



# **DROWNING IN BRAZIL**

## **A profile of quarter of million deaths in 32 Years (1976-2010)**

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**Brazil - fifth largest and populous country in the world - 200 million inhabitants (2013)**



**David Szpilman, MD**

**Average water  
temperature 22°C**

**Brazilian Coastline  
8,000 Km**



**A large fresh water  
surface**

**One of the largest  
number of rescues**

# Are you aware off? Drowning In Brazil



**6.500 death per year**  
**20 each day**

Source: Szpilman D. - 2013

Date research based on DATASUS - death certificate

# Are you aware off? Drowning in Brazil



**Drowning is the 2<sup>nd</sup> cause  
of death among all causes  
1 to 9 years old**

Source: Szpilman D. - 2013

Date research based on DATASUS - death certificate



# General cause of death in Brazil - 1 to 54 years-old

	1 - 4	5 - 9	10 - 14	15 - 19	20 - 24	25 - 29	30 - 34	35 - 39	40 - 44	45 - 49	50 - 54
1ª	Pneumonia	Transportation	Transportation	Agression	Agression	Agression	Agression	Agression	Transportation	IAM	IAM
2ª	Drowning	Drowning	Agressões	Transportation	Transportation	Transportation	Transportation	Transportation	Agression	Doenças cerebrovasculares	Doenças cerebrovasculares
3ª	Transportation	Pneumonia	Drowning	Drowning	Suicide	Suicide	HIV	HIV	IAM	Transportation	Diabetes Mellitus
4ª	Malf cong. Ap. circulat	Leucemia	Leucemia	Suicide	Drowning	HIV	Suicide	IAM	Doenças cerebrovasculares	Agression	Transportation
5ª	Sepsis	Neopl malig SNC	Pneumonia	Pneumonia	HIV	Pneumonia	IAM	Doenças cerebrovasculares	HIV	HIV	Doenças hipertensivas
6ª	Infecção intestinais	Agression	Neopl malig SNC	Leucemia	Pneumonia	Drowning	Pneumonia	Suicide	Hepatopatia alcoólica	Diabetes Mellitus	Pneumonia

**The first officially  
organized lifesaving  
service was founded in  
1918,  
by Commodore  
Longfellow from  
American Red Cross,  
in Rio de Janeiro City**



