Summary of Results Return Testing in the Firefighter Occupational Exposures (FOX) Project

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Scientific Guidance Panel Meeting
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FOX Results Communication Team

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What is Usability Testing?

- In-depth, interviews with study participants to elicit feedback on the content and design of materials.
- Allows for accurate and quick identification of confusing elements, such as difficult concepts or ambiguous images.

Why Usability Test for FOX?

- Ensure that the results communication materials are clear and meaningful for FOX participants.
- Inform the development of a template that can be used to return results to a broad range of Californians.

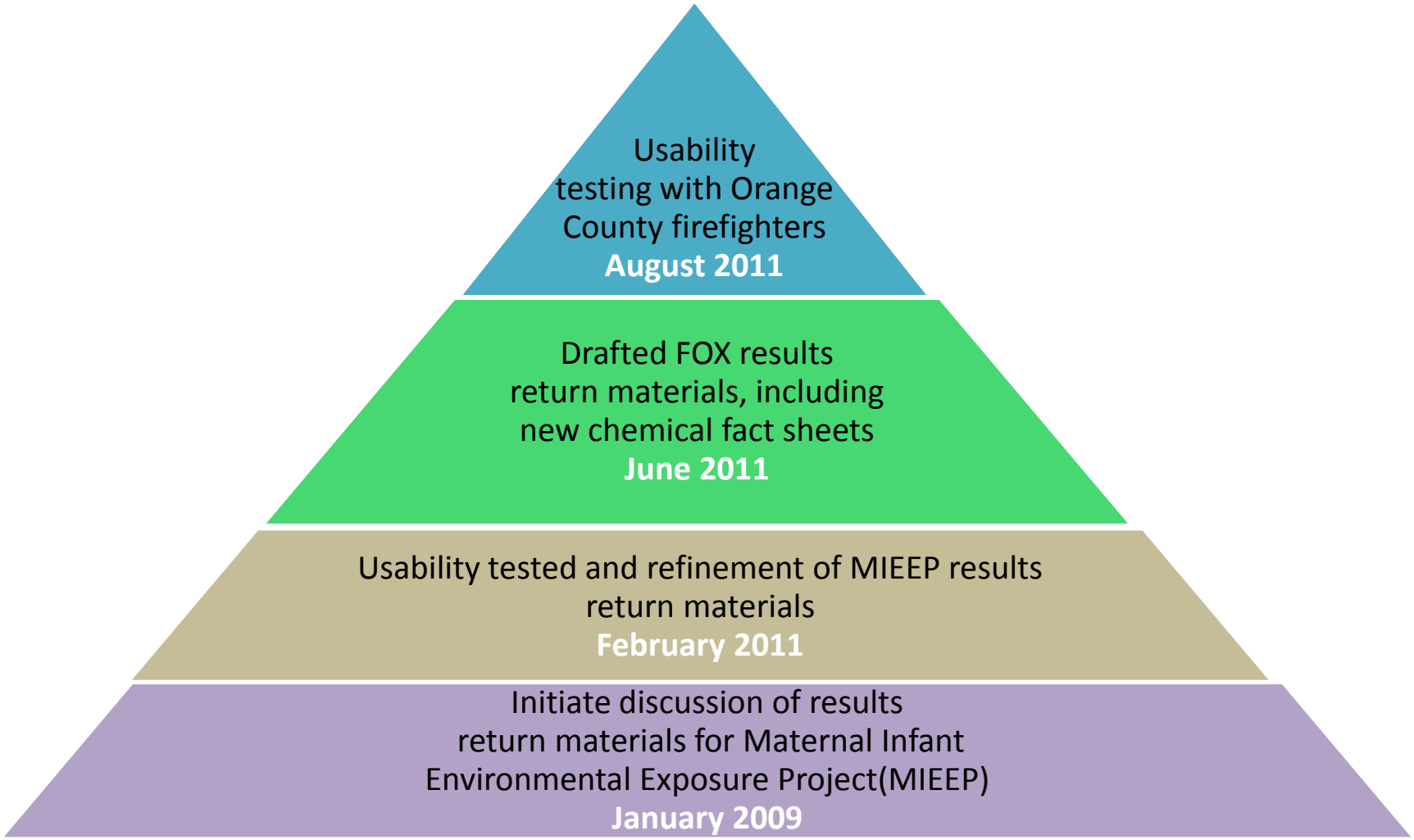
Outcomes of Usability Testing

1. How to make chemical results and background information more clear to firefighters

2. What else firefighters wanted to know

3. Lessons for developing a template for results return

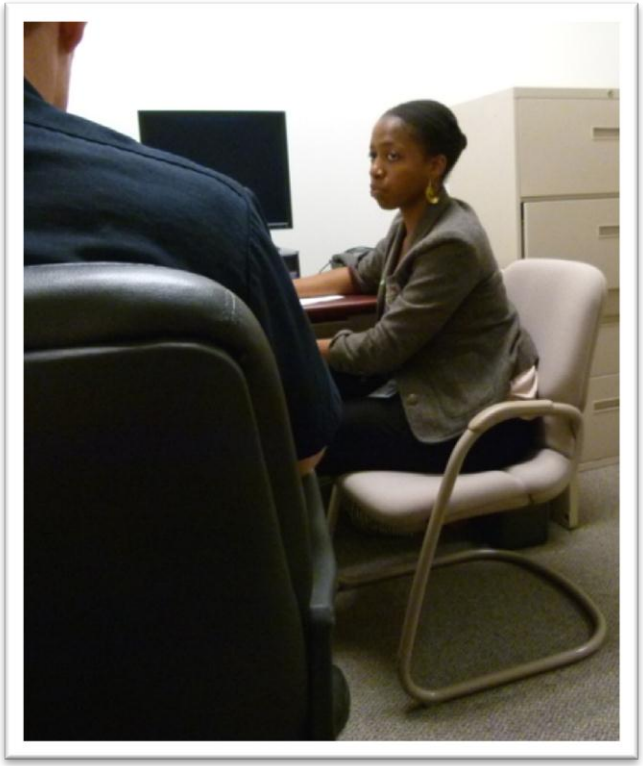
Development of FOX materials for Reporting Chemical Results



Usability Testing (UT)

August 2011

- Recruitment
  - During firefighter wellness/fitness appointments or at a fire station
  - 17 male firefighters participated
- Interviews
  - 1-hour
  - Individuals or small groups
  - 3 rounds of interviews



First Set of Chemical Results

4 Metals in blood

- Cadmium
- Lead
- Manganese
- Mercury

12 Perfluorochemicals (PFCs) in blood

What We Intended to Communicate

Individual chemical test results

Context for understanding results

- Level of concern (if one is available)
