PERRIN CONFERENCES

ENVIRONMENTAL RISK & PFAS LITIGATION CONFERENCE

The New York City Bar Association | June 16-17, 2026

Update on PFAS Epidemiology and Health Effects

Allison Stock, Ph.D., MPH, MS
J.S. Held
Vice President - Chief Scientist,
Environmental, Health & Safety
New Orleans, LA

Max Swetman, Esq.
MG+M The Law Firm
New Orleans, LA

Drivers for Current Research

- C8 Study
  - Large population-based study in Mid-Ohio Valley
  - ~69,000 participants followed between 2005-2013
  - Allowed for estimation of cumulative exposure through dose reconstruction
  - Probable Link Outcomes: high cholesterol, ulcerative colitis, thyroid disease, kidney cancer, testicular cancer, and pregnancy induced hypertension.
- US Airforce Study (ongoing)
  - Testicular and kidney cancers

Drivers Continued

- PREDICTS Study (2023) (case control)
  - Increased risk of ulcerative colitis and Crohn’s disease up to 10 years prior to diagnosis among those with the highest serum concentrations
- NHANES 2003-2018 Cross Sectional
  - Changes in lipid metabolism

Google Scholar

- “Epidemiology Studies PFAS”
- TOTAL Studies: 27000 results with 1200 discreet studies

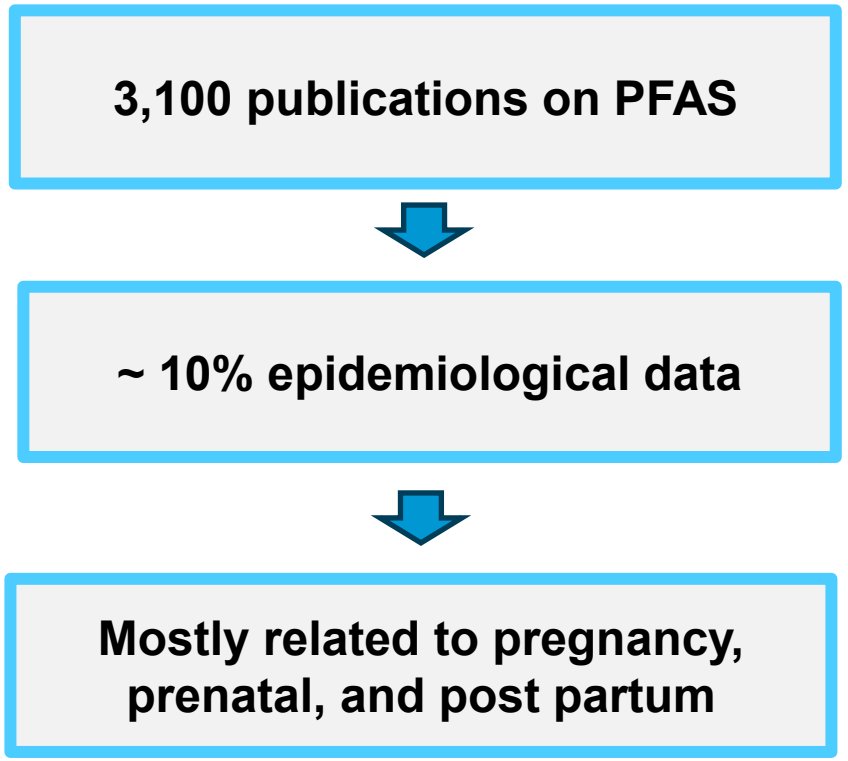
PubMed

"PFAS"[All Fields] AND ("epidemiologic studies"[MeSH Terms] OR ("epidemiologic"[All Fields] AND "studies"[All Fields]) OR "epidemiologic studies"[All Fields] OR ("epidemiological"[All Fields] AND "studies"[All Fields]) OR "epidemiological studies"[All Fields] or “epidemiology PFAS”)

- TOTAL Studies: 1,285

Overview of PFAS Literature

- In the past year, there have been approximately 3,100 publications on PFAS
- Of those, approximately 10% include epidemiological data.
- The most common topics in the published literature this year include pregnancy, prenatal, and post-partum.



