

# ***Bladder Cancer: Magnitude of the Problem***

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Ain Sukhna - Egypt

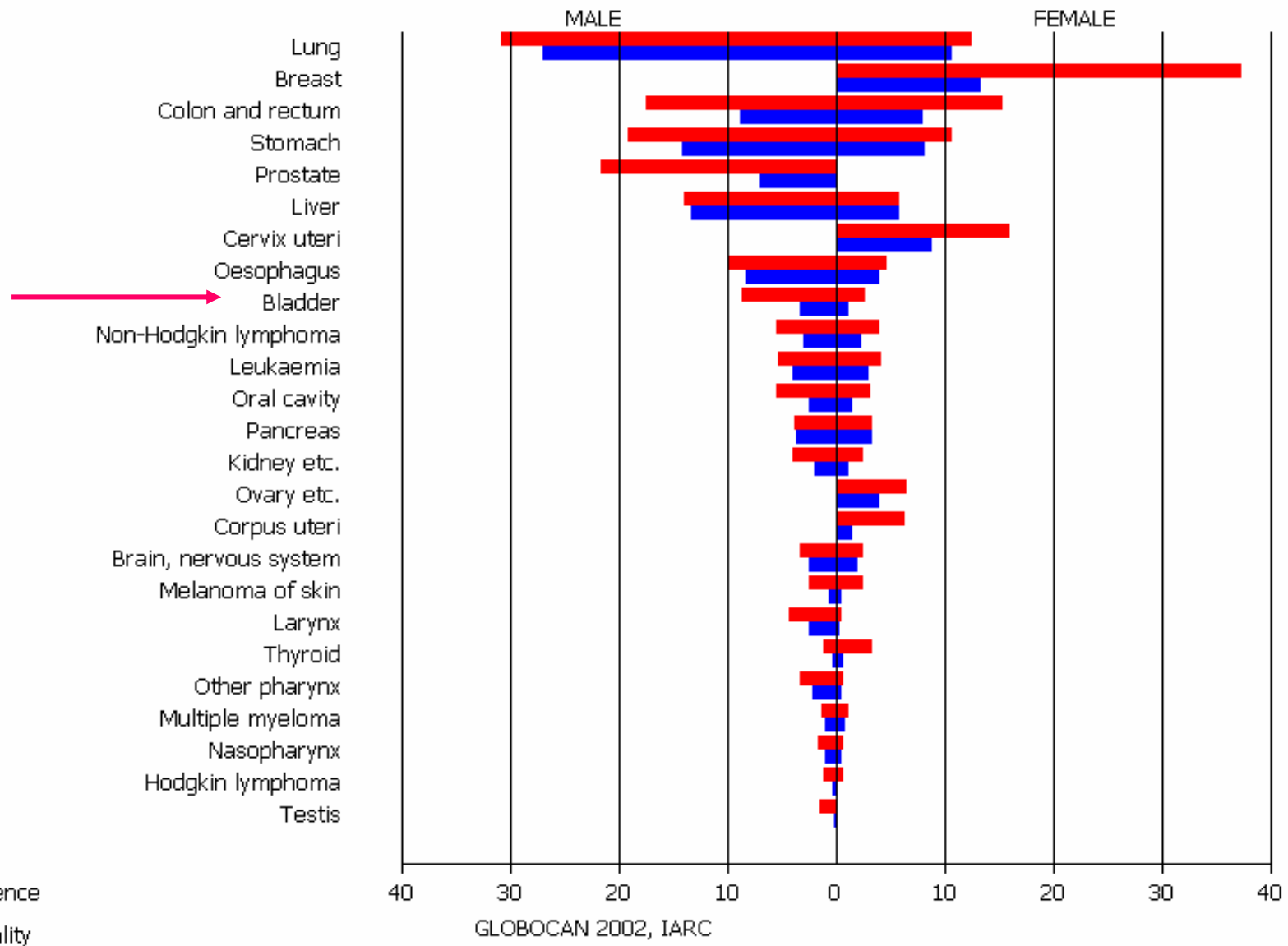
# Outline

- World Incidence of Bladder Cancer
- Frequency of Bladder Cancer In Arab World
- Frequency of Bladder Cancer in Egypt
- Risk Factors of Bladder Cancer

