From Politics to Public Health:

Association Between Water Privatization, Water Use, and Pediatric Diarrhea in Cochabamba and El Alto, Bolivia

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Argument For Water Privatization

- Increases efficiency through competition and profit motive
- Provides new capital for struggling systems

Argument For Water Privatization

- Privatization of city water services improves public health by providing cleaner water to more people
  - Privatized cities increased proportion of households connected to water services by ~11%
  - Privatization accounted for 4.8% to 6.7% lower childhood mortality rates
- Galiani S, Gertler P, Schargrodsky E. Water for life: the impact of the privatization of water services on child mortality. Washington, D.C.: Inter-American Development Bank; 2002.

Water Privatization in The Developed World

- "There is no compelling evidence of private utilities outperforming public utilities or that privatizing water utilities leads to improvements in performance."

- Renzetti S, Dupont D. The performance of municipal water utilities: evidence on the role of ownership. J Toxicol Environ Health A. 2004; 67:1861-78

- Equal numbers of infectious intestinal disease outbreaks were found with public and private water supplies in the UK over 10 years.

- Smith A, Reacher A, Smerdon W, et al. Outbreaks of waterborne infectious intestinal disease in England and Wales, 1992 – 2003. Epidemiol Infect. 2006; 134:1141-9

Argument Against Water Privatization

- Privatization of water and associated poor water access implicated in spread of South African cholera outbreak in 2000
- Protests in Bolivia, Ghana, Peru, Trinidad and Tobago, and elsewhere
- Review of literature of policy and about access to water after privatization:
  - "Results indicated there is no compelling case for privatizing existing public water utilities based on public health grounds."
- Mulreany JP, Calikoglu S, Ruiz S, and Sapsin JW. Water Privatization and Public Health in Latin America. Rev Panam Salud Publica. 2006; 19:23-32

Where is Bolivia?

Bolivia and Privatization

- Oil, Floating Rates, and Debt Crisis
- IMF and World Bank
- Water in Bolivia
- Water Provision Post-Privatization

Why Not Bolivia

Protest

Timeline

- Privatization of Water in Cochabamba from 6/99 – 4/00
- Official Privatization of Water in El Alto from 7/97 – 3/05
  - Aguas de Illimani still provided El Alto's Water during litigation

Summary

- National Debt Create Pressure to Privatize Utilities
- Access Fees → 200,000 don't have water after 8 years
- Politicized Society → Violent Protests
- Diarrheal disease causes 75% of pediatric morbidity and mortality in Bolivia
  - 500,000 cases and 7,900 deaths annually
  - Water / Sanitation fundamental

Our Hypothesis

- If the privatization of water and associated increased costs forced people to use more contaminated water sources, it is likely that pediatric diarrheal disease prevalence increased in consequence.

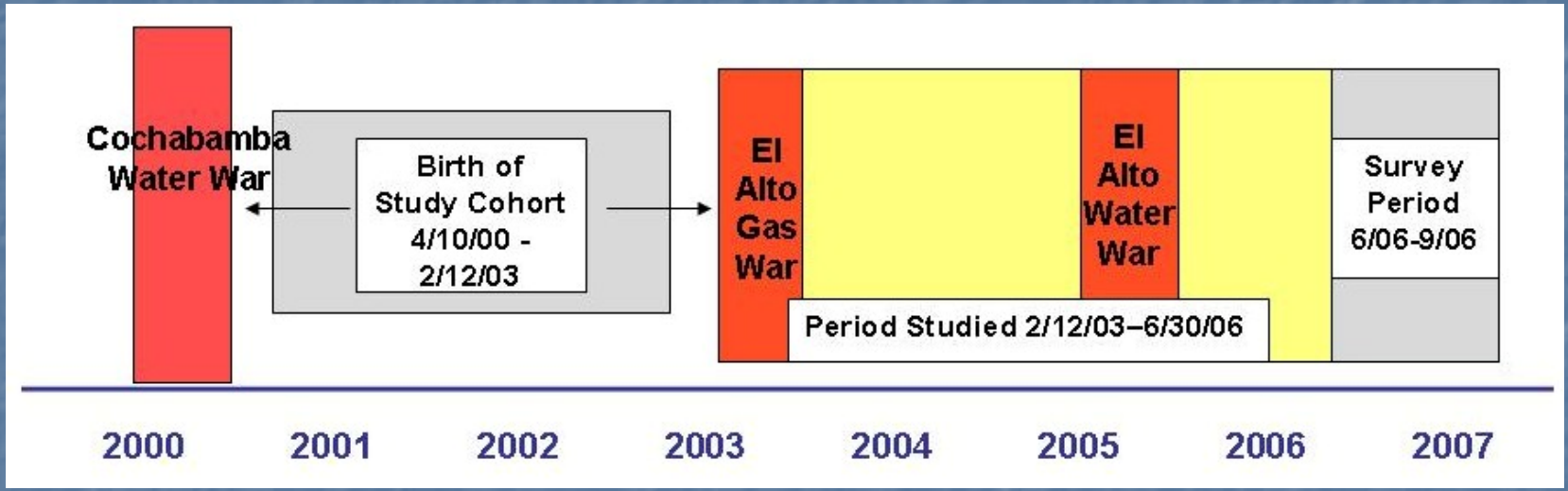
Methods

- Retrospective survey of 596 households from two Bolivian cities based upon their respective histories of water privatization.
- Households included if:
  - 3-6 year old lived there his / her entire lives
  - Primary caregiver (15+ years old) at home
- Data Collection
  - 6/06 – 9/06
  - Experienced bilingual female surveyors

Methods

- Survey:
  - Frequency / severity of diarrheal disease
  - Household Water Utilization
  - Sanitation Practices
- Case Definition:
  - Diarrhea =discrete episodes of diarrhea with a period of wellness between episodes (measured in days)

Timeline of Study

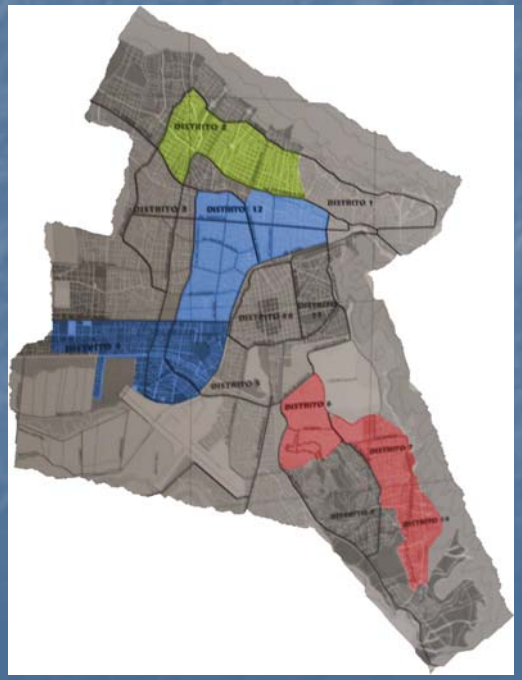


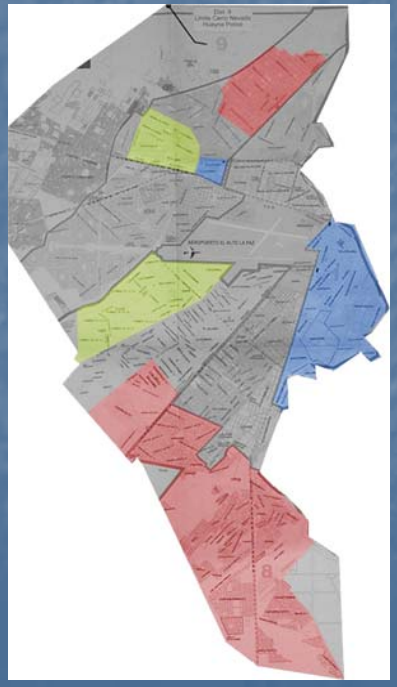
- Children were born April 10, 2000 - February 12, 2003
- Private contract “cancelled” March, 2005
- All data collected during summer 2006

Sampling Based On

City Growth Water Access 2001 Census

Health Department / Water Service Recommendations





Demographics of Respondents

- Predominantly Female (82.9%)

	Cochabamba # (%)	El Alto # (%)	Total # (%)
Relationship of Respondent to Index Child	N=214	N=260	N=474
Mother	123 (57.5)	154 (59.2)	277 (58.4)
Father	16 (7.5)	28 (10.8)	44 (9.3)
Sister	17 (7.9)	20 (7.7)	37 (7.8)
Grandmother	28 (13.1)	12 (4.6)	40 (8.4)
Aunt	15 (7.0)	15 (5.8)	30 (6.3)
Other Relative	15 (7.0)	31 (11.8)	46 (9.7)

- Median age 30 (29 in El Alto, 31 in Cbba)
- 97.5% Spanish (Only 9 Aymara, 3 Quechua)

Demographics of Children

	Cochabamba (N=214)	El Alto (N=260)	Total (N=474)
Sex of Child	**# (%)**	**# (%)**	**# (%)**
Male	126 (58.9)	124 (47.7)	250 (52.7)
Female	88 (41.1)	136 (52.3)	224 (47.3)
Child's Age in Years	**# (%)**	**# (%)**	**# (%)**
3	47 (22.0)	67 (25.8)	114 (24.1)
4	61 (28.5)	85 (32.7)	146 (30.8)
5	84 (39.3)	86 (33.1)	170 (35.9)
6	22 (10.3)	22 (8.5)	44 (9.3)
Type of Road Outside Home	**# (%)**	**# (%)**	**# (%)**
Paved	53 (24.8)	11 (4.2)	64 (13.5)
Brick	0 (N/A)	39 (15.0)	39 (8.3)
Cobblestone	126 (58.9)	49 (18.8)	175 (36.9)
Gravel	17 (7.9)	5 (1.9)	22 (4.6)
Dirt	18 (8.4)	156 (60.0)	174 (36.7)

Types of Roads Used As Proxy for Socioeconomic Status

Paved

Cobblestone

Brick

Gravel

Dirt

Main Water Sources

If you get water from a tap, you only have one option in each city

SEMAPA in Cochabamba
(Public)

Aguas de Illimani in El Alto
(Private)

Other Water Sources

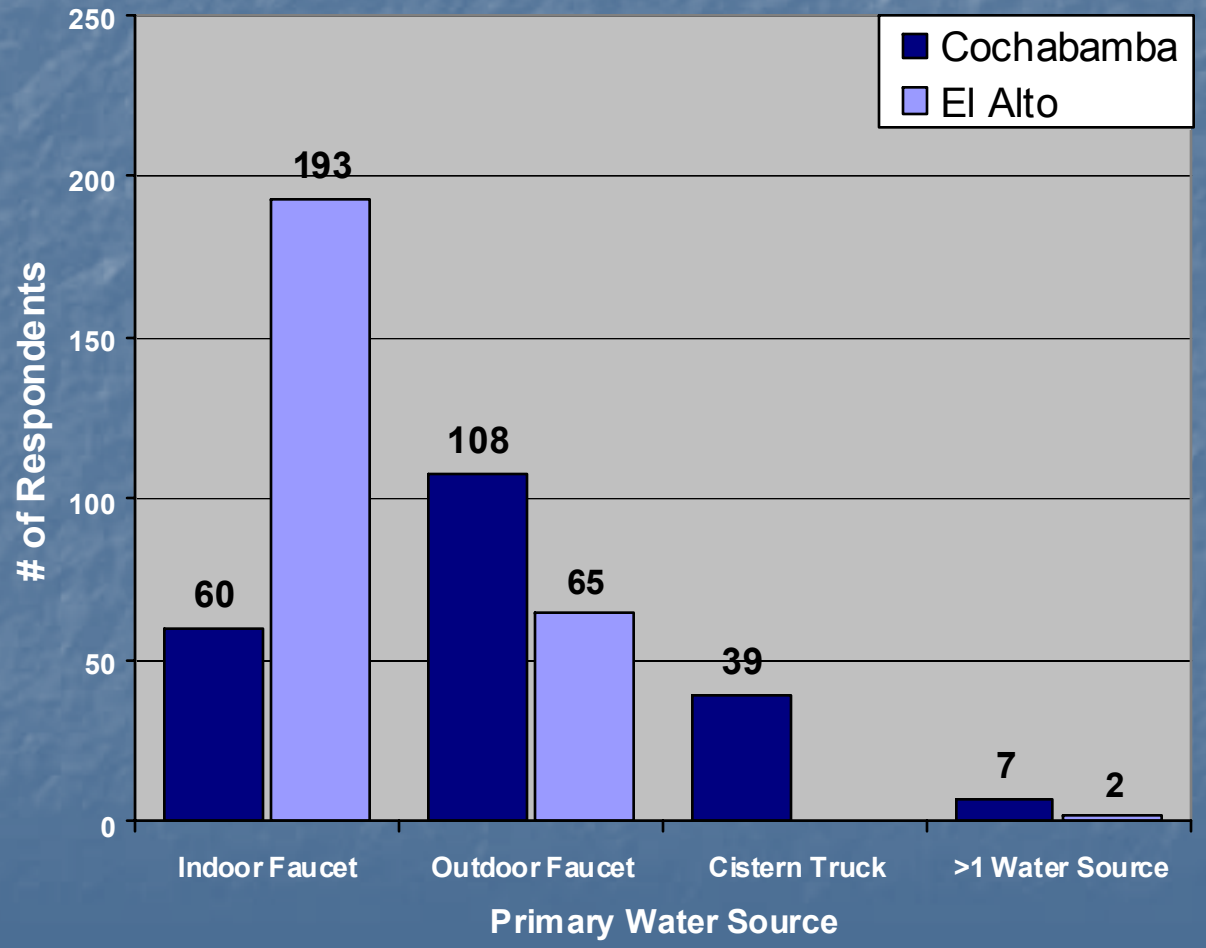
Wells (Private / Community)