Epidemiological PFAS Literature Over The Past Year

Category	Approx. number of studies	Percent of total
Prenatal / perinatal / early-life outcomes	~157	47%
Cancer outcomes	~34	10%
Non-cancer outcomes (adults or general populations)	~147	43%
Total	338	100%

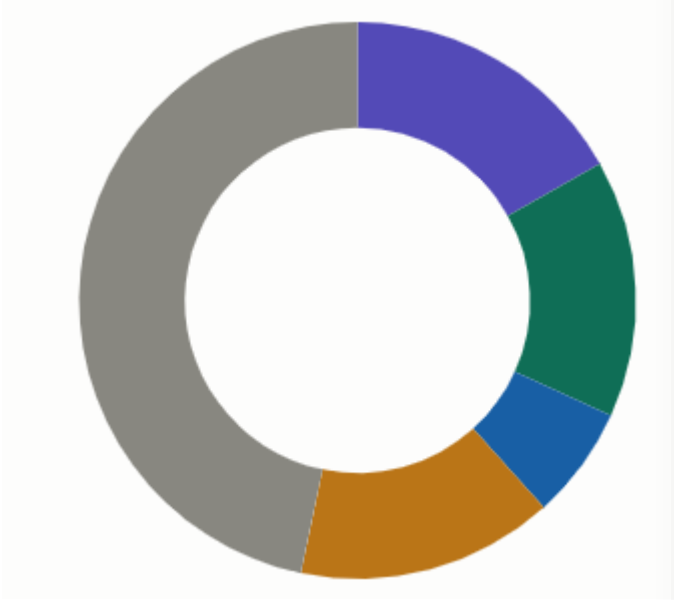
Studies Most Likely To Move The Needle

New population + New Data

Previously published population + New Data

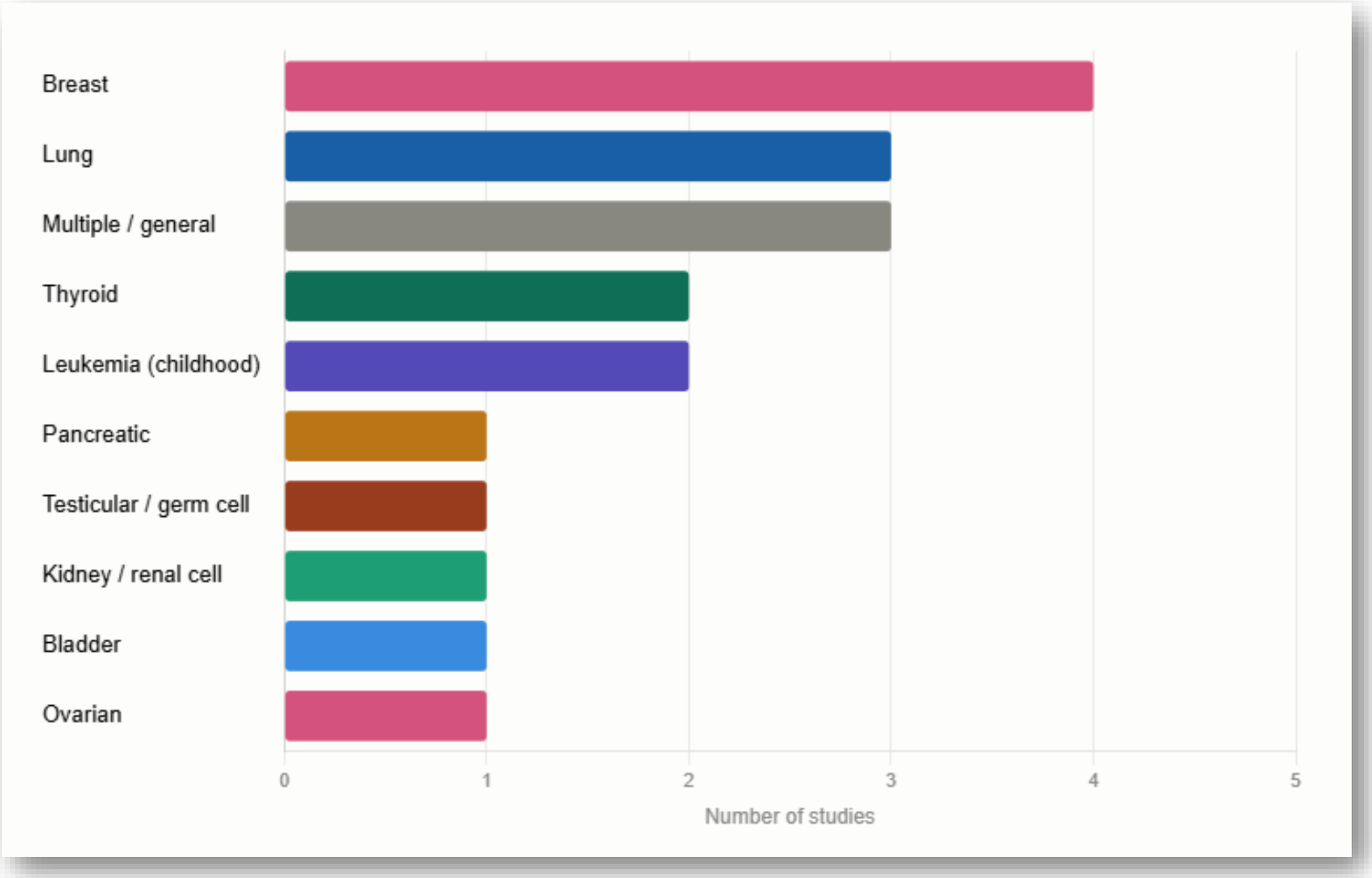
Previously published population + Prior Data

