

Fall 2008 Blood Lead Results

Participation Rates

Results

Environmental Conditions



Different Age Groups Tested

- Over the years we have tested different age groups of children
- When showing data, the following colour coding will be used in the tables and graphs:

Up to 60 months

- 1991-2000: age 6-60 months **BLUE**
- 2006-2008: age 37-60 months **BLUE**

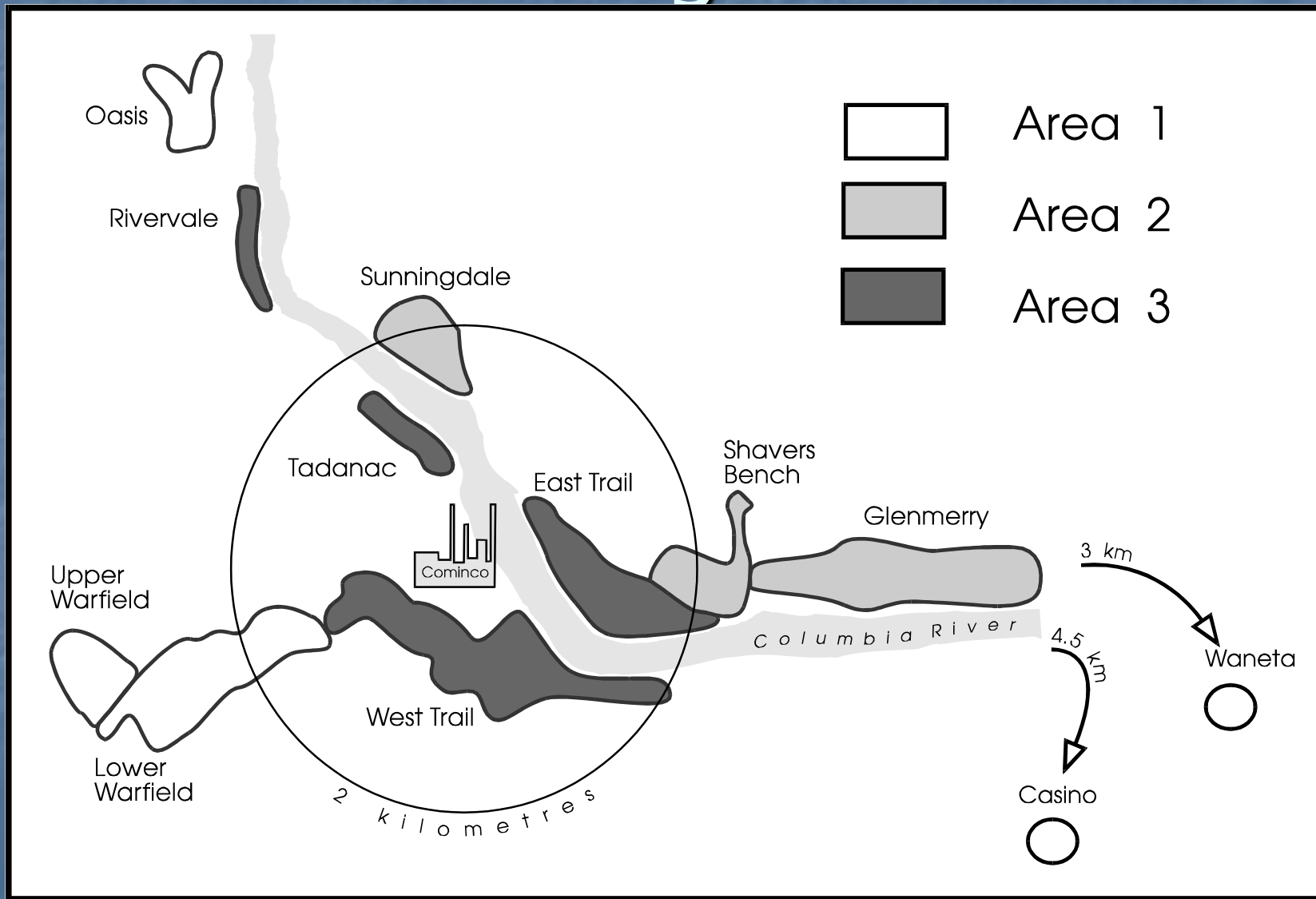


6-36 months

- 2001-2008: age 6-36 months **RED**



"Areas" & Neighbourhoods



The Clinics



Fall 2008 Participation By Neighbourhood (6-36 months)

Participation for 2008 (6 - 36 months)				2007
Breakdown by Neighborhoods	# Children Contacted	# Children Participating	% Children Participating	% (No.) Participating
AREA 3 (Children <3 years)				(<3 years)
East Trail	24	20	83%	92% (23)
West Trail	36	27	75%	73% (35)
Tadanac	4	3	75%	100% (3)
Rivervale	1	0	0%	100% (1)
AREA 3 TOTAL	65	50	77%	81% (62)
AREA 2 (Children < 3 years)				(< 3 years)
Glenmerry	16	10	63%	65% (13)
Shavers Bench	11	5	45%	56% (9)
Sunningdale	10	4	40%	50% (5)
AREA 2 TOTAL	37	19	51%	59% (27)
AREA 2 & 3	102	69	68%	72% (89)

Changes since 2001: Where do Kids Live and Who Participates? (6-36 months)

	2001	2008
Overall	90 of 119 (76%)	69 of 102 (68%)
Area 2 (lower risk)	48 of 62 (77%)	19 of 37 (51%)
Area 3 (higher risk)	42 of 57 (74%)	50 of 65 (77%)

Fall 2008 Participation By Neighbourhood (37-60 months)

Participation for 2008 (children 37 - 60 months)				2007
Breakdown by Neighborhoods	# Children Contacted	# Children Participating	% Children Participating	% (No.) Participating
AREA 3 (Children > 3 years)				
East Trail	14	11	79%	75% (9)
West Trail	31	17	55%	56% (14)
Tadanac	1	1	100%	100% (3)
Rivervale	2	0	0%	100% (1)
AREA 3 TOTAL	48	29	60%	66% (27)
AREA 2 (Children > 3 years)				
Glenmerry	18	8	44%	64% (7)
Shavers Bench	10	3	30%	67% (8)
Sunningdale	9	3	33%	20% (1)
AREA 2 TOTAL	37	14	38%	57% (16)
AREA 2 & 3	85	43	51%	62% (43)

Participation Rates Fall 2008

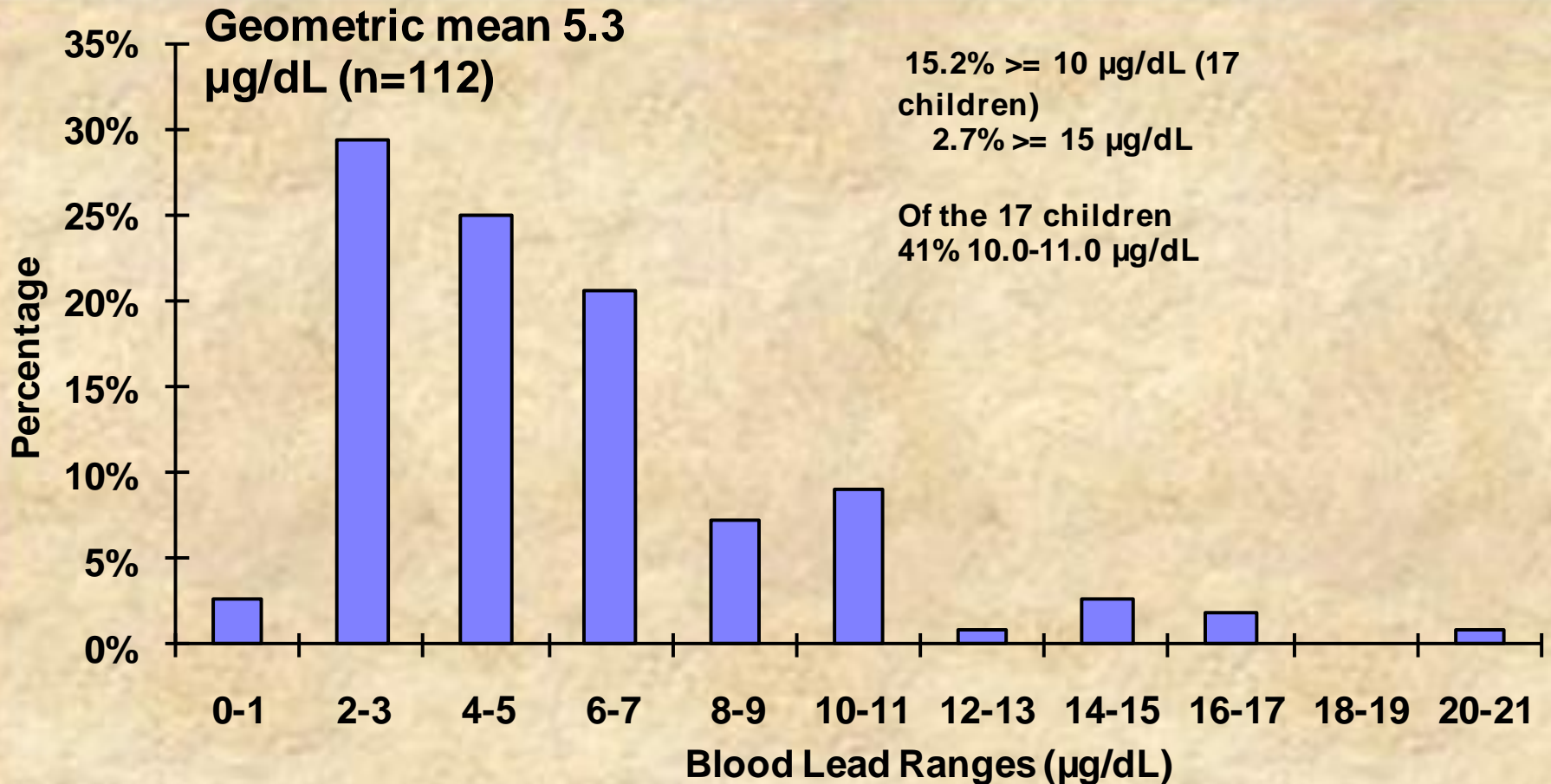
(cont'd)

