

# Road Safety 10: Vida no Trânsito

## Monitoring and Evaluation

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# Road Safety 10: Brazil

## Intervention Cities

### National Committee

Ministry of Health  
Ministry of Cities  
Ministry of Justice  
Ministry of Transportation  
National Secretariat of Drug  
Policy – SENAD  
Special Secretariat of Human Rights  
And others

### Criteria for definitions of Cities

Region  
Population  
Death per 10,000 vehicles  
Death per 100,000 population  
Hospitalization  
And others

### Risk Factors

- Drinking/Driving
- Speed



# Road Safety 10: Brazil

## Intervention Cities

	Region	Population (2010)	Death per 100,000 population (2010)		Motor vehicle per 1,000 Population (2010)	Fleet (% motorcycles) (2012)	Fleet Growth - 2 years (2010-2012)
			by place of occurrence	by place of residence			
<b>Brazil</b>		<b>191,481,045</b>	<b>22,5</b>		<b>339.8</b>	<b>76,137,191 (25.5%)</b>	<b>17.5%</b>
Belo Horizonte	Southeast	2,375,151	26.3	19.3	564.2	1,519,438 (13.4%)	13.4%
Campo Grande	Midwest	786,797	28.9	28.5	498.4	453,531 (29.2%)	15.7%
Curitiba	South	1,751,907	22.9	17.7	712.4	1,371,431 (10.9%)	9.9%
Palmas	North	228,332	45.1	31.5	474.1	132,537 (37.4%)	22.4%
Teresina	Northeast	814,230	57.8	31.7	246.6	348,120 (39.0%)	23.4%

Source: IBGE/Ministry of Health/DENATRAN

# Sources of Data Collection for Baseline

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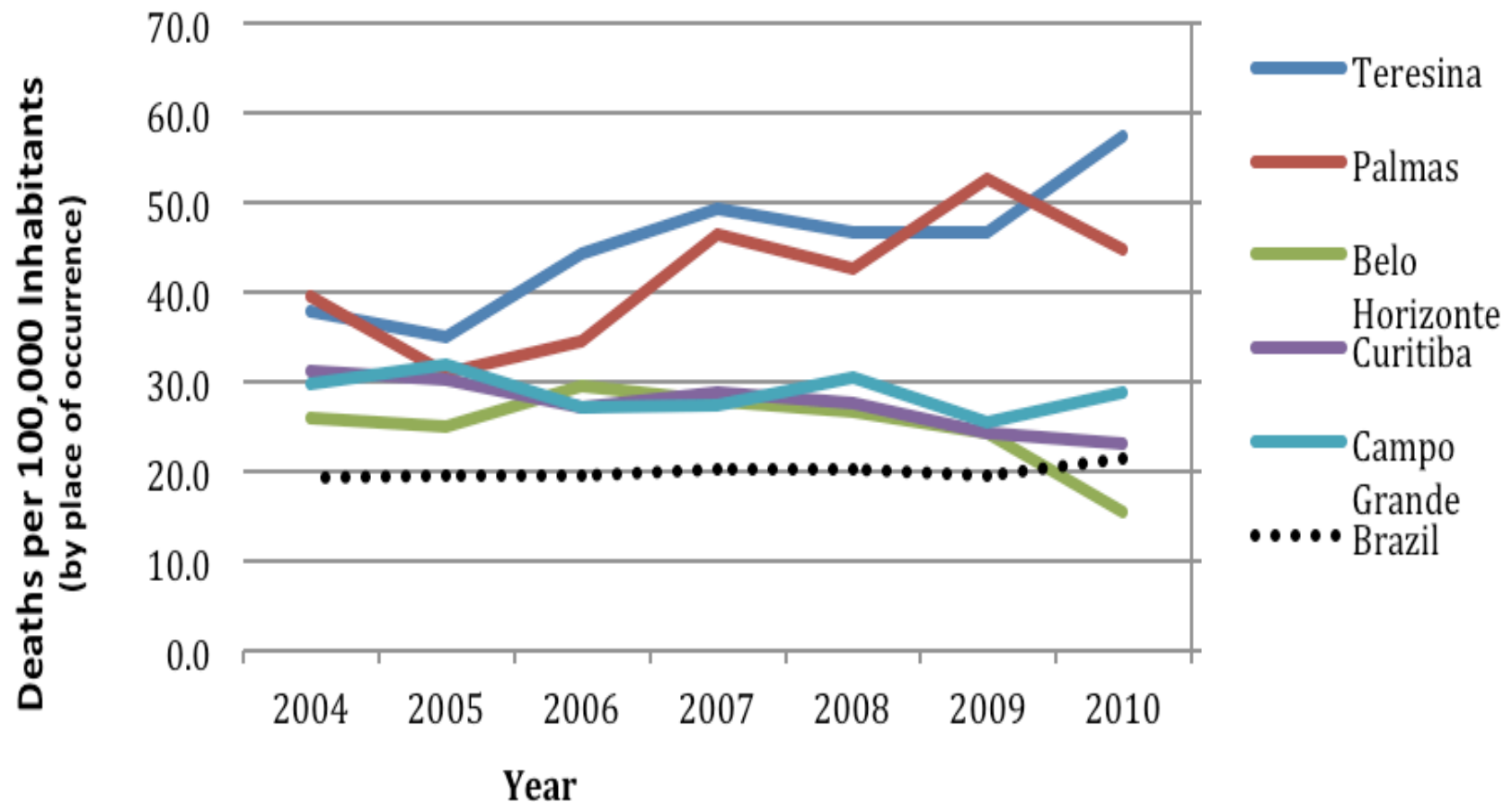
## **Secondary data:**

