations, be serving as surrogates to traffic pollutants, including traffic-related **PM_{2.5}**, hopanes, steranes, and oxidized nitrogen compounds (rather than NO₂)....

□ 12

[Multipollutant modeling issues in a study of ambient air quality and emergency department visits in Atlanta.](#)

Tolbert PE, Klein M, Peel JL, Sarnat SE, **Sarnat JA**. J Expo Sci Environ Epidemiol. 2007 Dec;17 Suppl 2:S29-35. doi: 10.1038/sj.jes.7500625. PMID: 18079762
Poisson generalized linear models were used to examine outcome counts in relation to 3-day moving average concentrations of pollutants of a priori interest (ozone, nitrogen dioxide, carbon monoxide, sulfur dioxide, oxygenated hydrocarbons, PM₁₀, coarse PM, **PM_{2.5}**, an ...

□ 13

[Effects of exposure measurement error on particle matter epidemiology: a simulation using data from a panel study in Baltimore, MD.](#)

Schwartz J, **Sarnat JA**, Coull BA, Wilson WE. J Expo Sci Environ Epidemiol. 2007 Dec;17 Suppl 2:S2-10. doi: 10.1038/sj.jes.7500619. PMID: 18079760
The objectives of the simulation were twofold: (a) to estimate the distribution of personal air pollutant exposures one might expect to observe within a population, given the corresponding ambient concentrations found in that location and; (b) using an assumed true health risk wi ...

□ 14

[Air pollution and inflammation in type 2 diabetes: a mechanism for susceptibility.](#)

O'Neill MS, Veves A, **Sarnat JA**, Zanobetti A, Gold DR, Economides PA, Horton ES, Schwartz J. Occup Environ Med. 2007 Jun;64(6):373-9. doi: 10.1136/oem.2006.030023. Epub 2006 Dec 20. PMID: 17182639 Free PMC article.
METHODS: Daily average ambient levels of air pollution (fine particles (**PM_{2.5}**), black carbon (BC) and sulphates) were measured approximately 500 m from the patient examination site and evaluated for associations with ICAM-1, VCAM-1 and vWF. ...Among participants not ...

□ 15

[Characterization of particulate and gas exposures of sensitive subpopulations living in Baltimore and Boston.](#)

Koutrakis P, Suh HH, **Sarnat JA**, Brown KW, Coull BA, Schwartz J. Res Rep Health Eff Inst. 2005 Dec;(131):1-65; discussion 67-75. PMID: 16541849
No difference in infiltration factor was found among the cohorts, which suggests that all subjects were exposed to the same fraction of ambient **PM_{2.5}** for a given ambient concentration. In addition, the results show significant correlations between ambient **PM₂** ...

□ 16

[Ozone exposure and mortality: an empiric bayes metaregression analysis.](#)

Levy JI, Chemerynski SM, **Sarnat JA**. Epidemiology. 2005 Jul;16(4):458-68. doi: 10.1097/01.ede.0000165820.08301.b3. PMID: 15951663

Air pollution covariates yielded inconsistent findings in regression models, although correlation analyses indicated a potential influence of summertime **PM2.5**. CONCLUSIONS: These findings, coupled with a greater relative risk of ozone in the summer versus the winter ...

☐ 17

[Diabetes enhances vulnerability to particulate air pollution-associated impairment in vascular reactivity and endothelial function.](#)

O'Neill MS, Veves A, Zanobetti A, **Sarnat JA**, Gold DR, Economides PA, Horton ES, Schwartz J. *Circulation*. 2005 Jun 7;111(22):2913-20. doi: 10.1161/CIRCULATIONAHA.104.517110. Epub 2005 May 31. PMID: 15927967

We measured 24-hour average ambient levels of air pollution (fine particles [**PM2.5**], particle number, black carbon, and sulfates [SO₄(²⁻)] approximately 500 m from the patient examination site. ...Black carbon increases were associated with decreased flow-mediated ...

☐ 18

[Estimating ground-level **PM2.5** in the eastern United States using satellite remote sensing.](#)

Liu Y, **Sarnat JA**, Kilaru V, Jacob DJ, Koutrakis P. *Environ Sci Technol*. 2005 May 1;39(9):3269-78. doi: 10.1021/es049352m. PMID: 15926578

Overall, the empirical model explained 48% of the variability in **PM2.5** concentrations. The root-mean-square error of the model was 6.2 microg/m³ with a corresponding average **PM2.5** concentration of 13.8 microg/m³. When **PM2.5** concentrations ...

☐ 19

[Analysis of PM₁₀, **PM2.5**, and **PM2.5-10** concentrations in Santiago, Chile, from 1989 to 2001.](#)

Koutrakis P, Sax SN, **Sarnat JA**, Coull B, Demokritou P, Oyola P, Garcia J, Gramsch E. *J Air Waste Manag Assoc*. 2005 Mar;55(3):342-51. doi: 10.1080/10473289.2005.10464627. PMID: 15828676

Daily particle samples were collected in Santiago, Chile, at four urban locations from January 1, 1989, through December 31, 2001. Both fine PM with $d_a < 2.5$ microm (**PM2.5**) and coarse PM with $2.5 < d_a < 10$ microm (**PM2.5-10**) were...