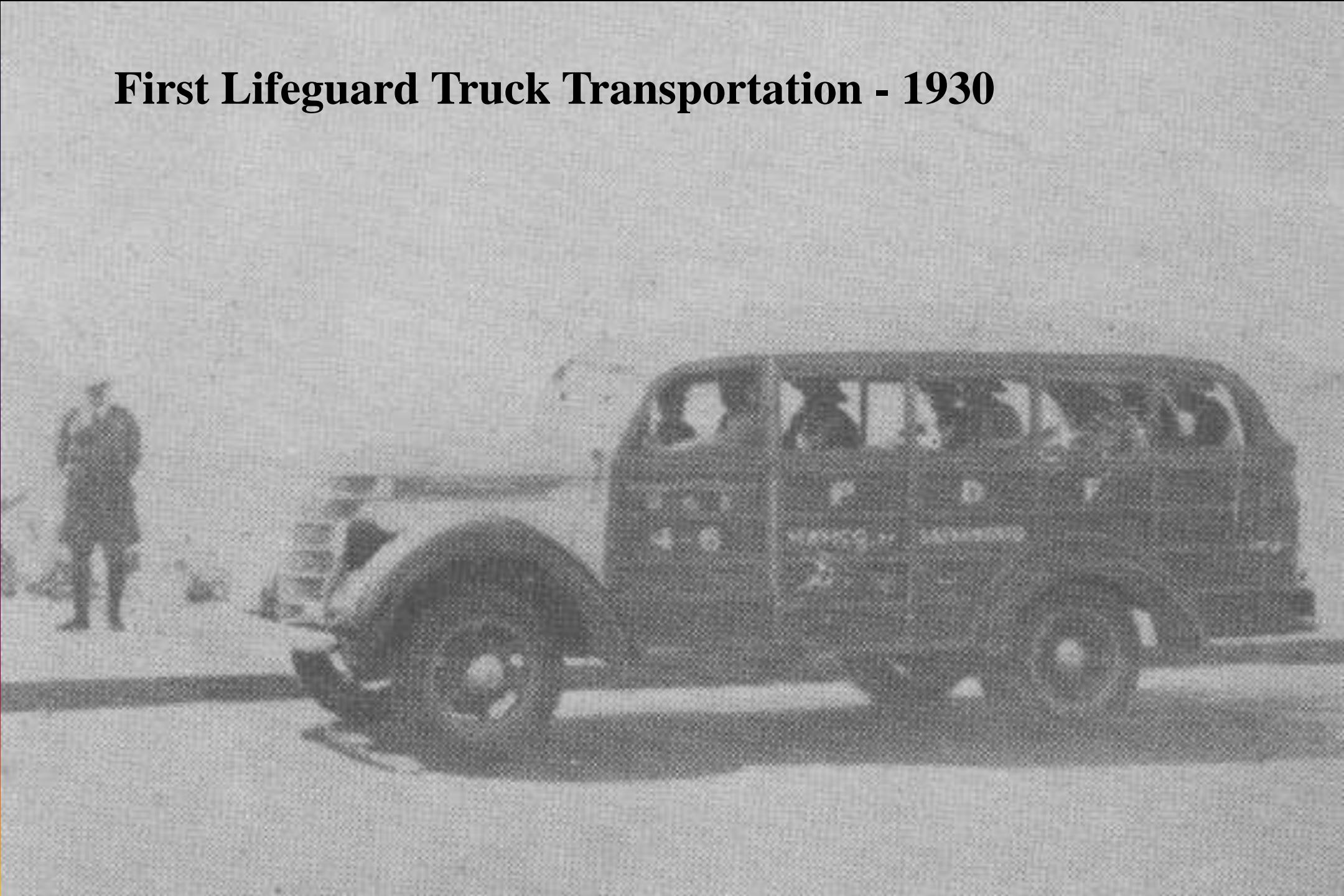
**First Brazilian Lifeguard Tower**

**1930 - Lifeguarding was officially recognized**





# First Lifeguard Truck Transportation - 1930





**First pre-hospital ambulance (created for drowning attendance) - 1930**

Ambulância de salvamento

6

**1958 - Copacabana Beach  
Schafer Maneuver**





**1960 – Rescue boat**



**1970 - First rescuer's helicopters**





From 1984, the military firefighters took over the responsibility for lifesaving in each state of Brazil

