



**Health Ministry – National Cancer Institute  
INCA - Instituto Nacional de Câncer**

**Medicine consumption and spending  
on chemotherapy of the most  
prevalent tumours in Brazil**

**Authors: Tereza Piccinini Feitosa, Reinhard Braun**

**November 2009**



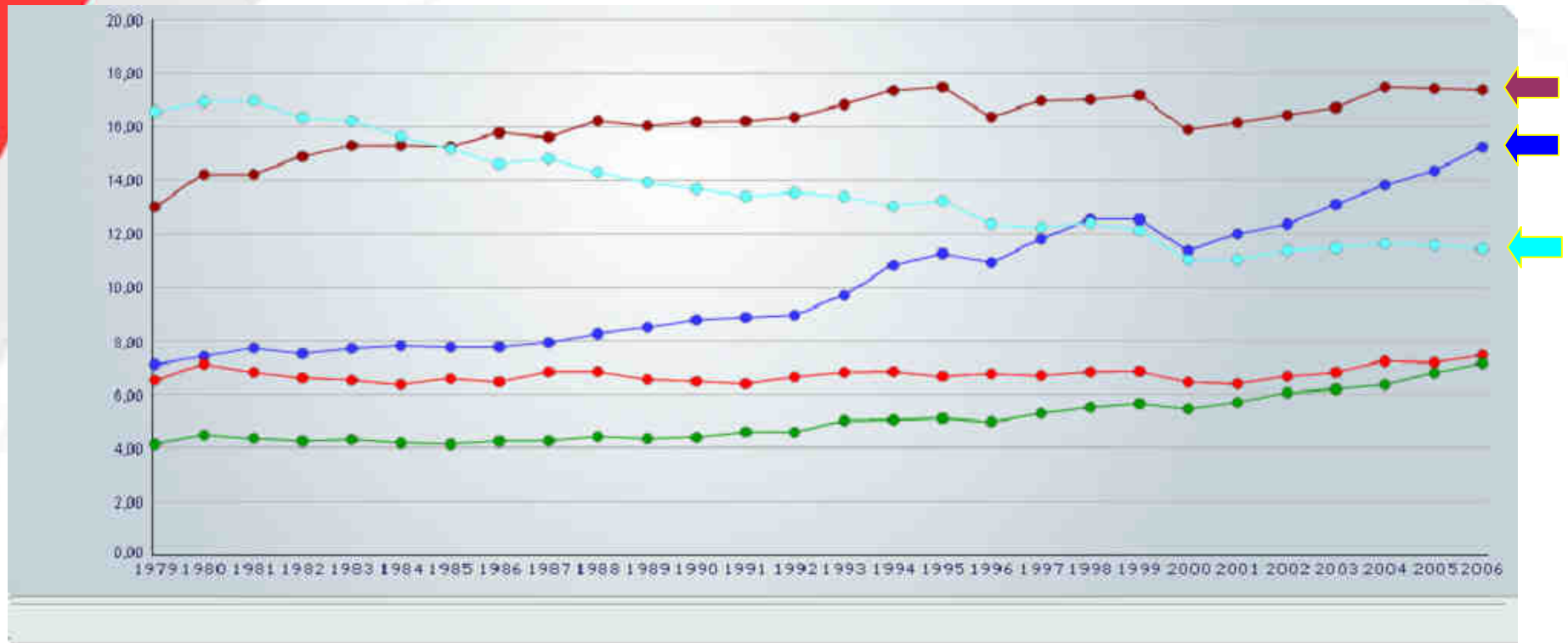
# Background

- Cancer is a public health problem in Brazil.
- The Brazilian Universal Health System (SUS – Sistema Único de Saúde) is the main financier of the National Cancer Control Program.
- The National Cancer Institute (INCA) of the Health Ministry:
  - implements the National Oncology Health Care Policy
  - monitors the cancer treatment costs in order to plan the appropriate allocation of resources by the government.