☐ 20

[Ambient gas concentrations and personal particulate matter exposures: implications for studying the health effects of particles.](#)

Sarnat JA, Brown KW, Schwartz J, Coull BA, Koutrakis P. *Epidemiology*. 2005 May;16(3):385-95. doi: 10.1097/01.ede.0000155505.04775.33. PMID: 15824556
Clinical Trial. BACKGROUND: Data from a previous study conducted in Baltimore, MD, showed that ambient fine particulate matter less than 2.5 μm in diameter (**PM2.5**) concentrations were strongly correlated with corresponding personal **PM2.5** exposures, whereas amb ...

☐ 21

[Measurement of fine, coarse and ultrafine particles.](#)

Sarnat JA, Demokritou P, Koutrakis P. *Ann Ist Super Sanita*. 2003;39(3):351-5. PMID: 15098555

Over the last decade a large number of measurement methods for fine, coarse and ultrafine particles have been developed to characterize ambient **PM2.5** as well as personal **PM2.5** exposures. These new devices will enable us to improve our understanding of ...

□ 22

[Using sulfur as a tracer of outdoor fine particulate matter.](#)

Sarnat JA, Long CM, Koutrakis P, Coull BA, Schwartz J, Suh HH. Environ Sci Technol. 2002 Dec 15;36(24):5305-14. doi: 10.1021/es025796b. PMID: 12521154

Mixed models and graphical displays were used to assess the ability of the I/O ratios for sulfur to estimate corresponding I/O ratios for **PM2.5** and the various particle sizes. Results from this analysis showed that particulate sulfur compounds were primarily of outd ...

□ 23

[Assessing the relationship between personal particulate and gaseous exposures of senior citizens living in Baltimore, MD.](#)

Sarnat JA, Koutrakis P, Suh HH. J Air Waste Manag Assoc. 2000 Jul;50(7):1184-98. doi: 10.1080/10473289.2000.10464165. PMID: 10939211

This decrease was attributed to the increasing influence of indoor **PM2.5** sources. Evidence for this was provided by SO₄(²⁻) measurements, which can be thought of as a tracer for ambient **PM2.5**. ...In contrast to ambient concentrations, **PM2.5** ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Thakur+N+air+pollution&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

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2016 1

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Search Results

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[Native American Ancestry and Air Pollution Interact to Impact Bronchodilator Response in Puerto Rican Children with Asthma.](#)

Contreras MG, Keys K, Magaña J, Goddard PC, Risse-Adams O, Zeiger AM, Mak ACY, Samedy-Bates LA, Neophytou AM, Lee E, **Thakur N**, Elhawary JR, Hu D, Huntsman S, Eng C, Hu T, Burchard EG, White MJ. *Ethn Dis*. 2021 Jan 21;31(1):77-88. doi: 10.18865/ed.31.1.77. eCollection 2021 Winter. PMID: 33519158 Free PMC article.

RESULTS: We identified a non-linear interaction between Native American genetic ancestry and **air pollution** significantly associated with BDR in Puerto Rican children with asthma. ...CONCLUSIONS: Decreased Native American ancestry coupled with increased **air** ...

2

[Ambient Air Pollution and Asthma-Related Outcomes in Children of Color of the USA: a Scoping Review of Literature Published Between 2013 and 2017.](#)

Nardone A, Neophytou AM, Balmes J, **Thakur N**. *Curr Allergy Asthma Rep*. 2018 Apr 16;18(5):29. doi: 10.1007/s11882-018-0782-x. PMID: 29663154 Free PMC article. Review. PURPOSE OF REVIEW: Given racial disparities in ambient **air pollution** (AAP) exposure and asthma risk, this review offers an overview of the literature investigating the ambient **air pollution**-asthma relationship in children of color between 2013 and 2017 ...

□ 3

[Air Pollution and Lung Function in Minority Youth with Asthma in the GALA II \(Genes-Environments and Admixture in Latino Americans\) and SAGE II \(Study of African Americans, Asthma, Genes, and Environments\) Studies.](#)

Neophytou AM, White MJ, Oh SS, **Thakur N**, Galanter JM, Nishimura KK, Pino-Yanes M, Torgerson DG, Gignoux CR, Eng C, Nguyen EA, Hu D, Mak AC, Kumar R, Seibold MA, Davis A, Farber HJ, Meade K, Avila PC, Serebrisky D, Lenoir MA, Brigino-Buenaventura E, Rodriguez-Cintron W, Bibbins-Domingo K, Thyne SM, Williams LK, Sen S, Gilliland FD, Gauderman WJ, Rodriguez-Santana JR, Lurmann F, Balmes JR, Eisen EA, Burchard EG. *Am J Respir Crit Care Med.* 2016 Jun 1;193(11):1271-80. doi: 10.1164/rccm.201508-1706OC. PMID: 26734713 Free PMC article.

