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Levels of urinary 7,8-dihydro-8-oxo-2'-deoxyguanosine, associated characteristics and survival among colorectal cancer patients: Results from the ColoCare Study

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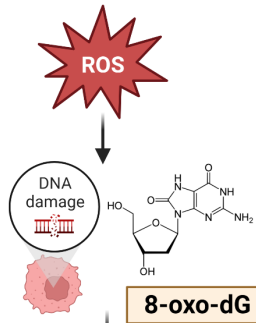
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Introduction

Unhealthy lifestyle



Oxidative stress



Colorectal cancer (CRC)

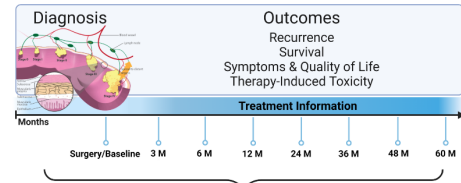


Aim of this study

To assess associations between **8-oxo-dG levels** and **clinical and lifestyle factors**, and **survival** among CRC patients.

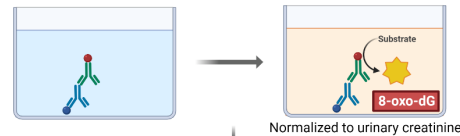
Methods

ColoCare Study



Questionnaires & pre-surgery urine samples of CRC patients (n=190)

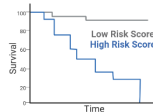
Enzyme-linked immunosorbent assay (ELISA)



Bioinformatic analyses

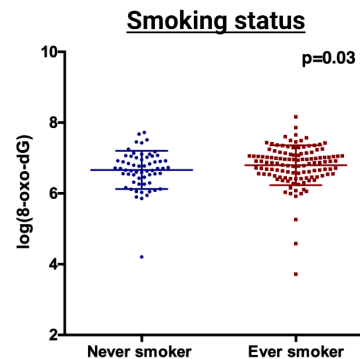
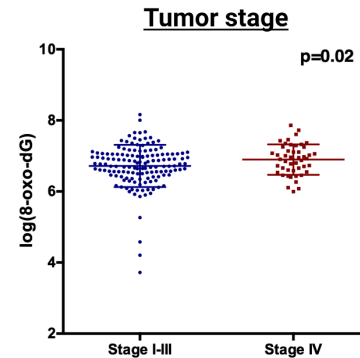
Multivariate models adjusted for potential confounders

Cox proportional hazard models



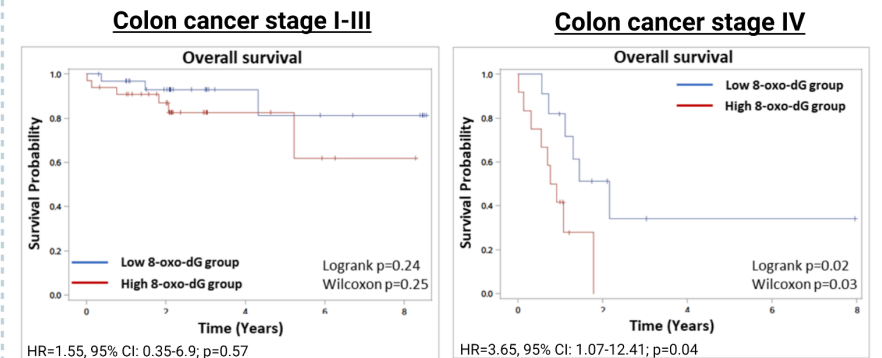
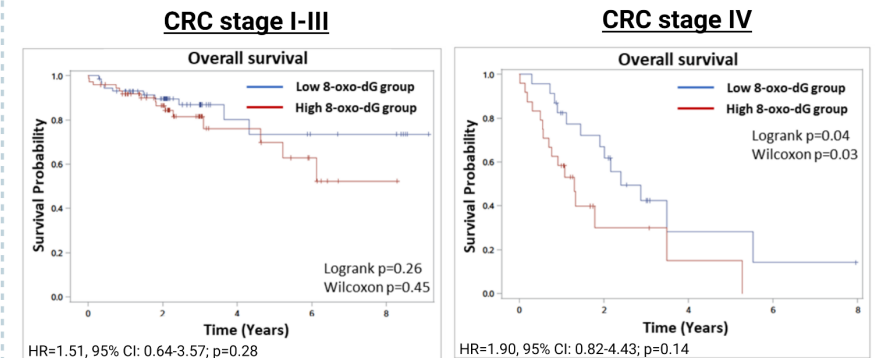
Results and conclusions

