

# Georgia House Study Committee Lead-Based Poisoning

October 21<sup>st</sup>, 2021

The Connected Multi-Cloud Data Platform for Enterprise Analytics

The Teradata logo, consisting of the word "teradata." in a white, lowercase, sans-serif font. A thin white arc curves across the top right of the slide, and a thin orange horizontal line with a dot at its end extends from the left side towards the logo.

# Perfect Illustration of the Power of GDAC

Bringing together disparate data from siloed systems for the greater good of Georgia Citizens

## Critical Use Case Identification



## Lead Poisoning

# Lead Poisoning in Humans:

Lead-Based Poisoning

Lead-Based Paint Chip Consumption (Children)

Lead-Based Paint Dust in Older Buildings (All Residents)

Lead-Based Water Contamination

Lead Ingestion through tap water (older buildings pipes)

## Symptoms:

Initially, lead poisoning can be hard to detect — even people who seem healthy can have high blood levels of lead. Signs and symptoms usually don't appear until dangerous amounts have accumulated.



# Before providing a solution, you need to know what you are looking for to solve ~



## Lead poisoning symptoms in children

Signs and symptoms of lead poisoning in children include:

- Developmental delay
- Learning difficulties
- Irritability/Mood Disorders
- Loss of appetite
- Weight loss
- Sluggishness and fatigue
- Abdominal pain
- Vomiting
- Constipation
- Seizures

## Lead poisoning symptoms in newborns

Babies exposed to lead before birth might:

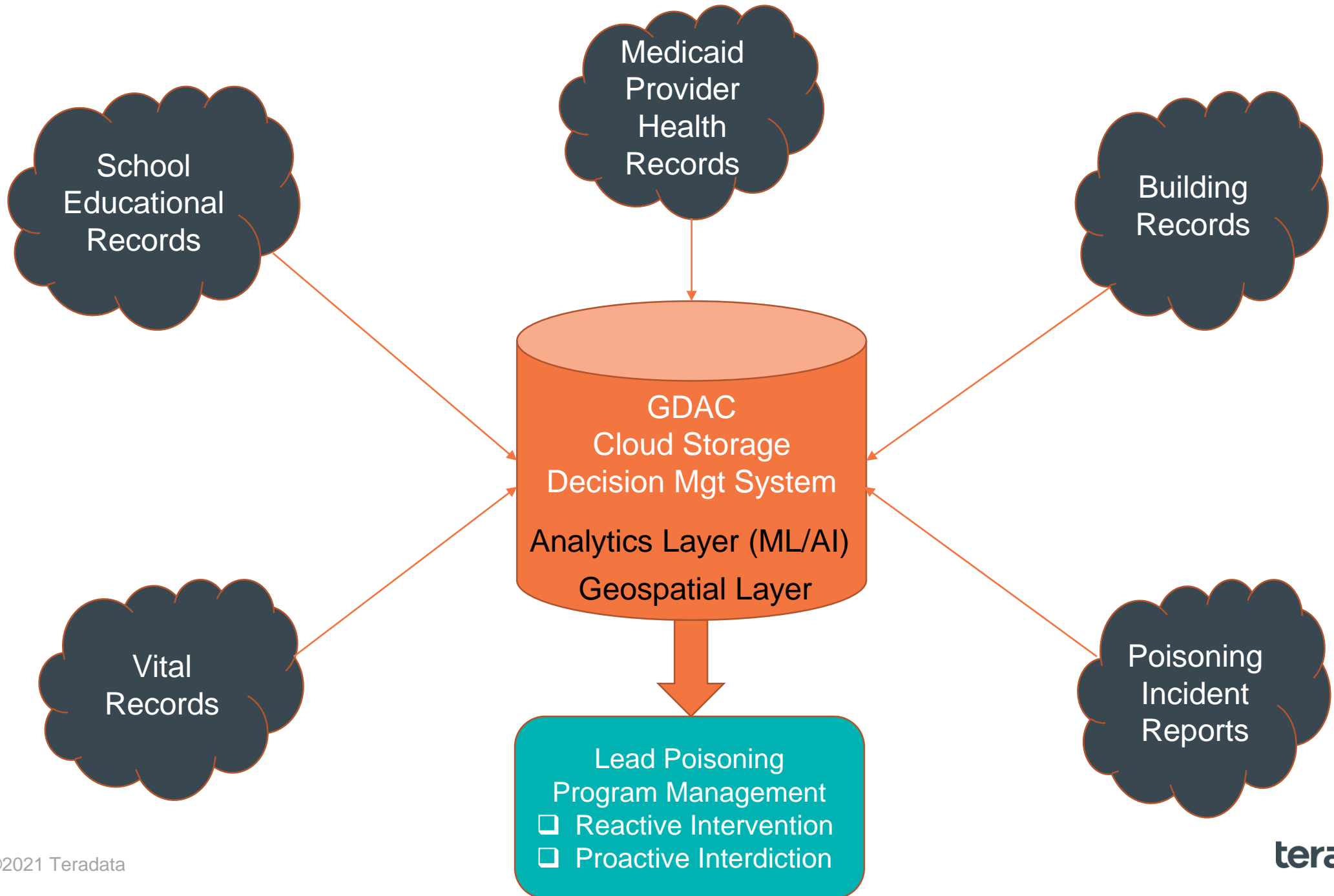
- Be born prematurely
- Have lower birth weight
- Have slowed growth