RATIONALE: Adverse effects of exposures to ambient **air pollution** on lung function are well documented, but evidence in racial/ethnic minority children is lacking. OBJECTIVES: To assess the relationship between **air pollution** and lung function in minorit ...

□ 4

[Genetic ancestry influences asthma susceptibility and lung function among Latinos.](#)

Pino-Yanes M, **Thakur N**, Gignoux CR, Galanter JM, Roth LA, Eng C, Nishimura KK, Oh SS, Vora H, Huntsman S, Nguyen EA, Hu D, Drake KA, Conti DV, Moreno-Estrada A, Sandoval K, Winkler CA, Borrell LN, Lurmann F, Islam TS, Davis A, Farber HJ, Meade K, Avila PC, Serebrisky D, Bibbins-Domingo K, Lenoir MA, Ford JG, Brigino-Buenaventura E, Rodriguez-Cintron W, Thyne SM, Sen S, Rodriguez-Santana JR, Bustamante CD, Williams LK, Gilliland FD, Gauderman WJ, Kumar R, Torgerson DG, Burchard EG. *J Allergy Clin Immunol.* 2015 Jan;135(1):228-35. doi: 10.1016/j.jaci.2014.07.053. Epub 2014 Oct 6. PMID: 25301036 Free PMC article.

These associations were robust to adjustment for covariates related to early life exposures, **air pollution**, and socioeconomic status. Among children with asthma, African ancestry was associated with lower lung function, including both pre- and post-bronchodilator me ...

□ 5

[Socioeconomic status and asthma control in African American youth in SAGE II.](#)

Thakur N, Martin M, Castellanos E, Oh SS, Roth LA, Eng C, Brigino-Buenaventura E, Davis A, Meade K, LeNoir MA, Farber HJ, Thyne S, Sen S, Bibbins-Domingo K, Borrell LN, Burchard EG. *J Asthma.* 2014 Sep;51(7):720-8. doi: 10.3109/02770903.2014.905593. Epub 2014 May 14. PMID: 24654704 Free PMC article.

□ 6

[Early-life air pollution and asthma risk in minority children. The GALA II and SAGE II studies.](#)

Nishimura KK, Galanter JM, Roth LA, Oh SS, **Thakur N**, Nguyen EA, Thyne S, Farber HJ, Serebrisky D, Kumar R, Brigino-Buenaventura E, Davis A, LeNoir MA, Meade K, Rodriguez-Cintron W, Avila PC, Borrell LN, Bibbins-Domingo K, Rodriguez-Santana JR, Sen S, Lurmann F, Balmes JR, Burchard EG. *Am J Respir Crit Care Med.* 2013 Aug 1;188(3):309-18. doi: 10.1164/rccm.201302-0264OC. PMID: 23750510 Free PMC article.

RATIONALE: **Air pollution** is a known asthma trigger and has been associated with short-term asthma symptoms, airway inflammation, decreased lung function, and reduced response to asthma rescue medications. OBJECTIVES: To assess a causal relationship between **air** ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Turpin+B+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

2000 1
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Search Results

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1

[Development of a hydrophilic interaction liquid chromatography \(HILIC\) method for the chemical characterization of water-soluble isoprene epoxydiol \(IEPOX\)-derived secondary organic aerosol.](#)

Cui T , Zeng Z , Dos Santos EO , Zhang Z , Chen Y , Zhang Y , Rose CA , Budisulistiorini SH , Collins LB , Bodnar WM , de Souza RAF , Martin ST , Machado CMD , **Turpin BJ** , Gold A , Ault AP , Surratt JD . Environ Sci Process Impacts. 2018 Nov 14;20(11):1524-1536. doi: 10.1039/c8em00308d. PMID: 30259953 Free article.

Acid-catalyzed multiphase chemistry of isoprene epoxydiols (IEPOX) on sulfate aerosol produces substantial amounts of water-soluble secondary organic aerosol (SOA) constituents, including 2-methyltetrols, methyltetrol sulfates, and oligomers thereof in atmospheric fine particulat ...

□ 2

[Toward refined estimates of ambient PM\(2.5\) exposure: Evaluation of a physical outdoor-to-indoor transport model.](#)

Hodas N, Meng Q, Lunden MM, **Turpin BJ**. Atmos Environ (1994). 2014 Feb 1;83:229-236. doi: 10.1016/j.atmosenv.2013.11.026. PMID: 25798047 Free PMC article.

Because people spend the majority of their time indoors, the variable efficiency with which ambient PM(2.5) penetrates and persists indoors is a source of error in epidemiologic studies that use PM(2.5) concentrations measured at central-site monitors as surrogates ...