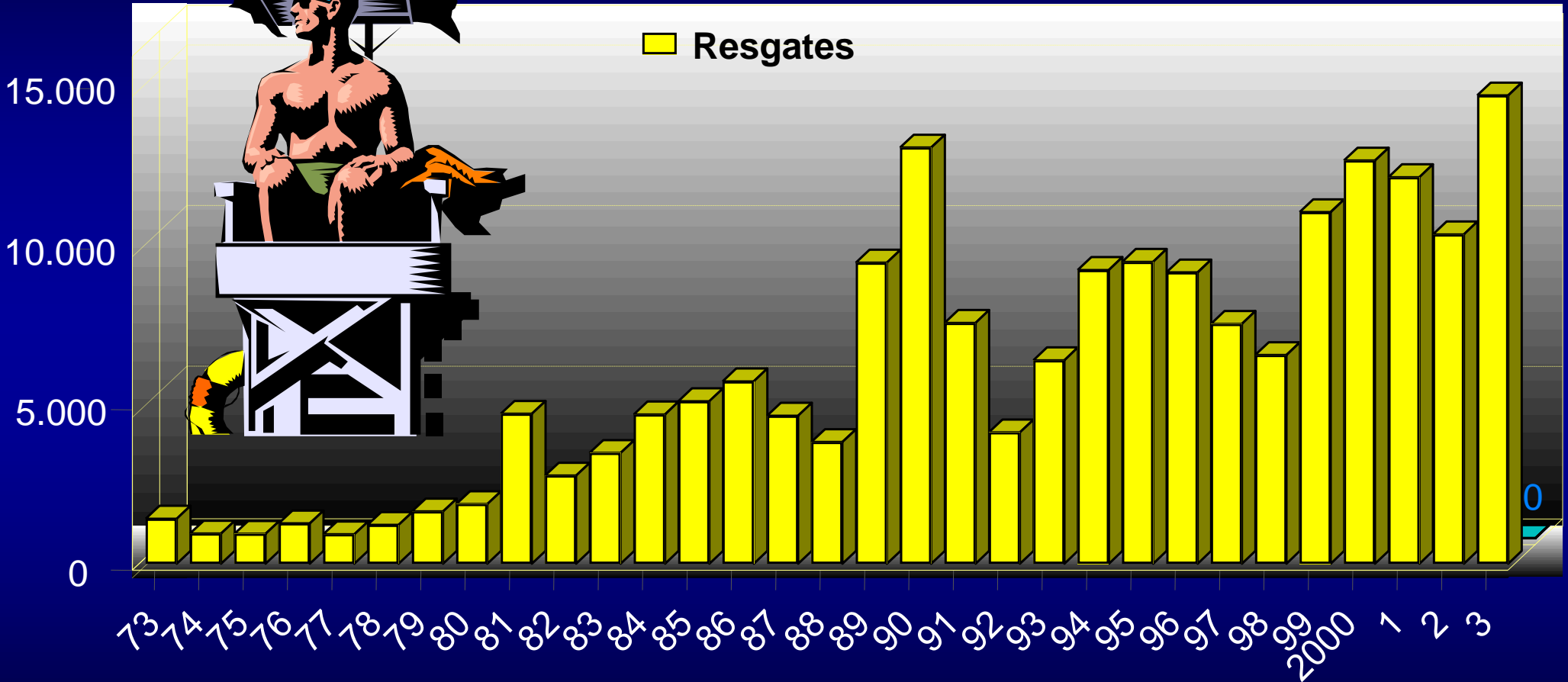


# RIO DE JANEIRO

## Grupamento Marítimo - 1973 to 2003

*187.078 Rescues at the beach*

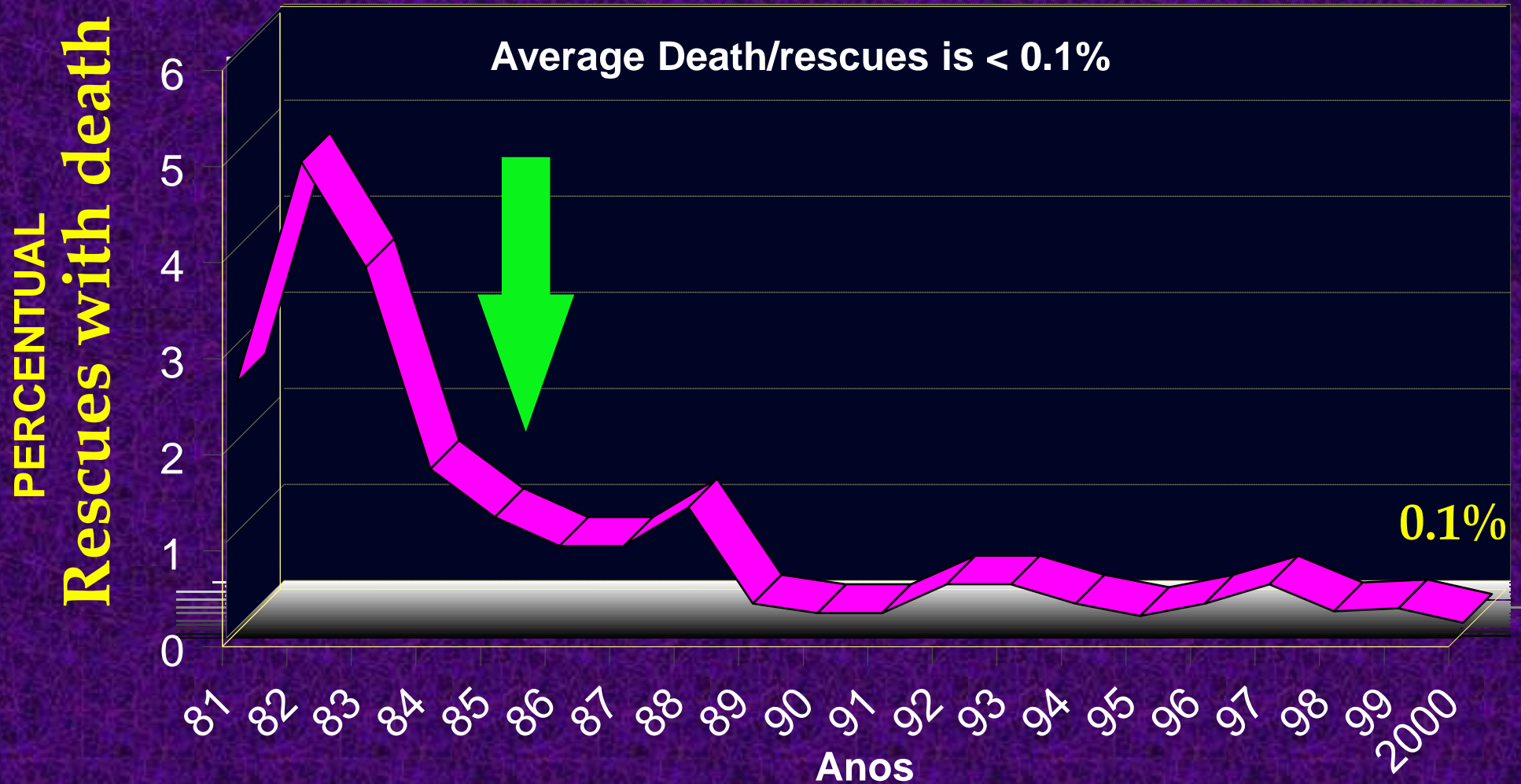
Thousand



Average Percentual of Death/rescue < 1%

# 1981 to 2000

## GMAR - Rio de Janeiro





# Now-a-days



FREQUÊNCIA DE BANHISTAS NA PRAIA DE IPANEMA EM PLENO V.  
Matéria publicada no jornal O GLOBO em 29 de dezembro de 97. Título : "UM MAR DE BANHI

The aim of this study is to determine a  
**32-year (1979-2010) profile and trends of  
drowning death in Brazil.**



## Brazil – 2011

- ✓ **192 million - 1.2 million died.**
- ✓ **External causes - 12% of all death, and first 5-44 years old.**
- ✓ **Drowning was responsible for 6.494 death (3.4/100.000 inhabitants)**
  - **Second leading cause of death for all causes among 1 to 9 years old,**
  - **Third among 10 to 19 years old,**
  - **Fourth among 20 to 29 years old.**

