Eating Fish Safely:
How to Avoid Mercury Toxicity in the Human Body

Contact CIEA for Full Training PowerPoint

California Indian Environmental Alliance
Quincy, CA ~ April 2014
Presentation Outline

- Primary Sources
  - Gold Rush - Mercury Transport
  - Mercury in the Food Chain
- Mercury in the Body
  - At risk populations
  - Symptoms
- Fish Consumption Advice
  - Consumer Fish
- EPA, FDA & Dietary Guidelines
- Serving Sizes
- Wild-Caught Fish
- Benefits & Risks – Oken

- Materials
- “Eating Fish Safely” Advice
- Questions?
Course Materials

- **Mercury Health Toolkit**
  - Intake Material Revision - Assist in identifying at risk patients
  - Build confidence in offering patient fish consumption advice
  - Understanding & Interpreting the advisories
  - Provides extensive resources to navigate contradictory information towards that which is most protective of patient health

- “Eating Fish Safely” brochures & FAQs

- **Local Fish Advisories & National Fish Consumption Advice**

  *There is no agency accurately communicating these materials to your patients – you are the key contact point and source for this information.*
Mercury: Toxic Legacy Gold Rush

(Alpers 2006 / Wiener and Schanek 2009 / BLM 2008)
Mercury in the Human Body

- **In pregnant women** MeHg easily crosses into the placenta & binds to red blood cells & other fetal tissues (Clarkson 1997, Davis et al. 1994, Peterson 1999)

- Chemical form matters: Metallic Hg, Organic Hg (MeHg) or vapor

- **In Utero**, by parturition cord blood = 2x that of the mothers. Individual studies show this 1:2 average could be much greater (Bjerregaard & Hansen 2000, Hansen et al 1990, Bahter et al 2000, Weiss 1994)

- MeHg accumulates in brain, kidneys, heart & muscle tissue, it is neurotoxic & cytotoxic (NAS 2000)

- In the central nervous system MeHg can become Hg & in brain tissue Hg half-life measured in years. In blood MeHg half-life 70 days in adults / 90 days in children. (Clarkson 1997, Davis et al. 1994, Peterson 1999)

- Excreted in feces, urine & sweat, not excreted in utero. Affects likely permanent, birth through teen.
“Eating Fish Safely”

- Avoid large predatory fish
- Mercury in muscle of the entire fish
- If pregnant stop eating certain fish follow advice for pregnant women 1 year before pregnancy
- Balance health benefits (omega3-fatty acids) vs. negative effects (hg) consider Oken study
- Check local advisories - if there are none it doesn’t mean the location has been tested & is safe
- Do math based on weekly amounts. EPA RfD is 0.1 µg (microgram) mercury per kg per body weight per day.

CIEA Materials use the more protective EPA standard

“Mercury Health Toolkit” pg. 11-17 & “Eating Fish Safely” brochure
Tools to Do the Math

- **Store bought Fish:** Consult EPA study [www.cfsan.fda.gov](http://www.cfsan.fda.gov)


- **Wallet Cards:** “Eating Fish Safely” CIEA brochure [www.cieaweb.org](http://www.cieaweb.org) and at [www.gotmercury.org](http://www.gotmercury.org) or NRDC [www.nrdc.org/health/effects/mercury/guide.asp](http://www.nrdc.org/health/effects/mercury/guide.asp)

- **Wild-Caught Fish:** Check Local advisories [http://www.oehha.ca.gov/fish/so_cal/index.html](http://www.oehha.ca.gov/fish/so_cal/index.html)
Women who are pregnant or breastfeeding:

- Consume 8 to 12 ounces of seafood per week from a variety of seafood types.
- Due to their high methyl mercury content, limit white (albacore) tuna to 6 ounces per week and do not eat the following four types of fish: tilefish, shark, swordfish, and king mackerel.
- If pregnant, take an iron supplement, as recommended by an obstetrician or other health care provider.

CIEA provides updates regularly as new studies are available.

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Thank you!
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