



Mercury Poisoning Report - 2010

Description

Mercury is a naturally occurring element. Its distribution in the environment is the result of both natural and man-made processes. There are three categories of mercury with unique characteristics and unique potential health effects: elemental mercury, organic mercury compounds, and inorganic mercury compounds. Methyl mercury is the organic form of mercury and most likely to cause adverse health effects in the general population. Common sources of mercury are as follows:

- **Elemental or metallic mercury:** Broken mercury thermometers, blood pressure monitors or fluorescent light bulbs, dental amalgam, neon signs, outdoor lighting, cameras, electrical switches, batteries and some folk medicines
- **Organic mercury compounds:** Certain freshwater and saltwater fish, and marine mammals. Ethyl mercury and methyl mercury are used medically as fungicides, antibacterials and vaccine preservatives like thimerisol or merthiolate.
- **Inorganic mercury compounds:** Sometimes used in skin lightening creams and as antiseptic creams and ointments as well as in folk medicines. Used in preserving solutions for biological specimens. Used as a reagent in analytical chemistry reactions, photography, and metal etching solutions.

The clinical presentation of mercury poisoning varies depending upon the form of mercury (elemental, organic, or inorganic) as well as the route of exposure and the dose if ingested. Any organ system may be affected. For elemental mercury, acute toxicity might result in fever, fatigue, and clinical signs of pneumonitis. For inorganic mercury, symptoms might include profuse vomiting and diarrhea that is often bloody, followed by hypovolemic shock, oliguric (decreased urine production) renal failure, and possibly death. Delayed toxicity symptoms (> 1 month) are typical of organic mercury poisoning and usually involve the central nervous system. These symptoms might include paresthesias, headaches, ataxia, dysarthria (motor speech disorder), visual field constriction, blindness, and hearing impairment.

Disease Abstract

Mercury poisoning is diagnosed by laboratory testing. Elevated levels of mercury are defined as >10 micrograms per liter ($\mu\text{g/L}$) of urine, >10 micrograms per liter ($\mu\text{g/L}$) of whole blood, or >5 micrograms per gram ($\mu\text{g/g}$) of hair. However, urine mercury levels are not useful in evaluating organic mercury poisonings.

Mercury poisoning is reportable in Florida since 1991. For analysis, cases with exposures occurring in 2010 were included. Case classification is based on clinical presentation and laboratory results. A confirmed case is a clinically compatible case that meets the laboratory criteria for diagnosis. A probable case is a clinically compatible case in which a high index of suspicion for exposure to mercury exists: the patient's exposure history

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regarding location and time is consistent with exposure or an epidemiologic link exists between this case and a laboratory-confirmed case.

There were 13 confirmed cases of mercury poisoning investigated reports in Merlin during 2010. There were no probable cases reported. The primary potential source of mercury exposure was identified to be fish consumption. Twelve out of thirteen cases had eaten fish within a month of report, 1 patient reported unknown source of exposure. Three cases reported eating less than 12 ounces of fish in a week; six cases reported eating 12 to 30 ounces and two cases ate 30 to 60 ounces per week. Two cases did not report the amount of fish consumed.

For 2010, a majority of the confirmed cases were reported from Miami-Dade (N=7, 53.8%) and Pinellas (N=2, 15.4%) counties. Other counties who reported one case are Brevard, Broward, Hillsborough and Leon. Cases were predominantly male (9, 69.2%). The majority of mercury poisoning cases were reported among those 35 to 64 years of age (N=11, 84.9%). Cases ranged from 4 to 64 years old, the mean and median case age was 46.3 and 48 years respectively.

About 62% (n=8) of the reported cases of mercury poisoning were among Whites (both Hispanic and non-Hispanic), while 31% (n=4) reported unknown race and ethnicity. Hispanic ethnicity was reported among 15.4% (N=2) of the cases with known race and ethnicity.