- National population levels
- FOX population levels

Chemical background

- Potential exposure sources
- Possible health concerns
- Possible ways to reduce exposure

EARLIER DRAFT

Your **Lead** Lab Results

Part 1: Metals in Blood

We tested your blood for lead. Lead is a metal that is found in nature and is used in many industries and products.

Was there lead in my blood?

Yes. Your lead level was **X** µg/dL.

What can I compare my levels to?

You can use the table above and the graph of your lead results to compare your lead levels to:

- **Other firefighters in this study.** We found lead in all firefighters tested. The levels ranged from **Y** to **Z** µg/dL.
- **National levels**
  - **Median.** Half the adults tested in the U.S. had a level above the median and half below.
  - **95th percentile.** 95% of adults tested in the U.S. had a level below this number.

  The national median and 95th percentile do not tell us anything about what level might be a health concern. They are just another way for you to compare your results with others.
- **Level of concern**. Your lead level was below the level of concern. A lead level of 10 µg/dL or greater may be a concern.

FINAL DRAFT

Your **Lead** Lab Results

Part 1: Metals in Blood

We tested your blood for lead. Lead is a metal that is found in nature and is used in many industries and products.

Your level of lead	Range of levels for firefighters in this study	National levels		Level of concern
		Median	95th percentile	
x micrograms per deciliter(µg/dL)	**y** to **z** µg/dL	**1.3** µg/dL	**3.9** µg/dL	**10** µg/dL and above

Was there lead in my blood?

Yes. Your lead level was **X** µg/dL.