Store Bought

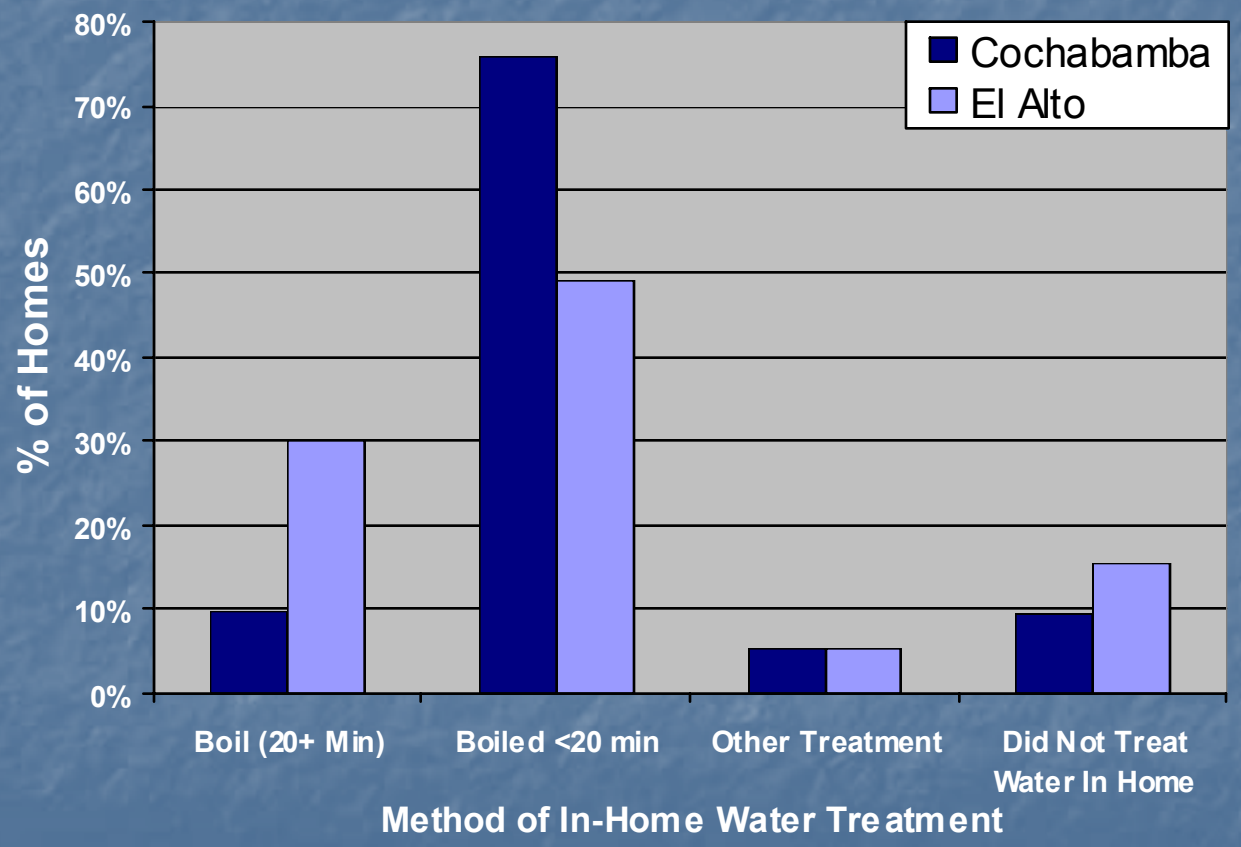
Neighborhood Networks

Cistern Trucks

Frequency of Water Source, by City



In-Home Drinking Water Treatment, by City



Water Treatment & Sanitation

	Cochabamba N=214	El Alto N=260	Total N=474
In-Home Water Treatment	**# (%)**	**# (%)**	**# (%)**
Boil (20+ Min)	21 (9.8)	78 (30.0)	99 (20.9)
Boiled <20 min	162 (75.7)	128 (49.2)	290 (61.2)
Other Treatment (Filtered, Chlorinated, SODIS, or Combination of Above)	11 (5.1)	14 (5.4)	25 (5.3)
Did Not Treat Water In Home	20 (9.3)	40 (15.4)	60 (12.7)
Sewer Access	**# (%)**	**# (%)**	**# (%)**
Has Had Sewer Access Since Before 2/12/03	141 (65.9)	165 (63.5)	306 (64.6)
Gained Sewer Access Since 2/12/03	9 (4.2)	20 (7.7)	29 (6.1)
Home Never Had Sewer Access	64 (29.9)	75 (28.8)	139 (29.3)
Waste Water Disposal	**# (%)**	**# (%)**	**# (%)**
Waste Water Goes to Sewage Network	157 (73.4)	161 (61.9)	318 (67.1)
Waste Water Goes to Septic Tank	14 (6.5)	11 (4.2)	25 (5.3)
Waste Water Thrown in the Street / Patio	43 (20.1)	88 (33.9)	131 (27.6)

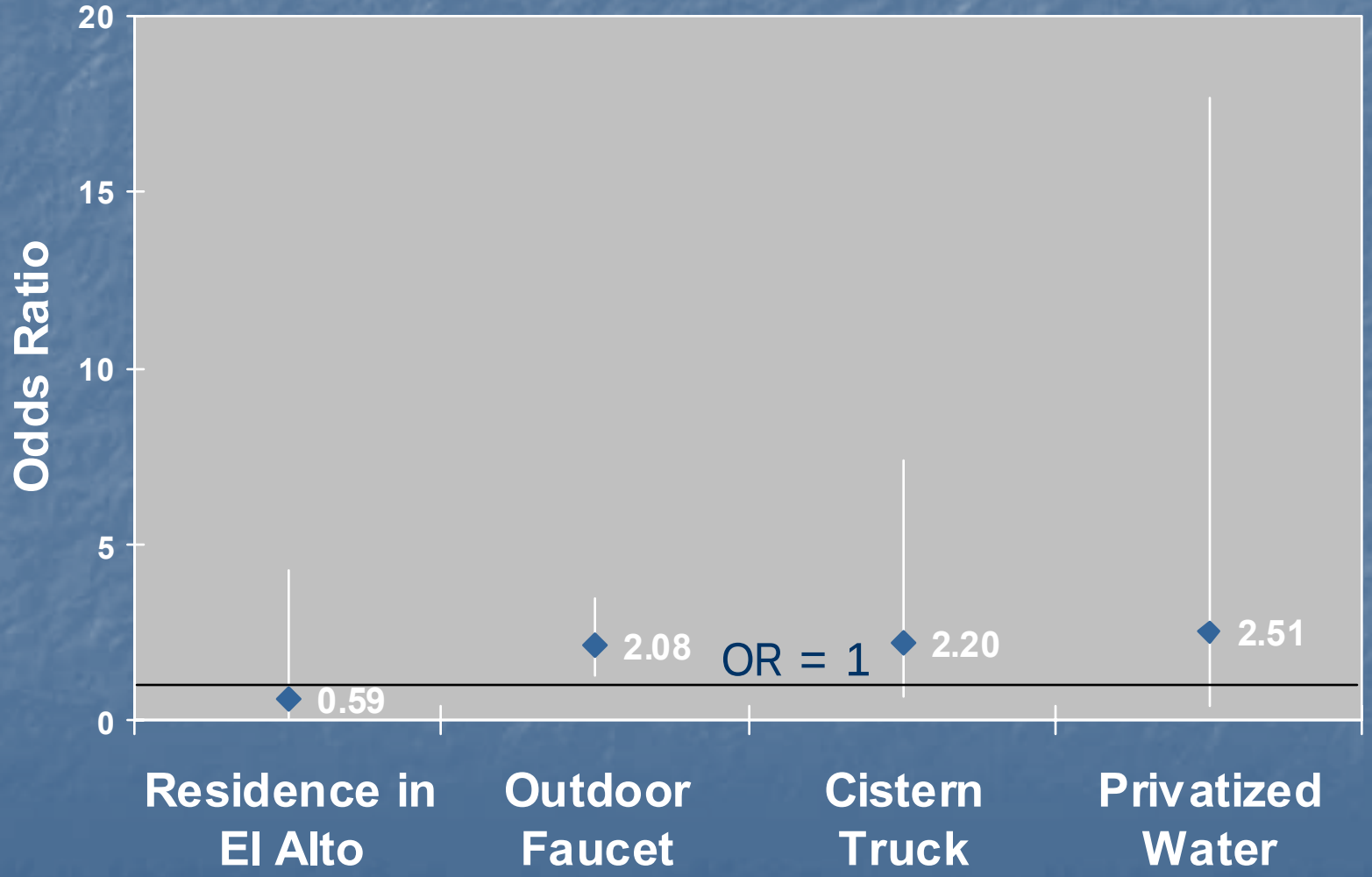
Back to the Questions:

- Do rates of diarrhea differ between cities?
- Do rates of diarrhea depend upon type of water source?
- Do rates of diarrhea depend upon the use of privatized water?
- Do these effects vary by demographics/sanitation

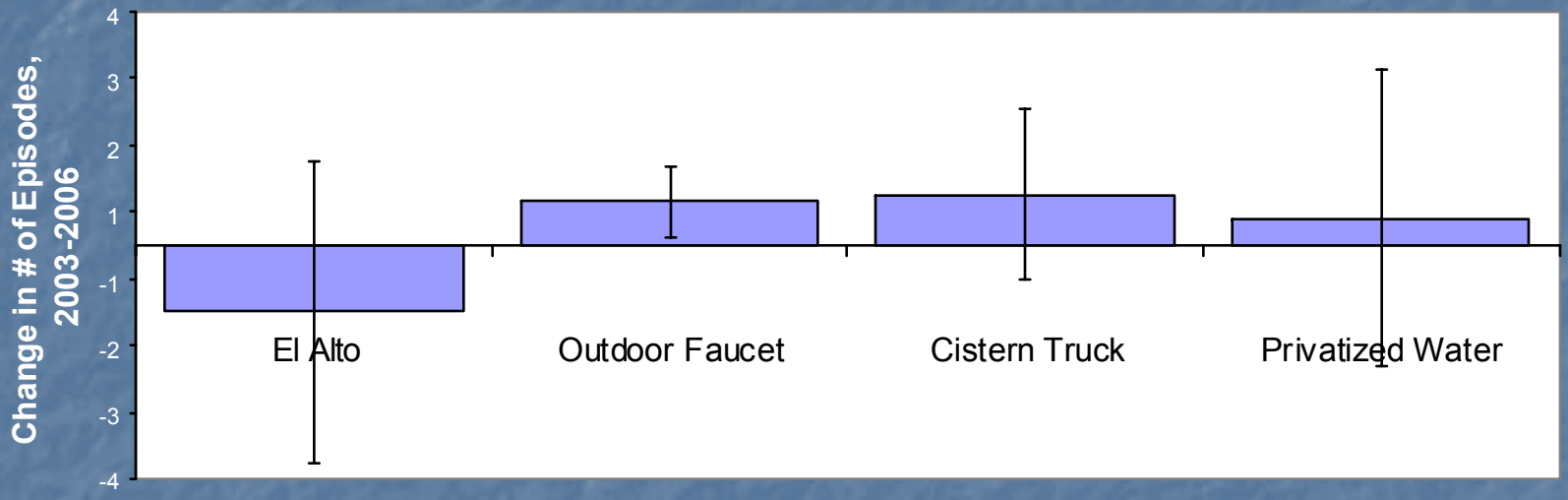
Prevalence and Frequency of Diarrhea Between 2/12/03–6/30/06

	Cochabamba	El Alto	Total
3 – Year Prevalence of Pediatric Diarrhea, # (%)	145 (67.8)	172 (66.2)	317 (66.9)
Median # of Reported Episodes of Diarrhea over 3 – Years	1.5	1.0	1.0
Mean # of Reported Episodes of Diarrhea per Child Over 3 – Years	2.32	1.62	p = 0.02

Effects of Residence and Water Use on Prevalence of Pediatric Diarrhea



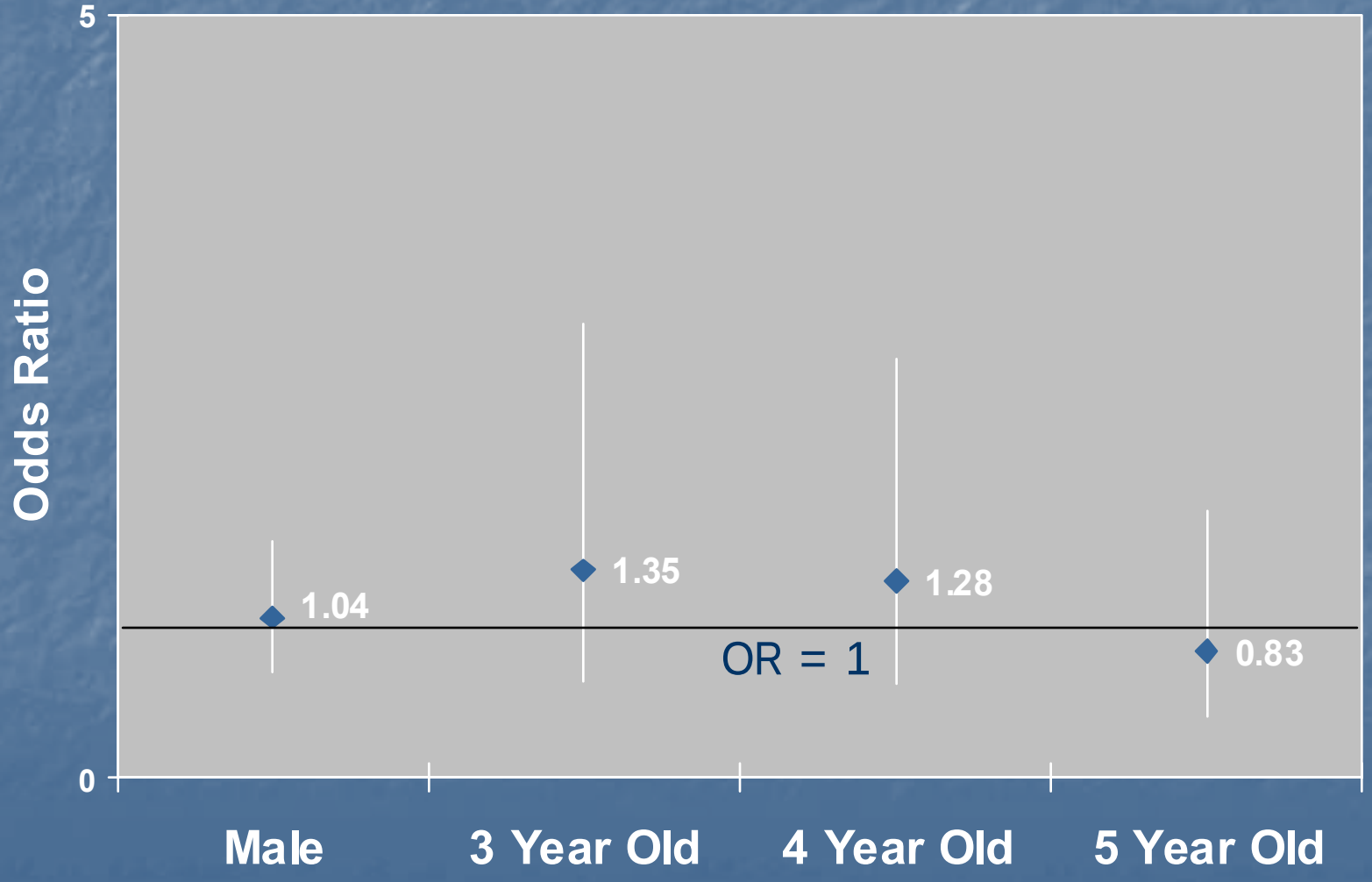
Change in Frequency of Pediatric Diarrhea Based Upon City and Water Source