Area 2/3

Group	Participation Rate (2008)	Participation Rate (2007)
Infants not tested before	60% (12 of 20)	81% (22 of 27)
Case Management (identified in previous clinics)	63% (12 of 19) (1 moved) (1 unable to contact) (1 no show at blood clinic) (4 declined to participate due to age over 5 yrs or not seen to be at risk any more)	80% (16 of 20) (1 unable to contact) (3 no shows at blood clinic)

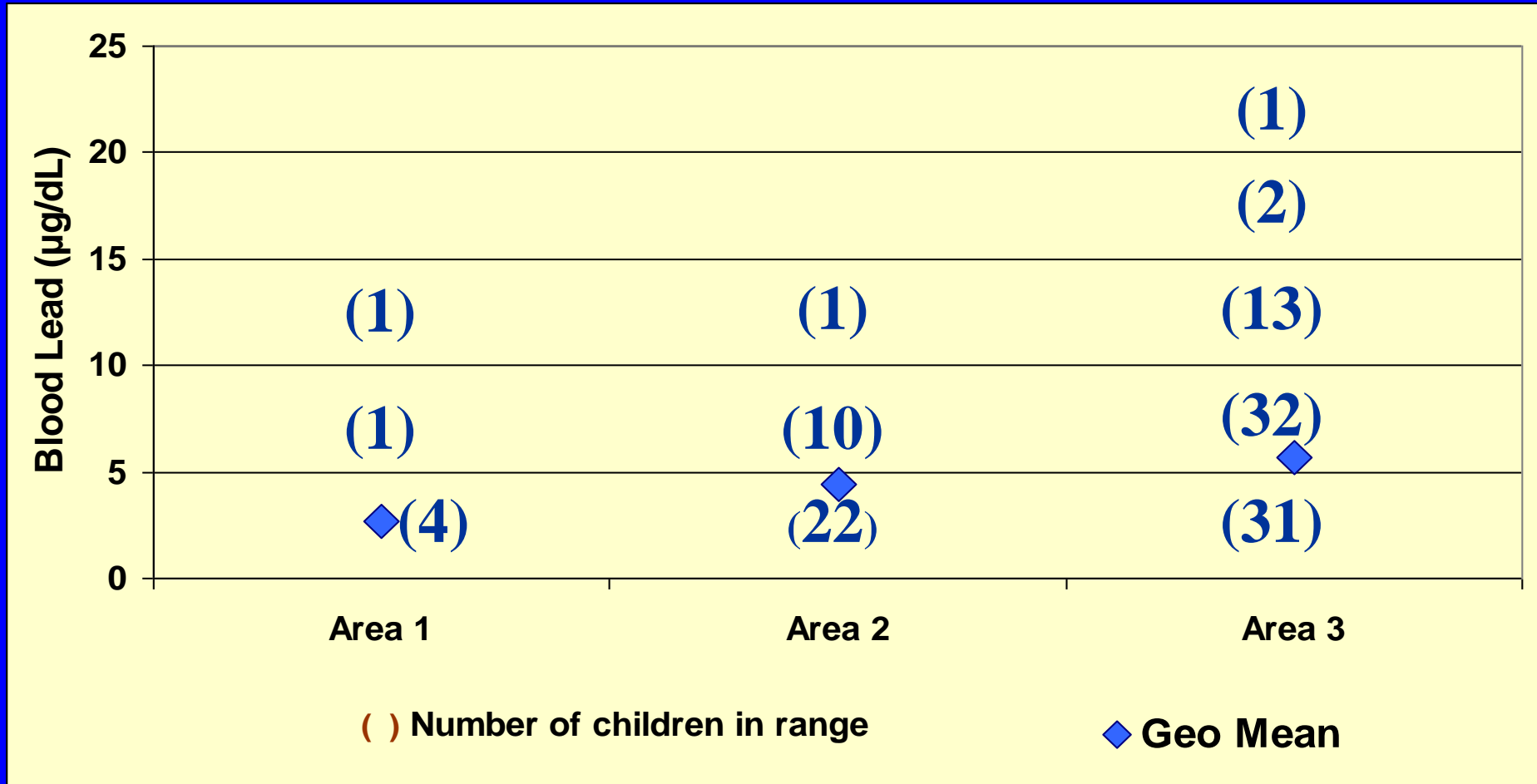
2008 Blood Lead Histogram: Area 2/3

(Age 6 mos. - 60 mos.)



2008 Blood Leads by Area

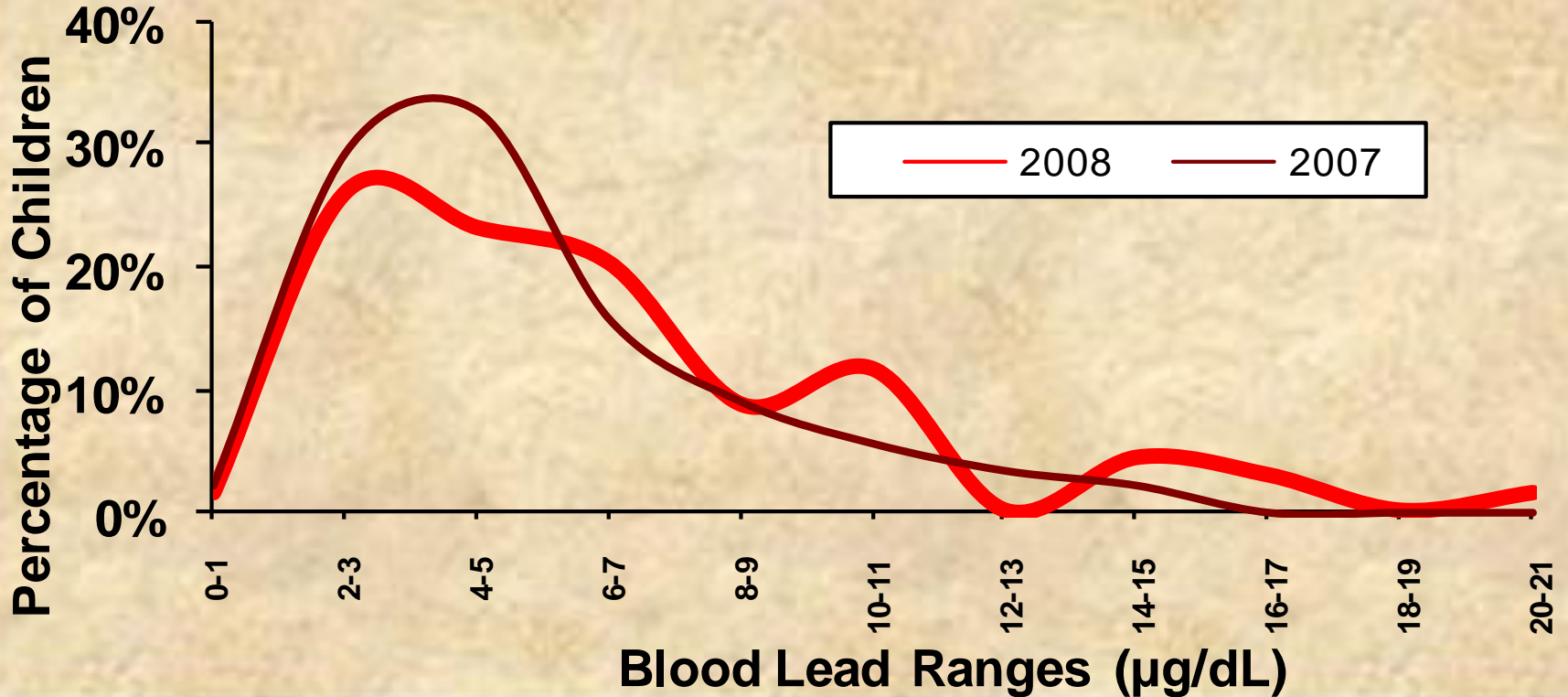
(Age 6 mos. - 60 mos.)