What can I compare my levels to?

You can use the table above and the graph of your lead results to compare your lead levels to:

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  The national median and 95th percentile do not tell us anything about what level might be a health concern. They are just another way for you to compare your results with others.

- **Level of concern**. Your lead level was below the level of concern. A lead level of 10 µg/dL or greater may be a concern.

EARLIER DRAFT

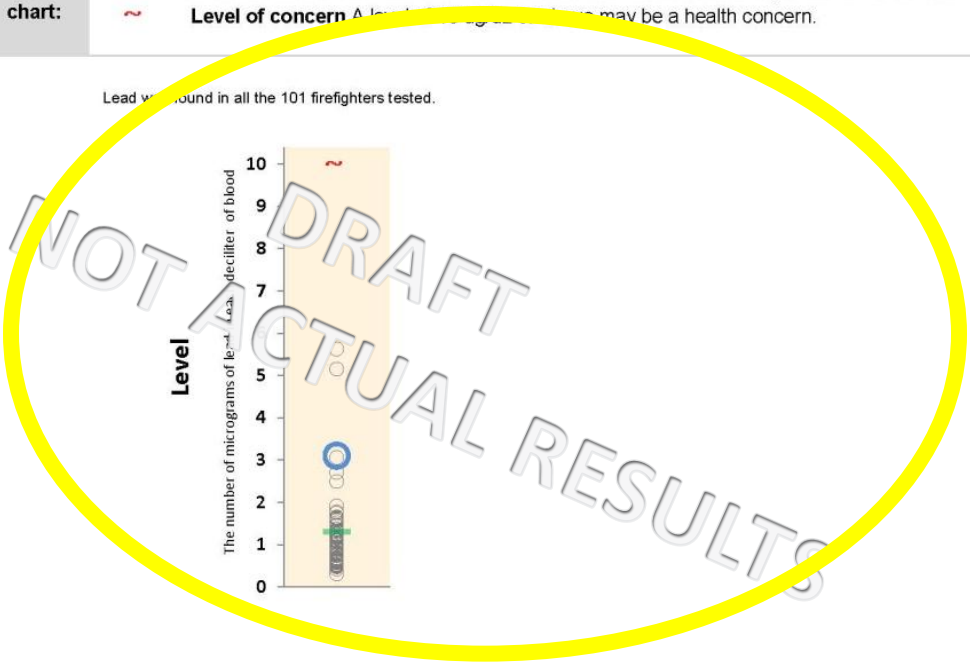
Participant number: 185

Your Lead Results Chart

Part 1: Metals in Blood

How to read this chart:	
	Your Level (There is no blue circle if we did not find this chemical in your blood.)
	Other people's levels Each circle represents a firefighter in this study.
	National median Half the U.S. adults tested had a level above this point and half below.
	Level of concern A level [illegible] may be a health concern.

Lead was found in all the 101 firefighters tested.