Differences in 8-oxo-dG levels



Conclusion
Urinary levels of 8-oxo-dG are associated with advanced tumor stage and smoking in CRC.

Kaplan-Meier survival curves



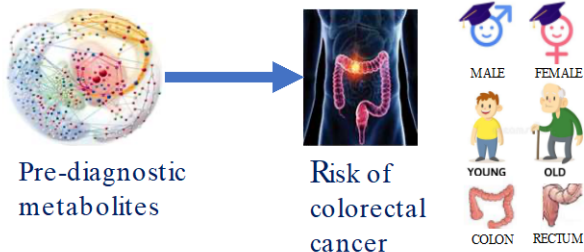
Conclusion
Higher 8-oxo-dG levels are associated with a 3.65-fold increase in risk of overall death among metastasized colon cancer patients.

Jennifer Ose^{1,2}, Cornelia M. Ulrich^{1,2} (on behalf of the WHS-WOMIn study), Mary Playdon^{1,3}, Ken Boucher^{1,2}, A. Heather Eliassen^{4,5} (on behalf of the Nurses' Health Study), Lorelei Mucci (on behalf of the Health Professionals Follow-up Study), Xiao-Ou Shu⁶ (on behalf of the Shanghai Men's Health Study), Wei Zheng⁶ (on behalf of the Shanghai Women's Health Study), Ying Wang⁷, Marji McCullough⁷ (on behalf of the Cancer Prevention Study – II Nutrition Cohort), Jessica Lasky-Su^{4,5} (on behalf of COMETS), Rhea Harewood⁸, Steve C. Moore⁹, Mingyang Song^{10,11,12}, Edward Giovannucci¹⁰, Pekka Keski-Rahkonen⁸, Marc J. Gunter⁸ (on behalf of the European Prospective Investigation into Cancer and Nutrition (EPIC) Cohort).

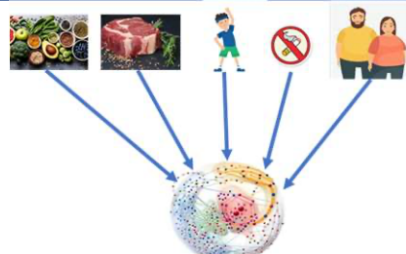
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Introduction

Metabolites and colorectal cancer risk



Diet, metabolites, and colorectal cancer risk



Metabolites can be used as a proxy for risk factors such as dietary intake

Nested Case-Control Studies



Eight prospective cohort studies from around the globe
> 3,200 nested-case control pairs
> 130 overlapping pre-diagnostic metabolites

Discovery phase (n=2,093)

Validation phase (n=1,185)