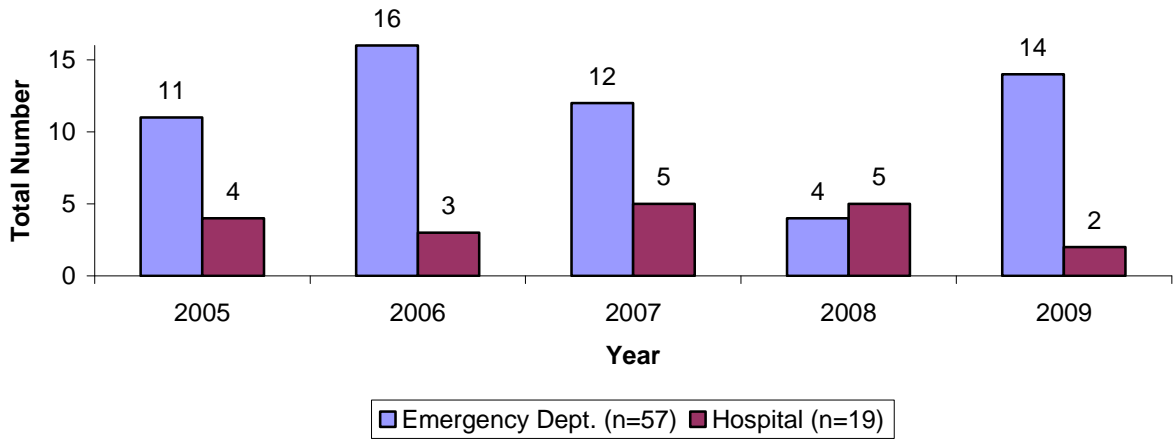
Analysis of ED visits and Hospitalizations: 2005 – 2009

In order to better estimate the burden of mercury related poisonings, hospitalizations, emergency department (ED) visits and mortality data were searched for mercury related poisonings using relevant International Classification of Disease (ICD) codes. Selected codes were 985.0, E866.1 and T56.1*. The data were extracted for one or more ICD codes present in the primary or secondary diagnosis fields from years 2005 through 2009.

There were a total of 76 visits (ED=57 and hospitalizations=19) related to mercury poisoning reported from 2005 through 2009 in Florida. No mercury related deaths were recorded during this time. Reports identified in ED visit and hospitalization data were not matched with cases identified in Merlin data and are not unduplicated.

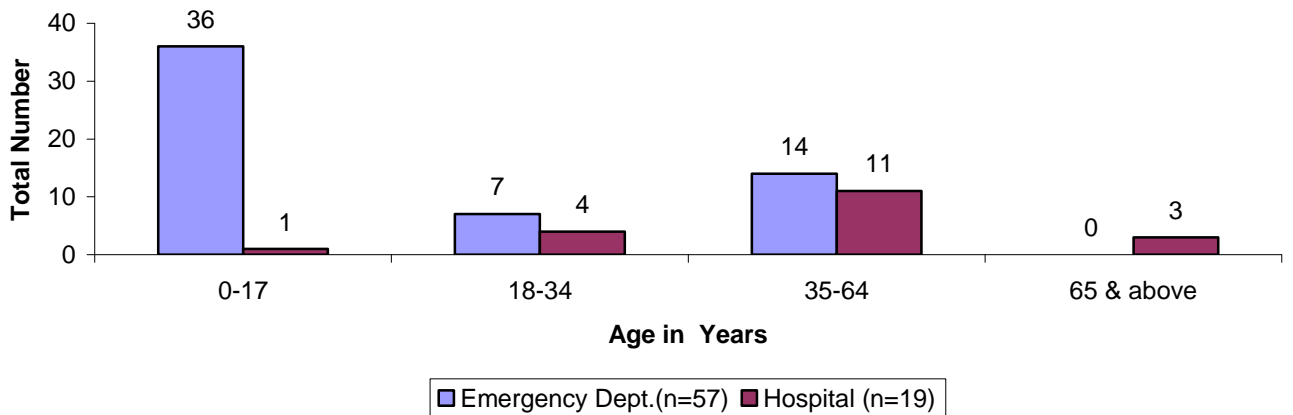
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ED Visits and Hospitalizations for Mercury Poisoning by Year, Florida - 2005 to 2009



ED visits were predominantly among young age groups ages 0-17 (n=36, 63.2%), whereas hospitalizations were predominantly among adult age groups age 35 and above (n=14, 3.7%).

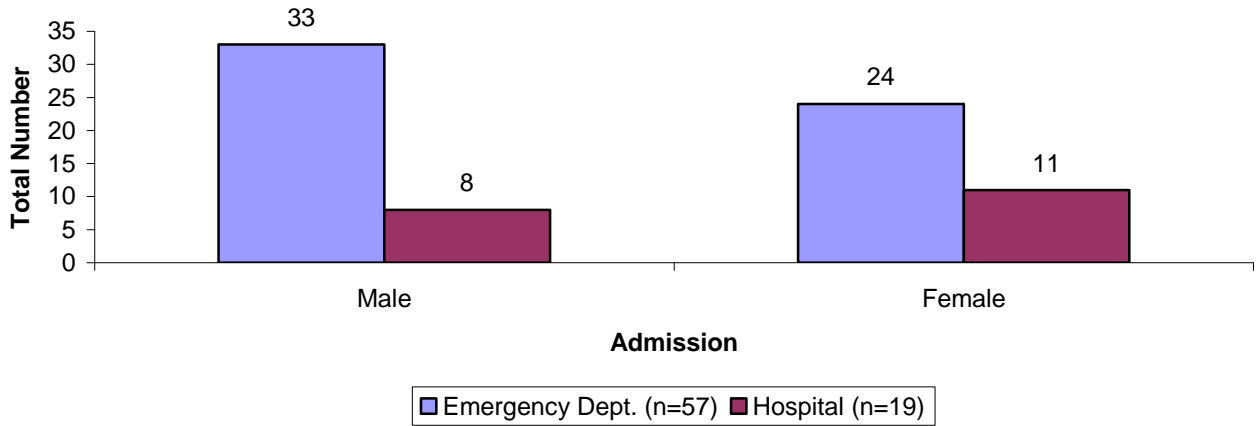
ED Visits and Hospitalizations of Mercury Poisoning by Age, Florida - 2005 to 2009