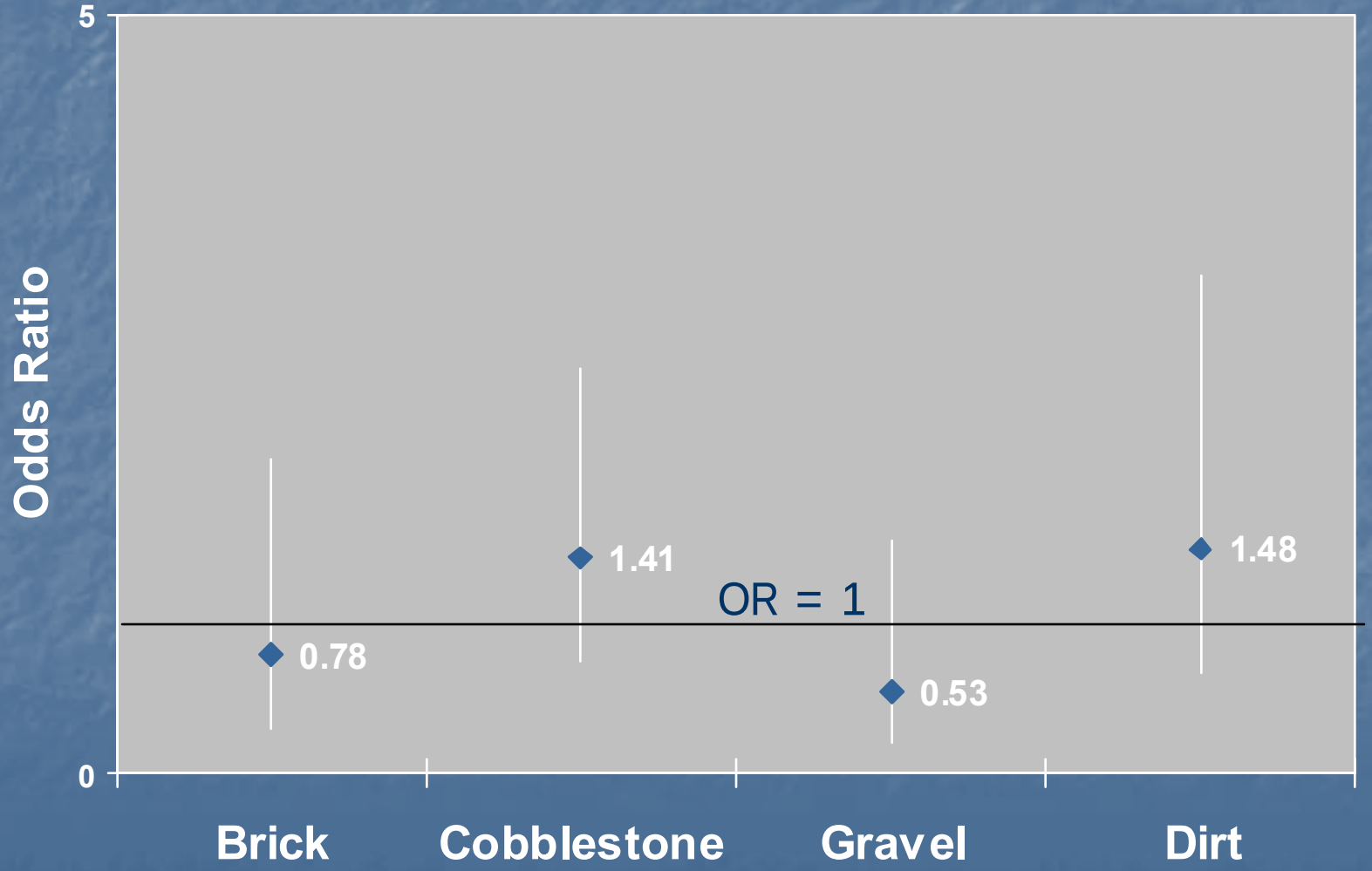
Reference Group:

Residence in Cochabamba	Public Water Network	Indoor Faucet
Female Children	6 Years Old	Paved Road
Boiled Water 20+ minutes	Sewer Access Prior to 2003	Waste to Sewer

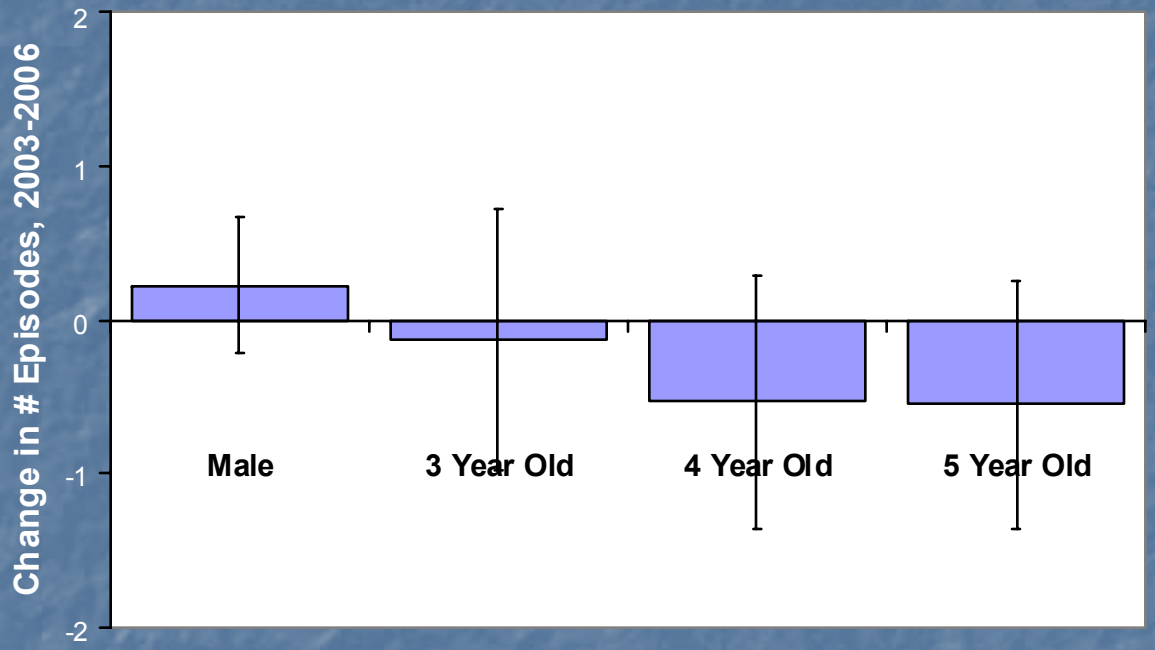
Effects of Age and Sex on Prevalence of Pediatric Diarrhea



Effects of Type of Road Outside Home on Prevalence of Pediatric Diarrhea



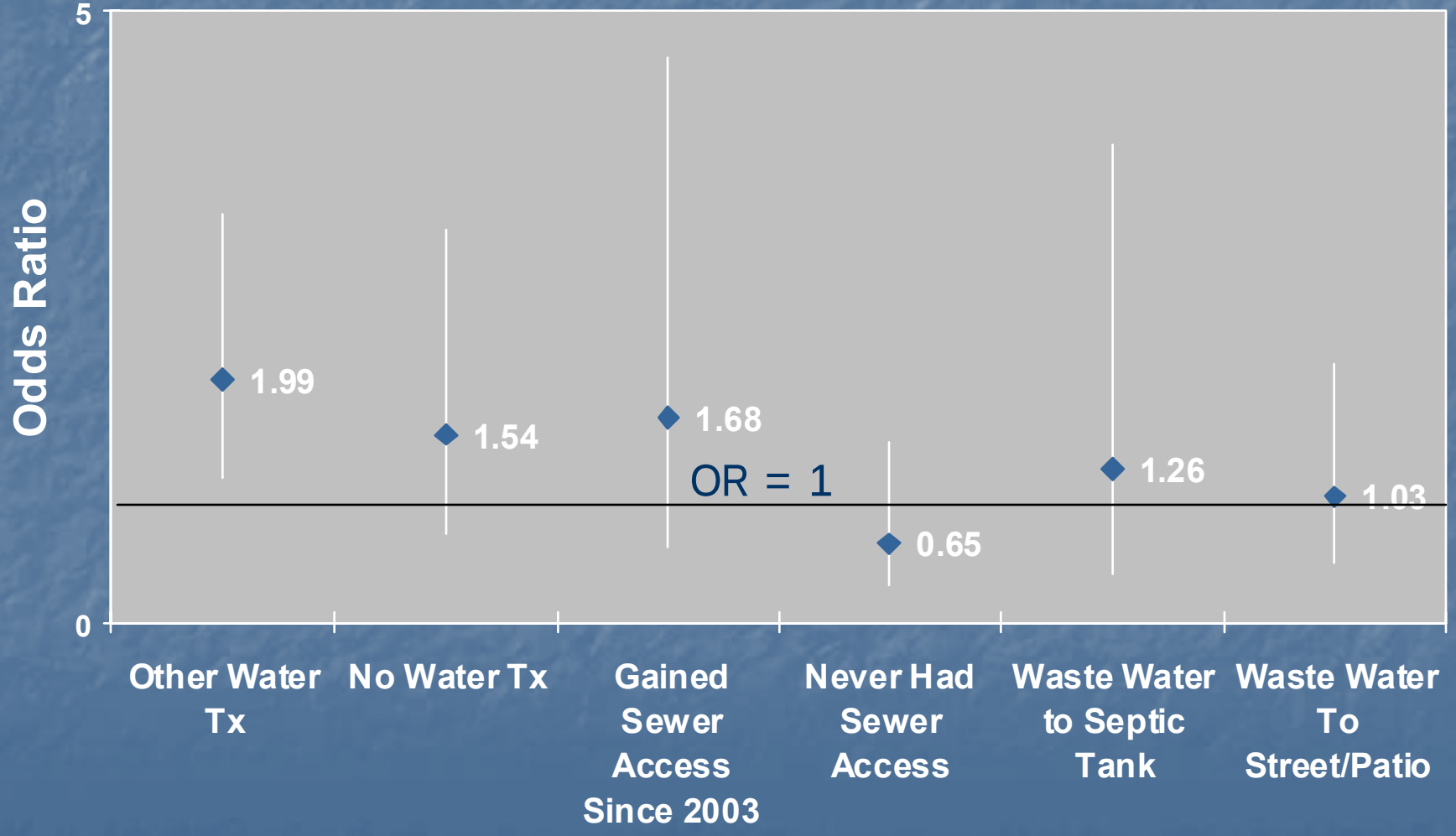
Change in Frequency of Pediatric Diarrhea Based Upon Sex and Age



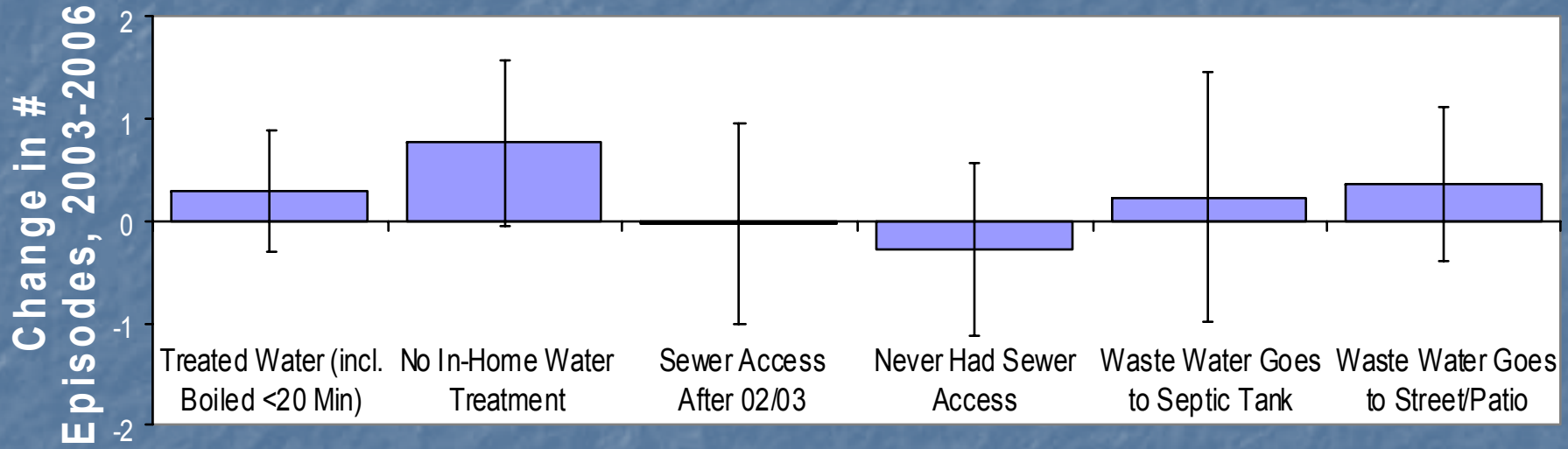
Reference Group:

