Arsenic (As)

- Naturally occurring metal
- Found in soil, bedrock, groundwater, surface water, air, food
- Odorless and tasteless
- Found in organic and nonorganic forms
- Used in industry, farming, pressure treated wood
Arsenic in Groundwater

- Found worldwide, famously in Bangladesh (62% >10 ppb – Max. = 3,700 ppb)
- Average 1-2 ppb or micrograms per liter
- 10% of wells in New Hampshire greater than federal standard – 10 ppb
- Some levels up to 200 ppb
- CT data not easily available, levels up to 40 ppb in N.E. CT
As Exposures

• Diet is largest source 10-50 µg/day
• Most of that is less toxic organic arsenic (60%)
• Seafood is big source – almost all organic
• Drinking Water up to 5 µg/day average
• Soil and air contribute less
• Children may get more from soil and decks
As Health Effects - #1

- As is a human carcinogen: bladder, lung, skin
- Non-cancer effects – skin, heart, immune, nervous system, GI system
- These effects are chronic, take many years to develop
As Health Effects - #2

- Acute As poisoning not likely to occur at levels found in well water
- Effects depend on dose and duration time
- Human cancer seen at levels over 150 ppb
- May affect brain development in utero exposure and during childhood
Medical Testing for As

- Not generally recommended
- Unreliable and hard to interpret
- Background levels in all of us
- No medical use – will not direct treatment
- Simplest answer is to test drinking water
Testing for As In Water

- Certified labs on DPH Web Site
- Compare to federal standard of 10 ppb
- Once every 5 years
Treatment for As

• Many good options – consult well treatment specialist

• No single device for all wells – depends on water chemistry

• Reverse Osmosis, metal oxide filters, ion exchange systems

• National Sanitation Foundation

• Can treat at point of use – kitchen tap, little absorption in showering and bathing