# World

- Urinary bladder cancer is the 9<sup>th</sup> most frequent
- Accounts for 3.3% of the newly diagnosed cancer cases
- And 2.1% of cancer deaths

## World Crude rate per 100,000 (all ages)



## World Estimated New Cancer Cases, Crude and Age-adjusted Incidence Rates by Gender, Globocan 2002

Gender	Number of new cases	Crude incidence rate	Age-adjusted incidence rate	Male to female ratio
Males	273,858	8.8	10.1	3.3
Females	82,699	2.5	2.4	1

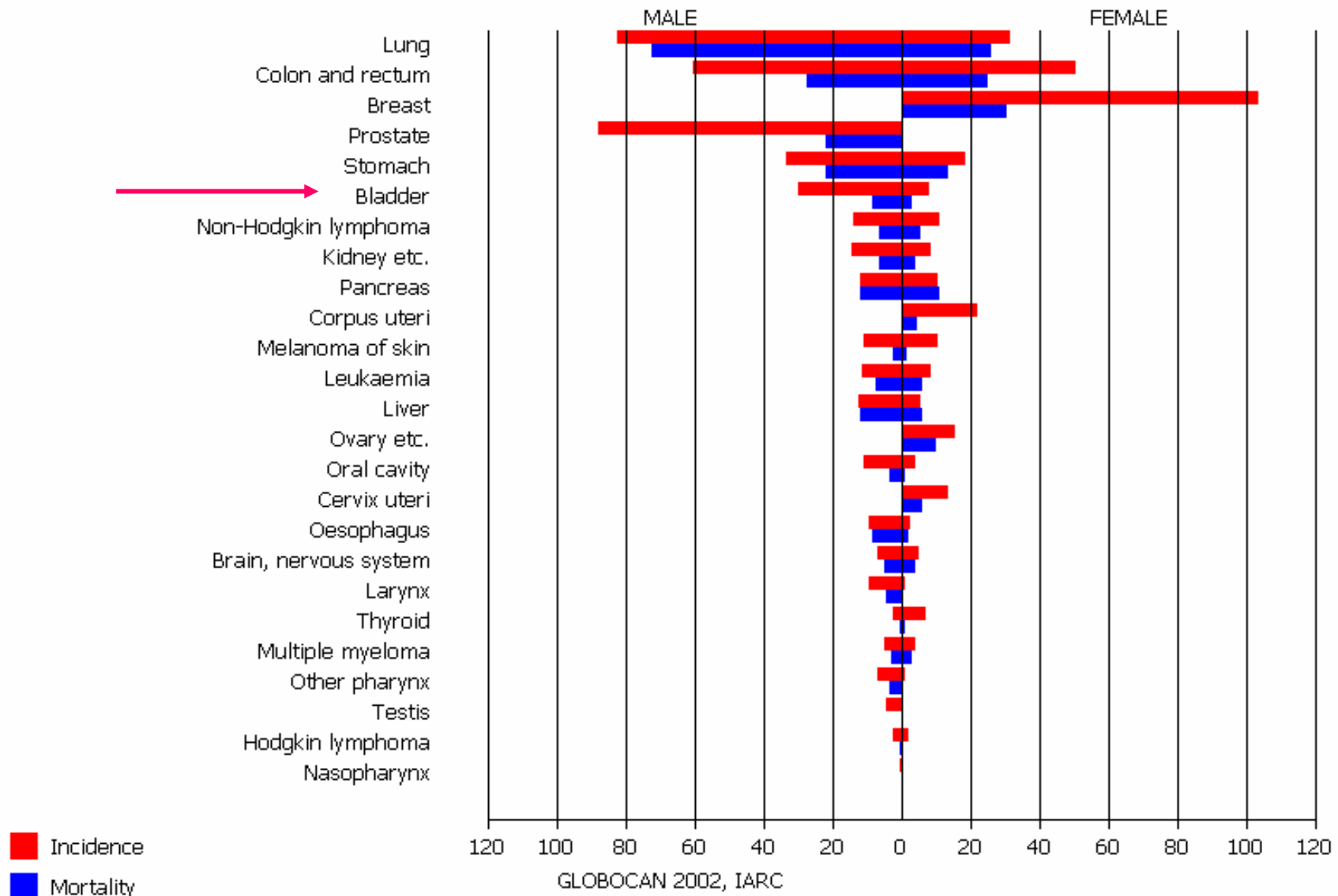
Incidence rates/100,000

## World Estimated Cancer Deaths, Crude and Age-adjusted Death Rates by Gender, Globocan 2002

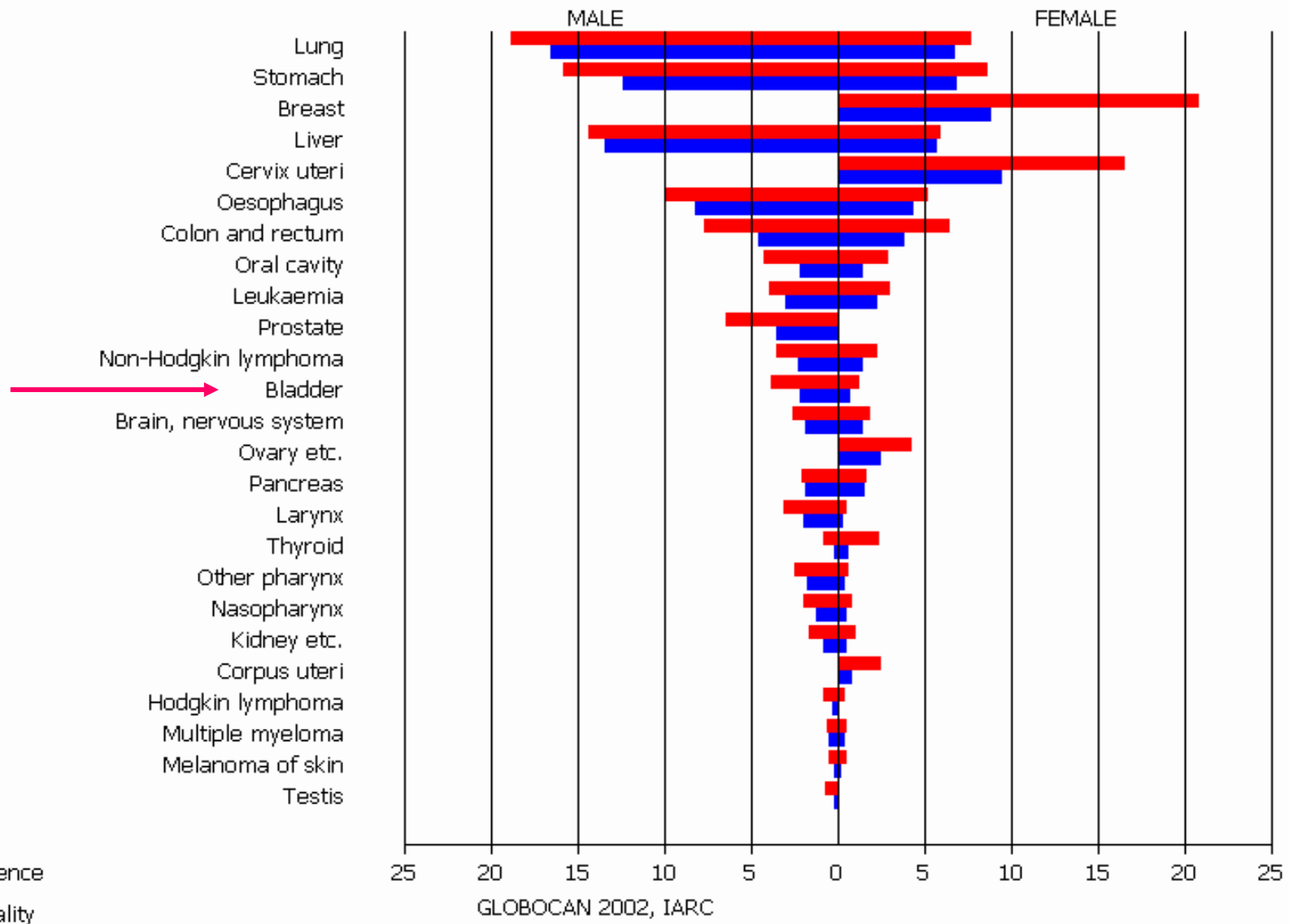
Gender	Number of deaths	Crude death rate	Age-adjusted death rate	Male to female ratio
Males	108,310	3.5	4.0	3.0
Females	36,699	1.2	1.1	1.0