**The investigation of chemotherapy spending is  
a key element for decision-making on costs.**

# Mortality Rate

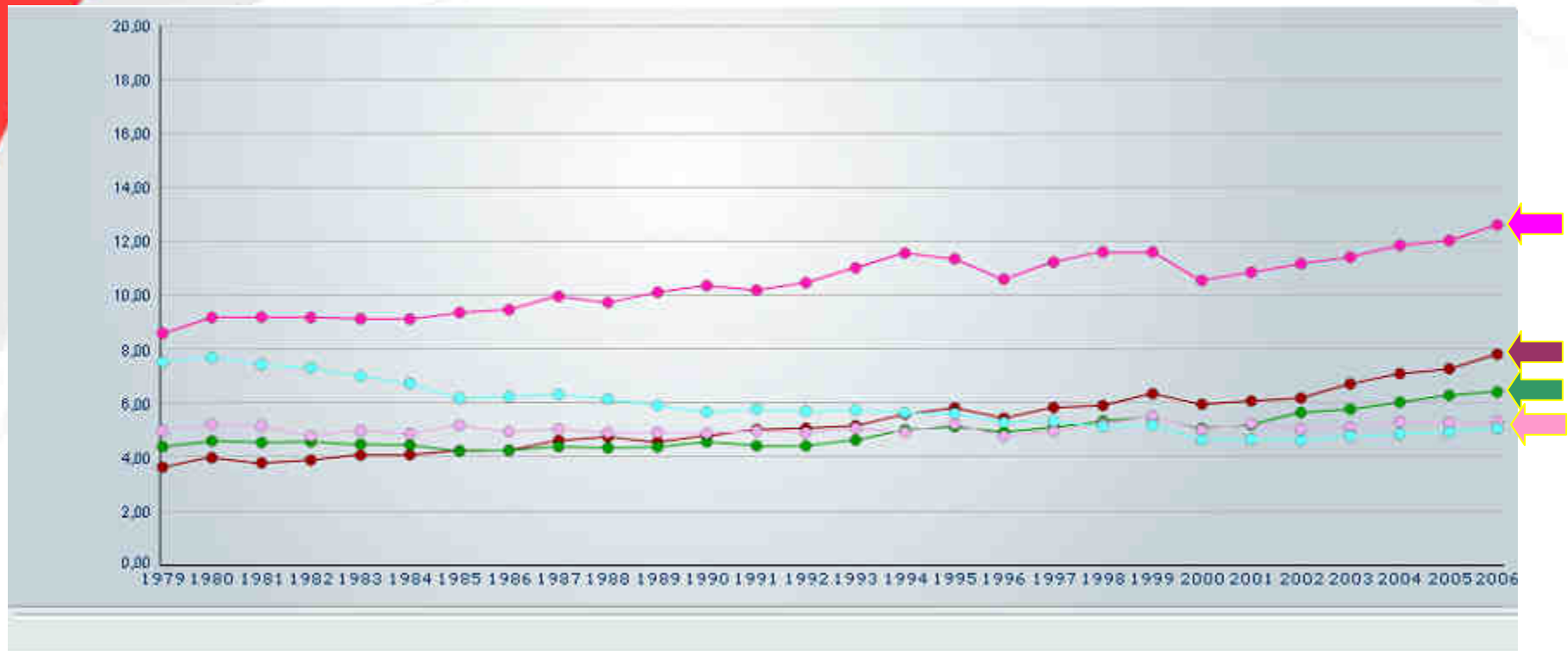
Adjusted by age, the world's population, per 100,000 men in Brazil



● Lung ● Prostate ● Stomach ● Esophagus ● Colon/Rectum

# Mortality Rate

Adjusted by age, the world's population, per 100,000 women in Brazil



● Breast ● Lung ● Colon/Rectum ● Cervix ● Stomach

# The National Cancer Institute (INCA)

- Since 2000, its mission is "integrated national actions for prevention and control of Cancer".
- One general coordination department for strategic actions which includes: Social Communication; Education; Information Technology and Prevention and Surveillance.
- Two general coordination departments for
  - Scientific Technologies;
  - Treatment Management with three Oncology Hospitals which treated the following number of new cases in 2008:
    - 1,468 patients in the Breast Cancer Hospital;
    - 1,475 patients in the Gynaecological Cancer Hospital;
    - 4,712 patients in the Main Hospital (other tumours).

