

East Metro PFC Biomonitoring Follow-up Project

Community Meeting
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Environmental Public Health Tracking and Biomonitoring



Minnesota
Environmental
Public Health
Tracking



Meeting agenda

- Welcome and introductions
- Follow-up project background
- Follow-up project results
- Results – what do they mean?
- MDH's next steps
- Questions and answers

Introductions

Environmental Public Health Tracking and Biomonitoring Program Staff

Jessica Nelson, PhD, MPH	Epidemiologist/Program Coordinator
Carin Huset, PhD	Public Health Laboratory Chemist
Mary Winnett, MD, MPH	Physician Consultant
Barbara Scott Murdock, MA, MPH	Program Planner
Blair Sevcik, MPH	Epidemiologist
Jean Johnson, PhD	Epidemiologist/Program Director

Environmental Health Division Staff

James Kelly, MPH	Health Risk Assessment
Ginny Yingling, MS	Hydrogeologist
Julie Kadrie, MPH	Health Risk Communications
Mike Convery, PG	Hydrologist



Follow-up project background

- 2007 Minnesota State law created Environmental Health Tracking and Biomonitoring Program
- MDH directed to conduct pilot project in 2 communities “likely to be exposed” to PFCs
- 2008 East Metro PFC Biomonitoring Pilot Project
 - Oakdale (served by municipal water)
 - Cottage Grove/Lake Elmo (contaminated private wells)
 - All age 20+, lived at residence since before 1/1/05

Why was participation limited to adults?

Ethics: Drawing a blood sample is invasive. Project wouldn't provide a direct health benefit to the child.



Limited resources: Adults with long residential history in the community are likely to have greatest body burden.

Interpretation: No comparison data in children for interpreting the results.

Efforts made to reduce drinking water exposures

- Carbon filtration at City of Oakdale's water treatment plant
- ~290 homes with private wells in affected area connected to city water or provided with carbon filtration devices
- MDH continues testing to be sure water levels below health-based exposure limits

PFCs measured

PFOS (perfluorooctane sulfonate)

PFOA (perfluorooctanoic acid)

PFHxS (perfluorohexane sulfonate)

PFBA (perfluorobutanoic acid)

PFBS (perfluorobutane sulfonate)

PFHxA (perfluorohexanoic acid)

PFPeA (perfluoropentanoic acid)



Reminder: 2008 project results

- 3 PFCs (PFOS, PFOA, PFHxS) detected in 100% of participants
- Other 4 PFCs less commonly detected
- East Metro levels higher than U.S. population levels from 2003-2004
- Science Advisory Panel recommended a follow-up project

Follow-up project goals

1. Measure 2-year change in PFC blood levels in East Metro residents
 - Have efforts to reduce drinking water exposure to PFCs worked?



2. Investigate sources of exposure to PFCs
 - Do diet, use of consumer products, occupation, etc. help explain PFC blood levels?

How the project worked

- Participants from 2008 re-contacted
- Filled out 14-page questionnaire
- Blood samples taken at HealthEast Oakdale
- MDH Public Health Laboratory analyzed samples for same 7 PFCs