Note: Child from Area 1 with blood lead > 10 µg/dL spends most waking hours in Area 3

2008/2007 Comparison

Areas 2 & 3: Children \leq 36 months



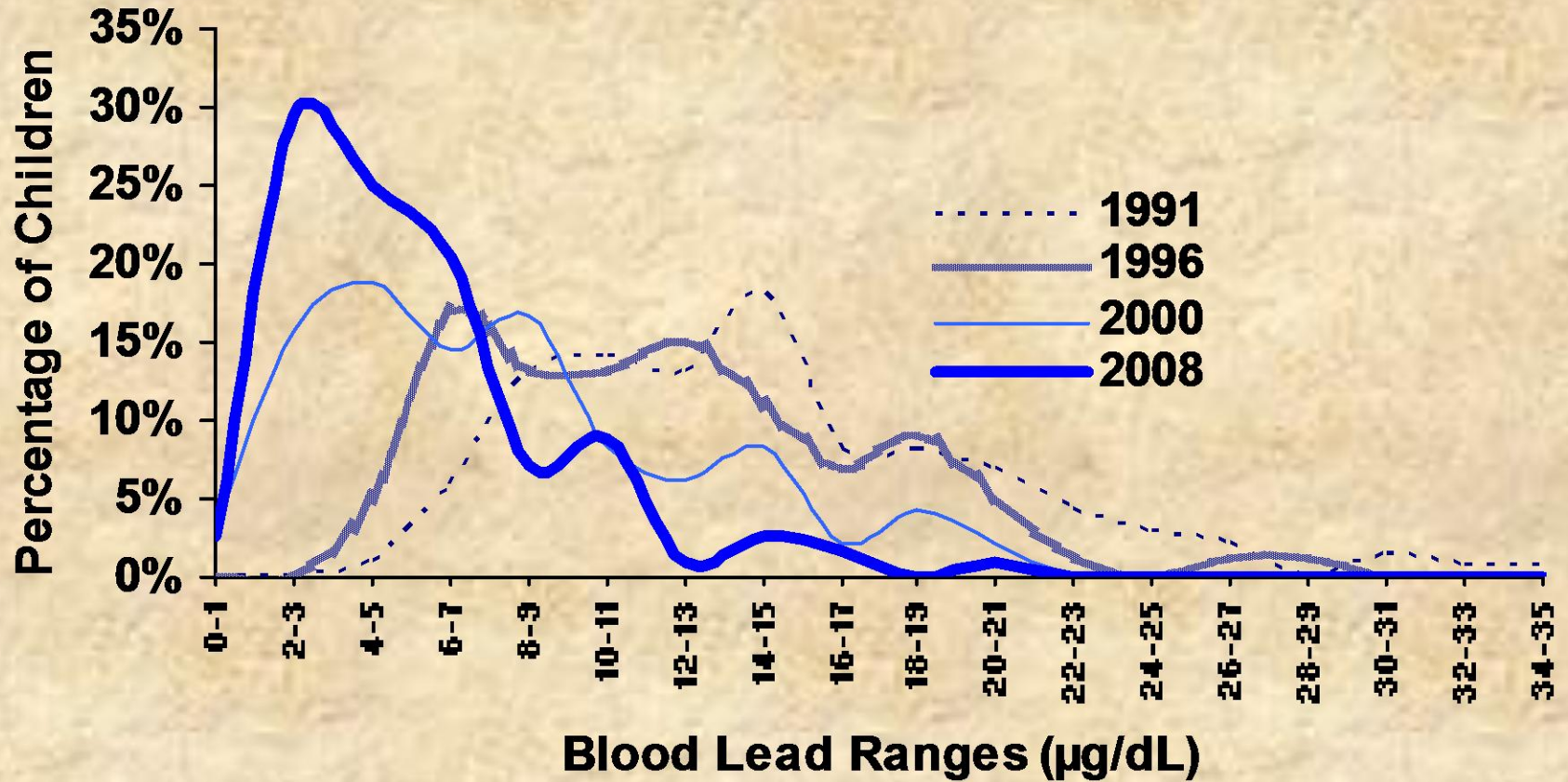
Area 2 & 3 Children under 3 yrs

Statistic	2008	2007
Geometric Means		
Overall	5.9	5.2
Area 2	4.7	3.9
Area 3	6.4	5.8
Percentages Above:		
10 µg/dL	20.3%	11.2%
15 µg/dL	4.3%	0.0%
20 µg/dL	1.4%	0.0%

* Note: differences in means are not statistically significant ($p > 0.41$)

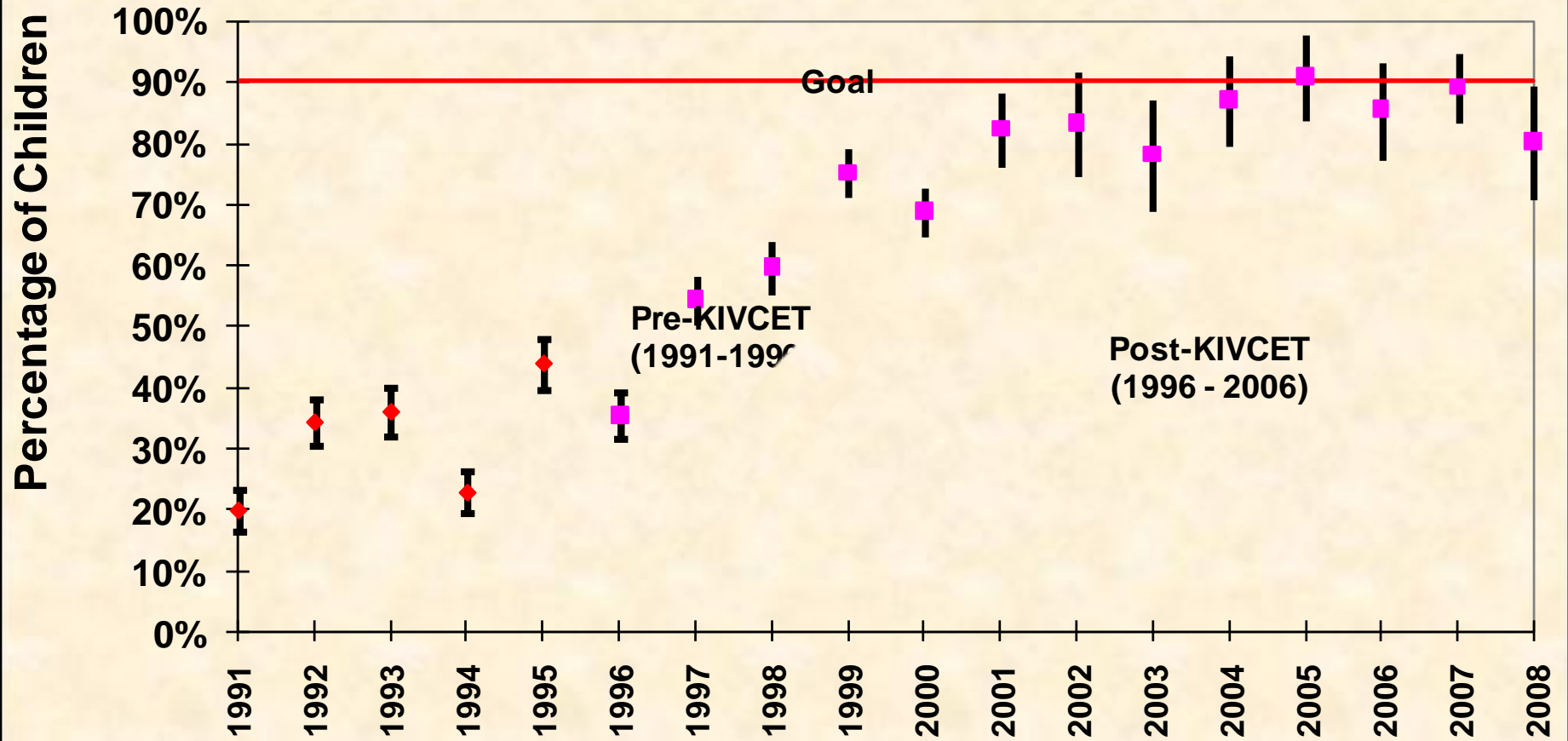
1991-2008 shift

Areas 2 & 3: Children \leq 60 months



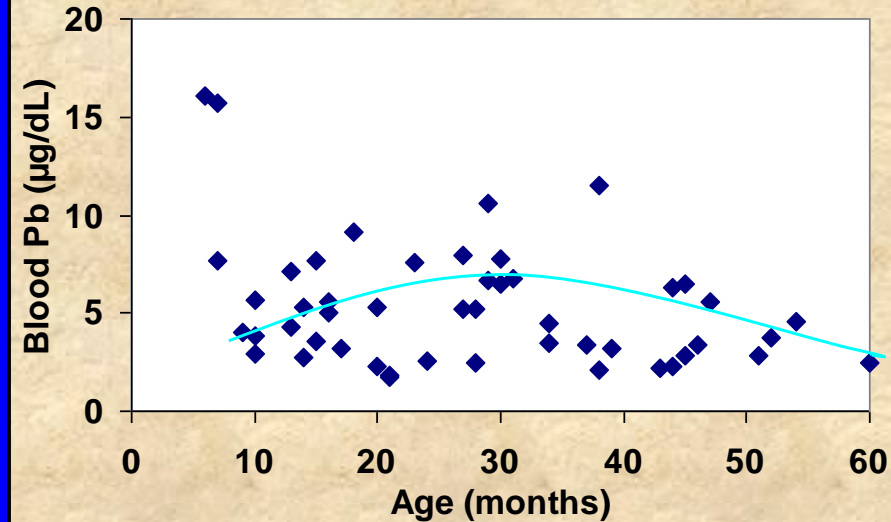
Goal set by TCLTF for 2005

Trend in Percentage of Children
with Blood Lead Levels < 10 $\mu\text{g}/\text{dl}$
(6-36 months throughout)