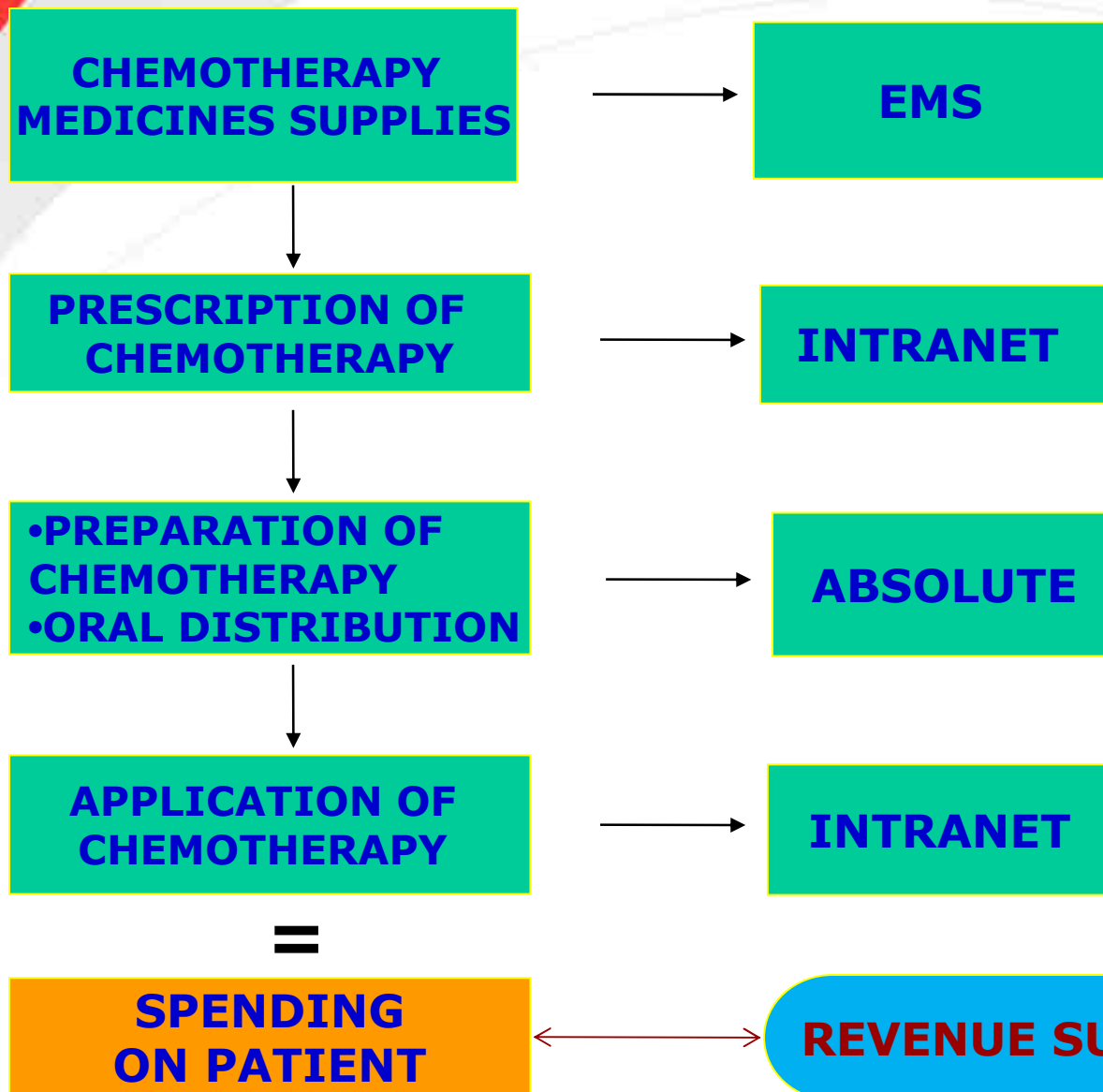
# Objective

- To present the spending on chemotherapy medicines per patient in INCA, for the most prevalent tumours:
  - lung cancer
  - prostate cancer
  - breast cancer
  - cervical cancer
  - colon/rectum cancer
- Other expenses, such as hospital supplies, personnel and outsourced services, are not part of the scope of this initial project phase.

# Methods

- We identified the operational data systems containing information on the
  - acquisition
  - prescription
  - manipulation and administration of chemotherapy.
- We developed a management tool to capture data from the existing operational systems to continuously monitor and analyse the spending.
- We investigated the spending on chemotherapy of 7,500 patients assisted in 2008.