- Widely available sources [minimal risk factor data]:
  - Police (Denatran) / Ministry of Health - deaths and hospitalization (SIM/SIH) and Surveys – VIVA and Vigitel
- Available only by cooperative effort [with risk factor data]:
  - Autopsy reports
  - Enforcement blitz infraction data from police
  - Speed camera infraction data from police

## **Primary data:**

- Breathalyzer data collected at police checkpoints
- Count vehicles passing speed cameras establish denominator

# Road Traffic Mortality Rate over Time in Target Cities, Brazil



# RT Deaths Attributable to Alcohol

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City	Year	Number of RT Deaths	Number tested for BAC	Number + for Alcohol
Palmas	2010	35	21	14
	2011	31	16	8
Teresina	no forensic lab to perform BAC tests.			

# Emergency Rooms Survey – Ministry of Health

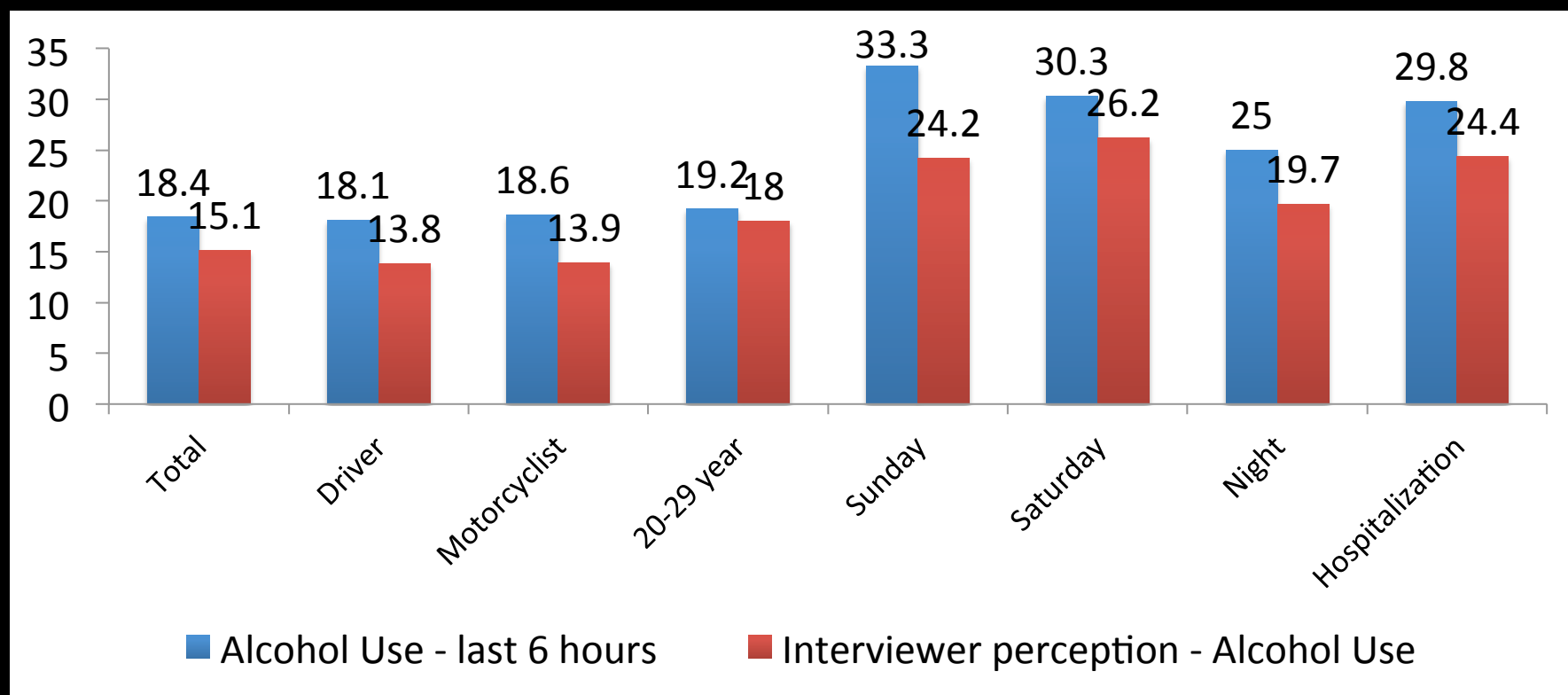
## Inquérito de Vigilância de Violências e Acidentes – VIVA 2009