□ 3

[The triggering of myocardial infarction by fine particles is enhanced when particles are enriched in secondary species.](#)

Rich DQ, Özkaynak H, Crooks J, Baxter L, Burke J, Ohman-Strickland P, Thevenet-Morrison K, Kipen HM, Zhang J, Kostis JB, Lunden M, Hodas N, **Turpin BJ**. Environ Sci Technol. 2013 Aug 20;47(16):9414-23. doi: 10.1021/es4027248. Epub 2013 Jul 30. PMID: 23819750 Free PMC article.

We excluded MI with a diagnosis of a previous MI and MI coded as a subendocardial infarction, leaving n = 1563 transmural infarctions available for analysis. We coupled these health data with **PM2.5** species concentrations predicted by the Community Multiscale Air Qua ...

□ 4

[Refined ambient PM2.5 exposure surrogates and the risk of myocardial infarction.](#)

Hodas N, **Turpin BJ**, Lunden MM, Baxter LK, Özkaynak H, Burke J, Ohman-Strickland P, Thevenet-Morrison K, Kostis JB; MIDAS 21 Study Group, Rich DQ. J Expo Sci Environ Epidemiol. 2013 Nov-Dec;23(6):573-80. doi: 10.1038/jes.2013.24. Epub 2013 May 29. PMID: 23715082 Free PMC article.

Using a case-crossover study design and conditional logistic regression, we compared the relative odds of transmural (full-wall) myocardial infarction (MI) calculated using exposure surrogates that account for human activity patterns and the indoor transport of ambient PM(2.5)

...

□ 5

[Influence of human activity patterns, particle composition, and residential air exchange rates on modeled distributions of PM2.5 exposure compared with central-site monitoring data.](#)

Baxter LK, Burke J, Lunden M, **Turpin BJ**, Rich DQ, Thevenet-Morrison K, Hodas N, Ökaynak H. J Expo Sci Environ Epidemiol. 2013 May-Jun;23(3):241-7. doi: 10.1038/jes.2012.118. Epub 2013 Jan 16. PMID: 23321856

Central-site monitors do not account for factors such as outdoor-to-indoor transport and human activity patterns that influence personal exposures to ambient fine-particulate matter (PM(2.5)). We describe and compare different ambient PM(2.5) exposure estimation app ...

□ 6

[Correction methods for organic carbon artifacts when using quartz-fiber filters in large particulate matter monitoring networks: the regression method and other options.](#)

Maimone F, **Turpin BJ**, Solomon P, Meng Q, Robinson AL, Subramanian R, Polidori A. J Air Waste Manag Assoc. 2011 Jun;61(6):696-710. doi: 10.3155/1047-3289.61.6.696. PMID: 21751585

In this method, the gamma-intercept of the regression of the OC concentration on the fine particle (**PM_{2.5}**) mass concentration is taken to be an estimate of the average OC sampling artifact (net of positive and negative artifacts). ...

□ 7

[Pulmonary effects of inhaled diesel exhaust in young and old mice: a pilot project.](#)

Laskin DL, Mainelis G, **Turpin BJ**, Patel KJ, Sunil VR; HEI Health Review Committee. Res Rep Health Eff Inst. 2010 Sep;(151):3-31. PMID: 21381634 Free PMC article.

It is well established that exposure to ambient fine particulate matter (PM), defined as PM < or = 2.5 microm in aerodynamic diameter (**PM_{2.5}**), is associated with increased cardiovascular morbidity and mortality and that elderly persons are particularly sus...

□ 8

[Relationships of Indoor, Outdoor, and Personal Air \(RIOPA\): part II. Analyses of concentrations of particulate matter species.](#)

Turpin BJ, Weisel CP, Morandi M, Colome S, Stock T, Eisenreich S, Buckley B. Res Rep Health Eff Inst. 2007 Aug;(130 Pt 2):1-77; discussion 79-92. PMID: 18064946

Personal **PM_{2.5}** concentrations were significantly higher and more variable than indoor and outdoor concentrations. Several approaches were applied to quantify indoor **PM_{2.5}** of ambient (outdoor) and nonambient (indoor) origin, some using **PM_{2.5}** ...

□ 9

[How does infiltration behavior modify the composition of ambient **PM_{2.5}** in indoor spaces? An analysis of RIOPA data.](#)

Meng QY, **Turpin BJ**, Lee JH, Polidori A, Weisel CP, Morandi M, Colome S, Zhang J, Stock T, Winer A. Environ Sci Technol. 2007 Nov 1;41(21):7315-21. doi: 10.1021/es070037k. PMID: 18044505

The indoor environment is an important venue for exposure to fine particulate matter (**PM_{2.5}**) of ambient (outdoor) origin. In this work, paired indoor and outdoor **PM_{2.5}** species concentrations from three geographically distinct cities (Houston, TX, Los A ...