# Working process scheme and chemotherapy information systems





# Spending Evaluation System

FILTRO

(\*) Campos Obrigatórios

<b>Linha*</b> Paciente Clínica Unidade hospitalar CID Tratamento	<b>Coluna</b> CID Procedimento APAC Medicamento Sexo Faixa Etária	<b>Conteúdo*</b> Qtde. Apresentada ao SUS Valor Apresentado ao SUS Qtde. Realizada Valor Gasto Qtde. Aplicada de Medicamentos	<b>Períodos Disponíveis*</b> JAN/2002 FEV/2002 MAR/2002 ABR/2002 MAI/2002 Por Ano
---	--	--	---

## Seleções Disponíveis

<b>Paciente</b> Todos	<b>CID Topográfico</b> Todos C00.0 Neopl. maligna do lábio C00.0 Labio super externo C00.1 Labio infer externo
<b>Medicamento QT</b> Todos AC.FOLINICO 15MG AC.FOLINICO 50MG ACTINOMICINA0,1MG/ML	<b>Tipo de Tratamento QT</b> Todos Adjuvante Anti-hemorrágica Anti-Igica
<b>Procedimento APAC</b> Carregar Todos 28011015 - ACELERADOR LINEAR/SO DE FOTONS (POR 28011023 - ACELERADOR LINEAR DE FOTONS E ELETRIC 28011040 - BETATERAPIA OFTALMICA (POR CAMPO) -	<b>Clínica</b> Todos ABDOMEM CABECA E PESCOCO CABECA E PESCOCO ENFERMARIA
<b>CID Morfológico</b> Todos M00000 M80001 Neoplasia de comportamento incerto se M80003 Neoplasia maligna	<b>Unidade</b> Todos Hospital do Câncer I (HCI) Hospital do Câncer II (HCII) Hospital do Câncer III (HCIII)
<b>Finalidade QT</b> Todos Adjuvante Curativa De Controle	<b>Tratamento*</b> Todos Quimioterapia Teleterapia(Radioterapia) Braquiterapia(Radioterapia)
<b>Faixa Etária</b> Todos < 1 01 - 04 05 - 09	<b>Sexo</b> Todos Feminino Masculino Indeterminado

# Results

## Spending on chemotherapy medicines per patient

(includes vein and oral chemotherapy medicines, hormones and support medicines)