Project participants

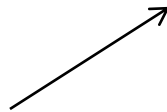
Participants from
2008
n = 196



Agreed to future
contact
n = 186

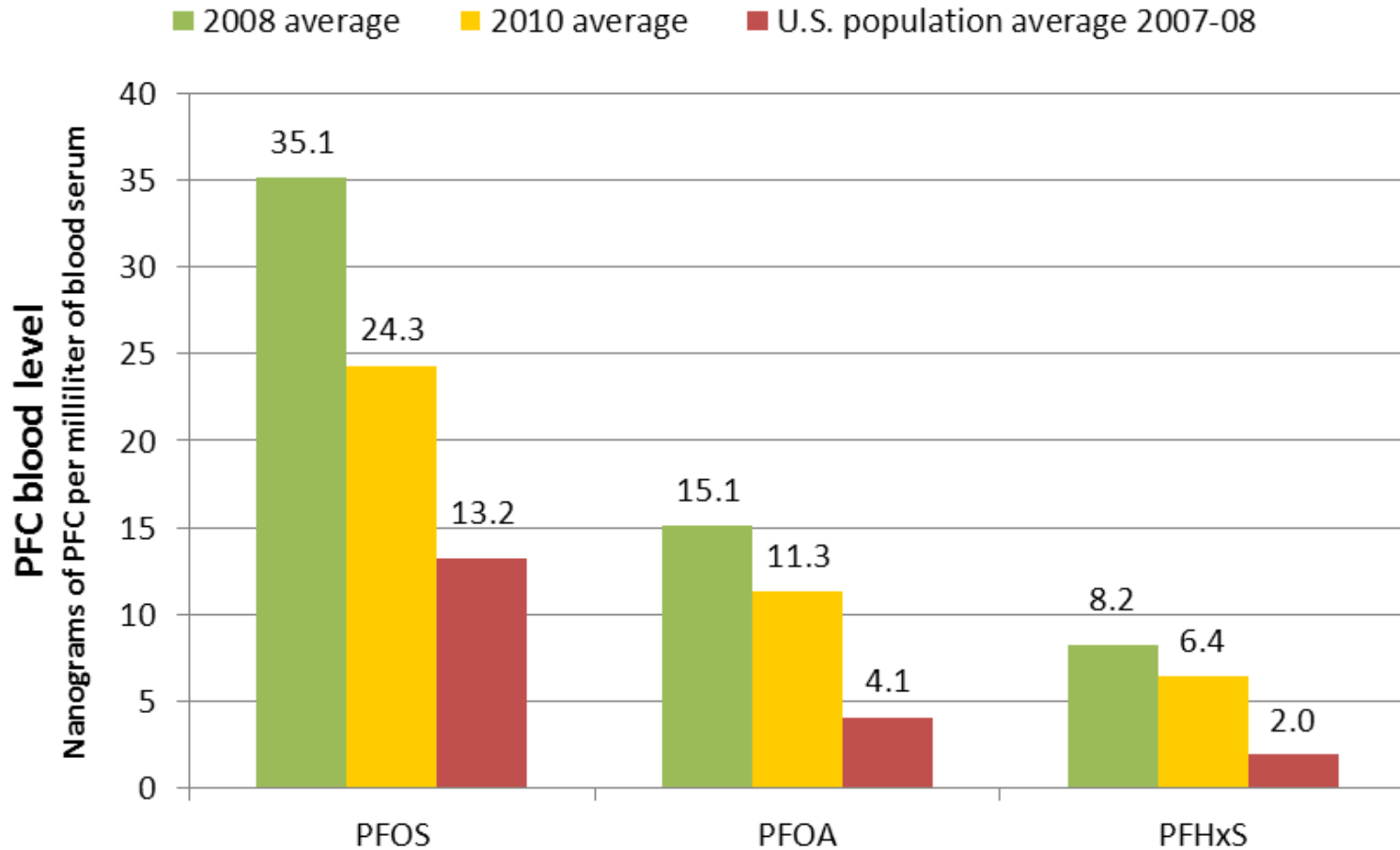


**2010 project
participants