Death rates/100,000

## More developed regions Crude rate per 100,000 (all ages)



## Less developed regions Crude rate per 100,000 (all ages)

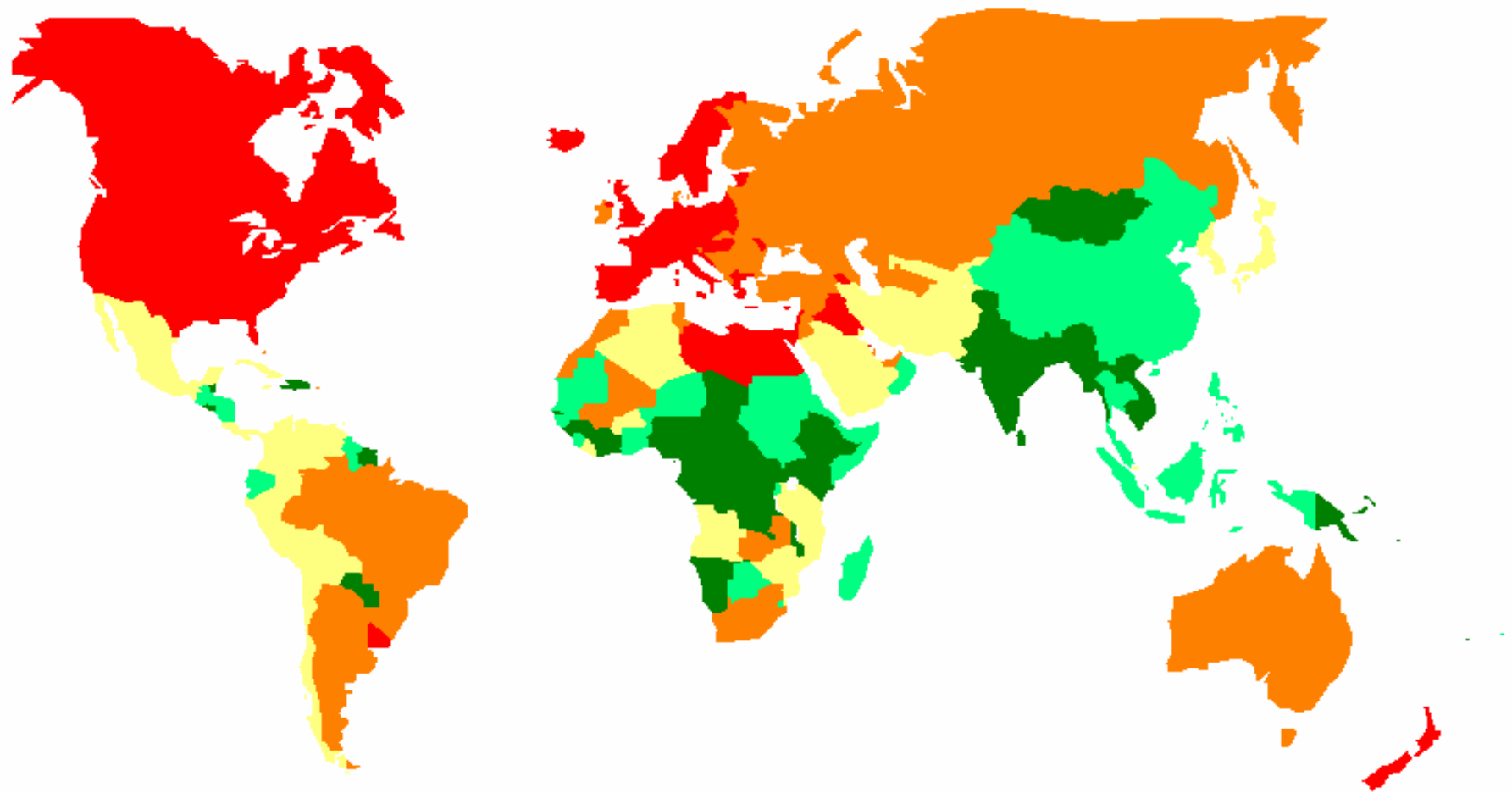


## World Age-adjusted Incidence Rates by Gender, Globocan 2002

	Males	Females
World	8.8	2.7
More developed countries	30.1	8.2
Less developed countries	3.9	1.3