Pregnancy, Prenatal, Post-Partum Data



Outcome category	n	%
Neurodevelopment / behavior	18	17%
Pubertal / endocrine	16	15%
Respiratory / immune	7	7%
Birth outcomes (size, miscarriage, preterm, malformations)	16	15%
Other outcomes	50	47%

Cancer Endpoints



BREAST (4 studies)

1	**A case-control study of the association between per- and polyfluoroalkyl substances (PFAS) and risk of postmenopausal breast cancer in the Danish diet cancer and health cohort** *Tina Kold Jensen, Ulla A Hvidtfeldt, Anne Tjønneland, Erich Batzella, Flemming Nielsen, Ole Raaschou-Nielsen*
2	**PFAS and adipokines: Decoding their roles in the risk of breast nodules and breast cancer** *Mengya Xu, Xinyu Zhu, Yangyang Liu, Xuezhen Liu, Wanlu Liu, Baihao Lin, Yuyu Zheng, Kang Liu, Yue Feng, Nada Alhazmi*
3	**PFAS is associated with perineural invasion in triple-negative breast cancer with a potential role for Cathepsin D dysregulation: a multi-omics and experimental study** *Shuran Chen, Rongsheng Su, Zhenglang Yin, Haohao Chen, Yanyan Liu, Angqing Li*
4	**Integrated network toxicology and bioinformatics reveal PFAS-driven prognostic biomarkers and molecular mechanisms in breast cancer: insights from transcriptome analysis and molecular docking** *Yingqiang Fu, Yiyang Liu, Ziqi Sui*

LUNG (3 studies)

5	**Association of blood levels of forever plastics with lung cancer mortality among ever smokers in the Prostate, Lung, Colorectal and Ovarian (PLCO) cohort study** *Ehsan Irajizad, Johannes F Fahrmann, Ranran Wu, Hamid Rudsari, Jennifer B Dennison, Edwin Ostrin, Jaffer Ajani, Samir Hanash*
6	**Integrating machine learning and metabolomics to identify PFAS-associated metabolic alterations related to lung cancer risk** *Jianli Qu, Xinguo Zhang, Qianxun Jin, Yasheng Guo, Haomiao Yu, Guoyin Zhan, Weili Mao, Sicheng Xiang, Meirong Zhao*
7	**Per- and poly-fluoroalkyl substances in lung tissues and their association with lung cancer** *Xi-Ze Min, Li Ma, Fei Chen, Ying-Hua Hu, Chao Jiang, Yi-Fan Li, Yue Han, Zi-Feng Zhang, Kurunthachalam Kannan*

MULTIPLE / GENERAL (3 studies)