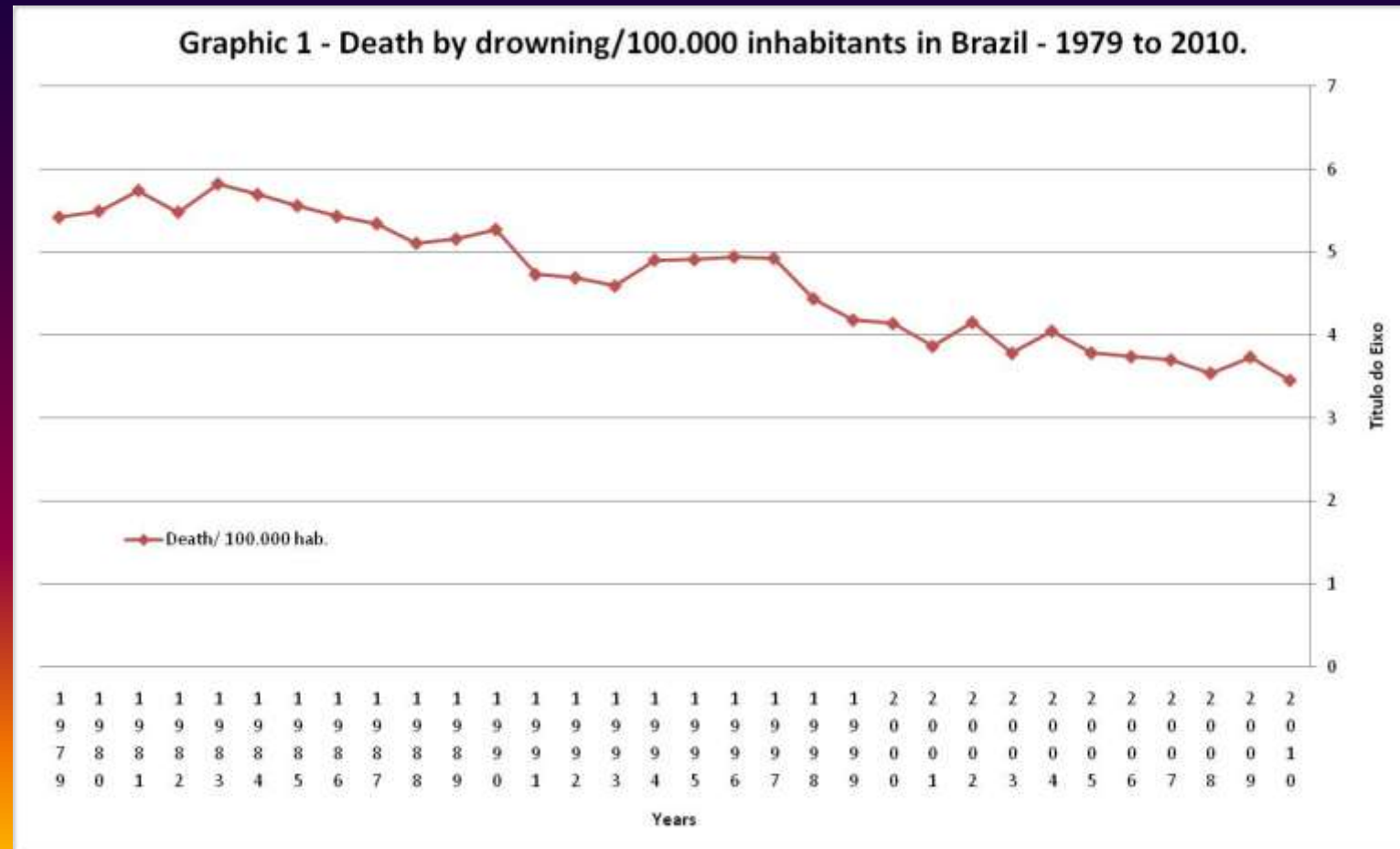
## **Methods**

**Drowning rates among Brazilian residents were calculated using death certificates (1976-2010) based on DATASUS – A Public Health Mortality System Information of Brazilian Government <[www.datasus.gov.br](http://www.datasus.gov.br)> using International Classification of Disease for drowning (ICD9 [1976-95] and ICD10 [1996-2010]).**

## Including all causes (intentional and not),

- There were 227.272 deaths (4.7/100.000 inhab [SD +/-0.7])
- An average of 7.105 per year along 32 years (1979-2010).

**37%**  
**overall**  
**decrease**  
**(from 5.4 (1979)**  
**to 3.4 (2010)**  
**per 100.000)**



## **The average incidence of death was:**

- **Unintentional: 88%** (SD $\pm$ 5.8),
  - **Intentional: 1.9%** (homicide 0.6% and suicide 1.3%), and
  - **Unknown causes: 9.9%**.
- 
- **Unintentional decrease from 3.9 to 2.9 deaths/100.000**
  - **Unknown intention (Y21) decrease from 27% to 12%.**

## Among location of unintentional death

- **Natural waters was the most frequently (39.4%).**
- **Pools were responsible for 1.6% (64% residence pools) but among 1 to 9 years old, it represented 52%.**
- **Bathtub was 0.2% (72% in residence) but appeared as 38% among 1 to 4 years old.**



## Age (most frequently)

- 15-19 year-old - **15.7%**
- 20-24 - **12.5%**,
- 25-29 - **9.2%**
- 1-4 - **8.2%**.



- Higher risk for death - 15 - 19 year-old (4.6/100.000 hab)
- Lower risk – age < 1 year (1.0/100.000 hab).

## Gender

- Males died 5.2 times more often (83%).
- No sex distinction in death rates to children under 1 year old,
- Males drown 8.7 times more in the age ranging from 20 to 29.





## Huge unbalanced on the risk to be dead at regions in Brazil,

- **Southeast** (higher income/capita) – **2.5/100.000** inhabitant
- **North** (lower income/per capita) – **5.3/100.000** inhabitant

REGIONS – year 2011	n	%	Death/100.000	Pop
	6494	100	3,4	192379287
<b>SOUTH</b>	902	13,9	3,3	27562433
<b>SOUTHEST</b>	2016	31	2,5	80975616
<b>NORTH</b>	855	13,2	5,3	16095187
<b>NORTHEST</b>	2246	34,6	4,2	53501859
<b>WEST CENTER</b>	475	7,31	3,3	14244192

## Total Cost for drowning/diving - 2008 to 2011

<b>DIRECT</b>	<b>US\$</b>
1. Hospital (Public + Private)	US\$ 5.270.367,80
2. Estimation cost for Pre-hospital attendance (fatal e no-fatal)	US\$ 7.887.550,00
<b>INDIRECT (estimative)</b>	
3. Loss of productivity with death	US\$ 3.126.550.000,00
4. Loss of productivity with hospitalization and recover	US\$ 1.687.928,77
5. Familiar cost with death	US\$ 13.885.000,00
<b>TOTAL</b>	<b>US\$ 3.155.279.846,57</b>

## Conclusion

Brazil has one of the largest aquatic recreations area and one of the largest rescues and death by drowning in the world .