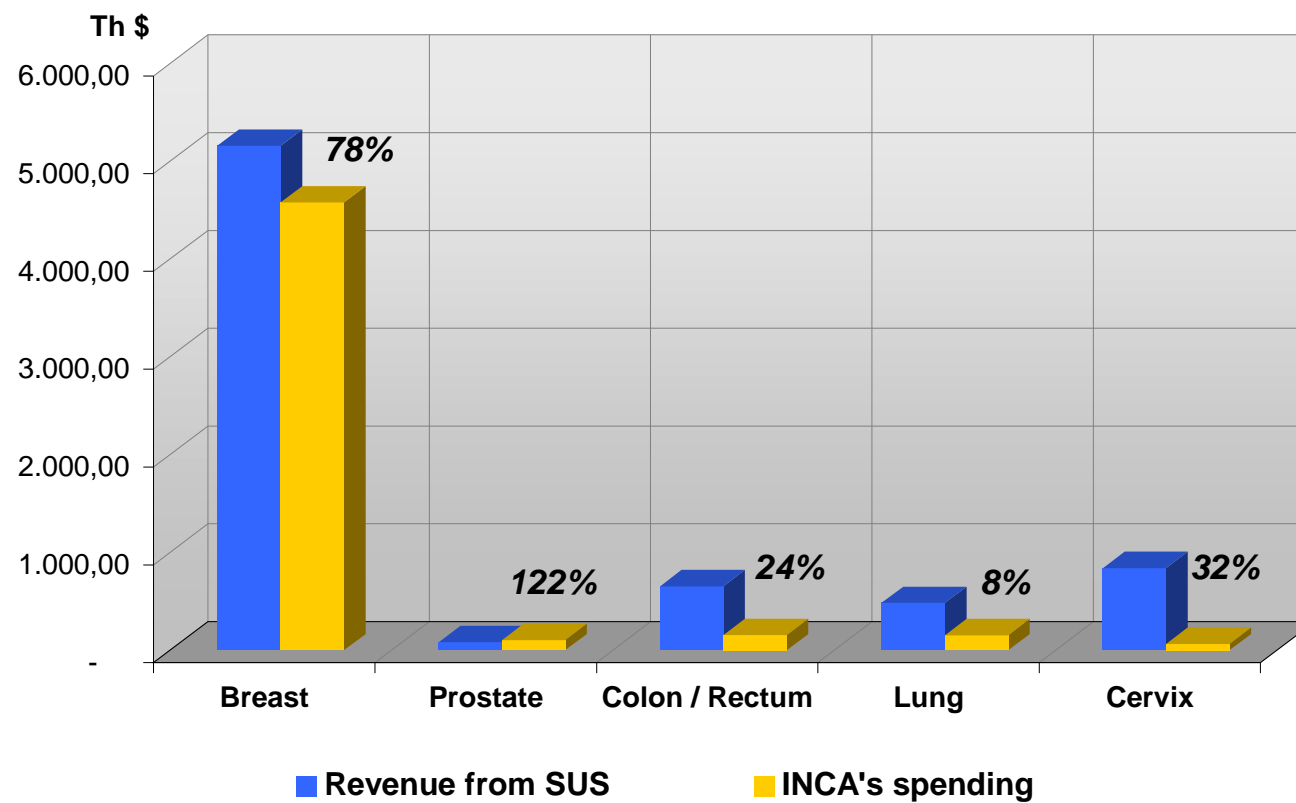
US\$

CANCER	Nº PATIENTS	TOTAL SPENDING	AVERAGE COST PER PACIENT
PROSTATE	72	103.940,12	1.443,61
BREAST	6.388	4.577.904,75	716,64
LUNG	303	153.009,14	504,98
COLON / RECTUM	409	155.296,26	379,70
CERVICAL	328	65.440,98	199,52
<b>TOTAL</b>	<b>7.500</b>	<b>5.055.591,25</b>	<b>674,08</b>

Source: INCA/MS, 2008

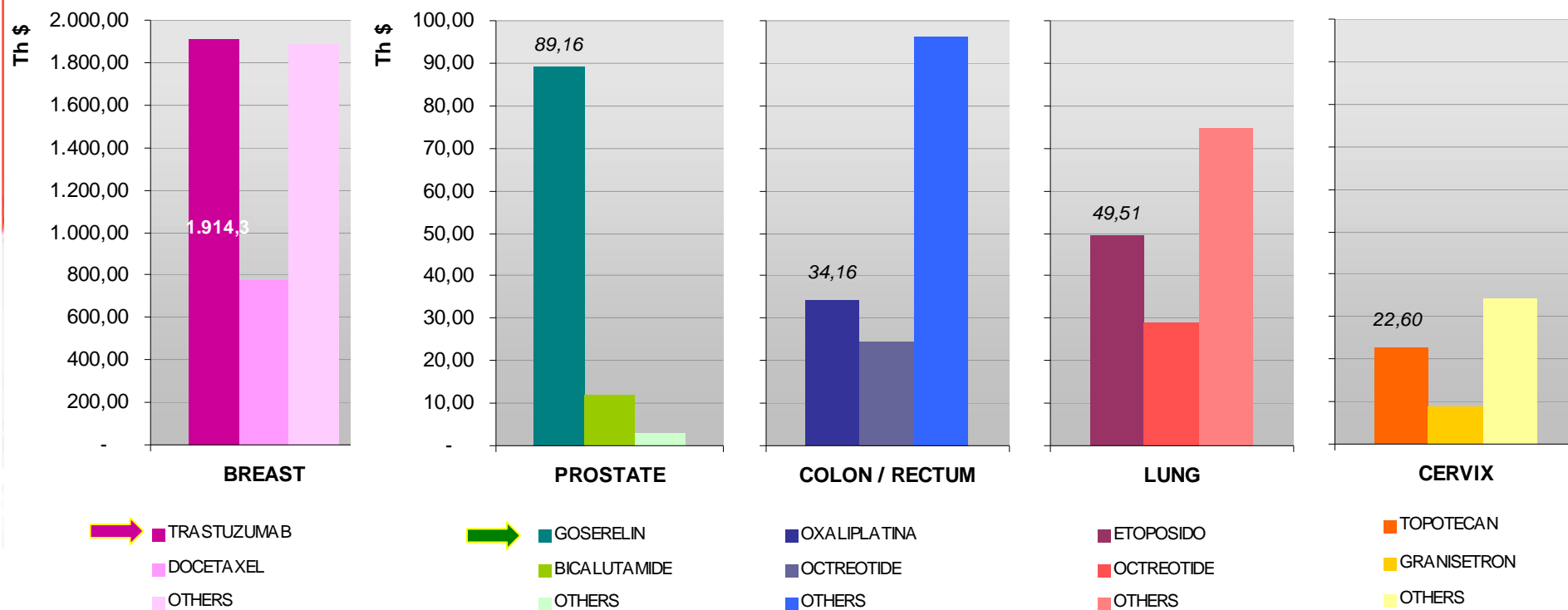
Observation: US\$ 1.84 per R\$ 1,00 in ago/2008.

