

Dona Park, Manchester Place, and Academy Heights Blood and Urine Testing

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Background

- **TCEQ Pilot Study**
- **Concerns about soil sample results**



Screening

- **DSHS conducted free blood and urine metals screening**
- **Dona Park, Manchester Place, and Academy Heights**
- **July 7-10, 2011**
- **St. Theresa Catholic Church – Corpus Christi**
- **Testing was offered to both children and adults**

Purpose

Provide residents with information about how the levels of arsenic, cadmium, lead, and mercury in their bodies compare to levels found in the general population.



Screening

417 blood samples

- cadmium
- lead
- mercury

379 urine samples

- arsenic
 - cadmium
 - lead
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Screening

Sample results were compared to:

- **Normal ranges typically seen in clinical settings (clinical reference interval)**
 - **Levels seen in the US population, as reported in NHANES (95th percentile)**
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- A decorative graphic consisting of several sets of concentric circles in a lighter blue shade, scattered across the bottom right portion of the slide.

Arsenic

- **89 (23%) – detectable levels of total arsenic in urine**
- **23 (6%) – total arsenic levels exceeded the clinical reference level**
- **Less than 5 people – detectable levels of inorganic arsenic**
- **No urinary inorganic arsenic results exceeded the clinical reference interval**

Cadmium

- **28 (7%) – detectable levels of cadmium in blood**
- **260 (69%) – detectable levels of cadmium in urine**
- **No blood or urinary cadmium results exceeded the clinical reference intervals**

Lead

- **58 (14%) – detectable levels of lead in blood**
- **102 (27%) – detectable levels of lead in urine**
- **No blood or urinary lead test results exceeded the clinical reference intervals**

Mercury

- **13 (3%) – detectable levels of mercury in blood**
- **Less than 5 people – blood mercury test results at top end of the clinical reference interval**

Limitations

- **These results cannot be used to determine the source of exposure**
 - **This was not a study, the results are representative of those people tested**
 - **Comparisons to the 95th percentile from NHANES could not be done for all age groups**
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Conclusions

- **Detectable levels of metals were found in participants**
- **Most results were within the clinical reference interval**
- **Very little inorganic arsenic found in follow-up testing**
- **Levels of arsenic, cadmium, lead, and mercury were not consistent with unusual exposures**

Recommendations

- **Individuals with health concerns should consult with their physician**
 - **Follow standard precautions for reducing exposure to metals in soil**
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Questions?

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Table 1 – Urinary Total Arsenic

Age Group (years)	Number Tested	Range ($\mu\text{g/g-c}$)	Number of Detects	95 th Percentile ($\mu\text{g/g-c}$)	Number above 95 th Percentile	Number above Clinical Reference Interval
1-5	14	ND-31	<5	Unknown	Unknown	0
6-11	28	ND-74	<5	37.2	<5	<5
12-19	45	ND-454	8	22.5	<5	<5
20+	292	ND-1,579	74	59.4	11	19

Table 2 – Urinary Inorganic Arsenic

Age Group (years)	Number Tested	Range ($\mu\text{g/g-c}$)	Number of Detects	Number above 95 th Percentile
1-5	0	NA	NA	NA
6-11	<5	ND	0	0
12-19	<5	ND-8.4	<5	0
20+	19	ND-14	<5	0

Table 3 – Blood Cadmium

Age Group (years)	Number Tested	Range (µg/L)	Number of Detects	95 th Percentile (µg/L)	Number above 95 th Percentile	Number above Clinical Reference Interval
1-5	20	ND	0	0.24	Unknown	0
6-11	35	ND	0	0.26	Unknown	0
12-19	48	ND	0	0.9	Unknown	0
20+	314	ND-3	28	1.7	11	0

Table 4 – Urinary Cadmium

Age Group (years)	Number Tested	Range ($\mu\text{g/g-c}$)	Number of Detects	95 th Percentile ($\mu\text{g/g-c}$)	Number above 95 th Percentile	Number above Clinical Reference Interval
1-5	14	ND-0.9	8	Unknown	Unknown	0
6-11	28	ND-0.5	12	0.26	Unknown	0
12-19	45	ND-0.5	29	0.18	24	0
20+	292	ND-2	211	1.05	<5	0

Table 5 – Blood Lead

Age Group (years)	Number Tested	Range (µg/dL)	Number of Detects	95 th Percentile (µg/dL)	Number above 95 th Percentile	Number above Clinical Reference Interval
1-5	20	ND-5	<5	4.1	<5	0
6-11	35	ND	0	2.5	0	0
12-19	48	ND	0	1.9	Unknown	0
20+	314	ND-8	55	3.9	21	0

Table 6 – Urinary Lead

Age Group (years)	Number Tested	Range ($\mu\text{g/g-c}$)	Number of Detects	95 th Percentile ($\mu\text{g/g-c}$)	Number above 95 th Percentile	Number above Clinical Reference Interval
1-5	14	ND-3	8	Unknown	Unknown	0
6-11	28	ND-2	10	2.04	0	0
12-19	45	ND-0.8	8	0.9	0	0
20+	292	ND-10	76	1.92	13	0

Table 7 – Blood Mercury

Age Group (years)	Number Tested	Range (µg/L)	Number of Detects	95 th Percentile (µg/L)	Number above 95 th Percentile	Number above Clinical Reference Interval
1-5	20	ND	0	1.32	Unknown	0
6-11	35	ND	0	1.56	Unknown	0
12-19	48	ND	0	2.05	0	0
20+	314	ND-10	13	5.32	<5	<5