ED visits were predominantly among males (n=33, 57.9%), whereas hospitalizations were more common among females (n=11, 57.9%).

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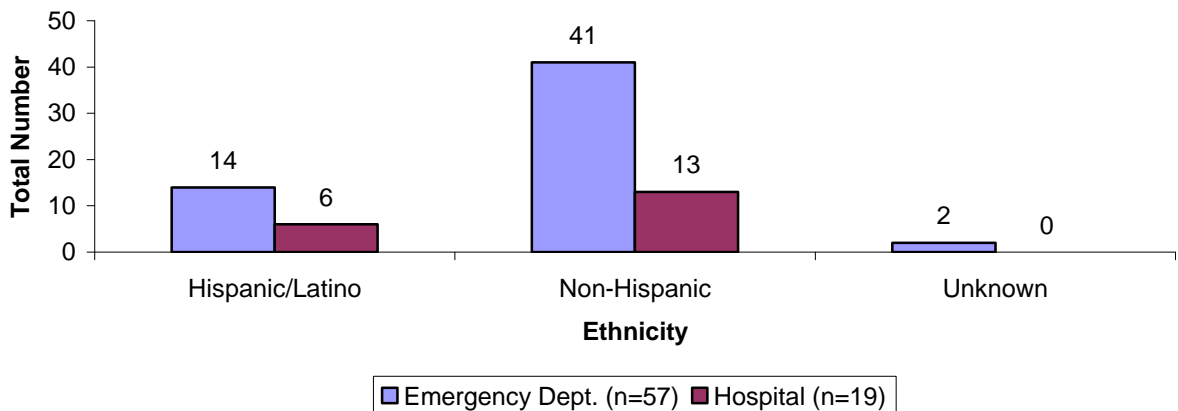
ED Visits and Hospitalizations of Mercury Poisoning by Gender, Florida - 2005 to 2009



Patients were primarily White (ED=49, 86% & hospitalization=17, 89.5%), with only 6 visits among Black/ African Americans. Three patients were recorded as unknown race. Approximately 28% of the visits (ED=14, 24.5% and hospitalizations=6, 31.5%) reported Hispanic ethnicity.

Neither the source of mercury related to the poisoning or the type of mercury (elemental versus organic) is available in the hospital ED or inpatient records but is not presumed to be primarily related to fish consumption. Given the young age of those presenting at the ED, there may be more cases related to exposure to elemental forms of mercury such as broken devices or through other exposure routes such as fungicides or home remedies, although the data is not available to explore these concerns.

ED Visits and Hospitalizations of Mercury Poisoning by Ethnicity, Florida - 2005 to 2009



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Prevention:

The Florida Department of Health, Division of Environmental Health provides health advisories related to fish consumption in Florida. The 'Florida Commercial Fish Wallet Card for Women of Child-Bearing Age' has been developed to educate all consumers about mercury levels found in fish commonly available in Florida (both commercial and recreational fish species) and their safe consumption levels during pregnancy.

The Division of Environmental Health has created a brochure and one page fact sheet about mercury to educate Floridians about risk and prevention of mercury exposure.

Additional Resources:

The Chemical Disease Surveillance Program collects mercury poisoning data as a part of our disease reporting system. For more information about the program please visit http://www.myfloridaeh.com/medicine/Mercury_Poisoning.html

Florida Fish Consumption Advisory - <http://www.doh.state.fl.us/floridafishadvice/>

Don't Mess with Mercury Videos (English and Spanish versions) - <http://www.dontmesswithmercury.org/>

* ICD-9 CM and ICD-10 CM codes for arsenic.

ICD-9 CM

985.0 – Mercury and its compounds

E866.1 – Mercury and its compounds and fumes

ICD-10 CM

T56.1 – **Mercury and its compounds**

ICD-9-CM = International Classification of Diseases, Ninth Revision, Clinical Modification

ICD-10 = International Classification of Diseases, 10th Revision