	Palmas	Teresina
Male	68.5%	72.6%
20 to 29 years	38.2%	35.7%
Drivers	69.4%	66%
Motorcycle	60.3%	62.4%
Bicycle	24%	20.2%
Friday	13.6%	16.6%
Saturday	18.7%	14.3%
Sunday	23%	26.6%
Urban area	80%	81%

# Emergency Rooms Survey – Ministry of Health

## Inquérito de Vigilância de Violências e Acidentes – VIVA 2009

- Alcohol Use – Non Fatal Victims (%) - Palmas

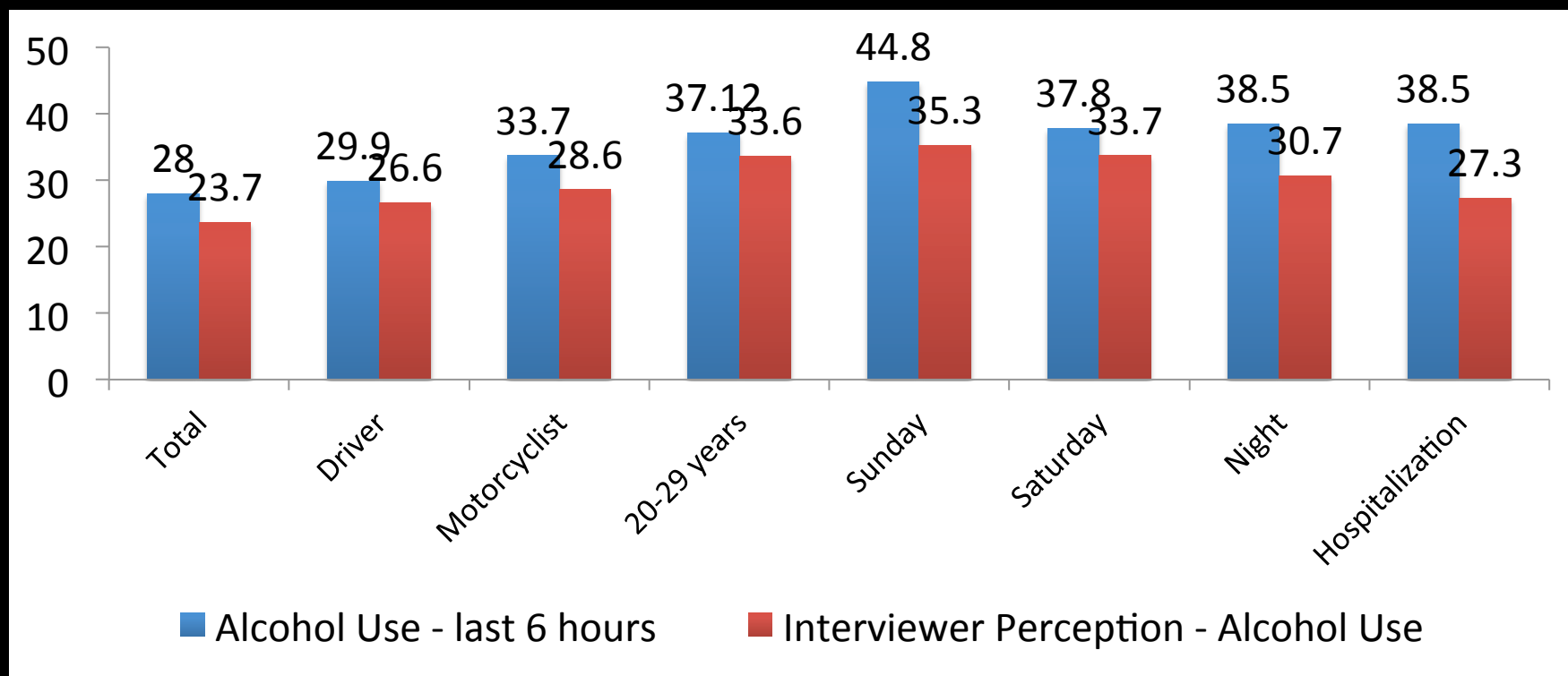




# Emergency Rooms Survey – Ministry of Health

## Inquérito de Vigilância de Violências e Acidentes – VIVA 2009

- Alcohol Use – Non Fatal Victims (%) - Teresina



# Primary Data Collection – Alcohol

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- **Aim**

- To estimate the current prevalence of DWI on road in Palmas-TO and Teresina-PI

- **Method**

- The selection of driver to this sample occurred on roadblock of traffic agents and police.
- The locales of roadblocks were chosen where the largest number of traffic accidents occurred in the last years.
- The traffic agents/police stopped vehicles (just cars and motorcycles), and after normal procedures, they invited the drivers to participated on the study (not all drivers were interviewed, but as the availability of interviewers, the first vehicle stopped was invited to participate).

# Alcohol Roadside Surveys, Palmas - 2011-2012

	August 2011			January 2012			June 2012		
Description	N	%	95% CI	N	%	95% CI	N	%	95% CI
Stopped <sup>^</sup> /flow	211/5356	3.9%	---	288/4244	6.8%	---	427/6064	7%	---
Breathalyzer Offered*	118/211	55.9%	---	189/288	66%	---	275/427	64.4%	---
Breathalyzed*	94/118	79.7%	72.4, 87.0	136/189	72%	65.6, 78.4	245/275	89.1%	85.4, 92.8
<b>Breathyzer Test &gt;0*</b>	<b>11</b>	<b>11.3%</b>	<b>5.6, 17.0</b>	<b>11</b>	<b>8.1%</b>	<b>4.2, 12.0</b>	<b>17</b>	<b>6.9%</b>	<b>3.7, 10.1</b>