n = 164**



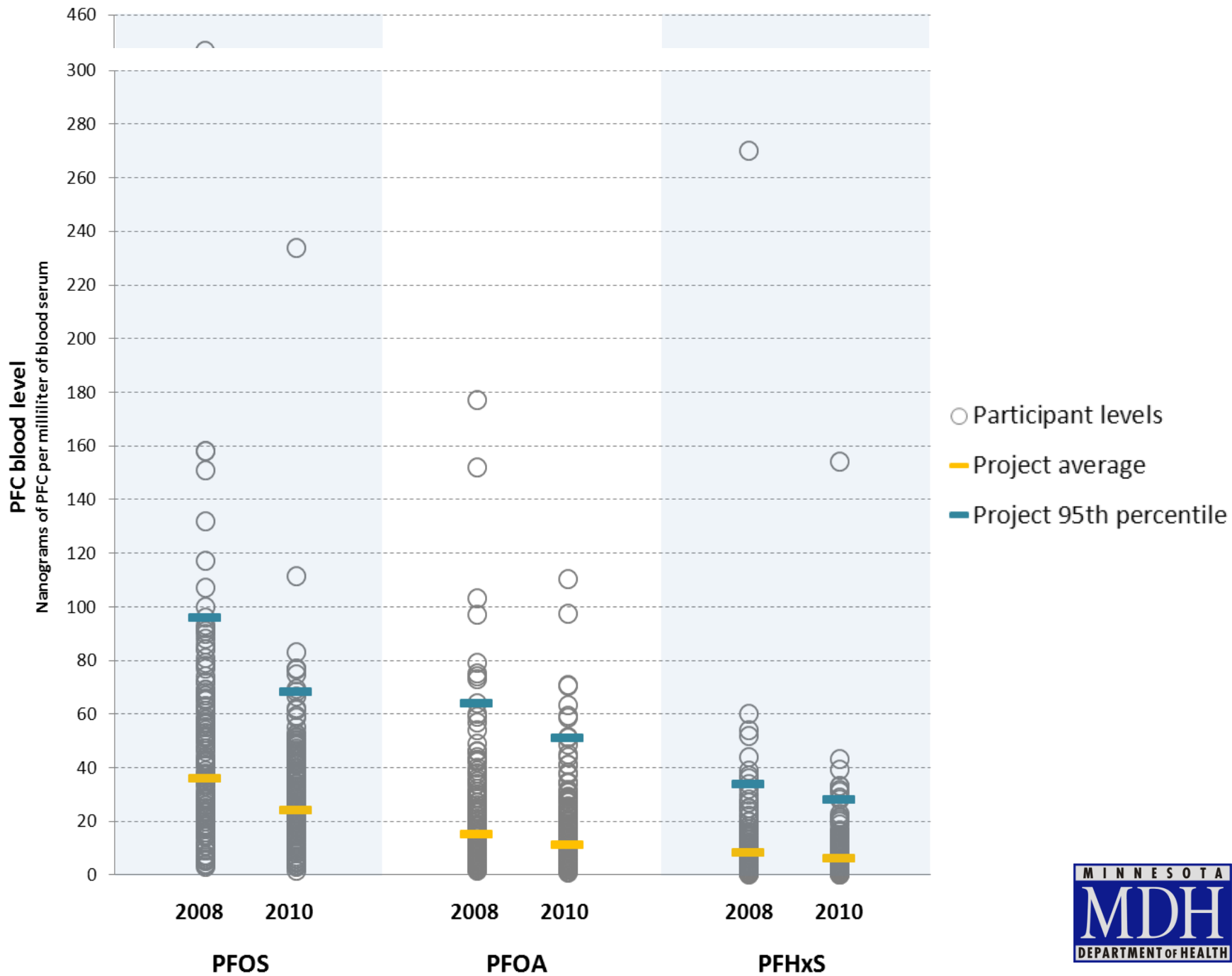
- Average age = 55.8 yrs
- 84 from Oakdale, 80 from Cottage Grove/Lake Elmo
- 45% male, 55% female
- Average residence in 2008 home = 18.9 yrs