Incidence rates/100,000

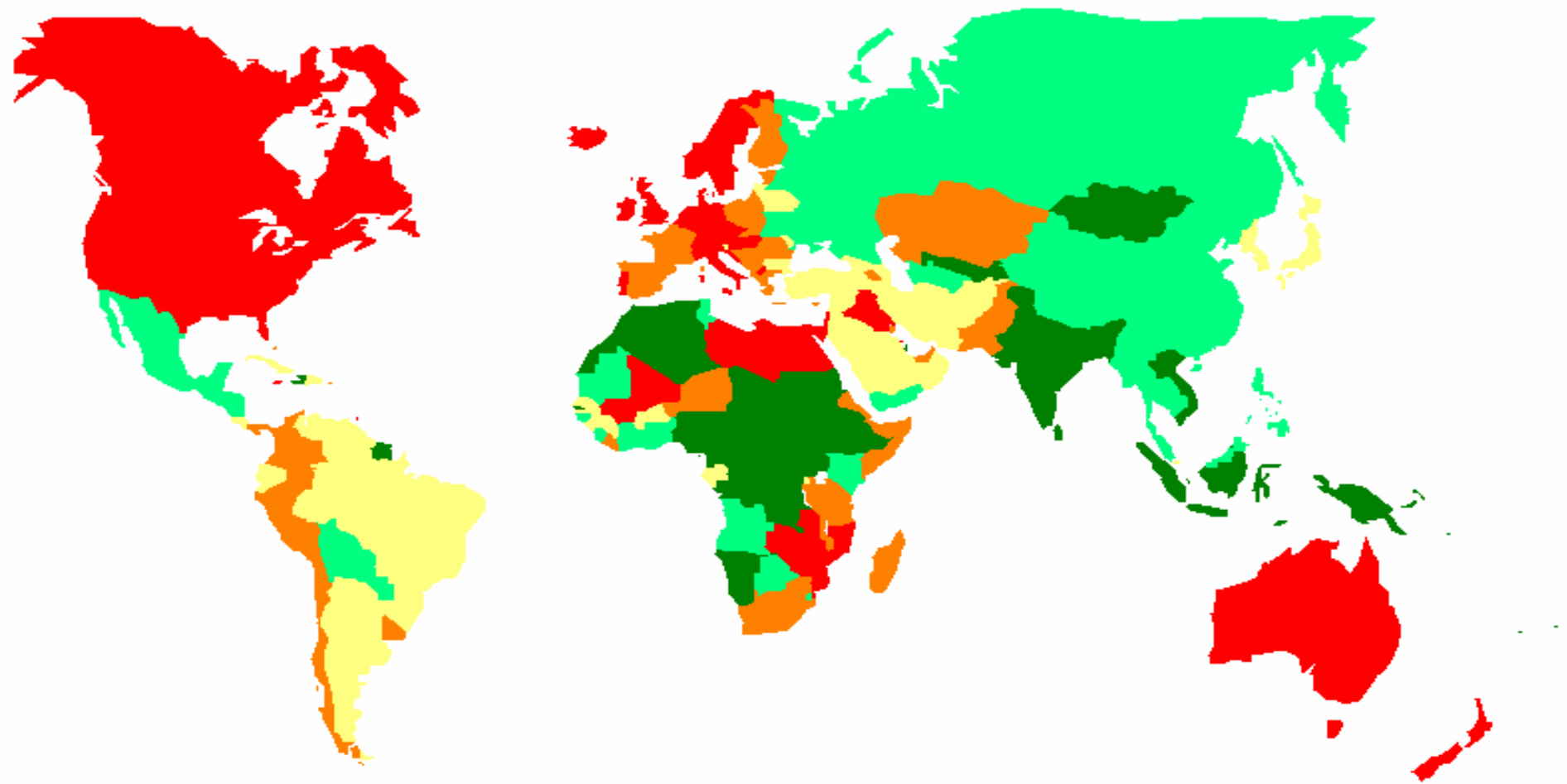
Bladder, Males  
Age-Standardized incidence rate per 100,000