Individual-level data

Meta-analysis

Individual-level data



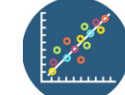
Mediation Analysis



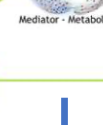
Diet



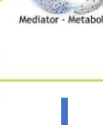
Pre-diagnostic metabolites



Correlations



Exposure - Diet



Outcome - Colorectal cancer

TAILORED DIETARY GUIDELINES FOR CANCER PREVENTION

Physical activity and risks of hospitalization for 25 common conditions

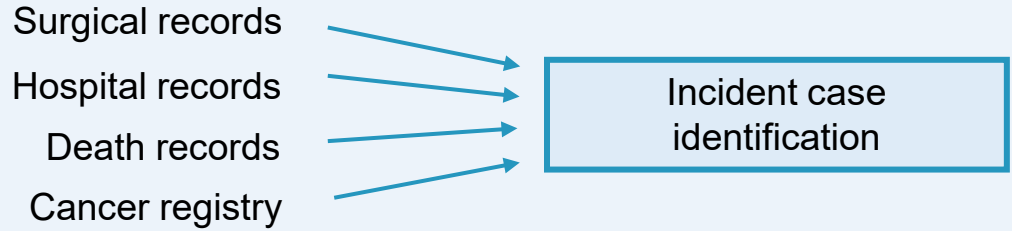
Setting & Participants

Participants

82,000 participants of UK Biobank sub-study who wore an accelerometer for 1 week



Follow-up via national record linkage



Health conditions

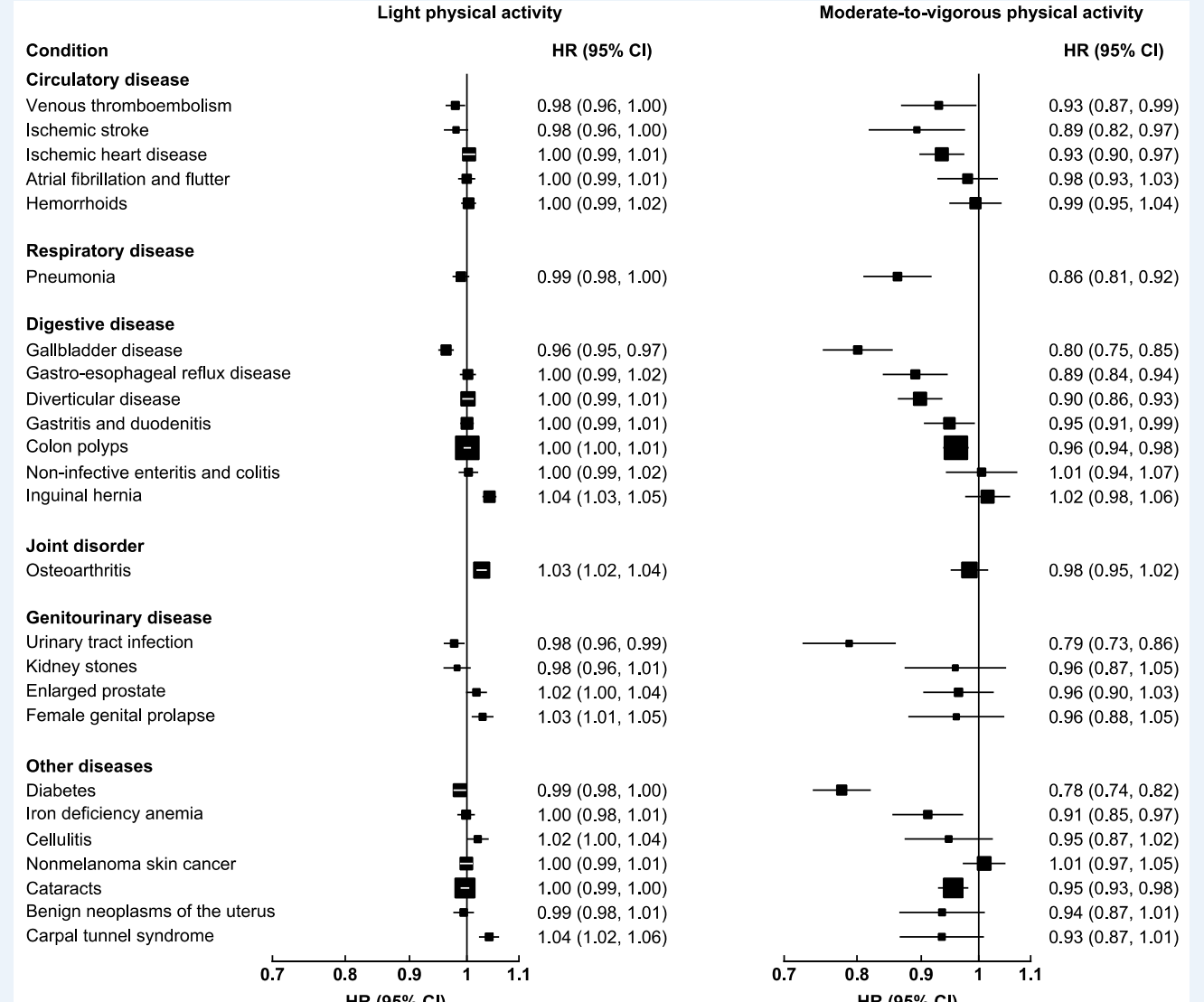
23 most common non-cancerous reasons for hospital admission in UK Biobank + non-melanoma skin cancer and diabetes