# Results



Source: INCA/MS, 2008

# Results



Source: INCA/MS, 2008

# Discussion

- The capture of data from the existing operational systems permitted:
  - the global visualization of the spending per patient for each type of cancer;
  - the monitoring of spending on chemotherapy medicines by Pharmacy, Clinical Oncology and Planning areas.
- There is a possibility of improvement in the management tool in order to obtain data on other spending allocations:
  - hospital support materials;
  - outsourced services;
  - human resources.
- With the Brazilian population average monthly income (US\$ 381), the chemotherapy treatment is only possible, for the majority of the population, through the public health system (SUS).

PLANNING COORDINATION  
NATIONAL CANCER INSTITUTE  
INSTITUTO NACIONAL DE CÂNCER - INCA

[www.inca.gov.br](http://www.inca.gov.br)

[tfeitosa@inca.gov.br](mailto:tfeitosa@inca.gov.br)

[rbraun@inca.gov.br](mailto:rbraun@inca.gov.br)

+ 55 21 3970-7110

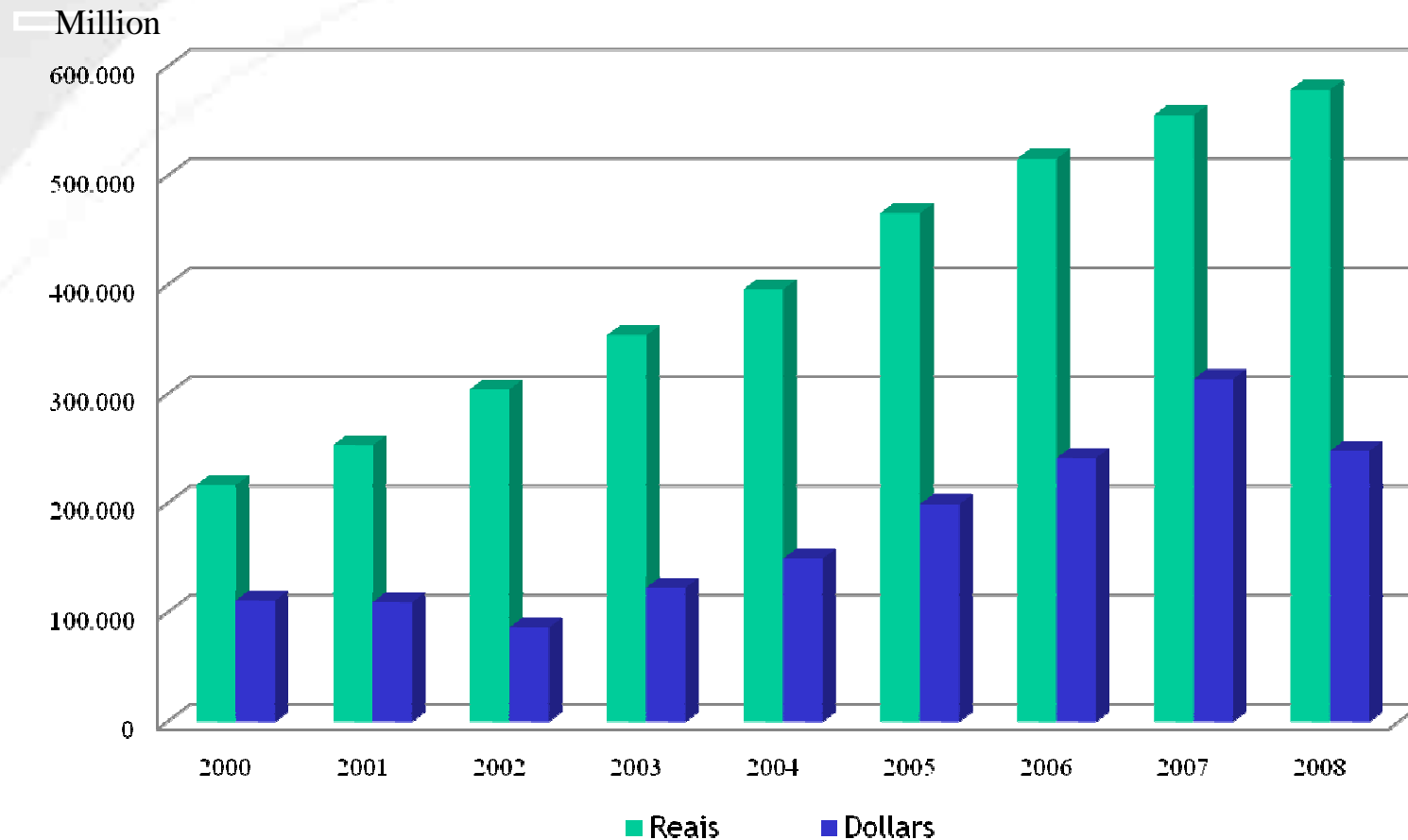


Ministério  
da Saúde



# Evolution of the values paid by chemotherapy in SUS, Brazil, 2000 to 2008

Growing of 167% (Reais) and 124% (Dollars)