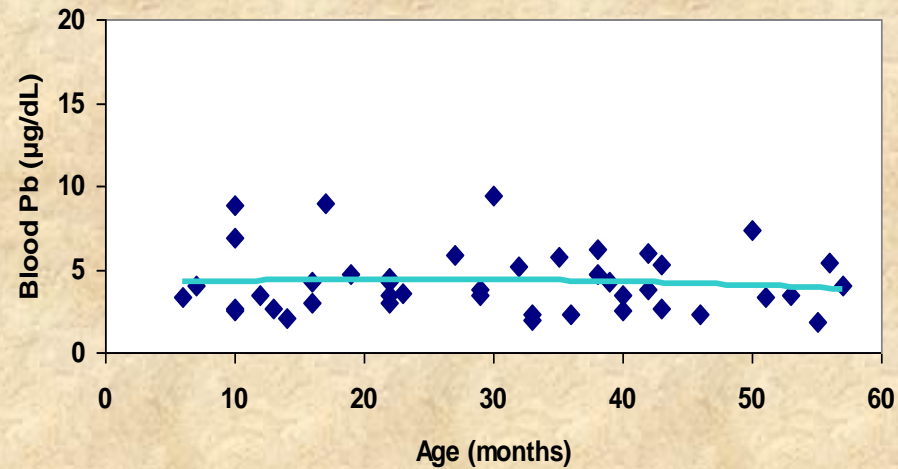


Blood Lead vs. Age

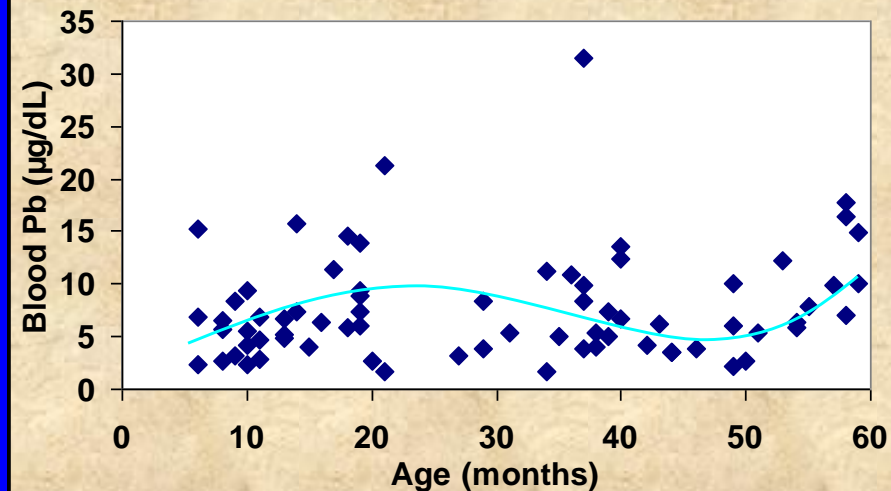
Blood Pb versus Age - Area 2 Only - 2006



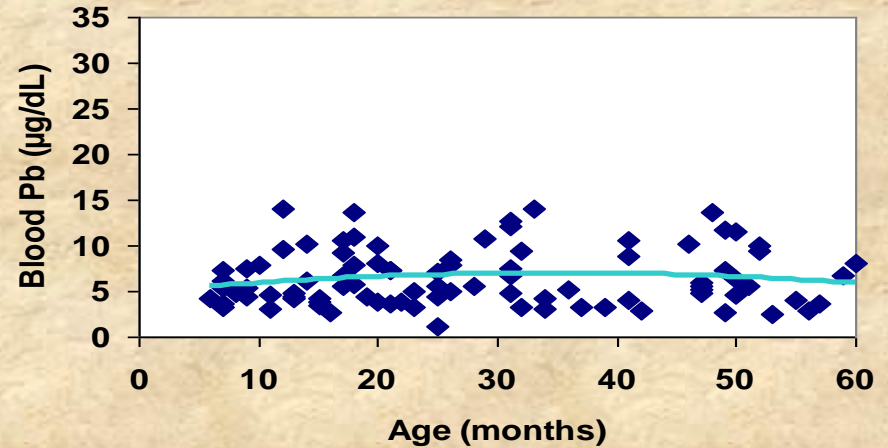
Blood Pb vs Age - Area 2 Only - 2007



Blood Pb versus Age - Area 3 Only - 2006

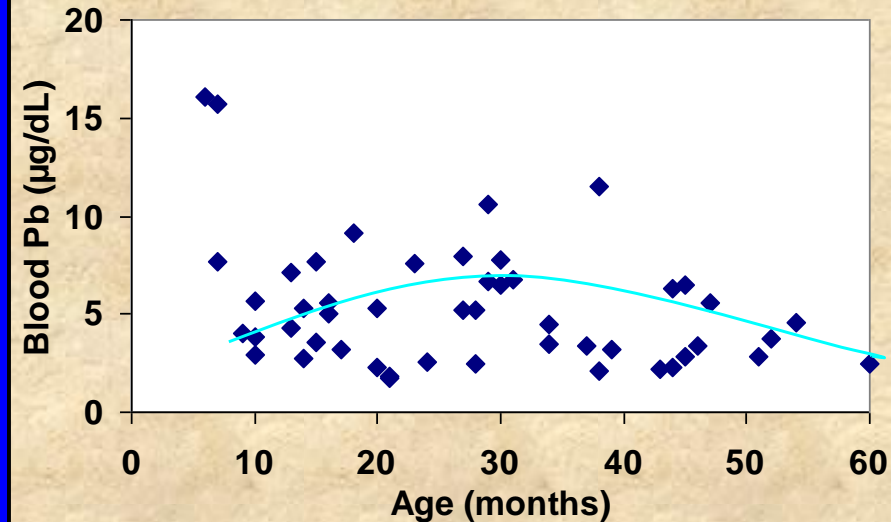


Blood Pb vs Age - Area 3 Only - 2007

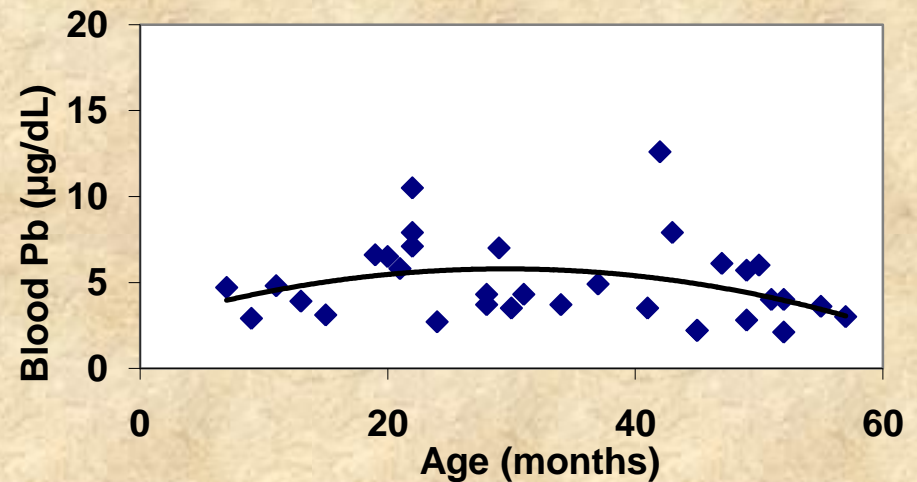


Blood Lead vs. Age

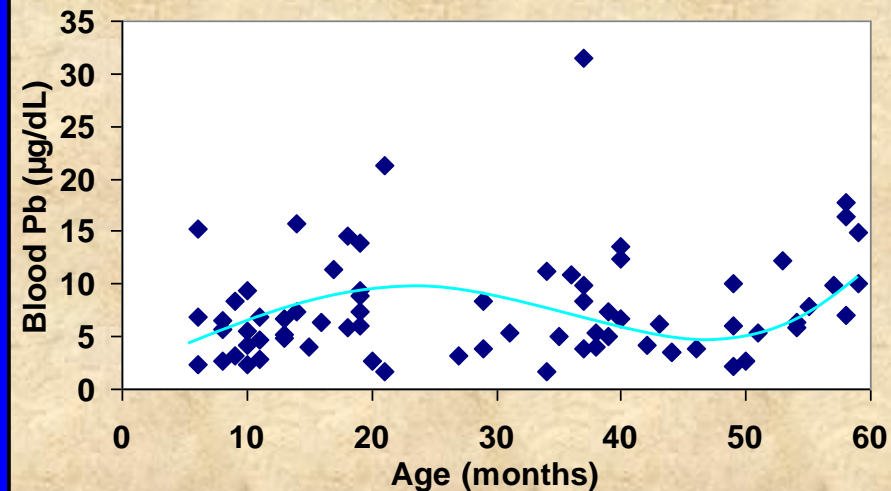
Blood Pb versus Age - Area 2 Only - 2006