Residence in Cochabamba	Public Water Network	Indoor Faucet
Female Children	6 Years Old	Paved Road
Boiled Water 20+ minutes	Sewer Access Prior to 2003	Waste to Sewer

Effects of Water Treatment and Sewer Network Access on Prevalence of Pediatric Diarrhea



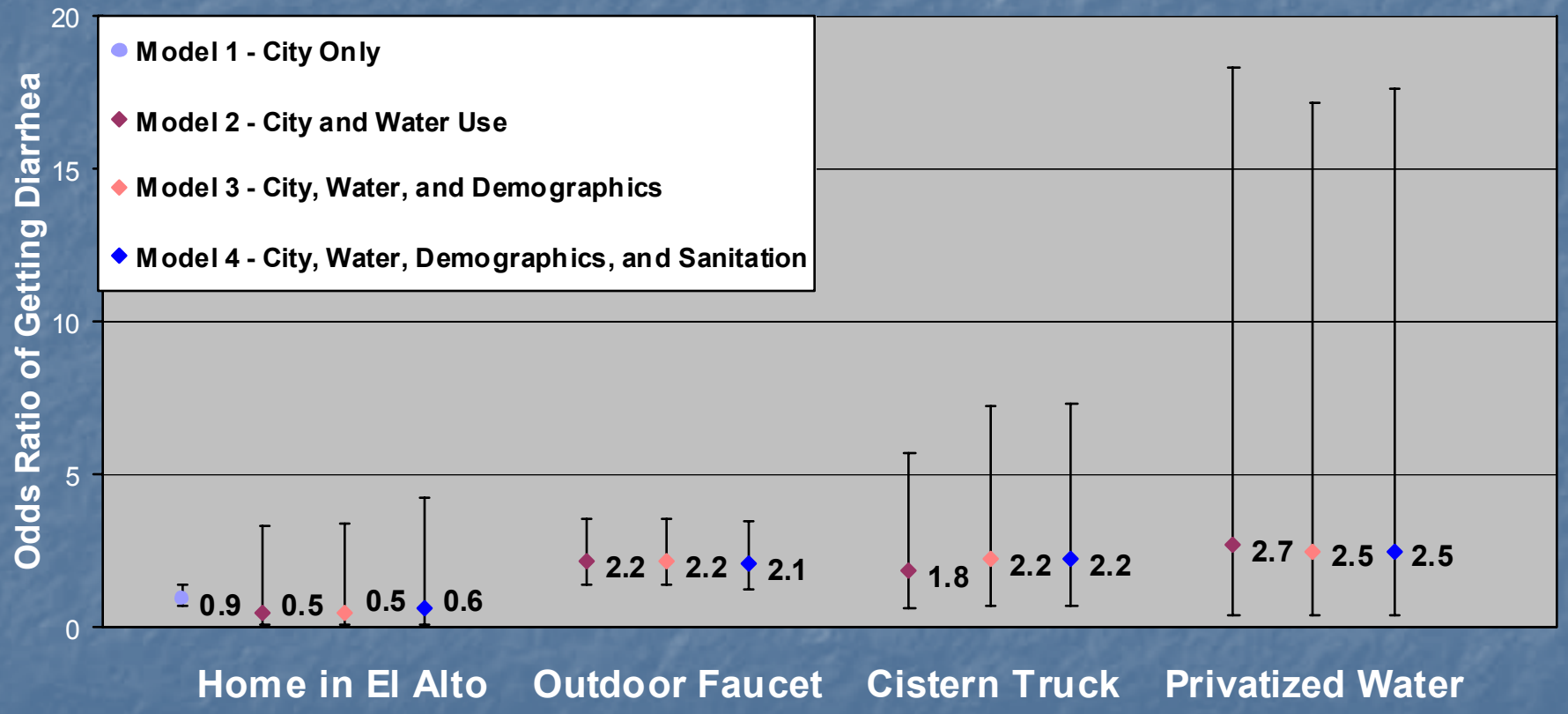
Change in Frequency of Pediatric Diarrhea Based Upon In-Home Water Treatment and Sanitation



Reference Group:

Residence in Cochabamba	Public Water Network	Indoor Faucet
Female Children	6 Years Old	Paved Road
Boiled Water 20+ minutes	Sewer Access Prior to 2003	Waste to Sewer

Change in Effect of City and Water Utilization on Prevalence of Diarrhea, Controlling For Demographics and Sanitation



Additional Factors

- Other variables included in alternative models:
  - Amount / % Drinking Water Consumed in Home
  - Hand washing
  - Duration of breast feeding
  - Type of toilet used in home
  - # children in home
  - Frequency of Housekeeping
- Not included in final model as they did not change relationship of water to diarrhea
  - Validated data set, e.g. hand washing with only water associated with higher prevalence than washing with soap

Back to the Questions, Again:

- Do rates of diarrhea differ between cities?
- Do rates of diarrhea depend upon type of water source?
- Do rates of diarrhea depend upon the use of privatized water?
- Do these effects vary by demographics and sanitation

Conclusions

	Effect on Prevalence	Effect on Frequency	Fits Original Hypothesis?
Living in Cochabamba	↑	↑	NO
Use of Privatized Water	↑	↑	YES
Use of Off-Network Water	↑	↑	YES
Outdoor Faucets	↑	↑	?

Conclusions

	Effect on Prevalence	Effect on Frequency	Fits Original Hypothesis?
Waste Water Disposed of in Septic Tank	↑	↑	YES
Waste Water Thrown in Street/Patio	↑	↑	YES
Gaining Sewer Access Since 2003	↑	↑	YES
Never Having Sewer Access	↓	↓	NO

Acknowledgements

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Mount Sinai School of Medicine

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Mount Sinai School of Medicine

Questions?

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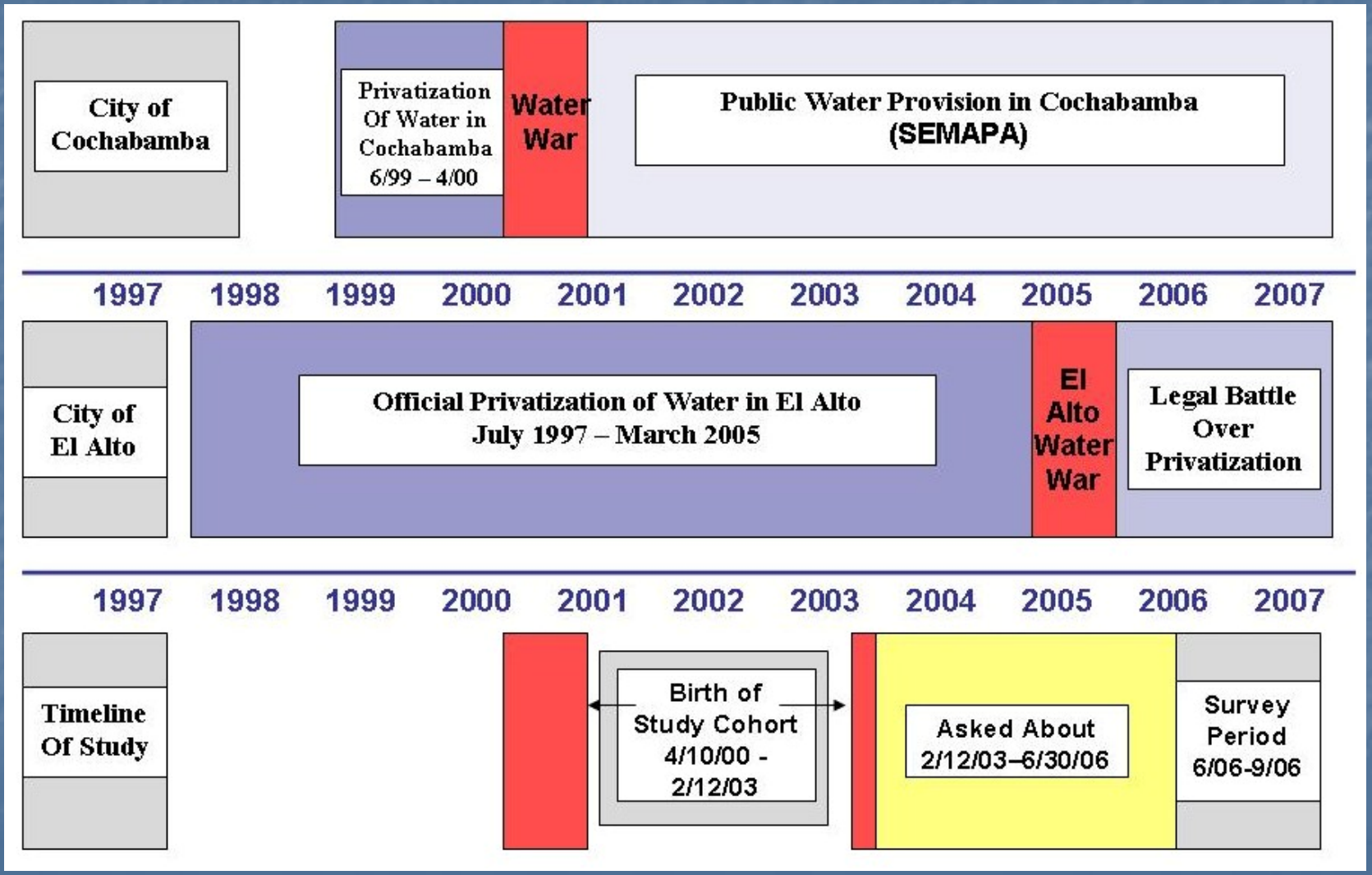
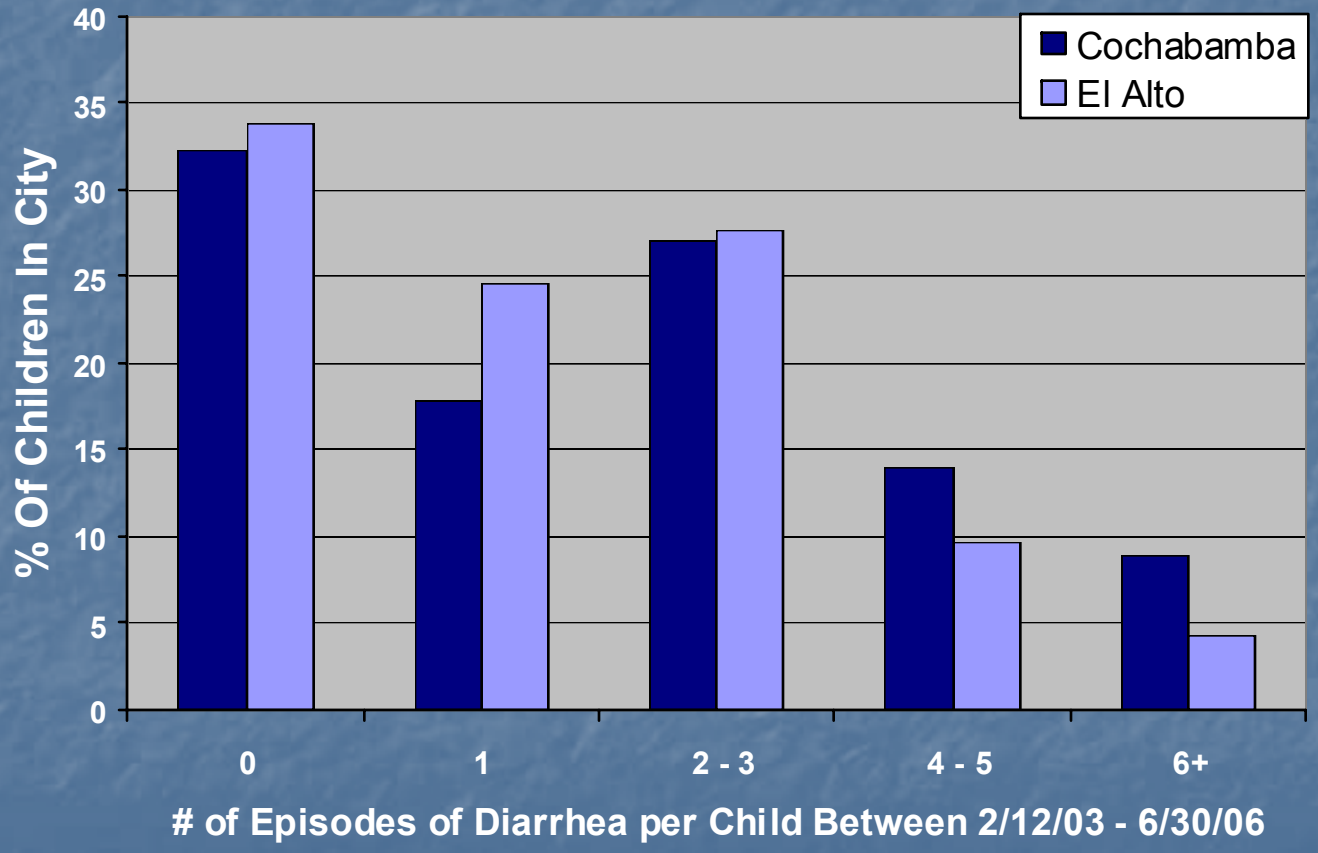
Extra Slides to Answer Questions