**Tabela 7.1.8 - Rendimento médio mensal real das pessoas de 10 anos ou mais de idade, por Grandes Regiões e sexo - 2004-2008**

Ano	Rendimento médio mensal real das pessoas de 10 anos ou mais de idade (R\$) (1)					
	Brasil	Grandes Regiões				
		Norte	Nordeste	Sudeste	Sul	Centro-Oeste
<b>Total</b>						
2004	574	420	338	689	702	672
2005	606	436	356	740	728	701
2006	657	466	400	798	777	748
2007	670	485	408	800	811	816
2008	701	504	438	831	840	858
<b>Homens</b>						
2004	764	554	429	927	952	906
2005	799	579	447	985	975	926
2006	855	604	492	1 060	1 023	974
2007	872	627	506	1 052	1 077	1 067
2008	906	654	540	1 091	1 091	1 126
<b>Mulheres</b>						
2004	397	277	253	474	468	451
2005	427	296	269	516	497	488
2006	473	329	314	562	549	533
2007	482	348	317	568	561	572
2008	509	357	342	595	605	601

Fonte: IBGE, Diretoria de Pesquisas, Coordenação de Trabalho e Rendimento, Pesquisa Nacional por Amostra de Domicílios 2004-2008.

Nota: Excluídas as informações das pessoas sem declaração de rendimento.

(1) Valores inflacionados pelo INPC com base em setembro de 2008.

Source: IBGE, 2004 a 2008

Observation: US\$ 381 *per capita*

(US\$ 1.84 per R\$ 1,00 on aug/2008)