8	**Association of Per- and Polyfluoroalkyl Substances with Pan-Cancers Associated with Sex Hormones** *Elizabeth Olarewaju, Emmanuel Obeng-Gyasi*
9	**Exposure to per- and polyfluoroalkyl substances and risk of reproductive system cancers: A systematic review and meta-analysis** *Xin Liu, Zhihong Lv, Zixiang Huang, Rui Sun, Dingyu Zhu, Pengcheng Xu, Yiquan Xiong, Xiaowei Guo, Yaxuan Ren*
10	**Spatial analysis of residential location at birth, PFAS in public water, and childhood cancers in Southern California (2000-2019)** *Natalie R Binczewski, Libby M Morimoto, Joseph L Wiemels, David B Richardson*

THYROID (2 studies)

11	**Serum per- and polyfluoroalkyl substances in relation to circulating thyroxine levels and thyroid cancer risk: results from the Prostate, Lung, Colorectal and Ovarian Cancer Screening Trial cohort** *Eun Mi Jung, Jongeun Rhee, Alexander P Keil, Cari M Kitahara, Steven C Moore*
12	**Environmental exposure to mixtures of per- and polyfluoroalkyl substances in Northeast China: exploring links to nodular goiter and papillary thyroid carcinoma** *Ziqing Sun, Boying Liu, Rui Ding, Xin Wang, Yanyan Chen, Yi Wang*

CHILDHOOD LEUKEMIA (2 studies)

13	**Per- and polyfluoroalkyl substance concentrations during pregnancy and at birth and risk of childhood acute lymphoblastic leukemia** *Libby M Morimoto, Catherine Metayer, Georgia Dolios, Joseph L Wiemels, Xiaomei Ma*
14	**Targeted and non-targeted analyses of per- and polyfluoroalkyl substances in newborn dried blood spots and risk of childhood acute lymphoblastic leukemia** *Veronica M Vieira, Sheng Liu, Libby M Morimoto, Jeremy Koelmel, Natalie R Binczewski, Joseph L Wiemels, Xiaomei Ma*

PANCREATIC (1 study)

15 **Circulating per- and polyfluoroalkyl substances and risk of pancreatic cancer: A nested case-control study within the NYU Women's Health Study**

Fen Wu, Miquel Porta, Emily Spear, Elena Colicino, Srinivasan Narasimhan

TESTICULAR / GERM CELL (1 study)

16 **Exposure to per- and polyfluoroalkyl substances during fetal development and risk of testicular germ cell cancer in adulthood**

Cecilie S Uldbjerg, Youn-Hee Lim, Astrid L Beck, Jorgen H Petersen, Karina M Sorensen

KIDNEY / RENAL CELL (1 study)

17 **PFOA biomonitoring and kidney cancer risk: a meta-analysis of serum levels**
Francesca Spyrakis, Gioele Antonio Tiburtini, Stefania Bruno, Tommaso A Dragani