Timeline



Frequency of Diarrhea in Bolivian Children Between 2/12/03–6/30/06, by City



Linear and Logistic Regression Results

Reference Group for Multivariate Regressions

Residence in Cochabamba
Public Water Network
Indoor Faucet

Female Children
6 Years Old
Paved Road

Boiled Water
20+ minutes
Sewer Access Prior to 2003
Waste to Sewer

	Logistic Regression of 3-Year Prevalence of Pediatric Diarrhea	Linear Regression of Total # of Episodes of Pediatric Diarrhea
	Odds Ratio of Prevalence (95% CI)	**B – Coefficients (95% CI)**
City of Residence	0.59 (0.08 – 4.24)	-1.00 (-3.26 – 1.27)
Water From Outdoor Faucet	2.08 (1.25 – 3.46)	0.67 (0.14 – 1.20)
Water From Cistern Truck	2.20 (0.66 – 7.34)	0.76 (-0.53 – 2.05)
Other Primary Water Source	4.05 (0.58 – 28.19)	1.86 (0.00 – 3.72)
Used Multiple Water Sources	1.85 (0.65 – 5.28)	0.81 (-0.17 – 1.78)
Water From Private Corporation	2.51 (0.36 – 17.61)	0.41 (-1.82 – 2.63)
Water Provided by Either Cistern Truck, Local/Neighborhood Organization, or Well	0.98 (0.36 –2.63)	-0.55 (-1.62 – 0.51)
Child Was Male	1.04 (0.69 – 1.56)	0.22 (-0.22 – 0.66)
Child Was 3 Years Old	1.35 (0.61 – 2.96)	-0.13 (-0.98 – 0.72)
Child Was 4 Years Old	1.28 (0.60 – 2.74)	-0.53 (-1.36 – 0.29)
Child Was 5 Years Old	0.83 (0.40 – 1.74)	-0.56 (-1.37 – 0.26)
Lived on Brick Road	0.78 (0.30 – 2.07)	0.32 (-0.77 – 1.42)
Lived on Cobblestone Road	1.41 (0.74 – 2.67)	0.08 (-0.63 – 0.79)
Lived on Gravel Road	0.53 (0.19 – 1.53)	0.30 (-0.92 – 1.52)
Lived on Dirt Road	1.48 (0.67 – 3.27)	0.26 (-0.62 – 1.13)
Treated Water in Home Without Boiling 20 minutes	1.99 (1.19 – 3.34)	0.30 (-0.29 – 0.88)
No In-Home Water Treatment	1.54 (0.74 – 3.22)	0.76 (-0.06 – 1.57)
Gained Sewer Network Access During Survey Period	1.68 (0.61 – 4.61)	-0.04 (-1.02 – 0.95)
Never Had Sewer Network Access	0.65 (0.29 – 1.46)	-0.28 (-1.13 – 0.57)
Waste Water to Septic Tank	1.26 (0.41– 3.91)	0.23 (-0.98 – 1.45)
Waste Water to Street / Patio	1.03 (0.50 – 2.12)	0.36 (-0.40 – 1.12)

Logistic Regression

	Odds Ratios	95% CI
City of Residence	0.59	(0.08 – 4.24)
Water From Outdoor Faucet	2.08	(1.25 – 3.46)
Water From Cistern Truck	2.20	(0.66 – 7.34)
Other Primary Water Source	4.05	(0.58 – 28.19)
Used Multiple Water Sources	1.85	(0.65 – 5.28)
Water From Private Corporation	2.51	(0.36 – 17.61)
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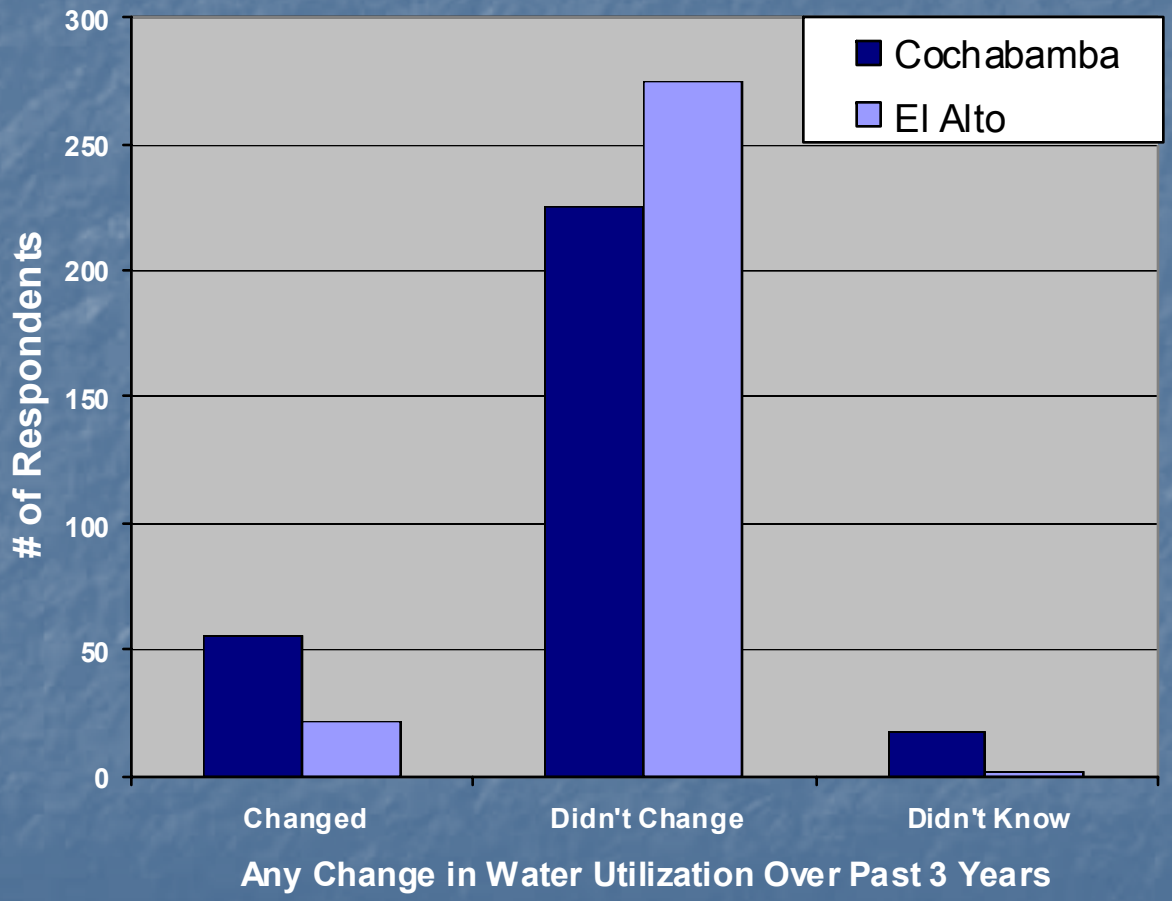
Child Was Male	1.04	(0.69 – 1.56)
Child Was 3 Years Old	1.35	(0.61 – 2.96)
Child Was 4 Years Old	1.28	(0.60 – 2.74)
Child Was 5 Years Old	0.83	(0.40 – 1.74)
Lived on Brick Road	0.78	(0.30 – 2.07)
Lived on Cobblestone Road	1.41	(0.74 – 2.67)
Lived on Gravel Road	0.53	(0.19 – 1.53)
Lived on Dirt Road	1.48	(0.67 – 3.27)
Treated Water in Home Without Boiling 20 minutes	1.99	(1.19 – 3.34)
No In-Home Water Treatment	1.54	(0.74 – 3.22)
Gained Sewer Network Access During Survey Period	1.68	(0.61 – 4.61)
Never Had Sewer Network Access	0.65	(0.29 – 1.46)
Waste Water to Septic Tank	1.26	(0.41– 3.91)
Waste Water to Street / Patio	1.03	(0.50 – 2.12)

Linear Regression

	Beta Value	95% CI
Alpha	1.75	(0.64 – 2.87)
City of Residence	-1.00	(-3.26 – 1.27)
Water From Outdoor Faucet	0.67	(0.14 – 1.20)
Water From Cistern Truck	0.76	(-0.53 – 2.05)
Water From Wells or Bought From Store	1.86	(0.00 – 3.72)
Used Multiple Water Sources	0.81	(-0.17 – 1.78)
Water From Private Corporation	0.41	(-1.82 – 2.63)
Water Provided by Either Cistern Truck, Local/Neighborhood Organization, or Well	-0.55	(-1.62 – 0.51)
Child Was Male	0.22	(-0.22 – 0.66)
Child Was 3 Years Old	-0.13	(-0.98 – 0.72)
Child Was 4 Years Old	-0.53	(-1.36 – 0.29)
Child Was 5 Years Old	-0.56	(-1.37 – 0.26)
Lived on Brick Road	0.32	(-0.77 – 1.42)
Lived on Cobblestone Road	0.08	(-0.63 – 0.79)
Lived on Gravel Road	0.30	(-0.92 – 1.52)
Lived on Dirt Road	0.26	(-0.62 – 1.13)
Treated Water in Home By Chlorination, Filtration, or Boiling 20 minutes	0.30	(-0.29 – 0.88)
No In-Home Water Treatment	0.76	(-0.06 – 1.57)
Gained Sewer Network Access During Survey Period	-0.04	(-1.02 – 0.95)
Never Had Sewer Network Access	-0.28	(-1.13 – 0.57)
Waste Water to Septic Tank	0.23	(-0.98 – 1.45)
Waste Water to Street / Patio	0.36	(-0.40 – 1.12)

Decision to Exclude Those Changing Water Use From Analysis

Proportion of Participants Changing Water Usage between Two Study Periods (2/11/03 – 3/2/05 vs. 3/2/05 – 6/30/06) by City



Logistic Regression Without Excluding Those Changing Water Use

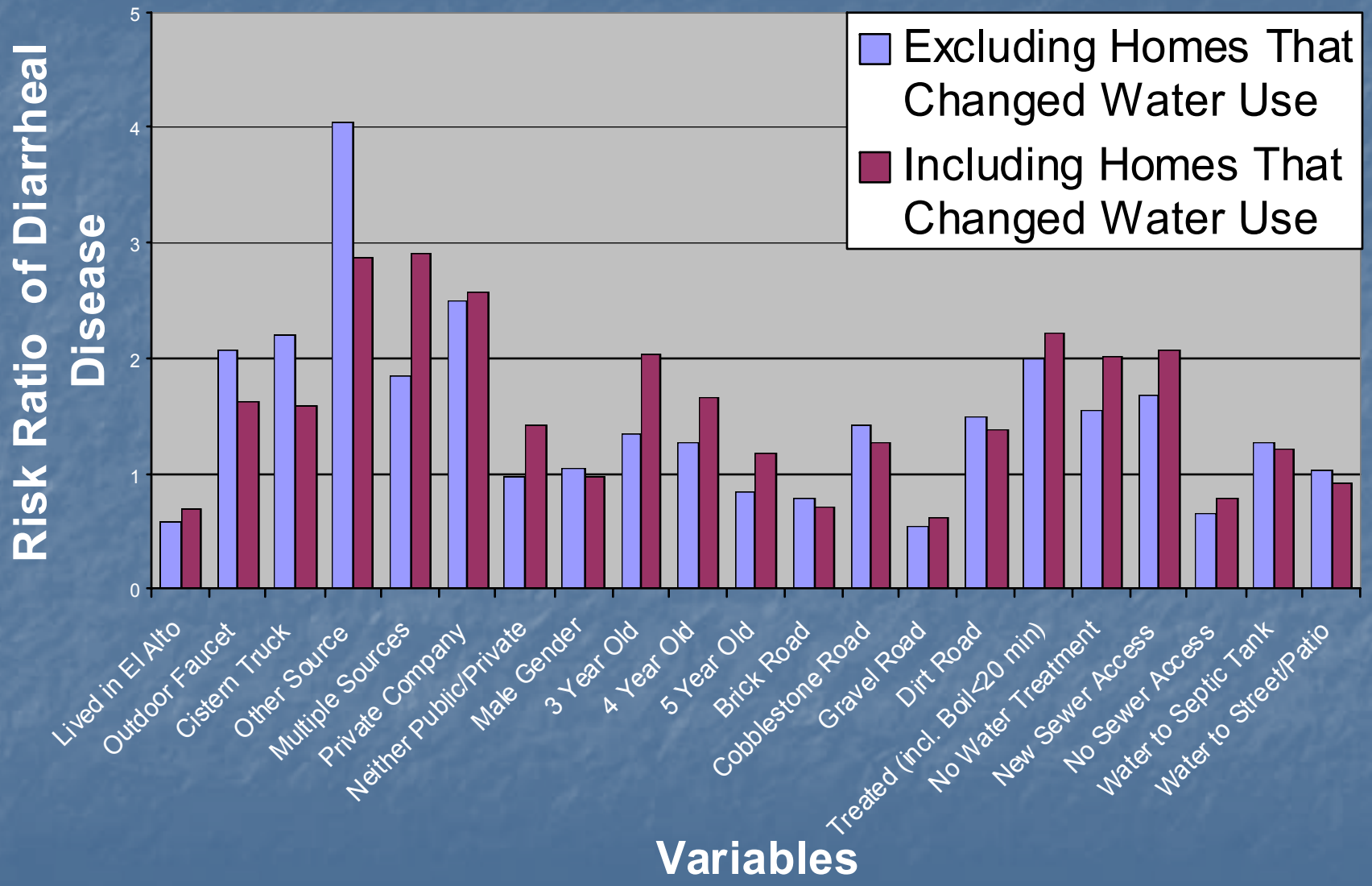
	Model Excluding Changes of Water Use Odds Ratios (95% CI)	Model Including Changes of Water Use Odds Ratios (95% CI)
Residence in El Alto	0.59 (0.08 – 4.24)	0.69 (0.142 – 3.34)
Water Source		
Water From Outdoor Faucet	2.08 (1.25 – 3.46)	1.62 (1.03 – 2.57)
Water From Cistern Truck	2.20 (0.66 – 7.34)	1.59 (0.54 – 4.65)
Other Primary Water Source	4.05 (0.58 – 28.19)	2.88 (0.43 – 19.24)
Used Multiple Water Sources	1.85 (0.65 – 5.28)	2.91 (1.18 – 7.17)
Water Provider		
Private Corporation	2.51 (0.36 – 17.61)	2.59 (0.56 – 12.07)
Water Provided by Either Cistern Truck, Local/Neighborhood Organization, or Well	.098 (0.36 –2.63)	1.43 (0.85 – 3.50)