Conclusions

Substituting 20-min/day of sedentary time for moderate-to-vigorous intensity activity is a cheap non-pharmaceutical intervention to lower hospital burdens and improve quality of life

Results

Associations for replacing 20-min/day of sedentary time with 20-min/day of light or moderate-to-vigorous intensity activity, using Cox regression



Preventative health behaviors and health system engagement among male cancer survivors and older men during the COVID-19 pandemic

Aim and Methods

Aim: Describe health behaviors overall and among cancer survivors

Population: Health Professionals Follow-up Study COVID-19 Sub-study



4,416 men, aged 74 - 101 years

↳ n = 1,104 (25%) cancer survivors

↳ n = 160 (15%) active treatment

Three web-based questionnaires:



Oct 2020



Jan 2021



Apr 2021

Overall Results*

Vaccinated



96%

Masking



82%

Telehealth use



40% Oct
56% Jan

New telehealth use



29%

Telehealth use

Survivors (44%) vs.

No cancer history (38%)

Among Cancer Survivors*

N95 masking

Actively treated (32%) vs.

Not actively treated (23%)

Recent COVID-19 testing

Actively treated (39%) vs.

Not actively treated (28%)

Cancer screening disruptions

Among this population of older men, <10% reported screening disruptions



*Prevalence among men who responded to each question (i.e., population varies between outcomes)

Conclusion: Older men with active internet usage regularly engaged in COVID-19 preventative health behaviors during the pandemic, including masking and vaccination. Telehealth was an important healthcare modality during the pandemic, particularly among cancer survivors. Few men reported cancer screening disruptions, but the mean age of the population indicates that many surpassed the age criteria of standard screening guidelines.

Graphical abstract by: Colleen B McGrath¹,
Alaina H Shreves^{1,2,3}, Konrad H Stopsack¹,
Lilian Cheung¹, Ann Fisher¹, Jane B Vasselkov¹,
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Socioeconomic status and lung cancer incidence: An analysis of prospective cohorts in Europe, Asia, Australia, and North America