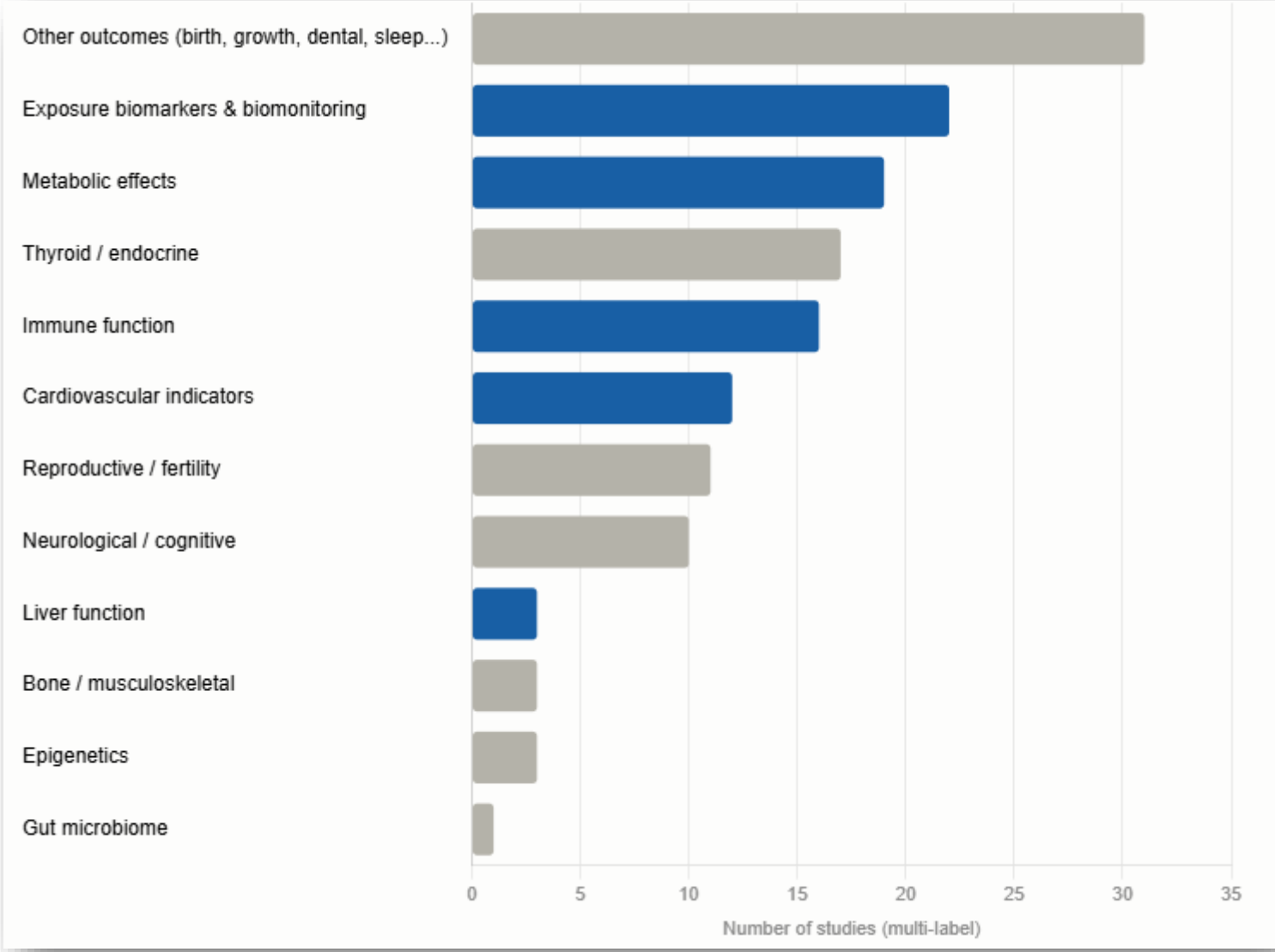
BLADDER (1 study)

18 **Water-Related Exposures and Bladder Cancer Risk: A Comprehensive Epidemiologic Review**
Ali Bourqi, Emmanuel Rusch, Franck Bruyere

OVARIAN (1 study)

19 **Serum concentrations of perfluoroalkyl and polyfluoroalkyl substances and risk of ovarian cancer**
Rena R Jones, Jessica M Madrigal, Danielle N Medgyesi, Jared A Fisher, Antonia M Calafat, Julianne Cook Botelho, Kayoko Kato, Paul S Albert, Debra T Silverman, Jonathan N Hofmann, Britton Trabert

Non-Cancer Outcomes



CONCLUSIONS

- The literature continues to expand rapidly, but it does not show a uniform, strong, across-the-board pattern of PFAS causing specific human diseases.
- The strongest recent activity is in prenatal and early-life epidemiology, not cancer.
- Even within prenatal and child studies, the pattern is mixed rather than consistently adverse.

CONCLUSIONS

- The non-cancer adult literature continues to show the most reproducible signals for intermediate biomarkers, especially lipids, metabolism, liver-related markers, and some immune endpoints.
- Thyroid-related epidemiology remains especially conflicted.
- Methodologically, the field is still constrained by classic observational-epidemiology problems.

CONCLUSIONS

- The past year's epidemiology shows active, expanding literature with recurring associations for certain developmental, metabolic, lipid, endocrine, liver, and immune-related outcomes.
- The overall body remains heterogeneous and endpoint-specific, with many null findings, inconsistent replication, sparse cancer evidence, and continued methodological limitations that generally fall short of demonstrating broad, uniform causal human health effects across endpoints.