

Firefighter Occupational Exposures (FOX) Project

Leslie M Israel, DO, MPH
UC Irvine, Center for Occupational and
Environmental Health (COEH)
and
Rupali Das, MD, MPH
Biomonitoring California

Scientific Guidance Panel Meeting
November 2, 2010
Sacramento, California

Overview

- Review collaborative efforts of UC Irvine COEH, Orange County Fire Authority and Biomonitoring California
- Update FOX project status
 - Review project timeline
 - Review pilot project steps

“FOX” Project: An Exposure Assessment Pilot




- **Collaborative Efforts**
 - UC Irvine, Center for Occupational and Environmental Health
 - Orange County Fire Authority (OCFA)
 - Biomonitoring California (CECBP)

Collaborative Efforts

- 1979 COEHs established under a mandate from the California legislature
- Creation of UCI COEH championed by Dr. Dwight Culver
 - Dr. Luderer suggested UCI COEH-OCFA collaboration

OCFA: Wellness & Fitness (WEFIT) Evaluation

- WEFIT medical evaluation is component of the WEFIT program
- Implemented in January 2004
- Nonpunitive annual - biennial evaluation
- Evaluation - comprehensive history, physical exam, spirometry, audiometry, vision and laboratory tests, submaximal treadmill testing and fitness testing
- Results – personalized individual reporting with a health risk assessment

	<p style="text-align: center;">Rowing Away The Rainy Day Blues WEFIT Quarterly Newsletter Winter 2010</p>
<p style="text-align: center;"><i>In this Issue</i></p> <p>A message from the WEFIT Coordinator →</p> <p>Is Yoga right for you?.....Pg. 2</p> <p>Interview w/ Teri Merritt.....Pg. 3</p> <p>Upcoming Announcements.....Pg. 4</p> <p>Excess Protein Consumption.....Pg. 4</p> <p>Health Facts.....Pg. 4</p> <p>Weak Muscles can lead to Runners Knee....Pg. 5</p> <p>Quick Healthy Recipes.....Pg. 6</p> <p style="text-align: center;"><i>We're here for you...</i></p> <p style="text-align: center;">WEFIT Orange County Fire Authority 1 Fire Authority Road Irvine, CA 714-573-6836 www.ocfa.org</p>	<p>Spring showers bring May flowers... and sometimes the spring brings sputtering New Year's resolutions. Is your New Year's resolution holding strong and steady? If not, your WEFIT program is offering a few ideas to help you stay on track.</p> <p>It's about time to start gearing up for the annual "April Rowing Challenge", which will start April 1st and run through the month of April. Participants who row at least 30,000 meters will receive a newly designed T-Shirt. Those who go the extra distance and row over 100,000 meters will be entered in a drawing to win a brand new Concept2 Rower, worth more than an overtime shift!</p> <p>Looking for more ways to keep yourself energized? Want a little variety in your workout routine? The next WEFIT quarterly class will be a Yoga session, show up for the 90 minute yoga class and take home your own personal yoga mat. Yoga is a great way to improve flexibility and mobility, all you have to do is show up; I guarantee you'll benefit from the class... OR YOUR MONEY BACK!!! Stay tuned for more details.</p> <p>Did you miss out on the opportunity to come to the last Quarterly Class? Don't fret; keep an eye out, one of the WEFIT program's 35 Peer Fitness Trainers will be bringing the Functional Movement Screen to your station, for your benefit, starting in the month of March. If you're anxious to get started, contact the WEFIT office to schedule an appointment.</p> <p><u>In this issue:</u> An in-depth look at yoga, dispelling the myths... A motivational story from one of our own, Fire Prevention Specialist, Teri Merritt. As always, the WEFIT program is here for you, feel free to call or write with any questions, concerns, ideas, or comments. In the meantime... STAY PUMPED!!!!</p> <div style="text-align: right;">   </div>
<p>Winter 2010</p>	<p style="text-align: center;">1</p> <p style="text-align: right;">WEFIT Newsletter</p>

* Performed at UC Irvine

Project Timeline

May 2010	CDPH/UC Irvine Institutional Review Board (IRB) submissions
	Collect 1 st set of firehouse dust samples
June-July 2010	Field test instruments and procedures
Aug-Sept 2010	IRB Revisions from field testing
Oct 2010	Begin recruitment
Feb 2011	Complete all data/biospecimen collection
Jan/Feb 2011	Begin data entry and analysis
Aug-Dec 2011	Return participant lab results #1
Aug-Dec 2012	Return participant lab results #2
Dec 2012+	Prepare project report

FOX Project Aims

- Assess levels of ~40 chemicals in blood and urine collected from 100 firefighters in Orange County, California
- Measure a subset of these chemicals in dust from 3 Orange County fire stations
- Develop and test protocols/procedures applicable to a larger firefighter study
- Lessons may apply to other occupational studies