Justina Onwuka



Mattias Johansson



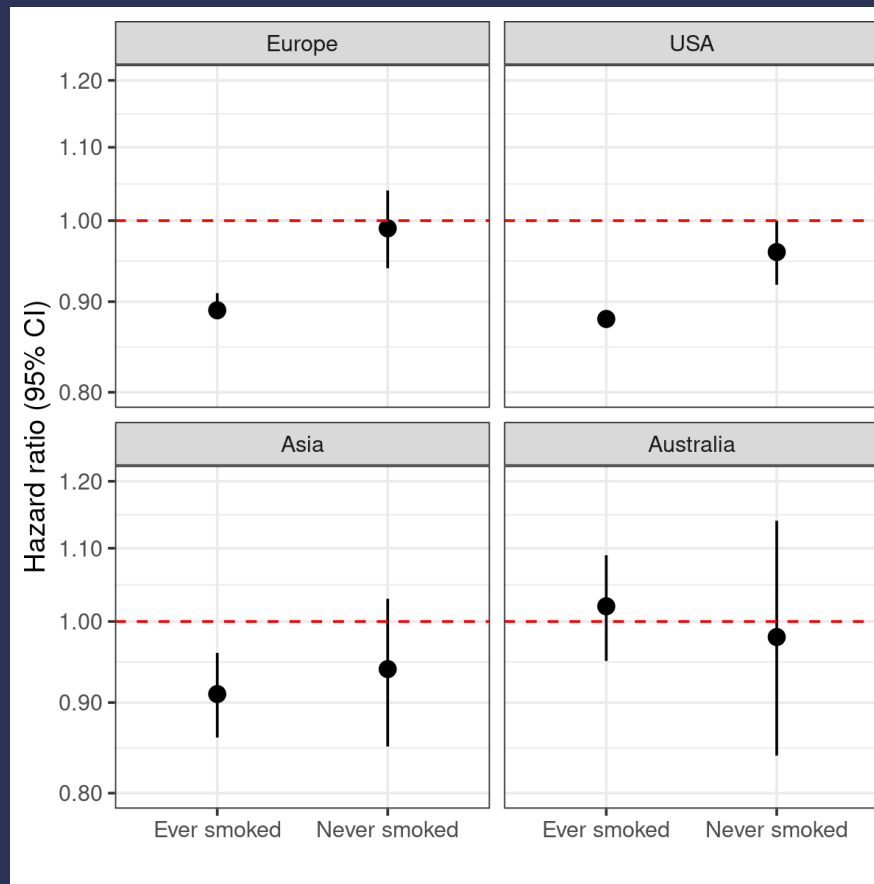
Hilary Robbins



Results

After adjustment, lung cancer incidence decreased with education in **current and former smokers**, but not in **never smokers**.

Results were consistent across most regions.



Lung Cancer Cohort Consortium (LC3)