□ 10

[Fine organic particulate matter dominates indoor-generated **PM_{2.5}** in RIOPA homes.](#)

Polidori A, **Turpin B**, Meng QY, Lee JH, Weisel C, Morandi M, Colome S, Stock T, Winer A, Zhang J, Kwon J, Alimokhtari S, Shendell D, Jones J, Farrar C, Maberti S. J Expo Sci Environ Epidemiol. 2006 Jul;16(4):321-31. doi: 10.1038/sj.jes.7500476. Epub 2006 Mar 15. PMID: 16538235

The mean EC concentration was 1.1 microg/m³ both indoors and outdoors. OM accounted for 29%, 30% and 29% of PM(**2.5**) mass outdoors and 48%, 55% and 61% of indoor PM(**2.5**) mass in Los Angeles Co., Elizabeth and Houston study homes, respectively. ...OM appears to be t ...

□ 11

[Relationships of Indoor, Outdoor, and Personal Air \(RIOPA\). Part I. Collection methods and descriptive analyses.](#)

Weisel CP, Zhang J, **Turpin BJ**, Morandi MT, Colome S, Stock TH, Spektor DM, Korn L, Winer AM, Kwon J, Meng QY, Zhang L, Harrington R, Liu W, Reff A, Lee JH, Alimokhtari S,

Mohan K, Shendell D, Jones J, Farrar L, Maberti S, Fan T. Res Rep Health Eff Inst. 2005 Nov;(130 Pt 1):1-107; discussion 109-27. PMID: 16454009

The range of distributions of air concentrations for the measured VOCs, formaldehyde and acetaldehyde, **PM2.5**, and AERs were generally consistent with values reported previously in the literature. ...The indoor source estimations agreed with published values for P ...

□ 12

[PM2.5 of ambient origin: estimates and exposure errors relevant to PM epidemiology.](#)

Meng QY, **Turpin BJ**, Polidori A, Lee JH, Weisel C, Morandi M, Colome S, Stock T, Winer A, Zhang J. Environ Sci Technol. 2005 Jul 15;39(14):5105-12. doi: 10.1021/es048226f. PMID: 16082937 Free PMC article.

The final estimates of **PM2.5** of outdoor origin take into account variations in building construction, ventilation practices, and particle properties that result in home-to-home and day-to-day variations in particle infiltration. ...These results quantify several way ...

□ 13

[Assessing truck driver exposure at the World Trade Center disaster site: personal and area monitoring for particulate matter and volatile organic compounds during October 2001 and April 2002.](#)

Geyh AS, Chillrud S, Williams DL, Herbstman J, Symons JM, Rees K, Ross J, Kim SR, Lim HJ, **Turpin B**, Breyse P. J Occup Environ Hyg. 2005 Mar;2(3):179-93. doi: 10.1080/15459620590923154. PMID: 15764541

During both months, monitoring was also conducted at one location in the middle of the rubble. Contaminants monitored for included total dust (TD), PM10, **PM2.5**, and volatile organic compounds. Particle samples were analyzed for mass, as well as elemental and organic ...

□ 14

[Relationship of Indoor, Outdoor and Personal Air \(RIOPA\) study: study design, methods and quality assurance/control results.](#)

Weisel CP, Zhang J, **Turpin BJ**, Morandi MT, Colome S, Stock TH, Spektor DM, Korn L, Winer A, Alimokhtari S, Kwon J, Mohan K, Harrington R, Giovanetti R, Cui W, Afshar M, Maberti S, Shendell D. J Expo Anal Environ Epidemiol. 2005 Mar;15(2):123-37. doi: 10.1038/sj.jea.7500379. PMID: 15213705

PM2.5 mass, as well as several component species (elemental carbon, organic carbon, polyaromatic hydrocarbons and elemental analysis) were also measured; only PM(2.5) mass is reported here. ...The air exchange rate was also measured in each home. Homes in clo ...

□ 15

[Chlordanes in the indoor and outdoor air of three U.S. cities.](#)

Offenberg JH, Naumova YY, **Turpin BJ**, Eisenreich SJ, Morandi MT, Stock T, Colome SD, Winer AM, Spektor DM, Zhang J, Weisel CP. Environ Sci Technol. 2004 May 15;38(10):2760-8. doi: 10.1021/es035404g. PMID: 15212248

The analyses were conducted on a subset of 48 h integrated samples collected in Los Angeles County, CA, Houston, TX, and Elizabeth, NJ within the Relationship of Indoor, Outdoor, and Personal Air (RIOPA) study. Both particle-bound (**PM2.5**; quartz fiber filter) and va ...