Chemicals of Interest

- Flame retardants (eg. Polybrominated diphenyl ethers and others)
- Perfluorinated chemicals (PFCs)
- Metals (Pb, Hg, Cd, Mn, As)
- Organochlorine pesticides
- Pesticides metabolites
 - Organophosphates (TCPy), Pyrethroids (3-PBA)
- Polycyclic aromatic hydrocarbon (PAHs)
- Phthalates

Data Collection

Field Testing

Firehouses

UC Irvine

Results Reporting

Participant Feedback

Completed

Firefighter focus groups & interviews
Evaluate study materials

Completed

Firehouse dust collections (n=3)

In Process

Enrollment

Blood and urine collection

6-9 months
Receive some results by mail (metals, nonpersistent chemicals)

Online survey after receiving second set of test results

Pending

Firehouse exposure source checklist

Exposure assessment questionnaire

Study evaluation questionnaire

18 months
Receive balance of results by mail (persistent chemicals)

Completed

Test biosample collection and handling protocols

Medical record abstraction

Project staff* contact info provided

FOX Project Design

* UC Irvine and CECBP

FOX Recruit/Consent/Enroll

• Inclusion criteria

- Firefighter employed by OCFA ≥ 1 year
- Scheduled for routine WEFIT exam October through January 2011

• Recruitment - flyer

- Electronic reminder
- Fire stations
- OCFA newsletter

• Consent & enroll at WEFIT appointment



The flyer features logos for the University of California Irvine (UCI), the Orange County Fire Authority (OCFA), and the Center for Occupational and Environmental Health (COEH) at UC Irvine. A photograph shows firefighters in silhouette against a bright fire. The text is centered and includes a call to action for firefighters to participate in the FOX Project.

Firefighters!

What kinds of chemicals do you have in your body?
How does your job and work setting affect the levels of these chemicals?

The Firefighter Occupational Exposures (FOX) Project

The FOX Project is a joint effort of the Orange County Fire Authority (OCFA), University of California Irvine (UCI), and Biomonitoring California, a State of California program. The purpose of the FOX Project is to learn more about firefighters' exposure to certain chemicals in their work environment. These chemicals include flame retardants, polycyclic aromatic hydrocarbons (PAHs), metals (such as arsenic, mercury, lead, and cadmium), perfluorinated chemicals (PFCs), and some pesticides.

You can volunteer to participate if you:

- Are an OCFA firefighter
- Are scheduled for your WEFIT exam from mid-October 2010 through January 2011

You are invited to participate in the FOX Project and learn more about chemicals that may affect your health!

As a FOX participant, you'll be asked to:

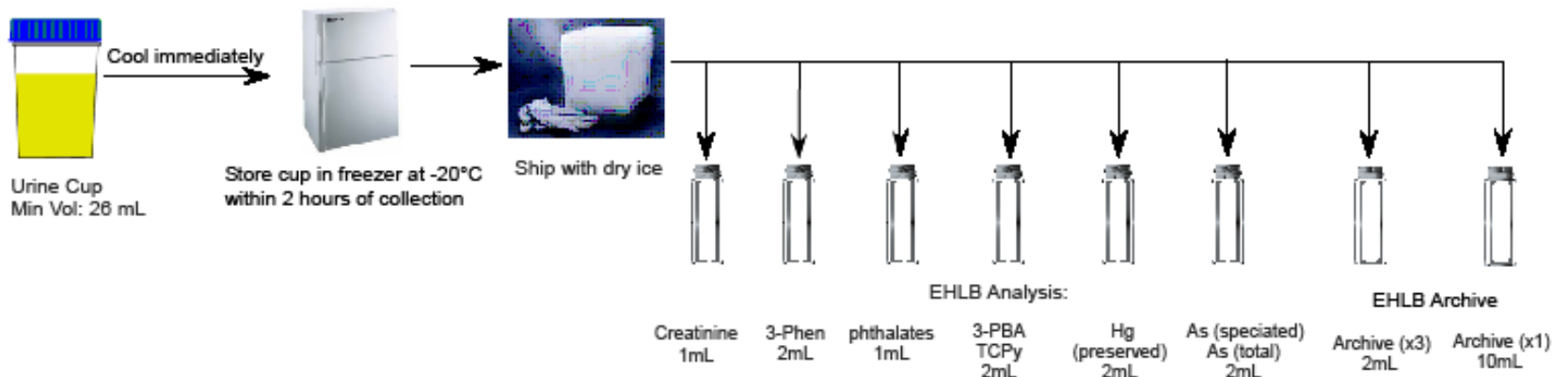
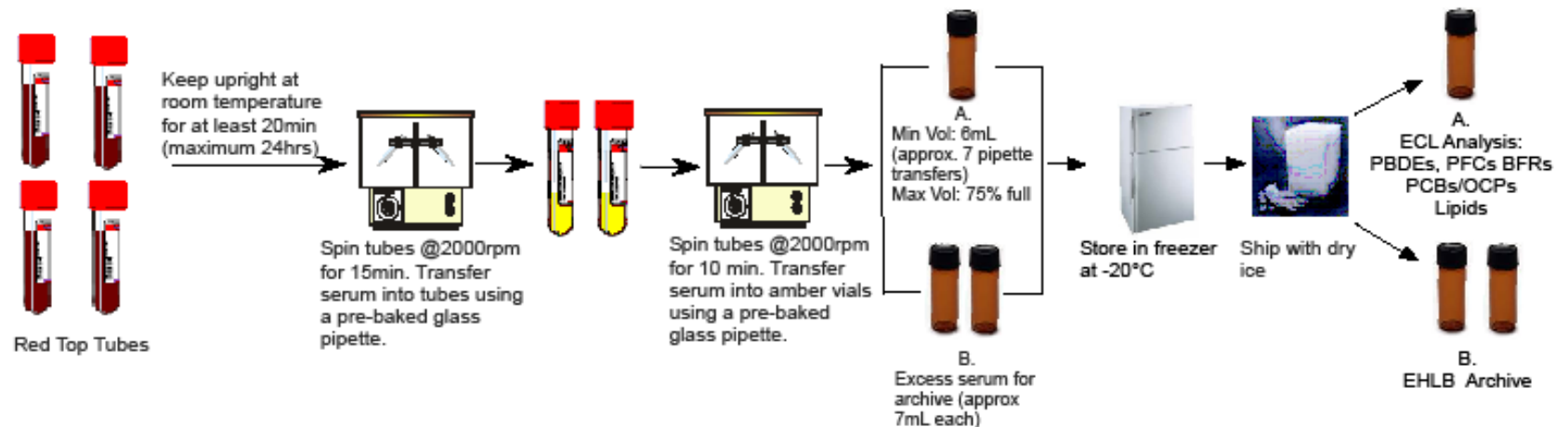
1. Provide an extra urine and blood sample during your WEFIT evaluation.
2. During your WEFIT exam, fill-out a 15-minute questionnaire about your work activities.
3. Complete a 5-minute survey at the end of your WEFIT exam to help us understand your experience as a FOX Project participant.
4. If you decide to receive your personal test results, complete a 5-minute online survey to tell us what you think about your results.

There is no compensation for participating in this project.

The FOX Project will be conducted at the UCI Center for Occupational and Environmental Health during your WEFIT evaluation. For more information, contact Dr. Leslie Israel at 949-824-8685 or Marty Driscoll, OCFA, at (714) 573-6836.

Project Design: Informed Consent

- Participant is given choice to:
 - Participate in the FOX Project
 - Receive individual results
 - In addition to summary findings
 - Donate unused blood and urine samples along with de-identified information for future studies
- Participants receive no monetary compensation



Critical Values/Follow-Up

- **Comparison with reference values**
 - Lead: ≥ 10 $\mu\text{g/dL}$ for adults
 - Mercury: to be determined
 - Other: to be determined
- **Protocol for follow-up**
 - Review by UC Irvine and Biomonitoring California staff
 - Contact participant by phone and mail immediately if needed
 - Contact information provided for Dr. Israel and Dr. Das

Exposure Questionnaire

- **Purpose** – identify occupational factors and work behaviors
 - Incident response frequency
 - Incident activities conducted
 - Personal protective equipment use and maintenance
- **Chemicals targeted:**
 - Flame retardants
 - Perfluorinated chemicals
 - PAHs

Study Evaluation Questionnaire

- Participants respond anonymously
- 5 minute questionnaire
- Opportunity to provide feedback on the recruitment, enrollment, specimen collection and exposure questionnaire components

Medical Record Abstraction

- Information abstracted from the WEFIT questionnaire by UCI includes:
 - Firefighter rank and special assignments
 - Firefighter activities on duty/other employment
 - Dates of current, prior and initial WEFIT evaluations
 - Chronic medical conditions/medications
 - Tobacco use
 - Height, weight and body fat measured by skin calipers

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FOX Project Design

* UC Irvine and CECBP

Project Staff

- UC Irvine Center for Occupational & Environmental Health
 - Leslie Israel, DO, MPH
 - Cristina Fan, OHNP
 - Hannah Nguyen
 - Idalia Reynoso
- Biomonitoring California Staff
- Other CDPH
 - Lori Copan
 - Kate Kelsey
- Orange County Fire Authority/ WEFIT
 - Marty Driscoll
 - Bob James
 - Joe Kerr, Local Union President
 - Fausto Reyes, Risk Manager
 - WEFIT Oversight Committee
- Others
 - Kate Durand, CIH
 - Joe Fedoruk, MD, CIH
 - Elaine Vaughan, PhD

Questions?