Europe

ATBC
Generations Study
HUNT
UK Biobank
EPIC

USA

AARP
CLUE
CPS-II
NYUWHS
PLCO
SCCS
VITAL
WHI

Asia

Golestan Cohort Study
SCHS
SCS
SMHS

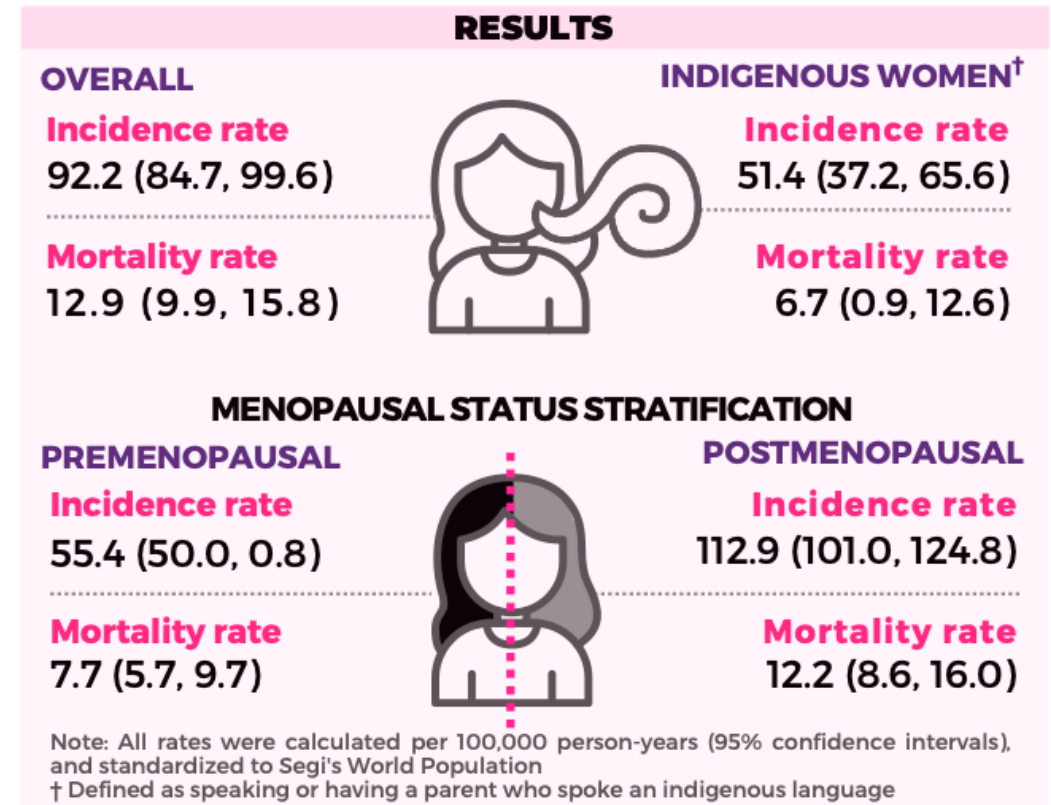
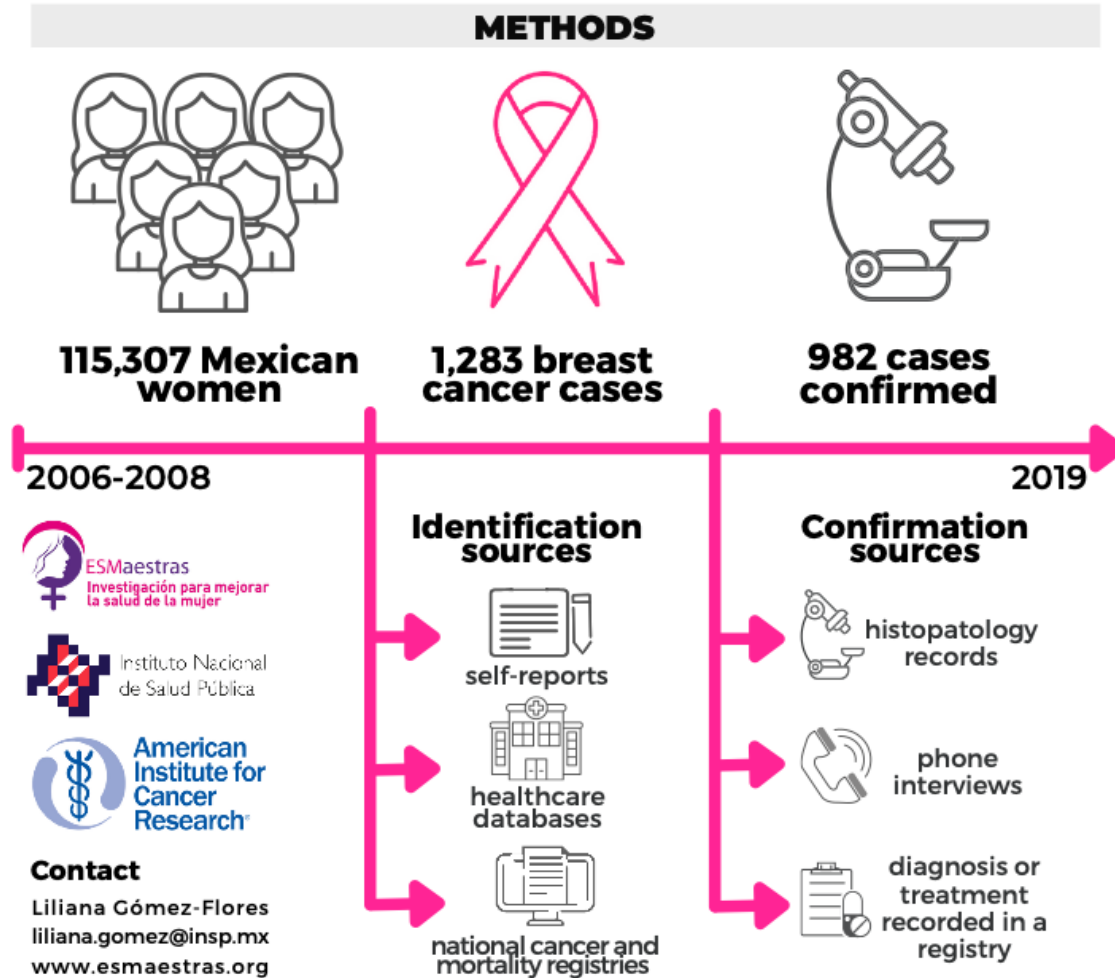
Australia