- **The unintentional drowning was predominantly (88%) and a significantly increase in effective report of death certificate was observed by the reducing of the unknown intention of drowning along the years.**

- Pools and bathtubs were not important considering all ages affected but need a special attention when considering ages 1 to 9 years-old.



## **Conclusion**

**This study has demonstrated a significantly decrease of 37% in drowning deaths from 1979 to 2010 ( $p < 0.0001$ ).**

**This means less 800 deaths by drowning per year.**

## Conclusion

Many factors were related to these improvement in death rates,

- **The increase on propaganda on drowning prevention,**
- **The increase on prevention programs to children,**
- **The improvement on the firefighter's lifesaving service, and**
- **An improvement on pre-hospital attendance.**



# Pope in Rio de Janeiro

July 2013

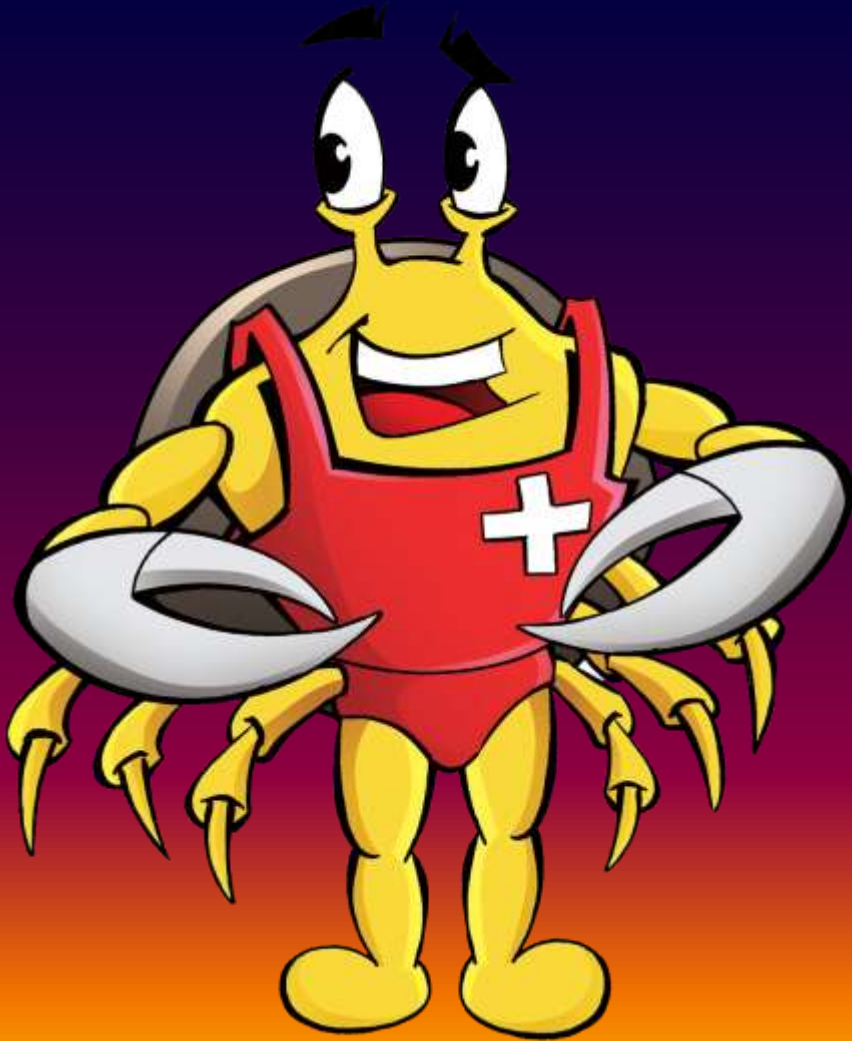


# Our biggest challenge

- **Known exactly the profile of drowning allowing better cost-benefit prevention campaign.**
- **To convince people at risk that drowning is a threat.**
- **Deal with the impossibility that lifeguards can not be every where to provide safety.**



**Preventive education on drowning is the most effective action  
BUT RESOURCES ARE LIMITED**



Educational campaigns should be focused on the groups mostly affected or at highest risk

**Young males among age 15 to 29 (37.4% of drowning death), with special attention to natural bodies of water, in the north region of the country.**







# One World, No DROWNINGS

## We Care About

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