## Attachment 4.2

Anniston Community Health Survey: Follow up Study and Dioxin Analyses

**Reportable Clinical Test**

## Table 1. Clinical tests, clinical ranges and guidelines for thyroid hormones, glycemic parameters, lipids and liver tests.

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| ***Test name*** | **Reportable Ranges and Guidelines** | **Critical Values** |
| ***Thyroid Hormones and Antibodies*** | **Clinical Ranges** |  |
| Total Triiodothyronine (TT3) | 80-180 ng/dL 1 |  |
| Total Thyroxin (TT4) | 4.5-12.5 µg/dL 1 |  |
| Thyroid Stimulating Hormone (TSH) | 0.30-3.0 mIU/L 1 |  |
| Free T3 Index | 80-180 1 |  |
| Free T4 | 0.8-2.0 ng/dL 1 |  |
| Free T4 Index | 4.5-12.5 1 |  |
| Thyroxin-Binding Globulin | 14-31 µg/mL 1 |  |
| Anti-Thyroglobulin Antibody | <0.4 U/mL 1 |  |
| Anti-Thyroid Peroxidase Antibody | <1.0 IU/mL 1 |  |
| Thyroid Hormone Binding Ratio | 0.72-1.24 1 |  |
|  |  |  |
| ***Glycemic Parameters*** | **Clinical Guidelines and Ranges** |  |
| Glucose, fasting, 8-hr | Diabetes Risk 2  Hypoglycemic: <70 mg/dL  Normal: 70-99 mg/dL  Increased Risk Diabetes: 100-125 mg/dL  Diabetes: ≥126 mg/dL (confirmation required) | Critical Value: <40 mg/dL3Critical Value: >400 mg/dL3 |
| Insulin | <17 µU/ml 3 |  |
| Glycosylated Hemoglobin(HbA1c) | Diabetes Risk 2  Normal: <5.7%  Increased Risk Diabetes: 5.7-6.4%  Diabetes: ≥6.5% (confirmation required) |  |
| Thyrosine Phosphatase-like Protein Autoantibodies (IA 2) | Negative Antibody: DK<5 3  Positive Antibody: DK≥5 |  |
| Glutamate Decarboxylase -65 (anti-GAD 65) | Negative Antibody: DK≤33 3  Positive Antibody: DK>33 |  |
|  |  |  |
| ***Lipids*** | **Clinical Guidelines and Ranges** |  |
| Total Cholesterol | Coronary Heart Disease Risk (CHD) 4  Desirable: <200 mg/dL  Borderline High: 200-239 mg/dL  High: ≥240 mg/dL |  |
| Triglycerides | CHD Risk 4  Desirable: <150 mg/dL  Borderline High: 150-199 mg/dL  High: 200-499 mg/dL  Very High: ≥500 mg/dL | Critical Value: >1,500 mg/dL3 |
| Low Density Lipoprotein Cholesterol | CHD Risk 4  Desirable: <100 mg/dL  Low Risk: 100-129 mg/dL  Borderline High: 130-159mg/dL  High: 160-189 mg/dL  Very High: ≥190 mg/dL |  |
| High Density Lipoprotein Cholesterol | CHD Risk 4  Desirable: ≥60 mg/dL  Borderline Risk: 40-60 mg/dL  At Risk: <40 mg/dL |  |
| Phospholipids | 150-250 mg/dL 3 |  |
| Free Fatty Acids | 0.01-0.6 mEq/L 3 |  |
|  |  |  |
| ***Liver Tests*** | **Clinical Ranges** |  |
| Alanine Aminotransferase (ALT) | 15-65 U/L 5 |  |
| Aspartate Aminotransferase (AST) | 5-40 U/L 5 |  |
| γ-Glutamyl Transferase (GGT) | Female 5-55 U/L; Male 5-85 U/L 5 |  |
| Alkaline Phosphatase (ALP) | Female: 50-136 U/L; Male: 40-136 U/L 5 |  |
| Albumin | 3.4-5.0 g/dL 5 | Critical Value: <1.5 g/dL 5  Critical Value: >7.9 g/dL 5 |
| Direct Bilirubin | 0.0-0.3 mg/dL 5 | NA |
| Total Bilirubin | 0.0 – 1.0 mg/dL 5 | Critical Value: >12.9 mg/dL 5 |

## Table 2. Tests, guidelines and reference ranges for heavy metals and trace metals.

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| --- | --- | --- |
| ***Test name*** |  |  |
| ***Heavy Metals*** | **Agency Guidelines, Standards, and**  **NHANES Reference Ranges** | **Critical and Action Levels** |
| Lead (Pb) | 1.34-3.90 µg/L 6  Desirable: <5.0 µg/dL7  Elevated (Current or Potentially Pregnant or Lactating Women): 5.0-9.9 µg/dL7  Elevated (All Adults): ≥10.0 µg/dL 9,10,11 | *Action Level for women who are or might become pregnant or lactating:* 5.0-9.9 µg/dL(CDC advisory level exceeded; discuss health risks; seek medical advice; reduce exposure; breastfeed with infant BLL monitoring)7,8  *Action Level All Adults:* 10.0-39.9 µg/dL (CDC advisory threshold exceeded; seek medical evaluation; removal from exposure for women who are or might become pregnant or lactating; reduce exposure all others; breastfeed with infant BLL monitoring) 7,8,9,10,11  *Action Level All Adults:* ≥40.0 µg/dL (OSHA threshold exceeded; prompt medical evaluation; reduce exposure; pump breastmilk and discard until BLL <40 µg/dL) 7,8,12  *Action Level All Adults:* ≥50.0 µg/dL (OSHA threshold exceeded; prompt medical evaluation; removal from exposure; ; pump breastmilk and discard until BLL <40 µg/dL) 7,8,12  *Action Level All Adults:* ≥80.0 µg/dL (OSHA threshold exceeded; immediate medical evaluation; removal from exposure; pump breastmilk and discard until BLL <40 µg/dL) 7,8,11,12 |
| Mercury (Hg) | 0.89-5.32 µg/L6  Desirable: <5.8 µg/L13  \*Elevated (Current or Potentially Pregnant, Lactating Women): 5.8-10.0 µg/L 13  \*Elevated (All Adults): >10.0 µg/L 14,15 (b.) | *Action Level for women who are or might become pregnant or lactating:* 5.8-10.0 µg/dL13  *Action Level All Adults:* >10.0 µg/L14,15,16, 17  *Action Level All Adults*: ≥50 µg/L (immediate medical evaluation)18 |
| Cadmium (Cd) | 0.33-1.70 µg/L6  [Nonsmokers: 0.3-1.2 µg/L 18]  [Smokers: 0.6-3.9 µg/L 18]  Desirable: ≤5 µg/L 19,20, 21  Elevated: >5 µg/L 19,20, 21 (c.) | *Action Level All Adults*: >5 µg/L (OSHA threshold exceeded; medical monitoring among workers; discretionary medical removal) 19,20, 21  *Action Level All Adults*: >15 µg/L: (OSHA threshold exceeded; medical removal from exposure) 19, 20, 21  *Toxic Range:* 100-3,000 µg/L 22 |
|  |  |  |
| ***Trace Metals*** |  |  |
| Manganese | 4.7-18.3 µg/L 24 (d.) | Critical Value: >37 µg/L 24 |
| Selenium | 97.3-176.9 μg/L 25 (e.) | Critical Value: <50 μg/L 25  Critical Value: >300 μg/L 25 |
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