Inclusion does not change main effects

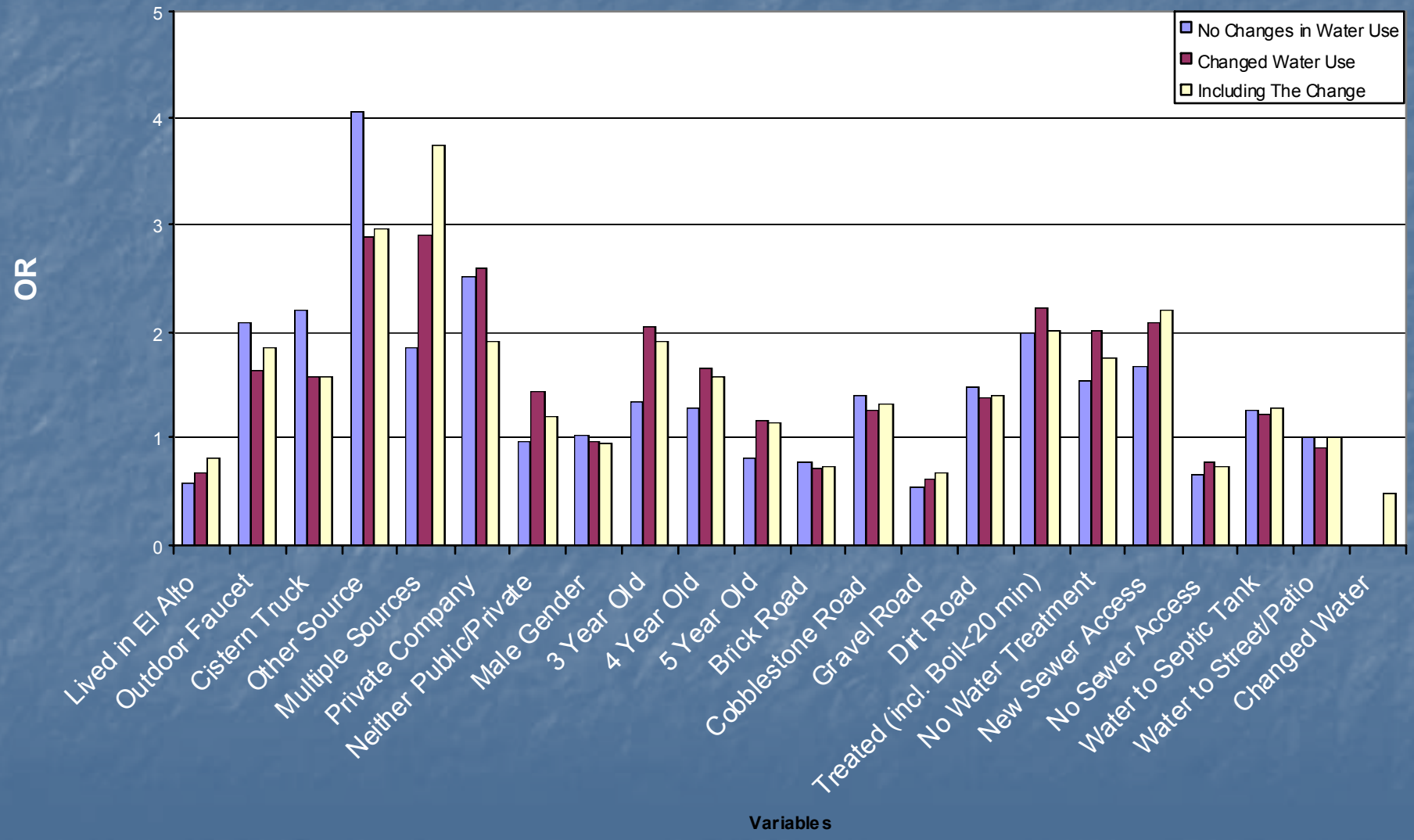
Proportion of Participants Changing Water Usage Between 2/12/03 – 6/30/06, By City

	Cochabamba (N=298)	El Alto (N=298)	Overall (N=596)
Changed Water Utilization # (%)	56 (18.8)	22 (7.4)	78 (13.1)
Didn't Change Water Utilization # (%)	225 (75.5)	274 (91.9)	499 (83.7)
Didn't Know # (%)	17 (5.7)	2 (0.7)	19 (3.2)

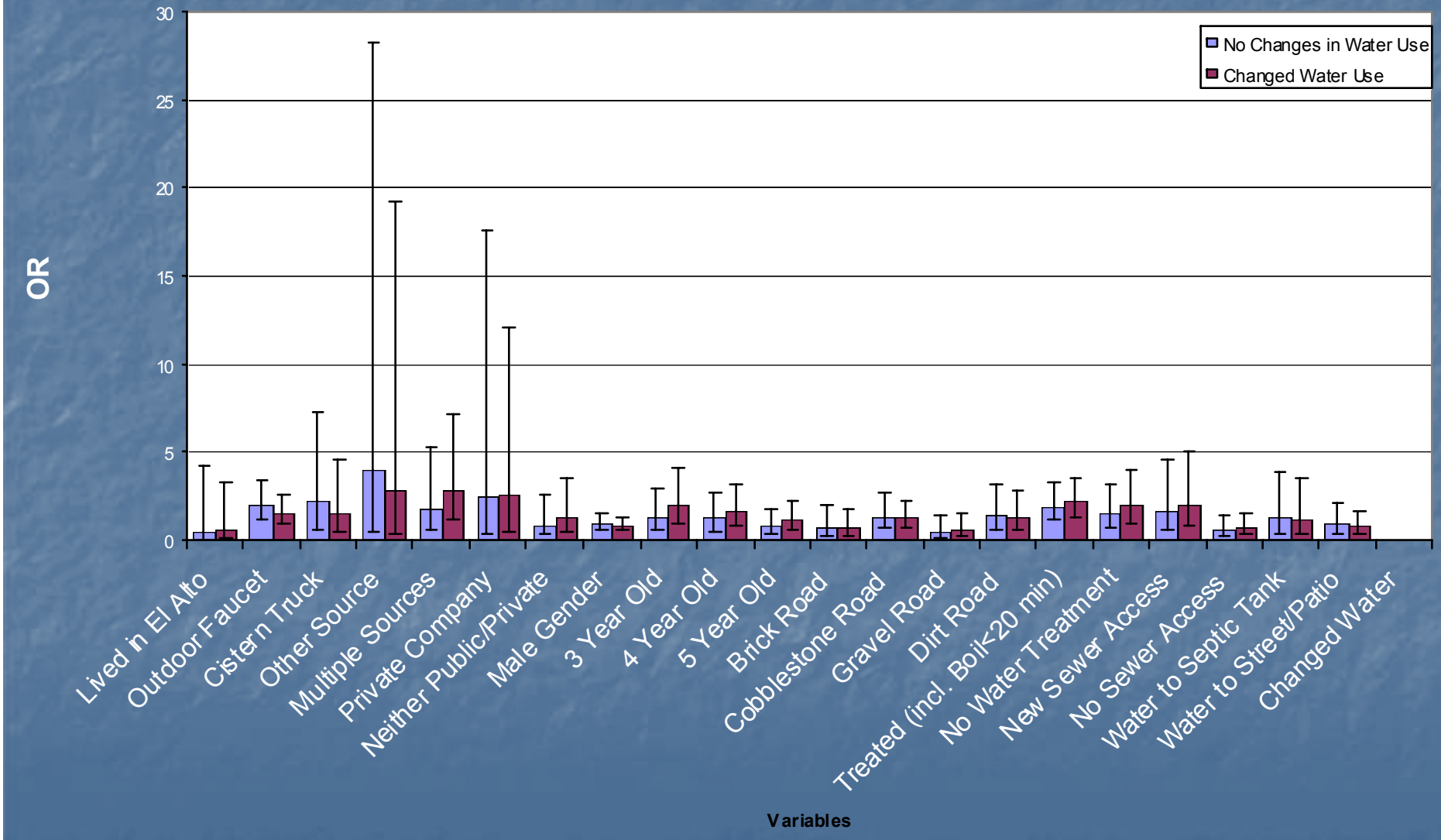
Change in Odds Ratios of Diarrhea Based Upon Inclusion of Those Who Changed Water Utilization



Change in Odds Ratios of Diarrhea Based Upon Inclusion of Those Who Changed Water Utilization



Change in Odds Ratios of Diarrhea Based Upon Inclusion of Those Who Changed Water Utilization