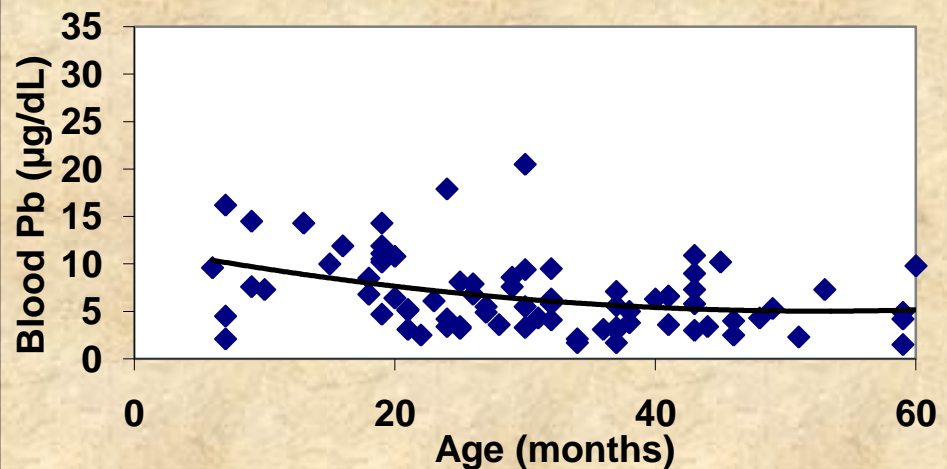
Blood Pb vs Age - Area 2 Only - 2008



Blood Pb versus Age - Area 3 Only - 2006

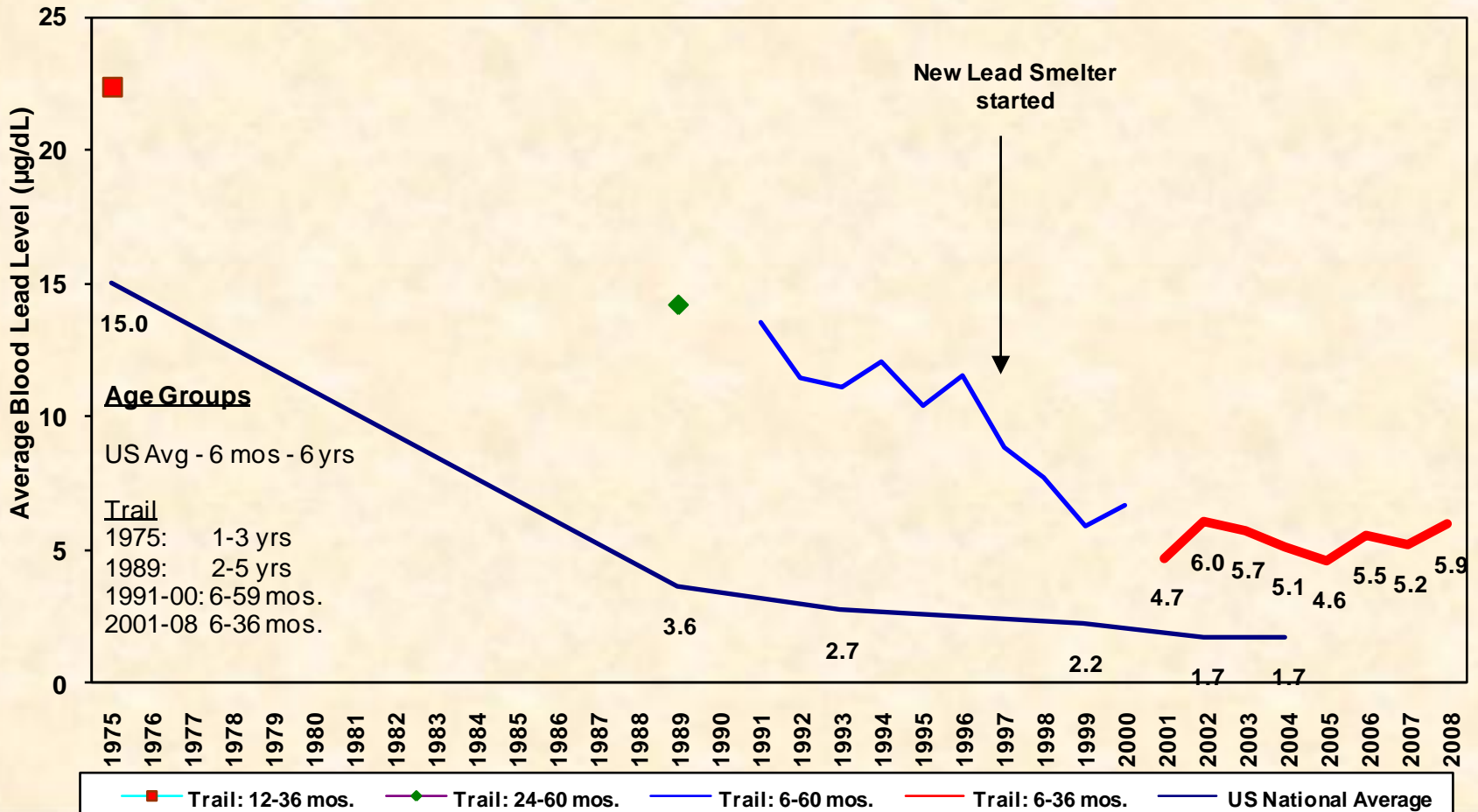


Blood Pb vs Age - Area 3 Only - 2008



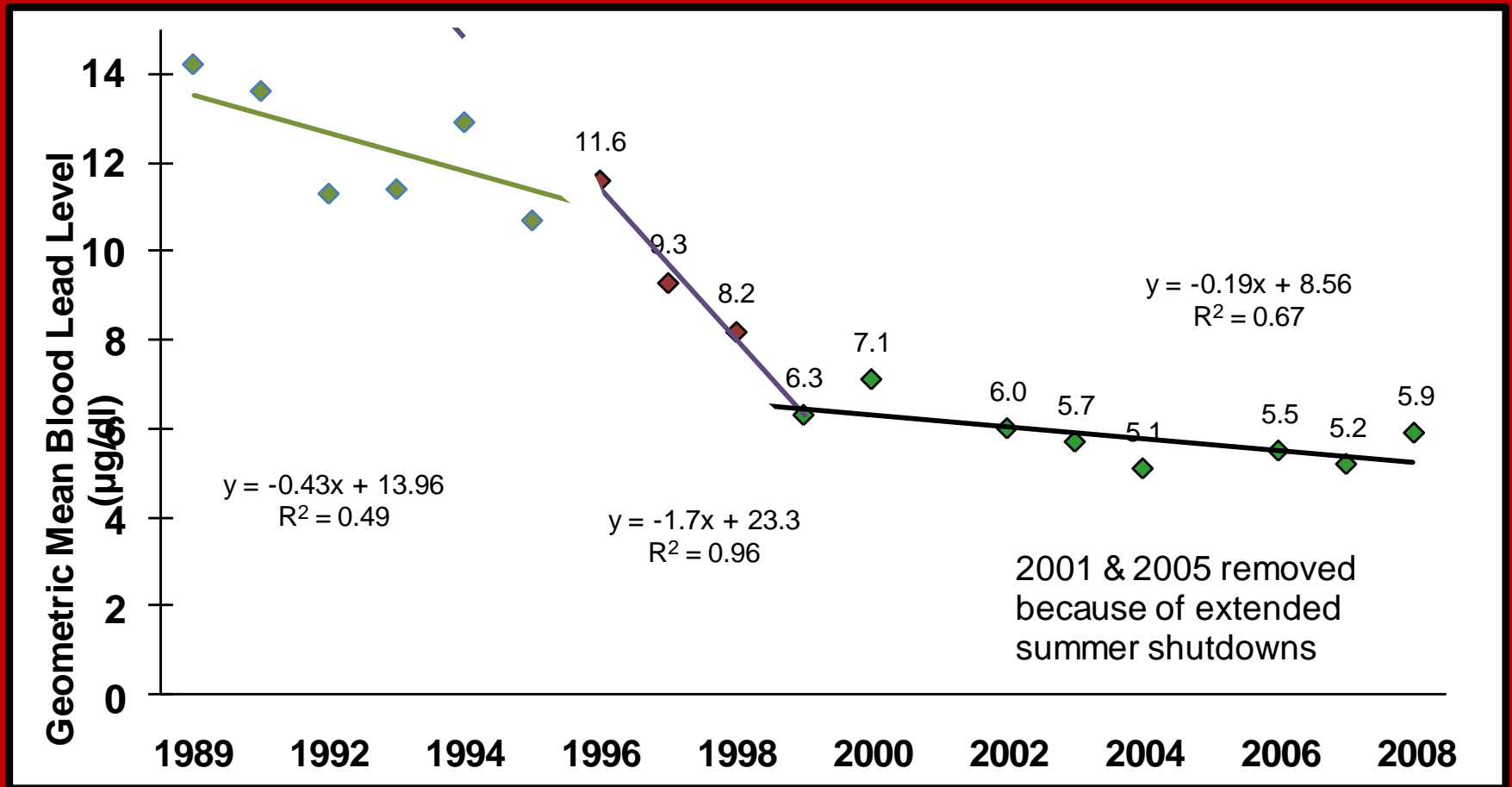
Comparison with "background"