□ 16

[Influence of ambient \(outdoor\) sources on residential indoor and personal **PM2.5** concentrations: analyses of RIOPA data.](#)

Meng QY, **Turpin BJ**, Korn L, Weisel CP, Morandi M, Colome S, Zhang JJ, Stock T, Spektor D, Winer A, Zhang L, Lee JH, Giovanetti R, Cui W, Kwon J, Alimokhtari S, Shendell D, Jones J, Farrar C, Maberti S. *J Expo Anal Environ Epidemiol*. 2005 Jan;15(1):17-28. doi: 10.1038/sj.jea.7500378. PMID: 15138449

Indoor, outdoor and personal **PM2.5** samples were collected at 212 nonsmoking residences, 162 of which were sampled twice. Some homes were chosen due to close proximity to ambient sources of one or more target analytes, while others were farther from sources. Median i ...

□ 17

[Short-term temporal variation in **PM2.5** mass and chemical composition during the Atlanta Supersite Experiment, 1999.](#)

Weber R, Bergin M, Kiang CS, Chameides W, Orsini D, St JJ, Chang M, Bergin M, Carrico C, Lee YN, Dasgupta P, Slanina J, **Turpin B**, Edgerton E, Hering S, Allen G, Solomon P. *J Air Waste Manag Assoc*. 2003 Jan;53(1):84-91. doi: 10.1080/10473289.2003.10466123. PMID: 12568257

The frequent temporal decoupling of these events provides insights into their origins, suggesting mobile sources in metro Atlanta as the main contributor to early morning **PM2.5** and more regionally located point SO₂ sources for afternoon **PM2.5** events. T ...

□ 18

[Origins of primary and secondary organic aerosol in Atlanta: results of time-resolved measurements during the Atlanta Supersite Experiment.](#)

Lim HJ, **Turpin BJ**. *Environ Sci Technol*. 2002 Nov 1;36(21):4489-96. doi: 10.1021/es0206487. PMID: 12433156

Time-resolved ambient particulate organic (OC) and elemental carbon (EC) data measured in Atlanta, GA, during the Atlanta Supersite Experiment (August3-September 1, 1999) were investigated to determine the temporal trends of atmospheric carbonaceous aerosol and to examine the rel ...

□ 19

[Identification of sources contributing to Mid-Atlantic regional aerosol.](#)

Lee JH, Yoshida Y, **Turpin BJ**, Hopke PK, Poirot RL, Liou PJ, Oxley JC. *J Air Waste Manag Assoc*. 2002 Oct;52(10):1186-205. doi: 10.1080/10473289.2002.10470850. PMID: 12418730

Some evidence herein suggests that secondary organic aerosol formation is an important contributor to summertime regional aerosol. Nine factors were identified that contributed to **PM2.5** mass concentrations: coal combustion factors (66%, summer and winter), sea salt ...

□ 20

[Evaluation of time-resolved **PM\(2.5\)** data in urban/suburban areas of New Jersey.](#)

Chuersuwan N, **Turpin BJ**, Pietarinen C. *J Air Waste Manag Assoc*. 2000 Oct;50(10):1780-9. doi: 10.1080/10473289.2000.10464214. PMID: 11288306

Monthly averaged 24- and 1-hr daily maximum **PM2.5** concentrations suggest the existence of a high **PM2.5** (May-October) and a low **PM2.5** (November-April) season. **PM2.5** magnitudes and temporal trends were very similar across the ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Weisskopf+M+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

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Search Results

11 results

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[Air Pollution and Autism Spectrum Disorder in Israel: A Negative Control Analysis.](#)

Magen-Molho H, **Weisskopf MG**, Nevo D, Shtein A, Chen S, Broday D, Kloog I, Levine H, Pinto O, Raz R. *Epidemiology*. 2021 Nov 1;32(6):773-780. doi: 10.1097/EDE.0000000000001407. PMID: 34347685

RESULTS: In mutually adjusted models, we observed positive associations with ASD for postnatal exposures to NO_x (odds ratio per interquartile range, 95% confidence interval: 1.19, 1.02-1.38) and NO₂ (1.20, 1.00-1.43), and gestational exposure to **PM_{2.5}**-10 (1.08, 1.01 ...

2

[Parkinson's disease aggravation in association with fine particle components in New York State.](#)

Nunez Y, Boehme AK, Li M, Goldsmith J, **Weisskopf MG**, Re DB, Navas-Acien A, van Donkelaar A, Martin RV, Kioumourtzoglou MA. *Environ Res*. 2021 Oct;201:111554. doi: 10.1016/j.envres.2021.111554. Epub 2021 Jun 25. PMID: 34181919

BACKGROUND: Long-term exposure to fine particulate matter (PM(2.5)) has been associated with neurodegenerative diseases, including disease aggravation in Parkinson's disease (PD), but associations with specific PM(2.5) components have not been evaluated. ...CONCLUSI ...

3

[Fine Particle Exposure and Clinical Aggravation in Neurodegenerative Diseases in New York State.](#)

Nunez Y, Boehme AK, **Weisskopf MG**, Re DB, Navas-Acien A, van Donkelaar A, Martin RV, Kioumourtzoglou MA. Environ Health Perspect. 2021 Feb;129(2):27003. doi: 10.1289/EHP7425. Epub 2021 Feb 8. PMID: 33555200 Free PMC article.