	Lead
Your exact level	3.1

EARLIER DRAFT

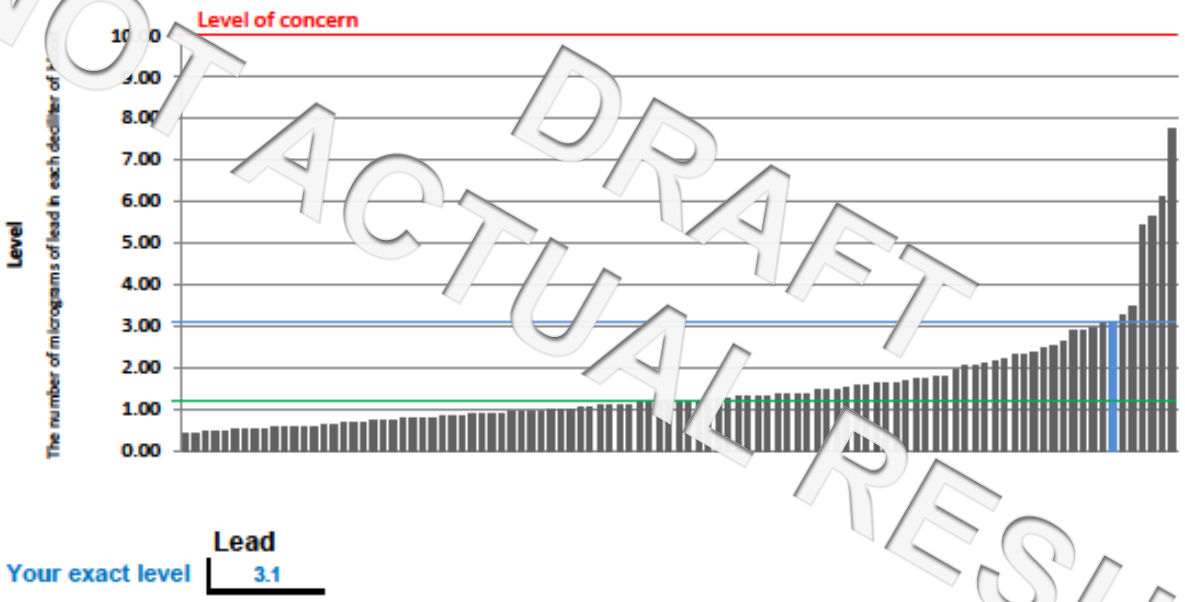
FOX ID number: A02185

Your Lead Results Graph

Part 1: Metals in Blood

How to read this graph:

Your Level (There is no blue bar if we did not find this chemical in your blood.)
Other people's levels Each bar represents a firefigher in this study.
National median Half the U.S. adults tested had a level above this point and half below.
Level of concern A level of 10 ug/dL or above may be a health concern.