■ < 3.7   ■ < 5.4   ■ < 8.8   ■ < 15.6   ■ < 37.1

GLOBOCAN 2002, IARC

Bladder, Females  
Age-Standardized incidence rate per 100,000



■ < 1.1   ■ < 1.7   ■ < 2.8   ■ < 3.7   ■ < 13.8

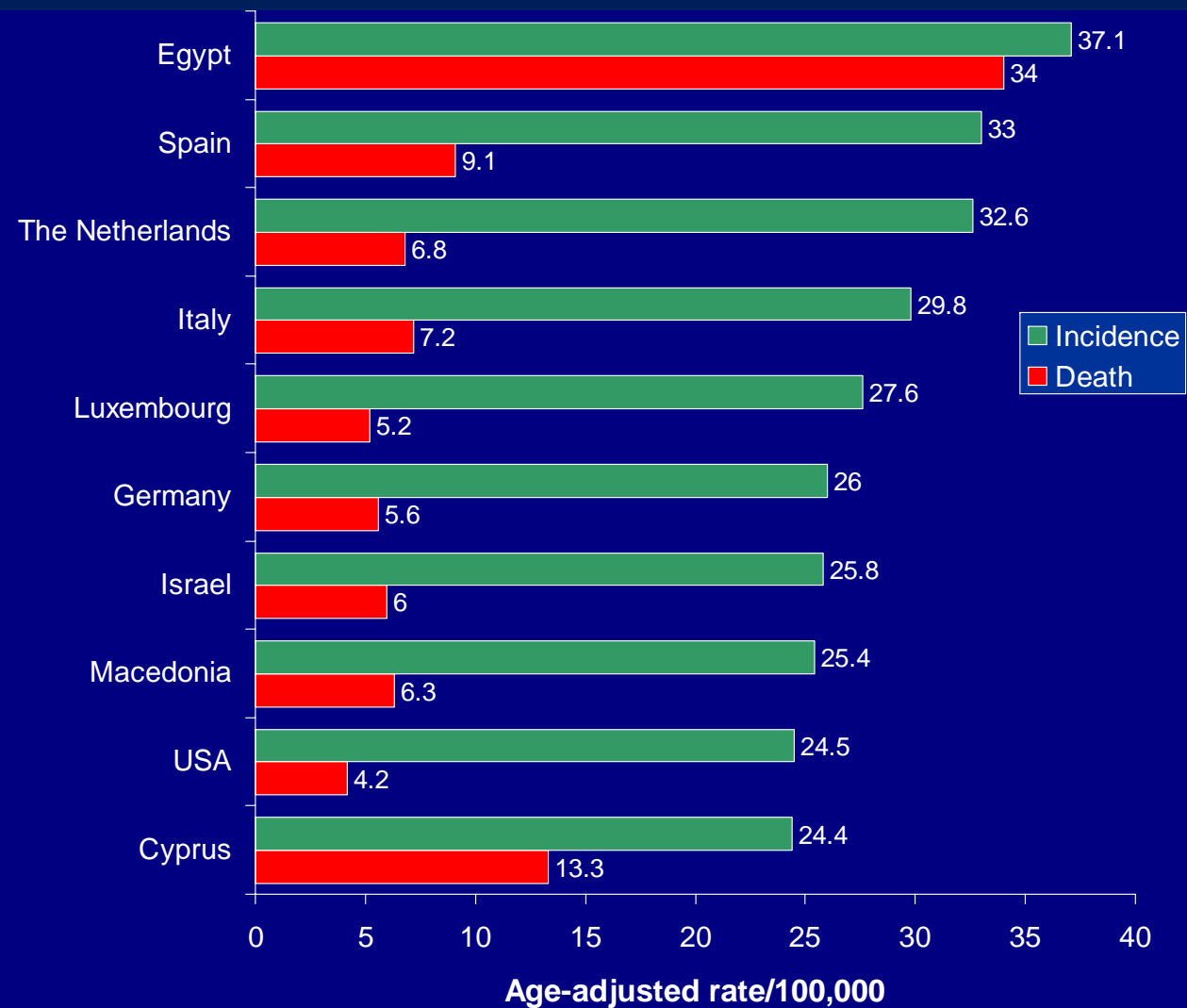
GLOBOCAN 2002, IARC

# Worldwide Age-Adjusted Incidence Rates in Males by Region\*

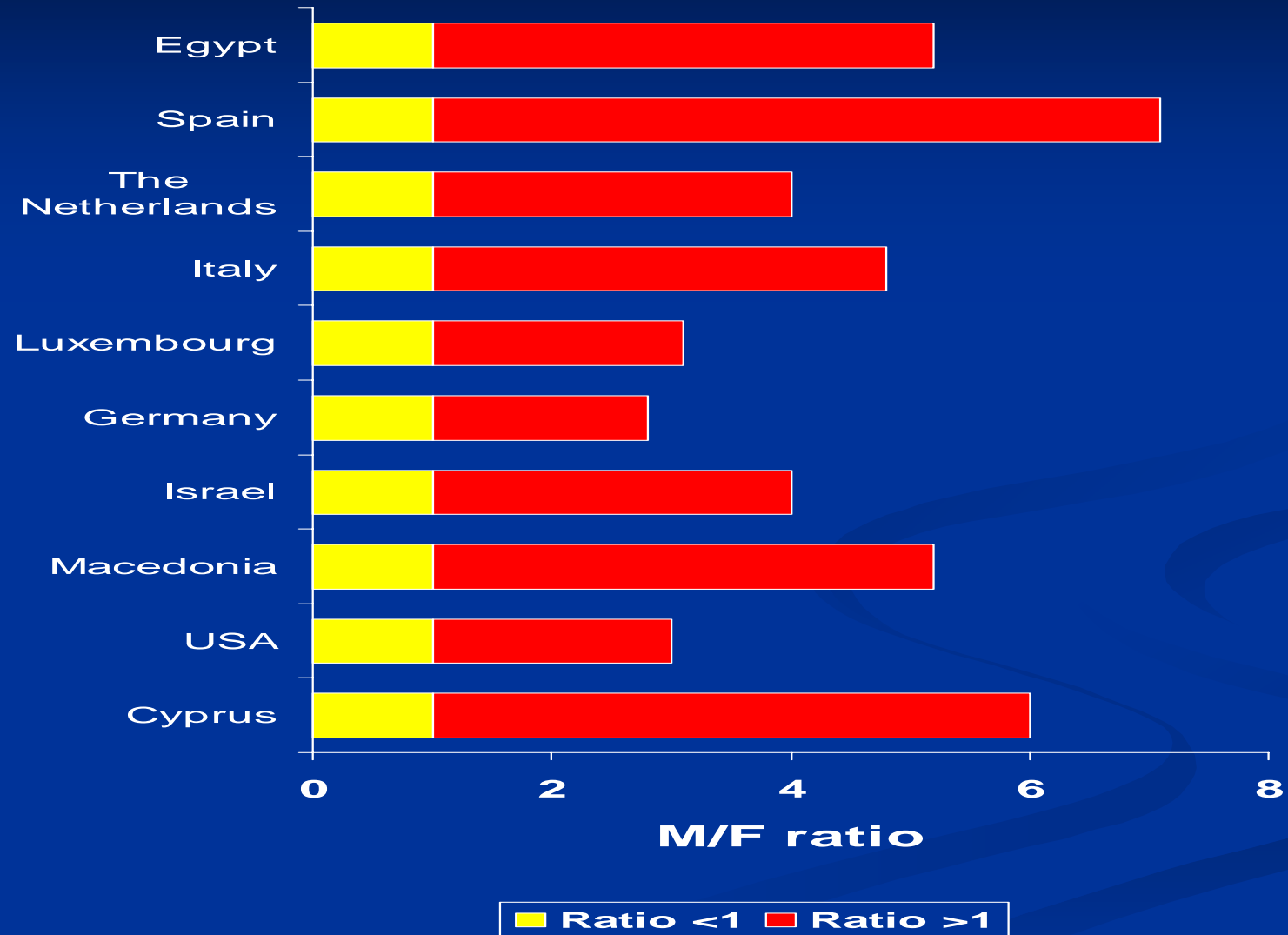


\*Incidence per 100,000 population  
(Globocan, 2002)

