

Thoughts About Talking About Lead in Drinking Water

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Effective Communication

- I. Source of Information
the technical basis
- II. Message to Be Delivered
simple main points
- III. Type of Delivery Method
e.g. personal, written, Public Service Ad
- IV. Audience
each person is in different mental place to hear the message

Effective Communication

Before crafting the message, understand the audience

Before delivering the message, be trusted by the audience

The credible message and delivery method must penetrate:

Through the fog of information and misinformation

Through distractions of living

Through the preconceived opinions

Communicate repeatedly, redundantly

Barrier to Communication About Lead

Is My Child Safe?

- This is the question people ask and this is the question people want to answer.
- It is the wrong question and is the cause of great frustration in risk communication.

Safe Water is Social Judgment

- “Safe” concentration in drinking water
 - 1) What is toxic effect of what dose to whom?

there is general idea of toxicity but there is uncertainty of toxicity and degree of exposure when applied to personal situations
 - 2) What is the low enough toxic effect to each particular person to be considered “safe”?

“safe” is a social or personal judgment, not a technical judgment

Uncertainty

- It is impractical to measure daily lead dose of individual and its impact
 - Cannot monitor water for daily variations
 - Cannot monitor amount of water consumed at particular concentrations
 - Cannot know degree of toxicity per individual
 - Cannot know the past exposure accurately

“There is no safe level of lead”

Be careful using this statement.

It can be heard as reason either **for fearful paranoia** **OR** **for fatalistic apathy**. Especially by the parent with a child with elevated blood lead.

What a scientist means by this statement is that the science of human toxicity has not yet measured a dose proven to have no toxic effect. Theoretically, for lead, one neuron affected is an adverse effect. The magnitude of the toxic effect of lead decreases with less exposure. Neurological development is impacted by many factors so a direct correlation to dose of lead in a child is difficult to quantitate.

In addition, safety is a personal value choice, not a technical judgment. “Zero adverse effect” is what some people strive for but many others with many stresses in life do not use this absolute criterion as they make daily risk/benefit decisions for what they consider “safe” for their child.

For lead exposure, neither the amount of exposure nor degree of toxicity is intuitively obvious to the parent.

People must rely on expert for technical advice but care must be given to how it is expressed.

“Never can be too safe?”

- Safety is personal decision amid many risk factors in life
- There can be adverse consequences of being too safe for one health risk factor in our life if it increases other health risk factors
- Goal should be prudence for healthy living.

Being Too Safe Today in Flint

- Some fear to use water in house for anything
- Some fear to use tap water for hydration
- Some fear to use tap water for sanitation
- Governments blaming each other therefore lose government as credible authority
- Foster sense that someone else is responsible
- Pressure to add ortho phosphate in all circumstances
- Increase use of tap water filters
- Shift water infrastructure budget to remove lead service lines
- Stigma that Flint children are mentally harmed

The Audience

- The pregnant woman
- The child's caretaker

- Is the audience asking and seeking information?
- Or does audience need to be convinced to pay attention?

Who to Deliver Message

Source must be credible and trusted by the individual

- Trusted advisors to child caretakers
- Neighbors/social community of child caretaker
- Physicians, nurses and healthcare providers
- Government health protection agencies
- Owners of water pipes with lead
- Officials and professionals in water management

Rules of Thumb

As message technique, for communicating ways to reduce lead risk, better to think in terms like **“rules of thumb”** rather than terms like **“safety requirements”**

Rules of Thumb 1 – Exposure

- Lead is possible in some concentration at some times in standing water in all older water pipes
 - Lead in service lines, joints, solder of copper pipes
 - Dissolved from bare pipes in certain conditions when setting unused for hours; particles of lead compound in scale knocked off; galvanic corrosion
 - Public water law has constraints to reduce “corrosivity” by constituents in water but the actual chemistry is complex and is site-specific at each structure.

Rule of Thumb 1 - Exposure

Technical Factors of Drinking Water Lead

1. Even taps showing high lead in first draw from the lead in pipes on the property will have no lead concentration most of day as water is used.
2. Taps with extremely high first draw lead is likely due to a random scale particle. The particle likely would stay in glass but if is consumed, almost all would pass through the gastrointestinal track without significant absorption.
3. Dissolved lead must be ingested to become a dose to the body; all water uses without ingestion are okay even if lead were present.

Rule of Thumb 2 – Relative Exposure

- Inhalation of lead dust from certain situations of old structures and bare soil can be a much more significant source of lead into some young children than drinking water

Rule of Thumb 3 - Consequence

- Lead in body of pregnant woman or child under six can inhibit neurological development to a degree depending on the dose

Rule of Thumb 4 - Prevention of Personal Exposure

Run tap water before drinking

Check for lead paint and intervene to prevent inhalation of lead dust

Cautious about young children playing in bare soil near roads and old structures

Rule of Thumb 5 - Intervention After Exposure

- 97.5% children in US below 5 ug/dL blood lead, therefore “elevated” now means above 5 ug/L
- Blood lead is indicator of recent exposure
- Action:
 - Check to remove on-going lead exposure
 - Assure early literacy programs, preschool, school health services, good nutrition and good primary medical care

Content of Message for an Individual

Toxic effect of lead at low doses is dose-specific, individual-specific. It is a systemic toxicity with special concern for neural development in young children

In an individual case, unlikely ever to know whether or the degree to which neural development was inhibited compared to all other stressors and to absence of positive factors.

If lead exposure is suspected, have blood of young child tested periodically as means of monitoring lead exposure

Delivery of Message

The Young, Poor Pregnant Woman

needs personal outreach for all pregnancy risk factors, including lead exposure

The Educated Pregnant Woman with Means

needs availability of different types of credible information as different women may consider different sources of information credible

Comments? Suggestions?

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Official Communication

Must be written by committee with varying responsibilities so there is a consistent message by the organization.

Tendency to single numbers and absolute statements.

In government, a strong leader at top can influence the tone and content in manner different than many of professionals in the organization are comfortable with.

The audience is everybody at once.

Options for Indiana Lead Communication

- Basic Principles
 - What to say?
 - To whom to say it?
 - Who should say it?
 - How should it be said?