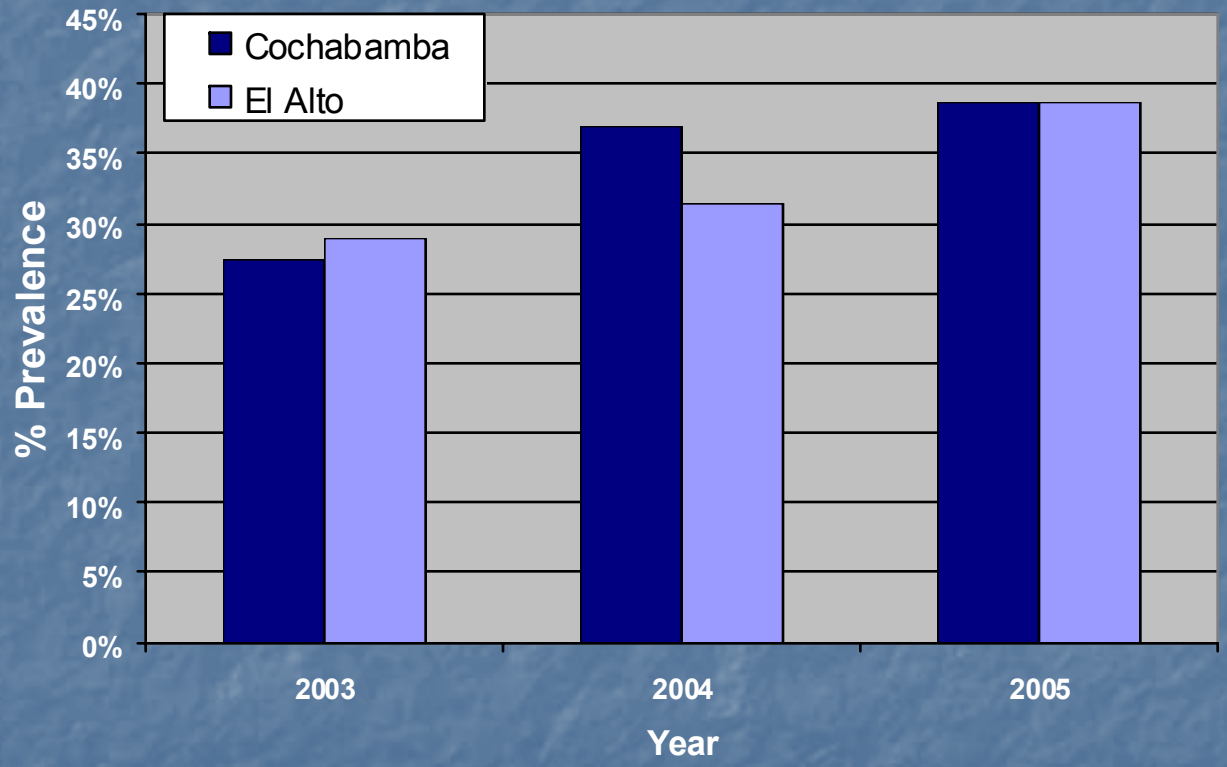


Change In Prevalence By Age and Season

Prevalence and Frequency of Diarrhea Between 2/12/03–6/30/06

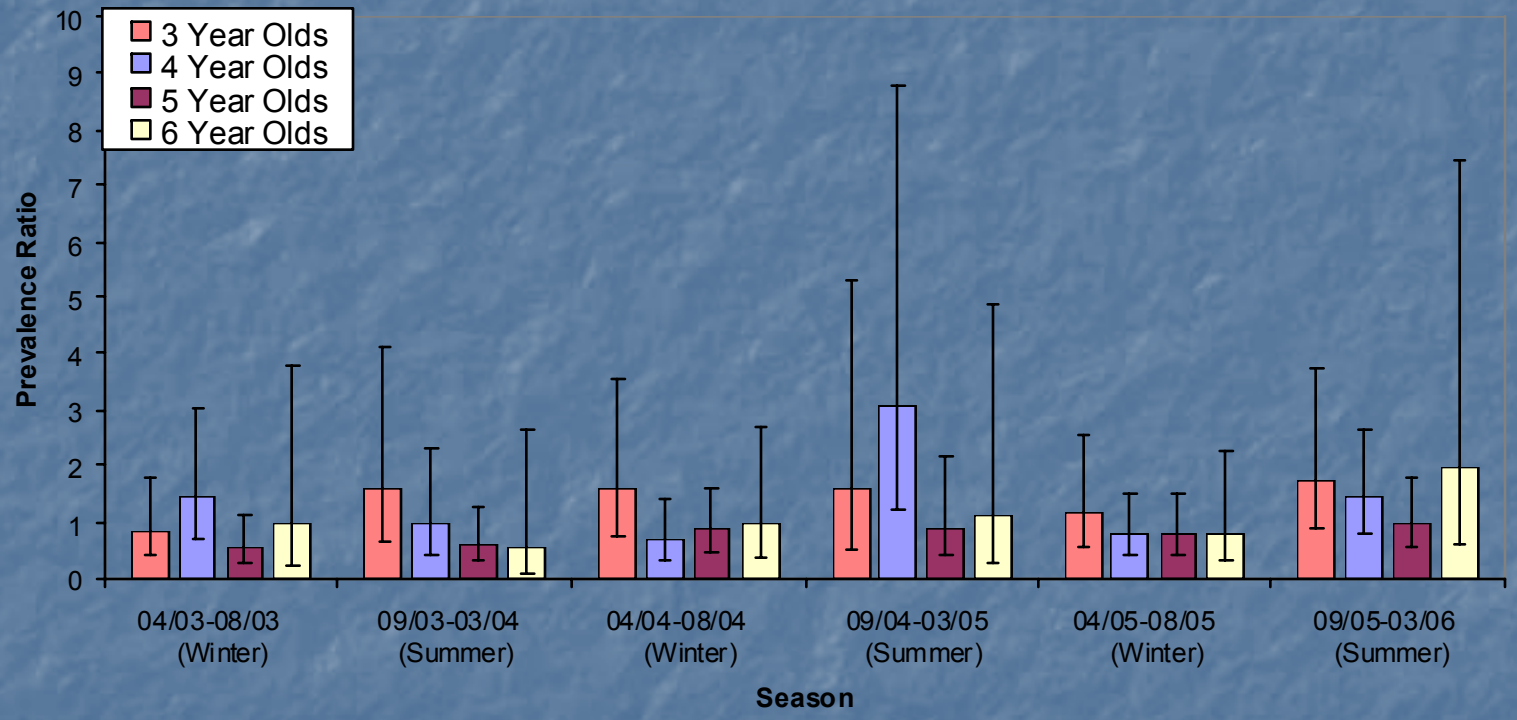
	Cochabamba # (%)	El Alto # (%)	Total # (%)
3 – Year Prevalence of Pediatric Diarrhea	145 (67.8)	172 (66.2)	317 (66.9)
Median # of Reported Episodes of Diarrhea over 3 – Years	1.5	1.0	1.0
Total # of Reported Episodes of Diarrhea per Child Over 3 – Years			
0	69 (32.2)	88 (33.8)	157 (33.1)
1	38 (17.8)	64 (24.6)	102 (21.5)
2 – 3	58 (27.1)	72 (27.7)	130 (27.4)
4 – 5	30 (14.0)	25 (9.6)	55 (11.6)
6 +	19 (8.9)	11 (4.2)	30 (6.3)

Prevalence of Pediatric Diarrhea by City and Year



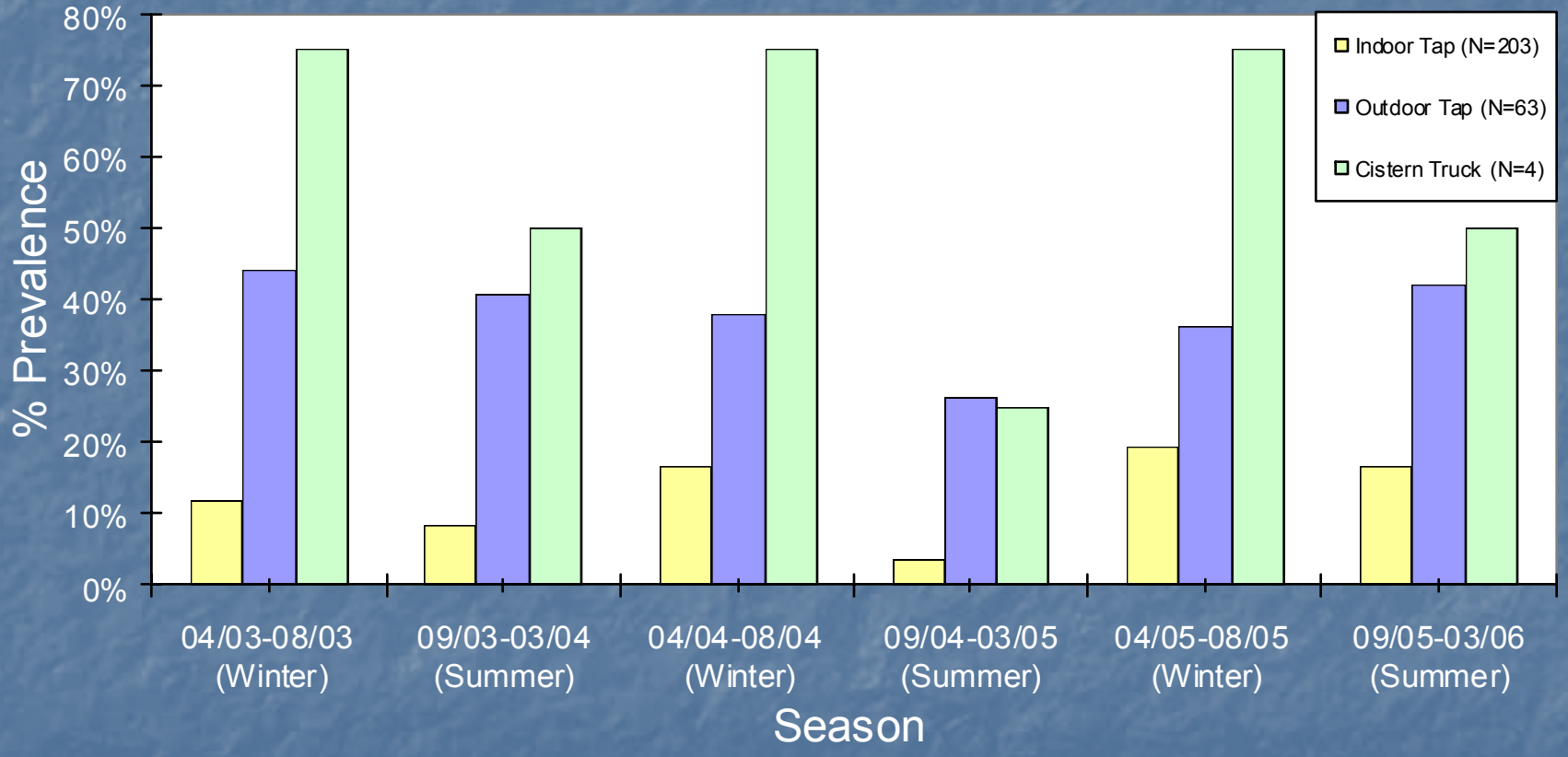
- 65.8% of children had ≥1 episode of diarrhea over the past 3 years
- Rates were similar between cities

Prevalence Ratios of Diarrheal Disease (Cochabamba / El Alto) By Child's Age in 2006 and Season, 4/03 – 4/06

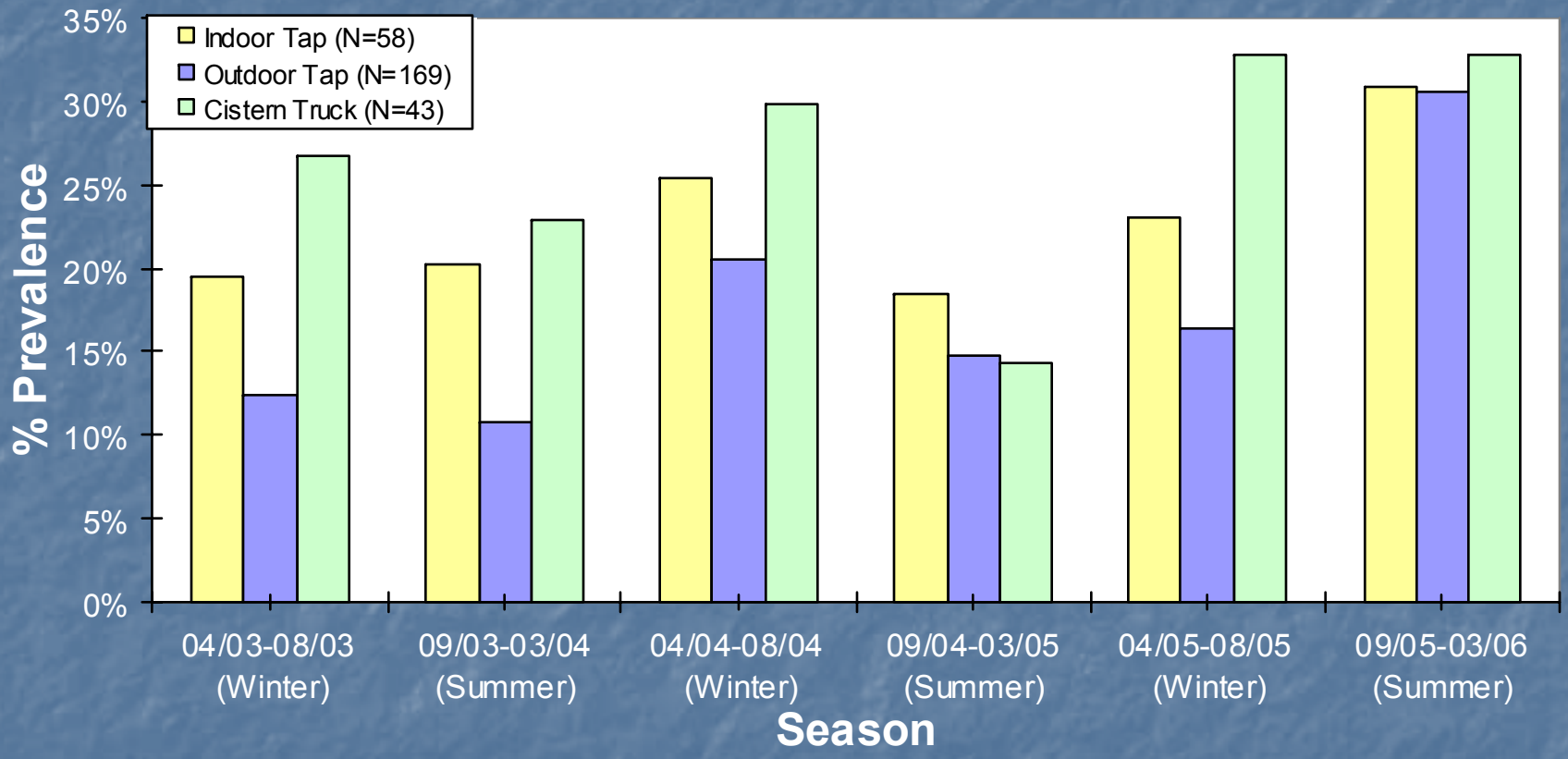


•Prevalence Ratios were not significantly different by age or season

Prevalence of Diarrhea Among Children in El Alto By Primary Water Source and Season, Winter/Summer April 2003 – April 2006



Prevalence of Diarrhea Among Children in Cochabamba By Primary Water Source and Season, Winter/Summer April 2003 – April 2006



Higher prevalence was found with indoor compared to outdoor faucets in Cochabamba; the reverse was observed in El Alto.

Access to Water Networks And Change In Utilization

Connections to Water Networks by Time and City

	Cochabamba # (%)	El Alto # (%)	Total # (%)
Connected Before 01/01/03	118 (39.6)	64 (21.5)	182 (30.5)
Connected Between 01/01/03 and 06/30/06	19 (6.3)	18 (6.0)	37 (6.2)
Connected But Don't Know When	105 (35.2)	209 (70.1)	314 (52.7)
Never Connected	54 (18.1)	7 (2.3)	61 (10.2)

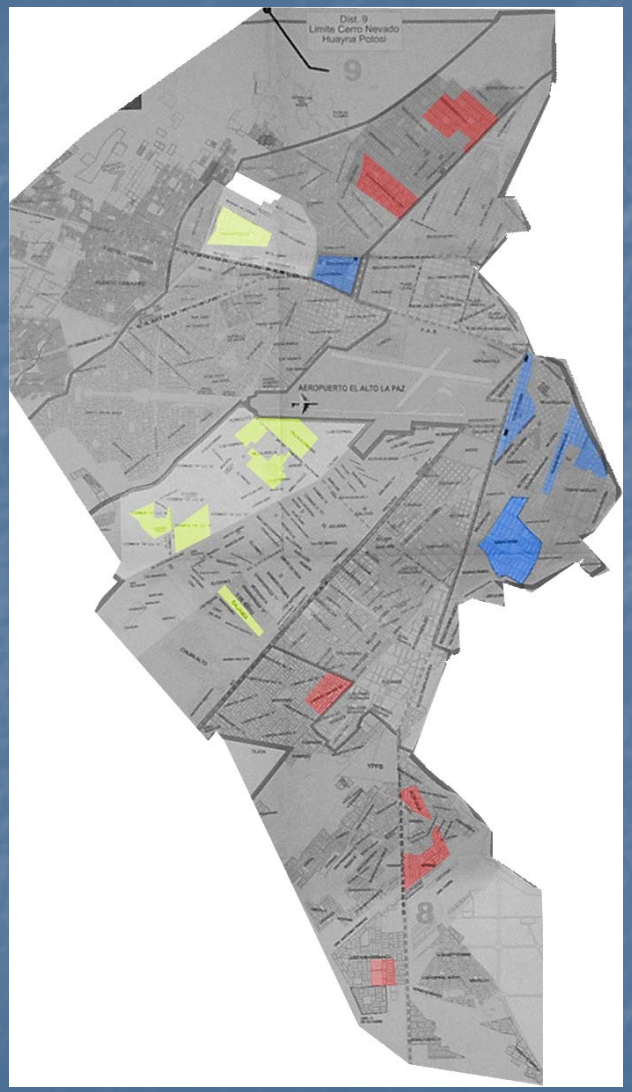
Large percentage of people don’t know when they were connected, so looking at access changes will be difficult on a household level