RESULTS: We found a positive nonlinear **PM2.5** - PD association that plateaued above 11 mug/m³ (RR = 1.09, 95% CI: 1.04, 1.14 for a **PM2.5** increase from 8.1 to 10.4 mug/m³). We also found a linear **PM2.5** - ALS positive association (RR = 1.05, ...

□ 4

[Relationships of Long-Term Smoking and Moist Snuff Consumption With a DNA Methylation Age Relevant Smoking Index: An Analysis in Buccal Cells.](#)

Nwanaji-Enwerem JC, Cardenas A, Chai PR, **Weisskopf MG**, Baccarelli AA, Boyer EW. Nicotine Tob Res. 2019 Aug 19;21(9):1267-1273. doi: 10.1093/ntr/nty156. PMID: 30053132 Free PMC article.

Four DNAm-age CpGs were differentially methylated between smokers and nonsmokers including cg14992253 [EIF3I], which has been previously shown to be differentially methylated with exposure to long-term fine-particle air pollution (**PM2.5**). CONCLUSIONS: The 66-CpG SI ...

□ 5

[miRNA processing gene polymorphisms, blood DNA methylation age and long-term ambient PM\(2.5\) exposure in elderly men.](#)

Nwanaji-Enwerem JC, Colicino E, Dai L, Di Q, Just AC, Hou L, Vokonas P, De Vivo I, Lemos B, Lu Q, **Weisskopf MG**, Baccarelli AA, Schwartz JD. Epigenomics. 2017 Dec;9(12):1529-1542. doi: 10.2217/epi-2017-0094. Epub 2017 Nov 6. PMID: 29106301 Free PMC article.

AIM: We tested whether genetic variation in miRNA processing genes modified the association of PM(2.5) with DNA methylation (DNAm) age. PATIENTS & METHODS: We conducted a repeated measures study based on 552 participants from the Normative Aging Study with multiple vis ...

□ 6

[Editor's Highlight: Modifying Role of Endothelial Function Gene Variants on the Association of Long-Term PM2.5 Exposure With Blood DNA Methylation Age: The VA Normative Aging Study.](#)

Nwanaji-Enwerem JC, Bind MA, Dai L, Oulhote Y, Colicino E, Di Q, Just AC, Hou L, Vokonas P, Coull BA, **Weisskopf MG**, Baccarelli AA, Schwartz JD. Toxicol Sci. 2017 Jul 1;158(1):116-126. doi: 10.1093/toxsci/kfx077. PMID: 28486674 Free PMC article.

We evaluated if genetic variation in 3 biological pathways implicated in **PM2.5**-related disease-oxidative stress, endothelial function, and metal processing-could modify the effect of **PM2.5** on DNAm-age, one prominent DNA methylation-based measure of bio ...

□ 7

[The Association Between Air Pollution and Onset of Depression Among Middle-Aged and Older Women.](#)

Kioumourtzoglou MA, Power MC, Hart JE, Okereke OI, Coull BA, Laden F, **Weisskopf MG**. Am J Epidemiol. 2017 May 1;185(9):801-809. doi: 10.1093/aje/kww163. PMID: 28369173 Free PMC article.

May-September ozone exposures were predicted by interpolating concentrations from the 5 nearest monitors. One-, 2-, and 5-year average concentrations of particulate matter with an aerodynamic diameter less than or equal to 2.5 µm (**PM2.5**) were p ...

□ 8

[Long-term **PM2.5** Exposure and Neurological Hospital Admissions in the Northeastern United States.](#)

Kioumourtzoglou MA, Schwartz JD, **Weisskopf MG**, Melly SJ, Wang Y, Dominici F, Zanobetti A. Environ Health Perspect. 2016 Jan;124(1):23-9. doi: 10.1289/ehp.1408973. Epub 2015 May 15. PMID: 25978701 Free PMC article.

BACKGROUND: Long-term exposure to fine particles (particulate matter 2.5 µm; **PM2.5**) has been consistently linked to heart and lung disease. ...METHODS: We estimated the effects of **PM2.5** on first hospital admission for dementia, AD, and PD among ...

□ 9

[The relation between past exposure to fine particulate air pollution and prevalent anxiety: observational cohort study.](#)

Power MC, Kioumourtzoglou MA, Hart JE, Okereke OI, Laden F, **Weisskopf MG**. BMJ. 2015 Mar 24;350:h1111. doi: 10.1136/bmj.h1111. PMID: 25810495 Free PMC article.

Exposure to particulate matter was characterized using estimated average exposure to particulate matter <2.5 µm in diameter (**PM2.5**) and 2.5 to 10 µm in diameter (**PM2.5-10**) in the one month, three months, six months, one year, and 15 ...