## Lead poisoning symptoms in adults

Although children are primarily at risk, lead poisoning is also dangerous for adults. Signs and symptoms in adults might include:

- High blood pressure
- Joint and muscle pain
- Difficulties with memory or concentration
- Headache
- Abdominal pain
- Mood disorders
- Reduced sperm count and abnormal sperm
- Miscarriage, stillbirth or premature birth in pregnant women

~ The Solution ~  
Aggregated Siloed Data, Applied Advanced Analytics,  
Aligned with Targeted Programs



## Keys to Success

Reactive  
Intervention

Proactive  
Interdiction

# How each data asset plays an interoperability role in both targeted outcomes:

**Vital Records** – Relates all familiar relationships within a given household

**School Educational Records** – Shows potential lead-based affect on children through time and, also impact

**Health Records** – Helps identify symptoms for individual & shared family member diagnosis's (correlation to causality)

**Building Records** – Shows age of buildings for potential outbreaks coupled with providing Geo-Spatial attributes for tracking

**Existing Poisoning Reports** – Identifies individual intervention along w/ locations where further proactive interdiction may be required

## State of Michigan – Lead-Based Poisoning Approach

A Dramatic Reduction in Cases of Child Lead Poisoning: Using the data warehouse as an analytic tool, and combining other outreach efforts, the State reduced the number of cases of lead poisoning by **35% from 2003 to 2007**; and increased the number of Medicaid-enrolled 3-year-olds **screened for lead from below 50% in 2003 to 72% in 2009**. Moreover, the data warehouse helped health officials **identify the 14 Michigan communities that represented 80% of all child lead poisoning cases**, and target prevention efforts in those communities. Finally, MDCH provides each Medicaid health plan with an extract that contains all their enrolled children ages 1-3, along with results for those who have had a screening. This **helps the plans identify the children that need to be tested or require follow-up**.

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**Cost Ramifications: Study by Columbia Law School (Health Advocacy Clinic) ~ Georgia:**

[https://web.law.columbia.edu/sites/default/files/microsites/clinics/health-advocacy/georgia\\_cba.pdf](https://web.law.columbia.edu/sites/default/files/microsites/clinics/health-advocacy/georgia_cba.pdf)



## Societal Costs of Lead Poisoning in Georgia

For one cohort (Group) of children ages “one to two” years old who are estimated to have EBLs above the CDC reference value, the costs could be as high as **\$212,035,757.24** with children in Housing Choice Voucher (HCV) program accounting for **\$6,219,152.66** of these costs. These costs accrue each year to children when they first develop lead poisoning and repeat themselves every year as new children ages one to two years old develop lead poisoning. The potential costs for a single birth cohort of children in Georgia age “one to two” years old include:

- **\$87,054.99** in costs associated with immediate medical intervention,
- **\$1,975,238.31** in costs associated with treatment of lead-related ADHD,
- **\$931,715.14** in parental work loss due to time taken off to care for child with an EBL above 5 µg/dL,
- **\$177,761.71** in costs associated with additional special education services for children with lead poisoning,
- **\$208,863,987.09** in potential earnings over a lifetime.

**Taxpayers would shoulder up to 26.35%, or \$55,869,875.97, of these total costs. teradata.**

**Thank you.**

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