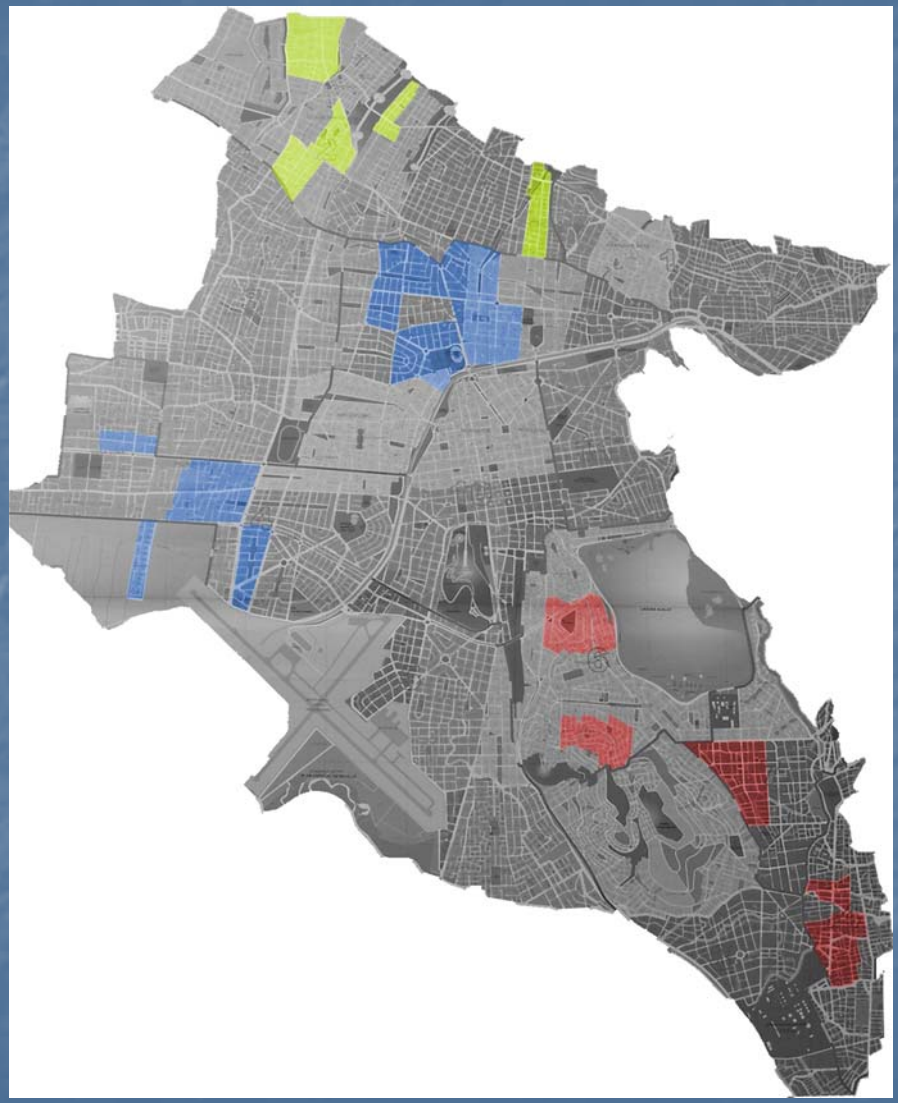
Water Source

	Cochabamba N=214	El Alto N=260	Total N=474
Type of Source	**# (%)**	**# (%)**	**# (%)**
Indoor Faucet	60 (28.0)	193 (74.2)	253 (53.4)
Outdoor Faucet	108 (50.5)	65 (25.0)	173 (36.5)
Cistern Truck	39 (18.2)	0 (N/A)	39 (8.2)
Store Bought, or From Well or Work	7 (3.3)	2 (0.8)	9 (1.9)
Used >1 Water Source	17 (7.9)	2 (3.5)	26 (5.5)
Ownership of Source			
Public Company (SEMAPA)	146 (68.2)	0 (N/A)	146 (30.8)
Private Corporation (Aguas de Illimani)	0 (N/A)	257 (98.8)	257 (54.2)
Cistern Truck Company, Neighborhood / Local Organization, or Local Store	68 (31.8)	3 (18.8)	71 (15.0)

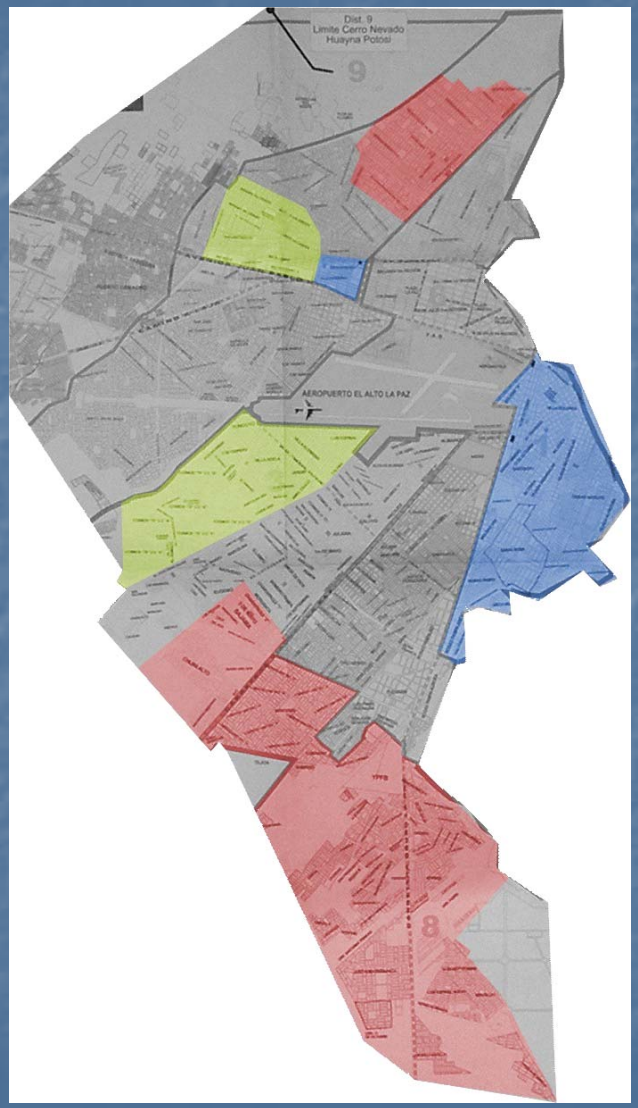
Choice of City Districts For Inclusion

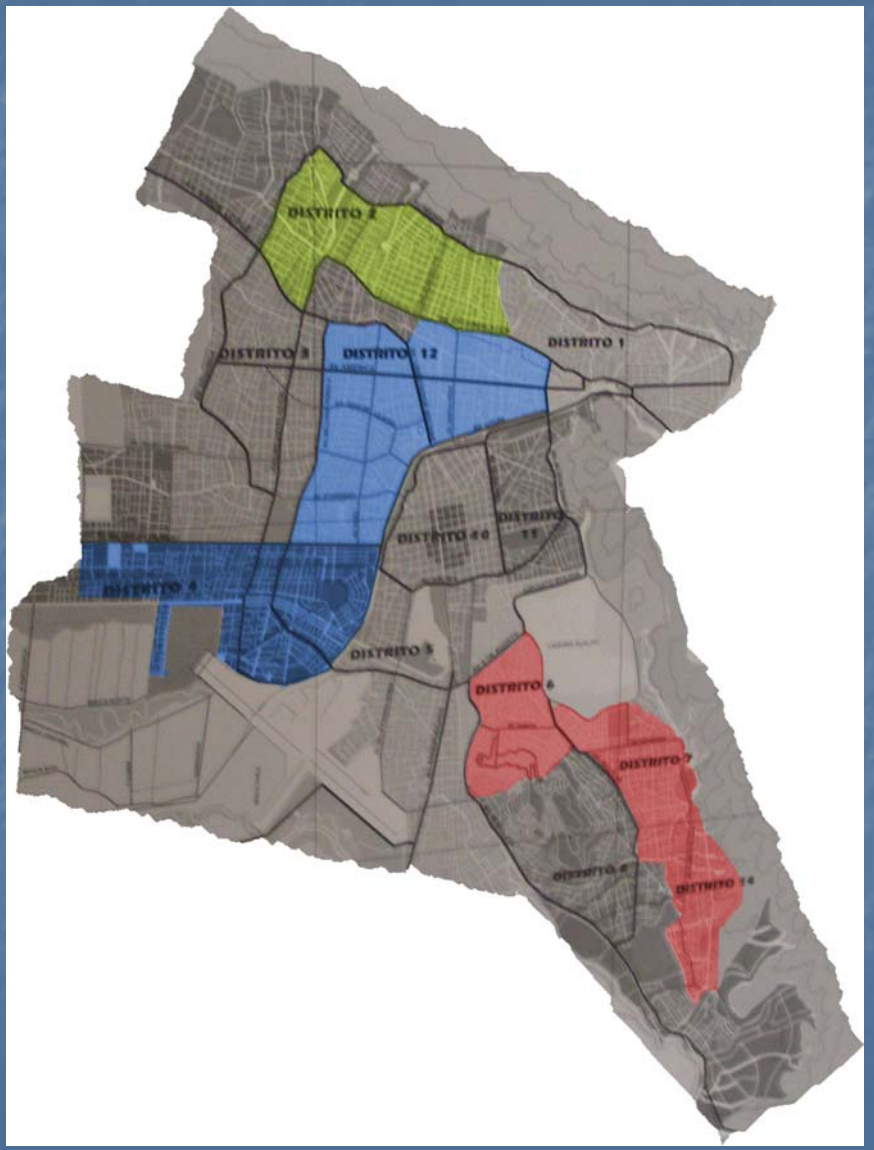
Sampling Areas?





Sampling Areas





Additional Demographics

Demographics of Respondents

	Cochabamba # (%)	El Alto # (%)	Total # (%)
Sex of Respondent	N=214	N=260	N=474
Female	187 (87.4)	206 (79.2)	393 (82.9)
Male	26 (12.1)	54 (20.8)	80 (16.9)
Relationship of Respondent to Index Child			
Mother	123 (57.5)	154 (59.2)	277 (58.4)
Father	16 (7.5)	28 (10.8)	44 (9.3)
Sister	17 (7.9)	20 (7.7)	37 (7.8)
Grandmother	28 (13.1)	12 (4.6)	40 (8.4)
Aunt	15 (7.0)	15 (5.8)	30 (6.3)
Other Relative	15 (7.0)	31 (11.8)	46 (9.7)
Ethnicity of Respondent			
Aymara	39 (18.2)	211 (81.2)	250 (52.7)
Quechua	96 (44.9)	16 (6.2)	112 (23.6)
Mestizo	56 (26.2)	25 (9.6)	81 (17.1)
Other	23 (10.7)	8 (3.1)	31 (6.5)

Demographics of Entire Sample

	Cochabamba N=298	**El Alto** N=298	**Total** N=596
	# (%)	# (%)	# (%)
Sex of Respondent			
Female	262 (88.2)	238 (79.9)	500 (84.0)
Male	35 (11.8)	60 (20.1)	95 (16.0)
Age of Respondent			
Mean (Std. Dev.)	30.6 (10.4)	34.2 (13.3)	32.4 (12.1)
Median	29	31	30
Sex of Children			
Male	169 (56.7)	141 (47.3)	310 (52.0)
Female	129 (43.3)	157 (52.7)	286 (48.0)
Age of Children In 2006			
3	58 (19.5)	55 (18.5)	113 (19.0)
4	88 (29.5)	110 (36.9)	198 (33.2)
5	119 (39.9)	97 (32.6)	216 (36.2)
6	33 (11.1)	36 (12.1)	69 (11.6)

Demographics of Respondents From Entire Sample

	Cochabamba N=596	**El Alto** N=596	**Total** N=596
Sex of Respondent	# (%)	# (%)	# (%)
Female	262 (87.9)	238 (79.9)	500 (83.9)
Male	35 (11.7)	60 (20.1)	95 (16.0)
Language of Survey			
Spanish	293 (98.3)	287 (96.3)	580 (97.3)
Aymara	0 (0.0)	11 (3.7)	11 (1.8)
Quechua	4 (1.3)	0 (0.0)	4 (0.7)
Age of Respondent			
Mean (Std. Dev.)	30.6 (10.4)	34.2 (13.3)	32.4 (12.1)
Median	29	31	30
Mean # People in Home (Std. Dev.)	7.58 (4.03)	6.53 (2.67)	7.06 (3.46)
Mean # Children of Respondent (Std Dev)	2.86 (2.08)	2.66 (1.85)	2.76 (1.97)

Demographics of Respondents From Entire Sample

	Cochabamba # (%)	El Alto # (%)	Total # (%)
Relationship of Respondent to Index Child	N=298	N=298	N=596
Mother	169 (56.7)	177 (59.4)	346 (58.1)
Father	24 (8.1)	30 (10.1)	54 (9.1)
Sister	26 (8.7)	25 (8.4)	51 (8.6)
Grandmother	36 (12.1)	13 (4.4)	49 (8.2)
Aunt	27 (9.1)	17 (5.7)	44 (7.4)
Brother	2 (0.7)	17 (5.7)	19 (3.2)
Nanny	2 (0.7)	3 (1.0)	5 (0.8)
Uncle	2 (0.7)	10 (3.4)	12 (2.0)
Grandfather	7 (2.3)	3 (1.0)	10 (1.7)
Cousin	1 (0.3)	2 (0.7)	3 (0.5)
Friend Who Cares For Child	1 (0.3)	0 (0.0)	1 (0.2)
Stepmother	0 (0.0)	1 (0.3)	1 (0.2)
Ethnicity of Respondent			
Aymara	47 (15.8)	242 (81.2)	289 (48.5)
Quechua	125 (41.9)	18 (6.0)	143 (24.0)
Mestizo	98 (32.9)	29 (9.7)	127 (21.3)
Other	27 (9.1)	9 (3.0)	36 (6.1)