□ 10

[Autism spectrum disorder and particulate matter air pollution before, during, and after pregnancy: a nested case-control analysis within the Nurses' Health Study II Cohort.](#)

Raz R, Roberts AL, Lyall K, Hart JE, Just AC, Laden F, **Weisskopf MG**. Environ Health Perspect. 2015 Mar;123(3):264-70. doi: 10.1289/ehp.1408133. Epub 2014 Dec 18. PMID: 25522338 Free PMC article.

Diagnosis of ASD was based on maternal report, which was validated against the Autism Diagnostic Interview-Revised in a subset. Monthly averages of PM with diameters 2.5 µm (**PM2.5**) and 2.5-10 µm (**PM10-2.5**) were predicted from a spatiotemporal ...

□ 11

[Particulate matter and risk of Parkinson disease in a large prospective study of women.](#)

Palacios N, Fitzgerald KC, Hart JE, **Weisskopf MG**, Schwarzschild MA, Ascherio A, Laden F. Environ Health. 2014 Oct 7;13:80. doi: 10.1186/1476-069X-13-80. PMID: 25294559 Free PMC article.

The relative risk (RR) comparing the top quartile to the bottom quartile of PM exposure was 0.99 (95% Confidence Intervals (CI): 0.84,1.16) for PM10 (10 microns in diameter), 1.08 (95% CI: 0.81, 1.45) for **PM2.5** (2.5 microns in diameter), and 0.92 (95% CI: 0.7 ...

<https://pubmed.ncbi.nlm.nih.gov/?term=Zigler+C+PM2.5&sort=date&size=100>

Results by year

Table representation of search results timeline featuring number of search results per year.

Year Number of Results

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Search Results

6 results

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1

[Comparisons of simple and complex methods for quantifying exposure to individual point source air pollution emissions.](#)

Henneman LRF, Dedoussi IC, Casey JA, Choirat C, Barrett SRH, **Zigler CM**. *J Expo Sci Environ Epidemiol*. 2021 Jul;31(4):654-663. doi: 10.1038/s41370-020-0219-1. Epub 2020 Mar 17. PMID: 32203059 Free PMC article.

This limitation motivates comparisons between modern CTM-derived techniques and intentionally simpler alternatives. We model population-weighted PM(2.5) source impacts from each of greater than 1100 coal power plants operating in the United States in 2006 and 2011 using th ...

2

[Characterizing population exposure to coal emissions sources in the United States using the HyADS model.](#)

Henneman LRF, Choirat C, Ivey C, Cummiskey K, **Zigler CM**. *Atmos Environ* (1994). 2019 Apr 15;203:271-280. doi: 10.1016/j.atmosenv.2019.01.043. Epub 2019 Feb 2. PMID: 31749659 Free PMC article.

We show adequate performance towards this goal against observed annual average air pollutant concentrations (nationwide Pearson correlations of 0.88 and 0.73 with SO₄²⁻ and PM(2.5), respectively) and coal-combustion impacts simulated with a full-scale chemical transport mo ...

3

[BAYESIAN METHODS FOR MULTIPLE MEDIATORS: RELATING PRINCIPAL STRATIFICATION AND CAUSAL MEDIATION IN THE ANALYSIS OF POWER PLANT EMISSION CONTROLS.](#)

Kim C, Daniels MJ, Hogan JW, Choirat C, **Zigler CM**. Ann Appl Stat. 2019 Sep;13(3):1927-1956. doi: 10.1214/19-AOAS1260. Epub 2019 Oct 17. PMID: 31656548 Free PMC article.

□ 4

[A global perspective on coal-fired power plants and burden of lung cancer.](#)

Lin CK, Lin RT, Chen T, **Zigler C**, Wei Y, Christiani DC. Environ Health. 2019 Jan 28;18(1):9. doi: 10.1186/s12940-019-0448-8. PMID: 30691464 Free PMC article.

□ 5

[Impact of National Ambient Air Quality Standards Nonattainment Designations on Particulate Pollution and Health.](#)

Zigler CM, Choirat C, Dominici F. Epidemiology. 2018 Mar;29(2):165-174. doi: 10.1097/EDE.0000000000000777. PMID: 29095246 Free PMC article.

METHODS: We employ causal inference methods and a spatial hierarchical regression model to characterize the extent to which a designation of "nonattainment" with the 1997 National Ambient Air Quality Standard for ambient fine particulate matter (**PM_{2.5}**) in 2005 causa ...

□ 6

[Causal Inference Methods for Estimating Long-Term Health Effects of Air Quality Regulations.](#)

Zigler CM, Kim C, Choirat C, Hansen JB, Wang Y, Hund L, Samet J, King G, Dominici F; HEI Health Review Committee. Res Rep Health Eff Inst. 2016 May;(187):5-49. PMID: 27526497

In the second case study, which examined power-plant emissions and illustrated our newly developed statistical methods, the results indicated that the presence of an SO₂ scrubber causally reduced ambient **PM_{2.5}** and that this reduction was mediated almost entirely thr ...

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