Reported any alcohol consumption in last 6 hours*	26	26.3%	17.6, 35.0	38	25.2%	18.3, 33.1	36	17.5%	12.3, 22.7
Reported drinking and driving in the last month	51	51.5%	41.7, 61.3	90	59.6%	51.8, 67.4	105	50.9%	44.1, 57.7

<sup>^</sup>drivers invited to participate of the interview;

\*Fourth Round in March/2013

# Alcohol Roadside Surveys, Teresina - 2011-2012

	August 2011			January 2012			August 2012		
Description	N	%	95% CI	N	%	95% CI	N	%	95% CI
Stopped <sup>^</sup> /flow	286/3958	7.2%	-	249/5429	4,6%	-	214/3098	6.8%	-
Breathalyzer Offered*	197	68.9%	-	112	45%	38.9, 51,2	132	61.7%	-
Breathalyzed	153	77.7%	71.4, 82.9	110	98.2%	93.7, 99.5	125	94.7%	89.5 97.4
<b>Breathyzer Test &gt;0</b>	<b>6</b>	<b>3.9%</b>	<b>1.8 8.3</b>	<b>7</b>	<b>6.4%</b>	<b>3.1, 12.6</b>	<b>13</b>	<b>10.4%</b>	<b>6.2, 17.0</b>
Reported any alcohol consumption in last 6 hours	30	17.9%	12.8, 24.4	27	17.2%	12.1,23.9	29	24.8%	17.9, 33.3
Reported drinking and driving in the last month	91	54.2%	46,.6, 61.5	116	73.9%	66.5, 80.1	69	59.0%	49.9, 67.5

<sup>^</sup>drivers invited to participate of the interview;

\*Fourth Round in Progress

# Primary Data Collection – Speed

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- **Aim**
  - To estimate the percentage of vehicles speeding on roads of the city of Palmas/TO and Teresina/PI, stratified by vehicle type.
- **Method**
  - Observational study, in 7 sites were randomly selected from a composite list of 30 sites with high frequencies of accidents in 2011
    - Data were collected in five 1-hour intervals for seven days a week, from 8:00AM to 6:00PM
    - Was considered the absence of the fixed radar, the general traffic flow and safety of data collectors.
    - Was used a static radar
  - The collected data was solely for research purposes - not for fines or penalties on sampled drivers.