History of Children's Blood Lead Levels in Trail



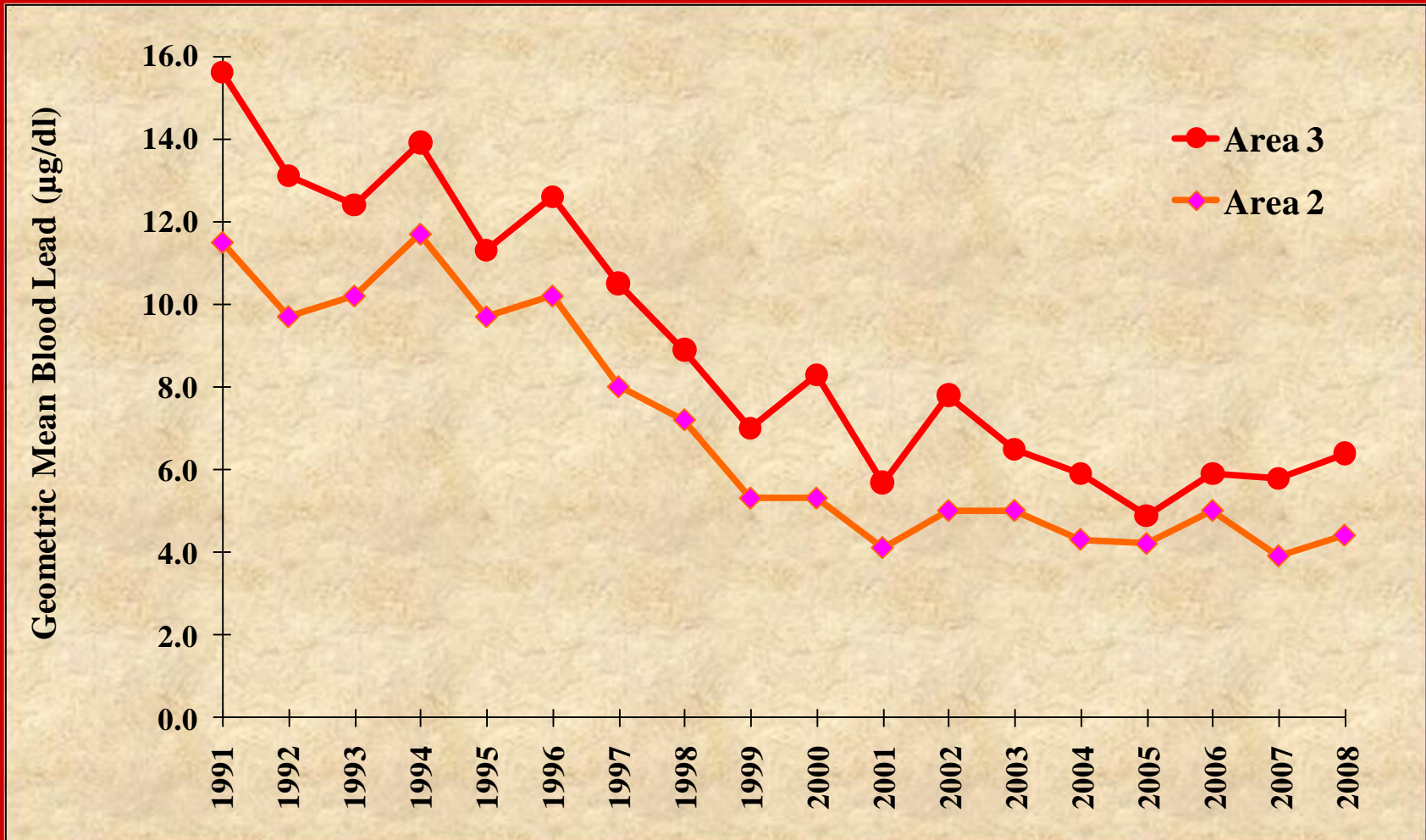
Three Distinct Periods

Geometric Mean Blood Pb, 6-36 mos. throughout



Blood Lead Geo Mean by Area

(age 6 – 36 months throughout)

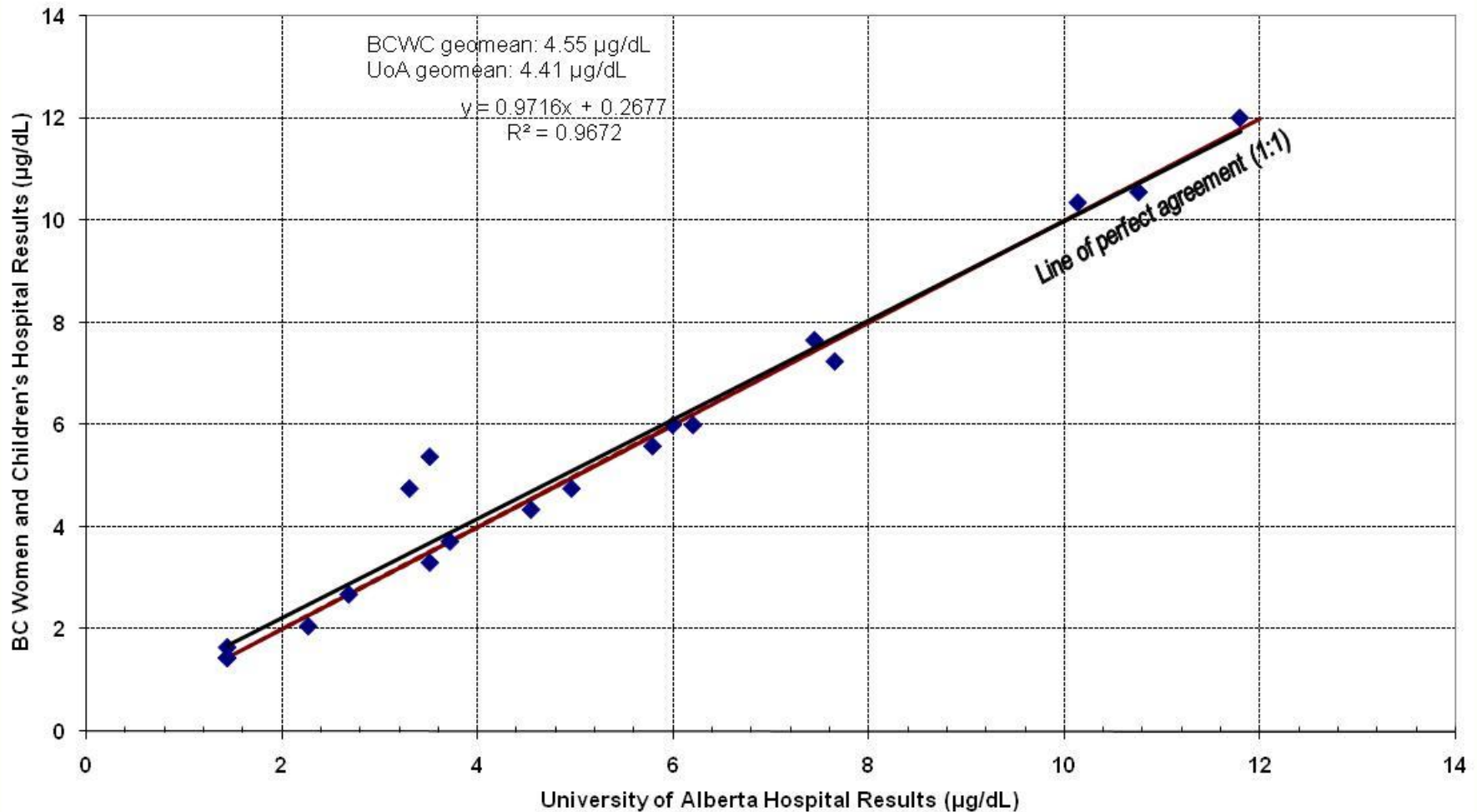


Comparison with Other Sites

City/Region	Country	Nature of site	Age of kids tested	Year	Blood Lead Level (µg/dL)
La Oroya	Peru	Primary Pb smelter	< 6 yrs	2007	20.0
Port Pirie	Australia	Primary Pb smelter	9 mos to 4 yrs	2005	10.6
Hoboken	Belgium	Secondary Pb smelter	2.5 yrs to 6 yrs	2008	9.0
Torreón	Mexico	Primary Pb smelter	1-6 yrs	2003	8.3
Torreón	Mexico	Primary Pb smelter	1-16 yrs	2008	6.0
Trail Area 3	Canada	Primary Pb smelter	6 mos to 5 yrs	2008	5.7
Trail (Areas 2/3)	Canada	Primary Pb smelter	6 mos to 5 yrs	2008	5.3
Rouyn-Noranda	Canada	Primary Cu smelter	6 mos to 5 yrs	1999	5.2