MCCS

International Agency
for Research on Cancer



Consolidation of Mexican Teachers' Cohort for the study of breast cancer in women of Mexican heritage

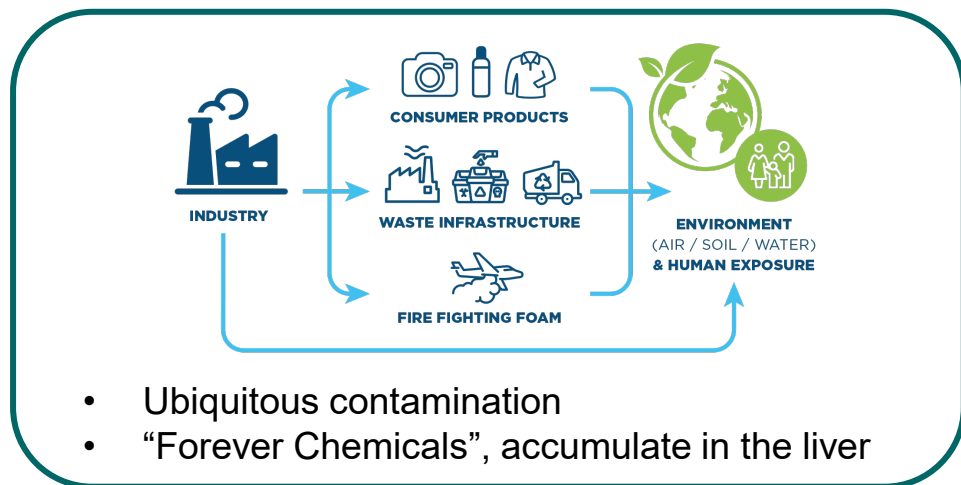


CONCLUSION

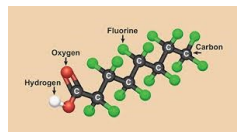
We demonstrated our capacity to identify incident BC cases and have consolidated the Mexican Teachers' Cohort as a unique resource to advance breast cancer research.

Per- and Polyfluoroalkyl Substances (PFAS) and Liver Cancer

Why We Study PFAS and Liver Cancer



- Ubiquitous contamination
- “Forever Chemicals”, accumulate in the liver

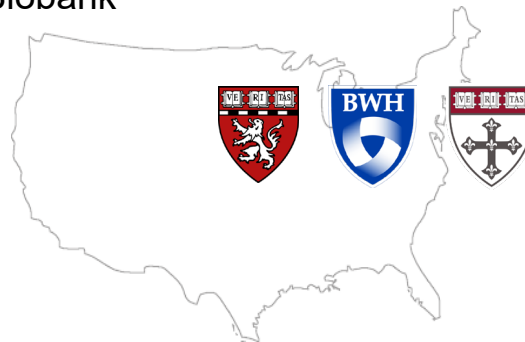


- Hepatotoxicity and altered liver function
- Diabetes and weight gain ↑
- Workers exposed to PFAS ↑ liver cancer mortality

Efforts towards a Cohort Consortium Study

Preliminary Data from:
Women Health Study (WHS)
Physicians' Health Study (PHS)

Ongoing Studies in:
Mass General Brigham (MGB)
Biobank



Liver Cancer Pooling Project

- Pooled nested case-control study
- Racially/ethnically diverse population
- Pre-diagnosis plasma samples and validated covariate data
- HBV/HCV data
- Overarching Goal: Comprehensively assess the relationship between mixture exposure to PFAS and liver cancer risk
- Further estimate the associations between plasma PFAS levels and survival among liver cancer

Respond to Key Knowledge Gaps

- Small sample size and single types of PFAS
- Lack data on confounding factors and HBV/HCV status

Novelty & Impact

- Generate new insights into the etiology of liver cancer
- Inform public policy and environmental regulations