Change since 2008

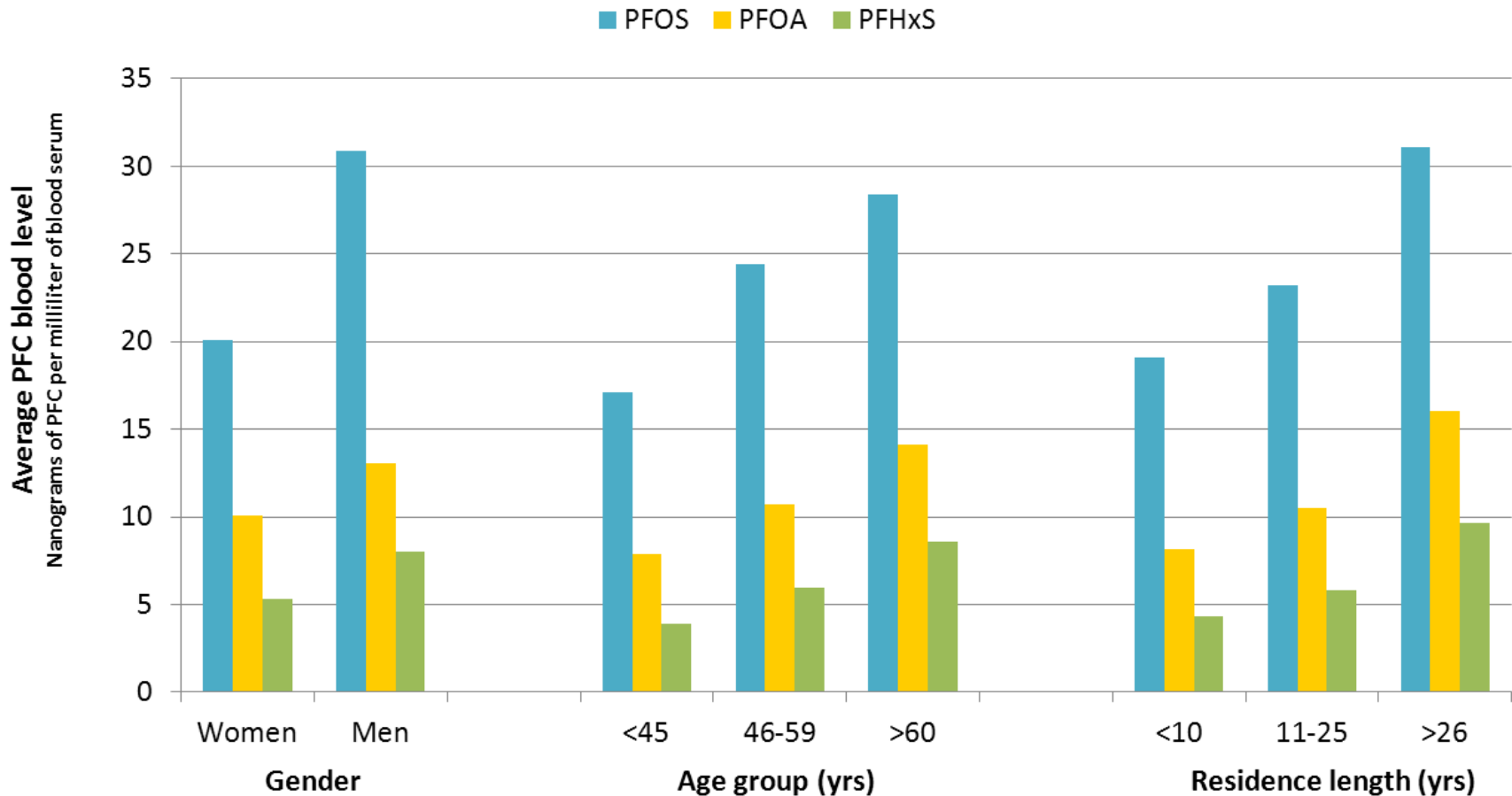


Average declines since 2008

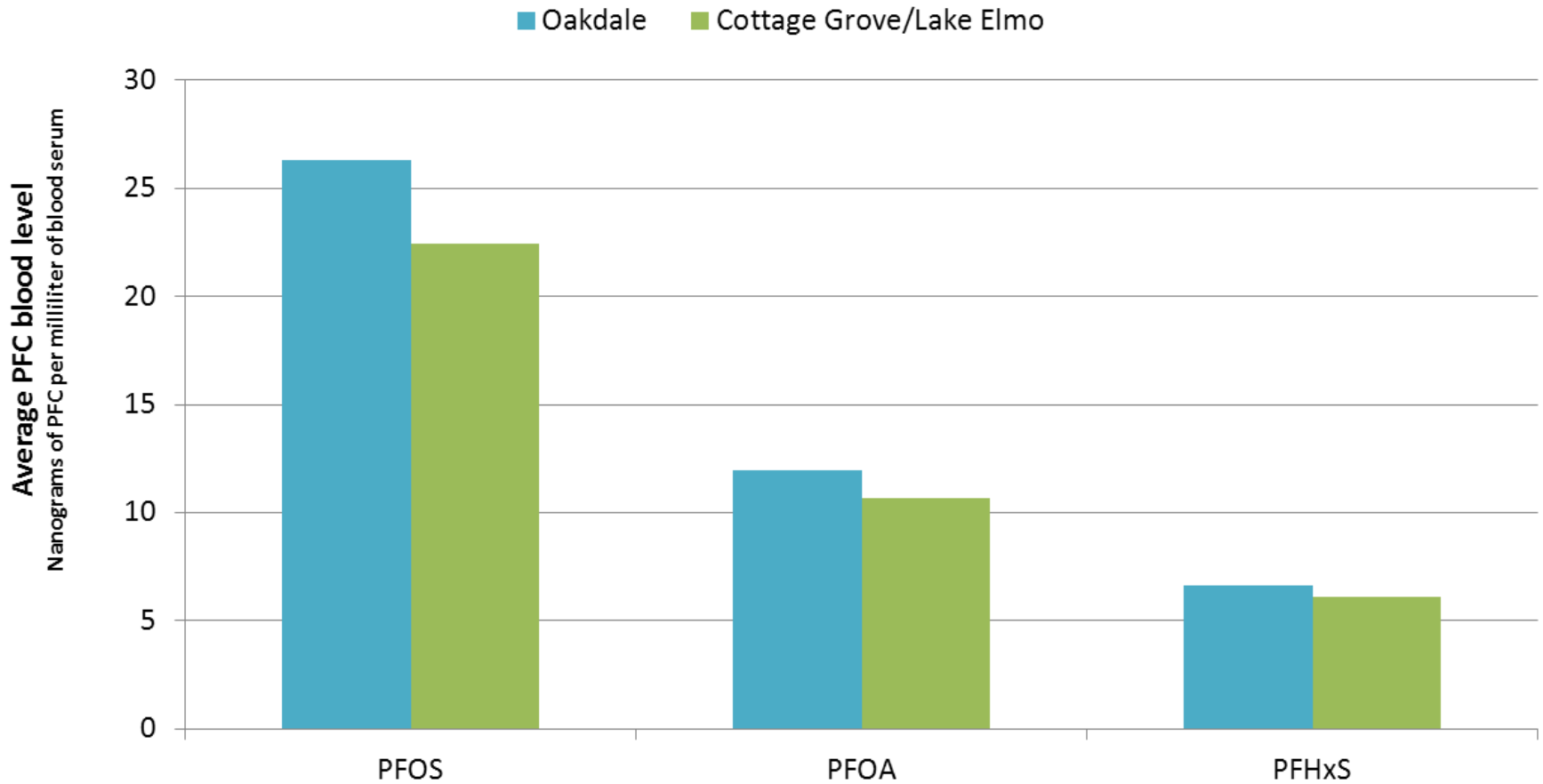
- PFOS ↓ 26%
- PFOA ↓ 21%
- PFHxS ↓ 13%
- PFBA detected in 21% of participants in 2010, 25% in 2008



Differences by gender, age, residence



No differences by 2008 community



What do these results mean?

- Because these declines are similar to other exposed communities, results tell us that efforts made to reduce drinking water exposure to PFCs in the East Metro were effective
- We expect that over time levels will continue to go down to “background” general U.S. population levels

Not all participants' levels went down

Why?

- Variability in lab measurements
- Other exposures to PFCs (diet, products)
- Eating fish from area lakes/Mississippi
- Biological differences
- More for people with lower 2008 levels – drinking water exposure not as important

PFCs and health: an update

- We still don't fully understand human health effects of PFC exposure
- Animal studies find effects on liver and thyroid function, reproduction, and some tumors – but, often higher exposures, difficult to compare
- Published studies so far do not show clear evidence that PFCs increase risk of human disease
- General population studies currently underway – C8 Study results in 2012

Exposure to PFCs: an update

- In communities with groundwater contamination, drinking water a major source
 - Filtration decreases this exposure
- General population exposures less well understood
 - Diet thought to be major source
 - Household dust, especially toddlers
 - Consumer products – carpeting, textiles, etc.



MDH's next steps

- Next phase of analysis: project questionnaires
 - More detailed look at drinking water exposures, residential history
 - Other sources of exposure to PFCs
 - Why didn't some peoples' levels decline?
- Review studies about possible human health effects, communicate information to community

Staying informed

- MDH East Metro PFC Biomonitoring web site:
www.health.state.mn.us/biomonitoring

- Sign up for email updates:

1. www.health.state.mn.us/biomonitoring

 [Subscribe to receive MN EPHT updates.](#)

2. www.health.state.mn.us/divs/eh/hazardous/topics/pfcs/



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Thank you

- **Project participants:** your willingness to participate helped the community as a whole
- Elected officials
- Local public health officials
- Environmental Public Health Tracking and Biomonitoring Science Advisory Panel

Questions?

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