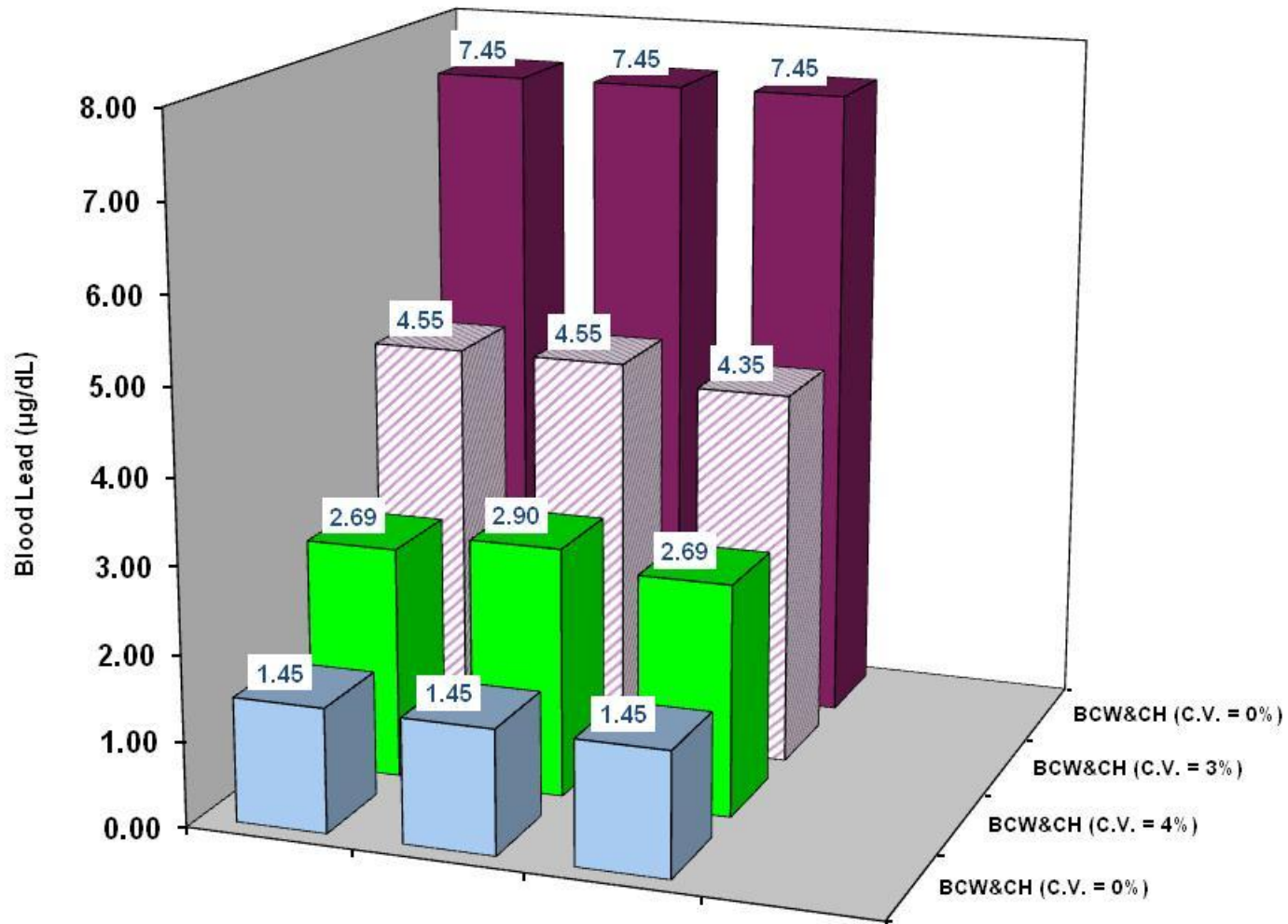
Quality Control Data

Split sample analytical results
BC Women & Children's Hospital versus University of Alberta Hospital
Fall 2008 Trail Blood Lead Clinic

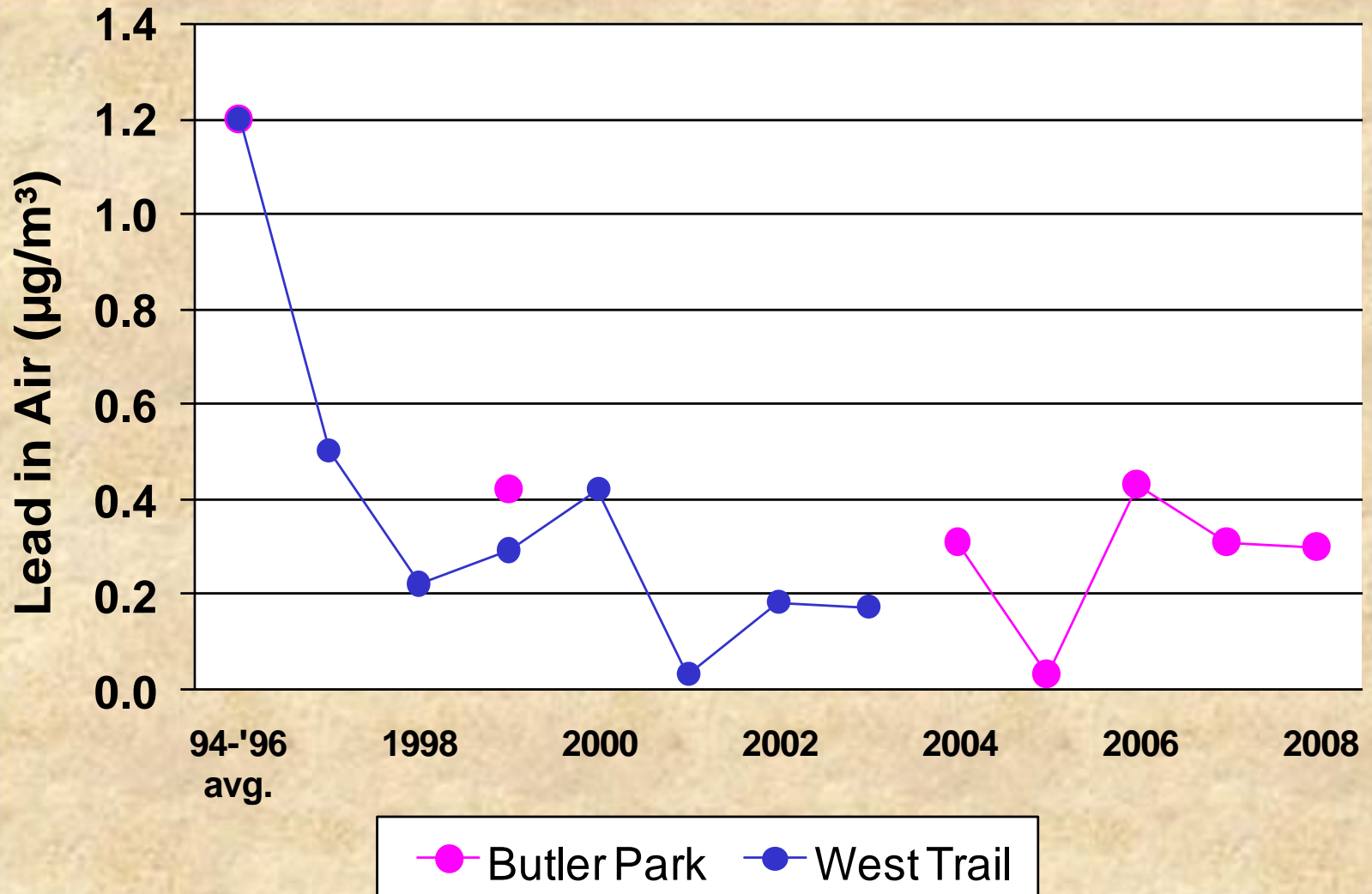


Quality Control Data

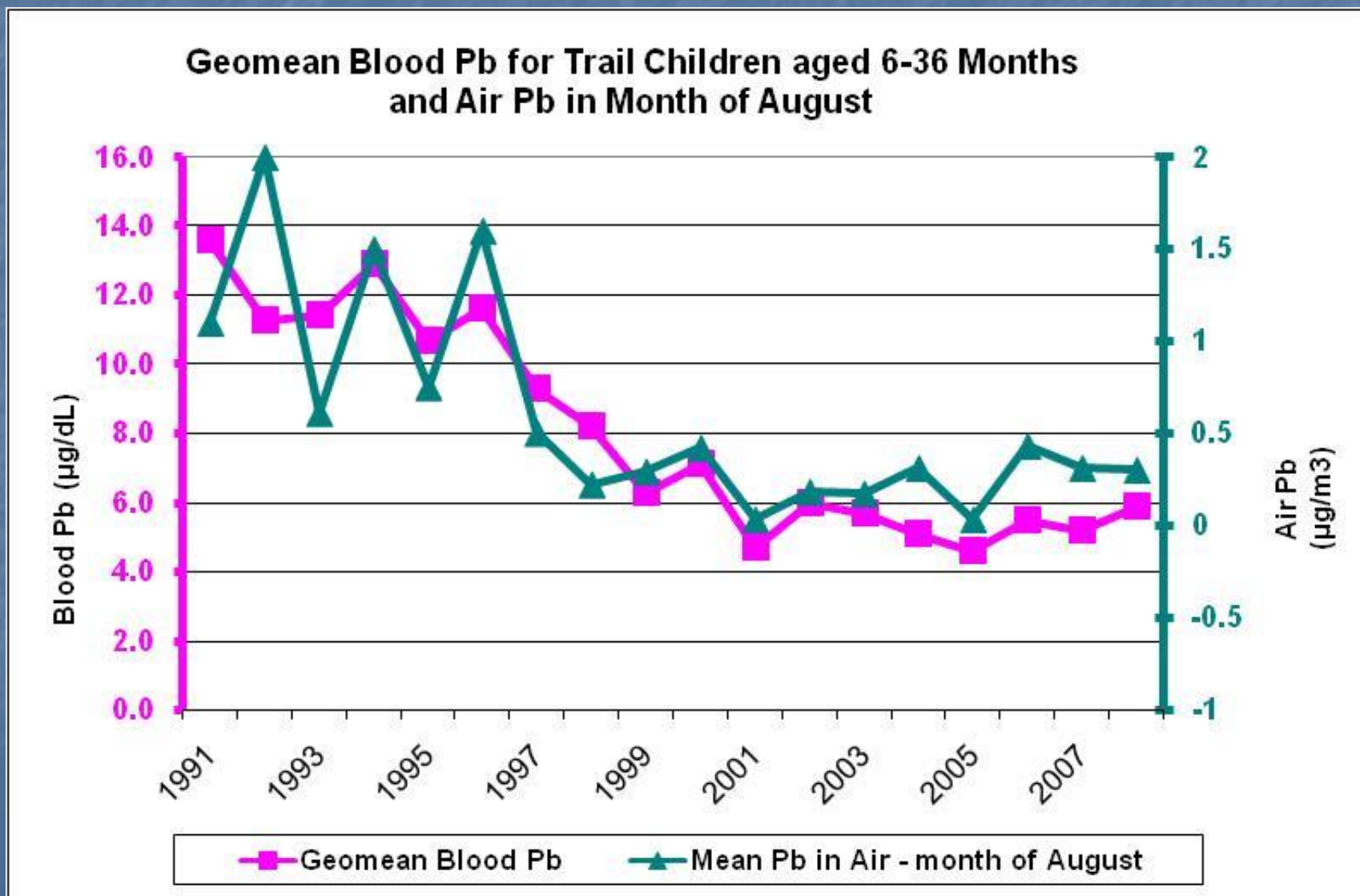
**Fall 2008 Quality Control
Check Standards Results**