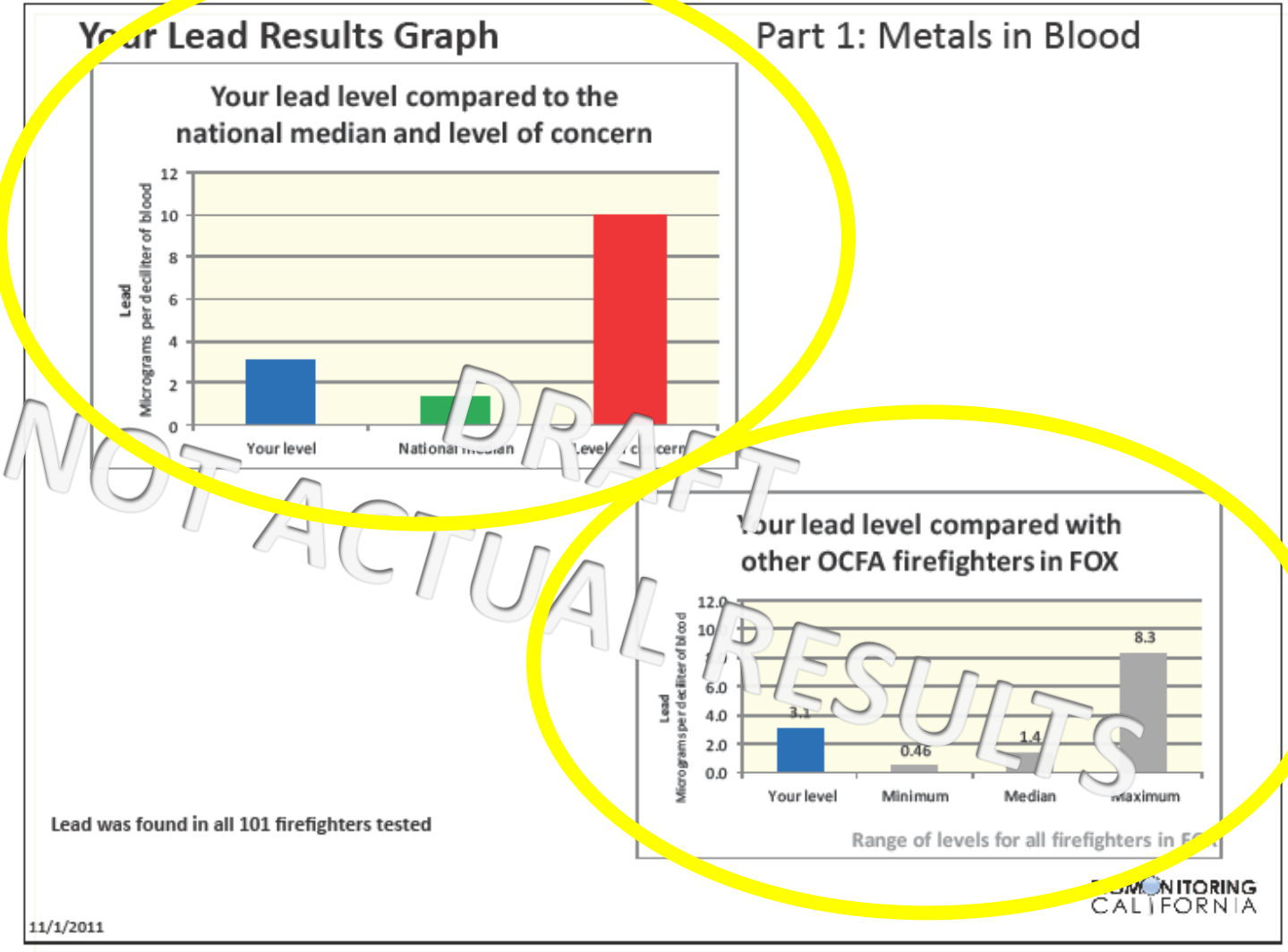


Lead

Your exact level 3.1

Lead was found in all of the 101 firefighters tested.

FINAL DRAFT



FINAL DRAFT

Frequently Asked Questions About **Lead**

Firefighters are most at risk for exposure on the job when lead is present in fumes, dust or vapor.

Where is lead found?	Lead is widespread in the environment and is in many products. The most common sources of lead are: • Chipped or peeling paint and dust in and around houses built before 1978 (when lead was banned in house paint). • Bare soil around houses built before 1978 and near roadways. Worksites or hobby areas. Examples include construction and painting sites, shooting ranges, areas where lead solder is used, battery and scrap metal recycling facilities.
Can lead harm people's health?	• Lead can affect brain development and contribute to learning problems in babies and young children. • Lead can increase blood pressure, decrease kidney and brain function and cause reproductive problems in adults.
What can I do?	• Clean up and keep children away from peeling paint, especially in houses built before 1978. • If you plan to permanently remove or seal lead-based paint, use a certified professional. • Cover bare soil with grass, bark or gravel, especially around houses built before 1978. • If you do any house renovation or work with lead, even as a hobby, use proper protective equipment, such as a respirator and coveralls. Keep work dust contained. Shower after working and wash work clothes separately. • Wash your hands before eating or drinking. • Vacuum, wet mop and use a damp cloth to clean regularly. • Eat a well-balanced diet that includes foods high in iron and calcium.

For More Information:

- Orange County Lead Poisoning Prevention Program at (714) 567-6220
- California's Childhood Lead Poisoning Prevention Program at (510) 620-5600, or go to: http://www.cdph.ca.gov/programs/CLPPB/Pages/default.aspx
- California's Occupational Lead Poisoning Prevention Program at (510) 620-5740, or go to: http://www.cdph.ca.gov/programs/olppp/Pages/default.aspx

Main Changes Made for Clarity

- Added tables
- Developed new results graphics
- Changed fact sheets to Q & A format and expanded resources

What Else Did Firefighters Want to Know?

- Why are we studying firefighters…
  - if health effects of tested chemicals are uncertain
  - if exposure is through everyday products

- Purpose of the study
  - ❖ What will be done with the data?

What Else Did Firefighters Want to Know?