# Speeding Data Collection – Palmas – 1st Round (June-2012)

	Car		Motorcycle		Bus		Truck		Total	
Local 1	56.5	(54.6 - 58.3)	34.7	(30.8 - 38.6)	30.0	(9.9 - 50.1)	42.6	(29.4 - 55.8)	52.4	(50.7 - 54.1)
Local 2	4.6	(2.8 - 6.4)	4.9	(1.1 - 8.7)	0.0	-	8.3	(0.0 - 24.0)	4.6	(3.0 - 6.3)
Local 3	30.4	(26.5 - 34.2)	18.7	(15.5 - 21.9)	10.2	(2.5 - 17.9)	18.4	(6.1 - 30.7)	23.6	(21.2 - 26.0)
Local 4	78.7	(76.2 - 81.2)	57.0	(49.2 - 64.7)	47.1	(23.3 - 70.8)	50.8	(38.1 - 63.6)	74.2	(71.8 - 76.6)
Local 5	25.1	(22.8 - 27.4)	27.0	(21.5 - 32.5)	17.2	(3.5 - 31.0)	14.0	(3.6 - 24.3)	24.9	(22.9 - 27.0)
Local 6	72.9	(70.5 - 75.4)	64.0	(58.2 - 69.8)	83.3	(66.1 - 100.6)	50.0	(31.5 - 68.5)	71.1	(68.9 - 73.4)
Local 7	27.3	(23.5 - 31.0)	7.9	(4.7 - 11.1)	31.7	(20.3 - 43.2)	17.1	(4.7 - 29.6)	21.3	(18.6 - 23.9)
<b>Total</b>	<b>49.5</b>	<b>(48.4 - 50.6)</b>	<b>29.8</b>	<b>(27.9 - 31.7)</b>	<b>27.6</b>	<b>(21.7 - 33.6)</b>	<b>32.3</b>	<b>(26.8 - 37.9)</b>	<b>44.5</b>	<b>(43.6 - 45.5)</b>

Note: Considered the speed above the speed limit  
 Vehicle Flow: **20,182** /Vehicle Samples: **10,710**

\*Second Round in March/2013

# Speeding – Teresina – 1st Round (August-2012)

	Car		Motorcycle		Bus		Truck		Total	
Local 1	23.1	(21.6 - 24.6)	16.6	(13.8 - 19.4)	40.6	(31.0 - 50.2)	17.7	(11.8 - 23.7)	22.2	(21.0 - 23.5)
Local 2	9.1	(7.9 - 10.4)	12.6	(10.5 - 14.6)	7.8	(2.6 - 13.1)	4.2	(0.2 - 8.2)	10.0	(9.0 - 11.1)
Local 3	3.3	(1.7 - 4.9)	4.8	(2.7 - 6.8)	7.1	(0.0 - 20.6)	0.0	-	3.8	(2.6 - 5.0)
Local 4	6.9	(5.8 - 8.0)	4.2	(2.7 - 5.7)	0.0	-	2.9	(0.0 - 7.0)	6.1	(5.2 - 7.0)
Local 5	2.4	(1.8 - 3.0)	3.4	(2.4 - 4.4)	0.7	(0.0 - 2.0)	0.9	(0.0 - 2.7)	2.6	(2.1 - 3.1)
Local 6	10.0	(7.4 - 12.6)	8.8	(6.8 - 10.9)	7.3	(0.0 - 15.3)	0.0	-	9.1	(7.6 - 10.7)
Local 7	6.9	(5.5 - 8.4)	5.5	(3.0 - 8.0)	0.0	-	0.0	-	6.1	(4.9 - 7.2)
<b>Total</b>	<b>10.6</b>	<b>(10.0 - 11.1)</b>	<b>8.1</b>	<b>(7.3 - 8.8)</b>	<b>10.1</b>	<b>(7.5 - 12.6)</b>	<b>6.7</b>	<b>(4.5 - 8.8)</b>	<b>9.7</b>	<b>(9.3 - 10.2)</b>

Note: Considered the speed above the speed limit

Vehicle Flow: **23,417** / Vehicle Samples: **17,971**

\*Second Round in Progress...

Thank You

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