Lead in Air: August Only

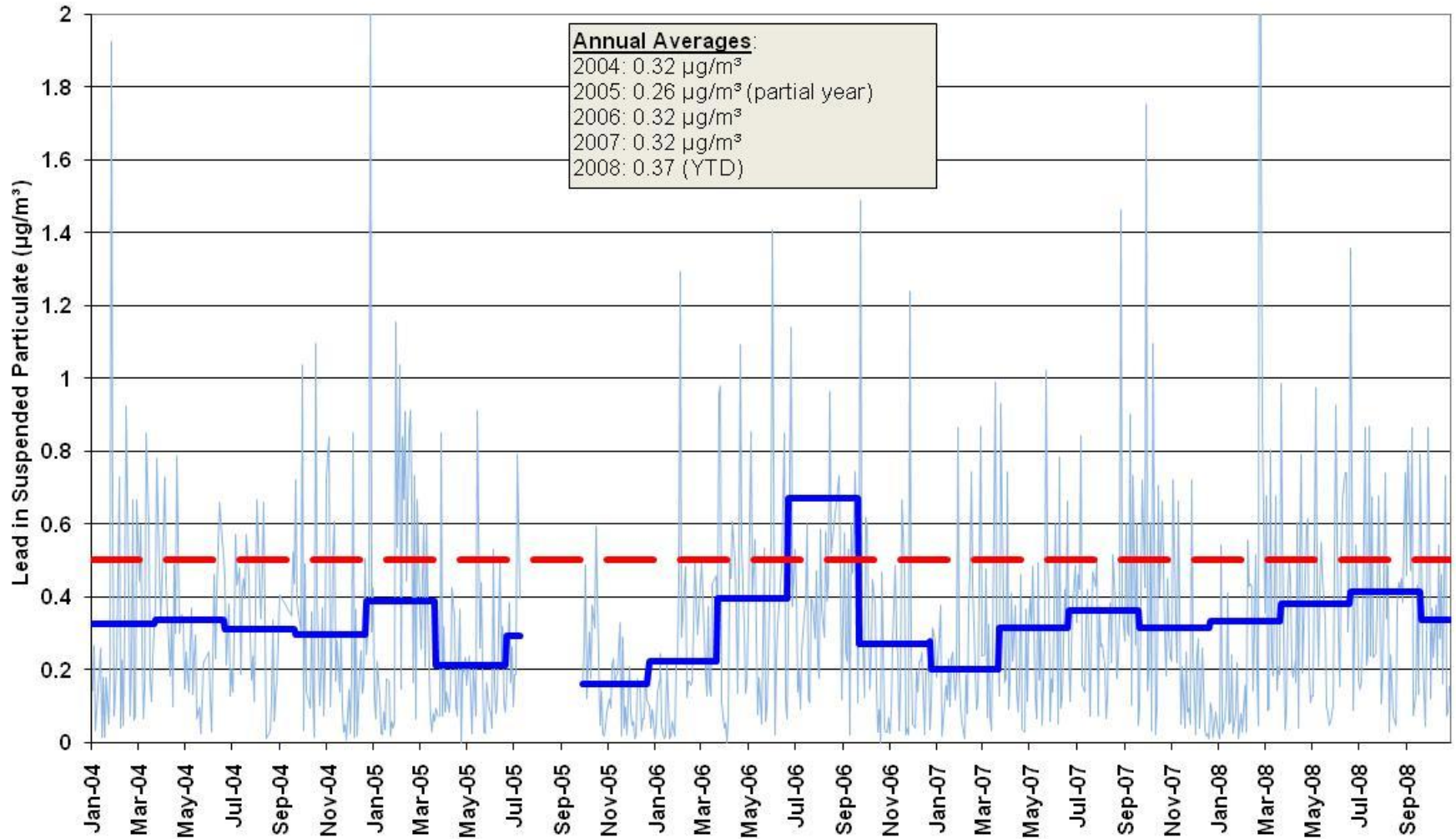


Air Pb/Blood Pb Relationship



Air Lead Levels - Butler Park Stn

Butler Park Air Lead

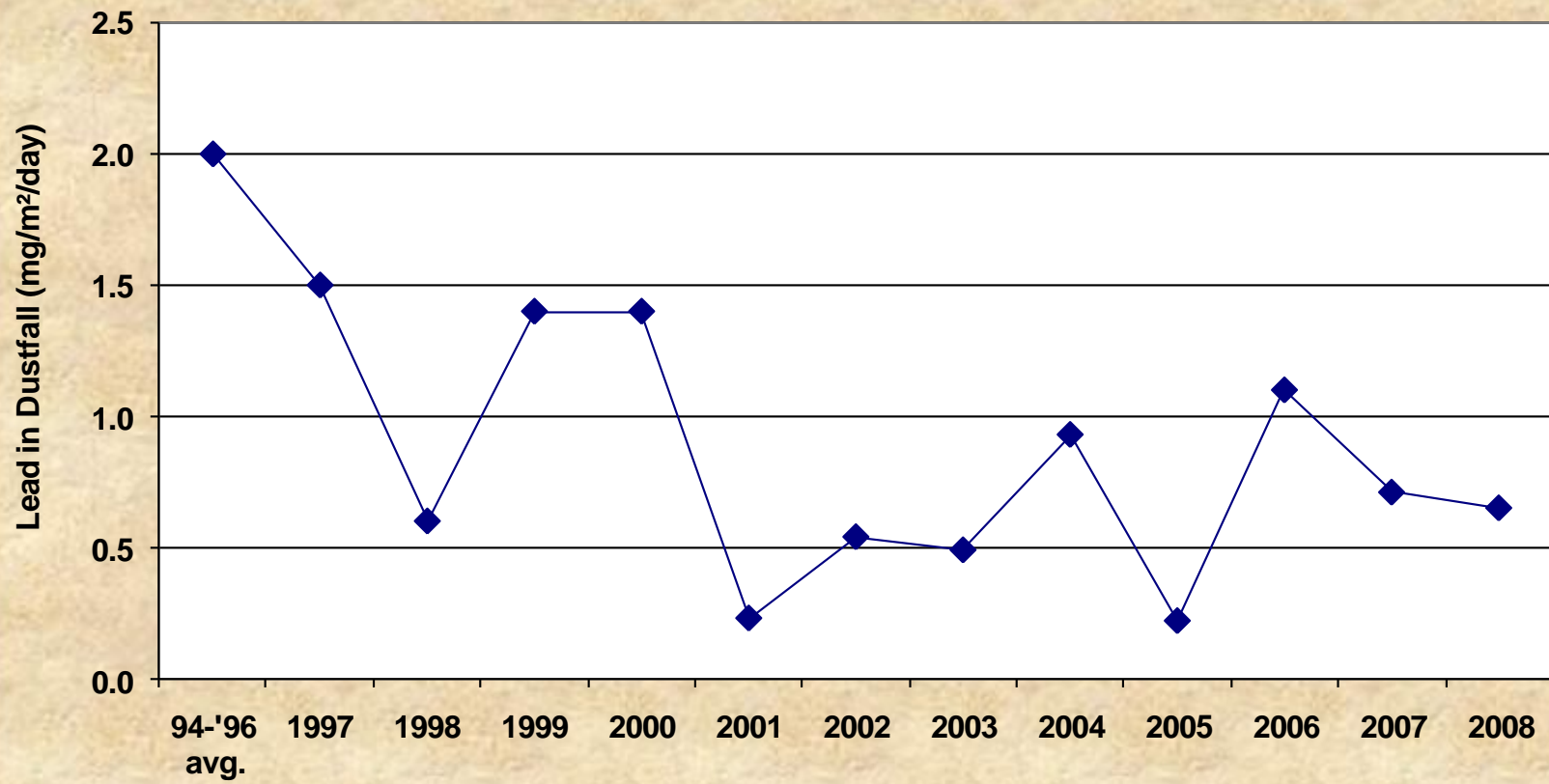


— Actual data points - Butler Park

— Quarterly Average - Butler Park

- - - WHO Guideline for Annual Average

Lead in Dustfall: Month of August Only, Area 2/3



Concluding messages

- Compared with last blood lead survey (2007), average blood lead in 2008 is up slightly, although the change is not significant
- Summer 2008 conditions were again warm and dry and the levels of lead in ambient air and dustfall were normal relative to other very recent years.
- TCLTF goals of having 90% of children with BLL of <10 ug/dL and 99% of children with a BLL <15ug/dl were essentially reached again this year, given the margin of error on the sample:
(80% ± 9.4% <10ug/dl and 96% ± 3.5% <15ug/dl)
- There is no clear trend in blood lead levels in Trail children in recent years – average blood lead levels appear to be quite stable, or declining only slightly

Concluding messages

- Huge improvement in children's blood lead levels over the past 17 years, and Trail is at the forefront of smelter communities in terms of low lead emissions and blood lead levels.
- Studies of large numbers of children have found that those with higher blood lead levels tend, on average, to score slightly lower on developmental tests than children with lower blood lead levels. The current level of concern for blood lead levels in children is 10 $\mu\text{g}/\text{dL}$. However, recent studies have found that even lower levels of lead exposure can be associated with lower test scores.

Concluding messages

- Blood lead testing objectives and goals should be re-evaluated and THEC should propose new scope and goals for blood lead testing.
- Children with elevated blood lead will continue to receive home visits and assistance with reducing exposure.