- Do chemical levels differ by factors such as
  - Age
  - Years as a firefighter
  - Job classification

In Response to Firefighters

Developed new fact sheet

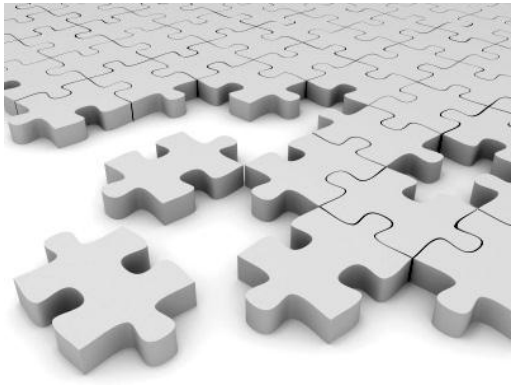
- Why we study firefighters
  - Increased exposure risk
  - Few studies to date
  - California statewide database
- What firefighters can learn
- Ways to reduce chemical exposures on the job

Revised cover letter

- Significance of firefighter contribution

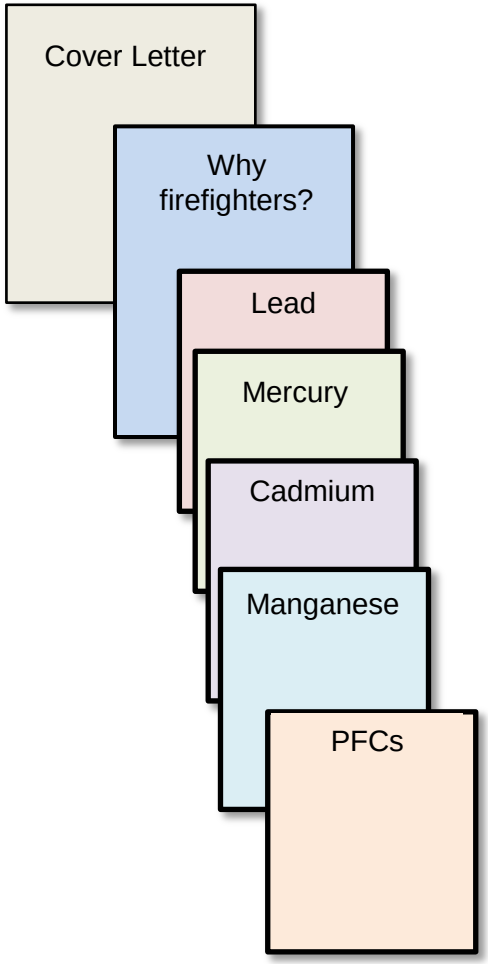
In Response to Firefighters

Evaluating how to make aggregate FOX study findings accessible



Participant Results Package

- Cover letter
- “Why we are studying firefighters”
- Chemical results for each metal and PFCs as a group:
  - Laboratory test results page
  - Frequently-asked questions (FAQs)
  - Graph



Next Steps for FOX

Approval

- Submit results reporting revisions to CDPH and UC Irvine institutional review boards

Report Results

- Merge data with reporting templates
- Review for accuracy
- Mail 1st set of results to firefighters

2nd set results

- Expand templates for next set of chemicals
- Report 2nd set of results to firefighters

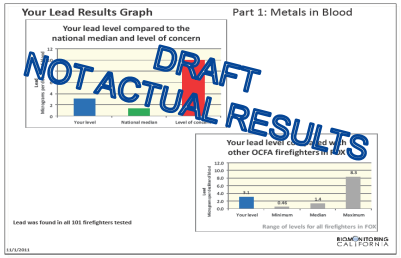
Future Usability Testing

Context for results

Data tables

PFC tested	Your PFC level in µg/L	Range of levels for firefighters in FOX in µg/L	Number of firefighters the PFC was found in	National levels in µg/L	
				Median	90th percentile
PFOA Perfluorooctanoic acid					
PFOS Perfluorooctane sulfonic acid					
PFHxS Perfluorohexane sulfonic acid					
Et-PFOSA-AcOH 2-(N-ethyl-perfluorooctane sulfonamido) acetic acid					
Me-PFOSA-AcOH 2(N-Methyl-perfluorooctane sulfonamido) acetic acid					
PFOSA Perfluorooctane sulfonamide					
PFDeA Perfluorodecanoic acid					
PFBuS Perfluorobutane sulfonic acid					
PFHpA Perfluoroheptanoic acid					
PFNA Perfluorononanoic acid					
PFUA Perfluoroundecanoic acid					
PFDoA Perfluorododecanoic acid					

Graphic displays



Thank You

Questions?