Ministério da Saúde





# Results

## Spending on chemotherapy medicines per patient

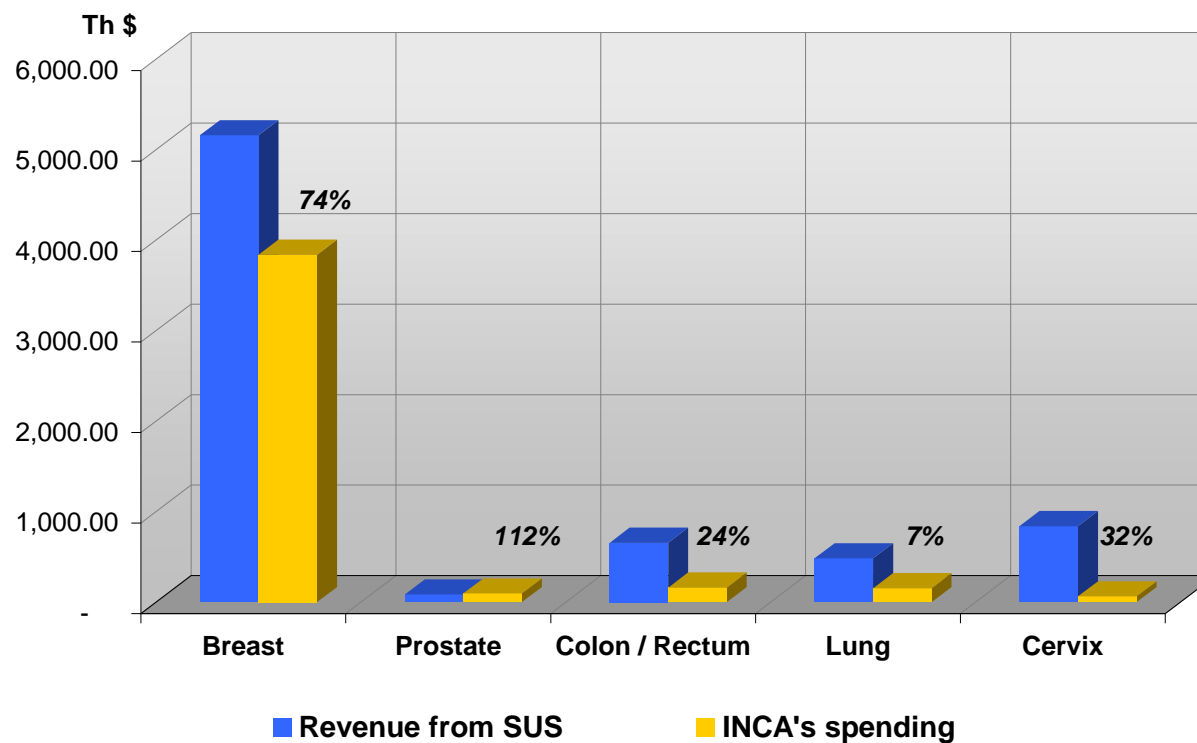
USD

CANCER	Nº PATIENTS	TOTAL SPENDING	AVERAGE COST PER PACIENT
BREAST	1,981	3,838,303.08	1,937.56
PROSTATE	108	95,686.10	885.98
LUNG	306	152,860.61	499.54
COLON / RECTUM	425	159,829.63	376.07
CERVICAL	343	61,976.96	180.69
<b>TOTAL</b>	<b>3,163</b>	<b>4,308,656.37</b>	<b>1,362.21</b>

Source: INCA/MS, 2008

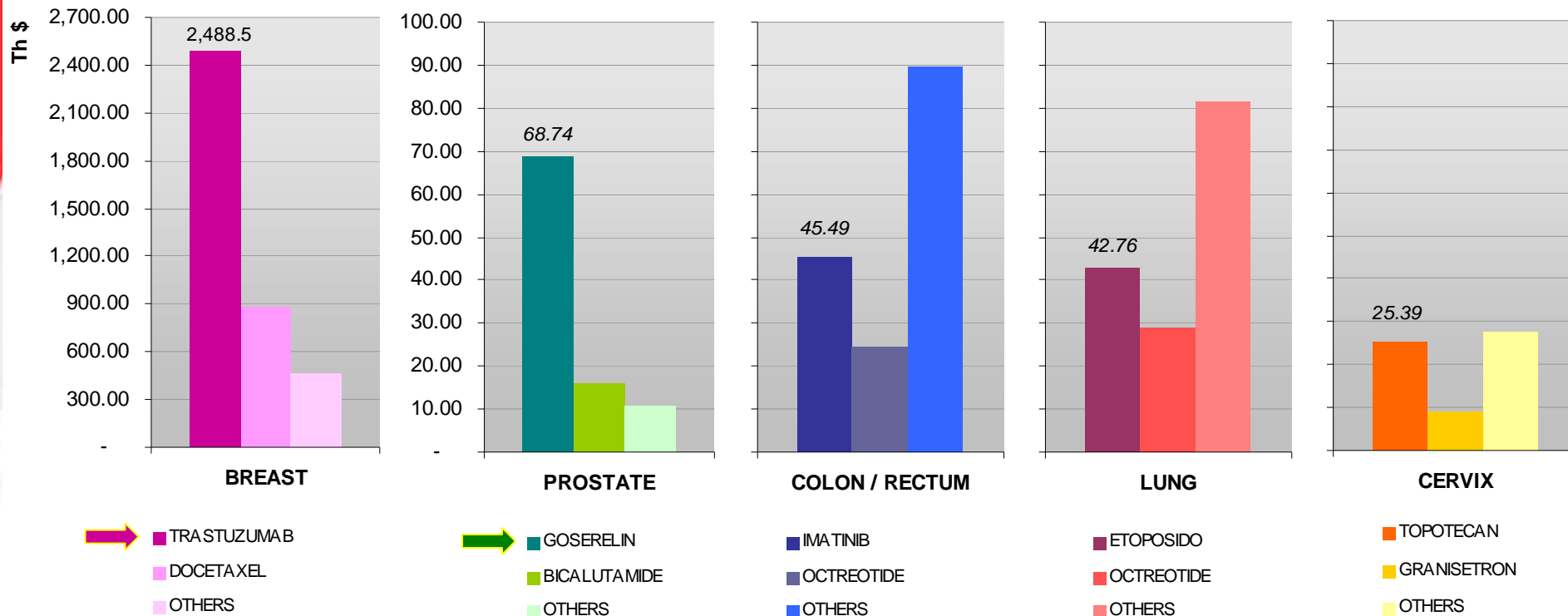
Observation: US\$ 1.84 per R\$ 1,00 on aug/2008.

# Results



Source: INCA/MS, 2008

# Results



Source: INCA/MS, 2008