# Countries with Highest Age-Adjusted Rates, Globocan 2002



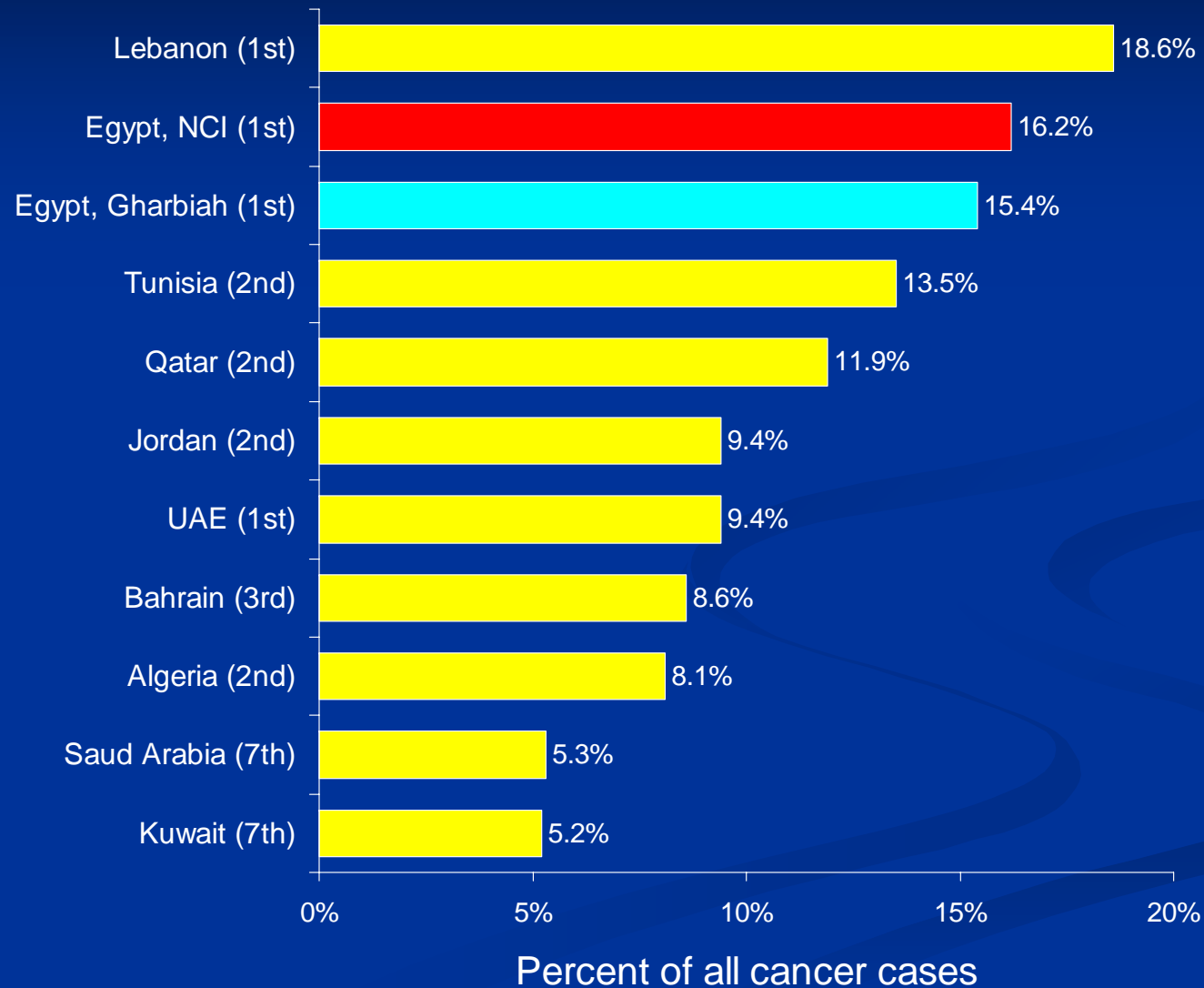
# Male to Female Ratio for with Highest Age-Adjusted Incidence Rates



## Most Common Cancer Sites in Selected Arab Countries, Males

Egypt	Tunisia	Algeria	Jordan	Qatar	Bahrain
Bladder	Lung	Lung	Lung	Lung	Lung
Liver	Bladder	Bladder	Bladder	Bladder	Prostate
NHL	Prostate	Stomach	Prostate	Liver	Bladder
Lung	Larynx	Prostate	NHL	Colorectal	Colorectal
Leukemia	Colorectal	Colorectal	Skin	Prostate	Stomach
Colorectal	NHL	Naso-pharynx	Brain& CNS	Leukemia	Liver

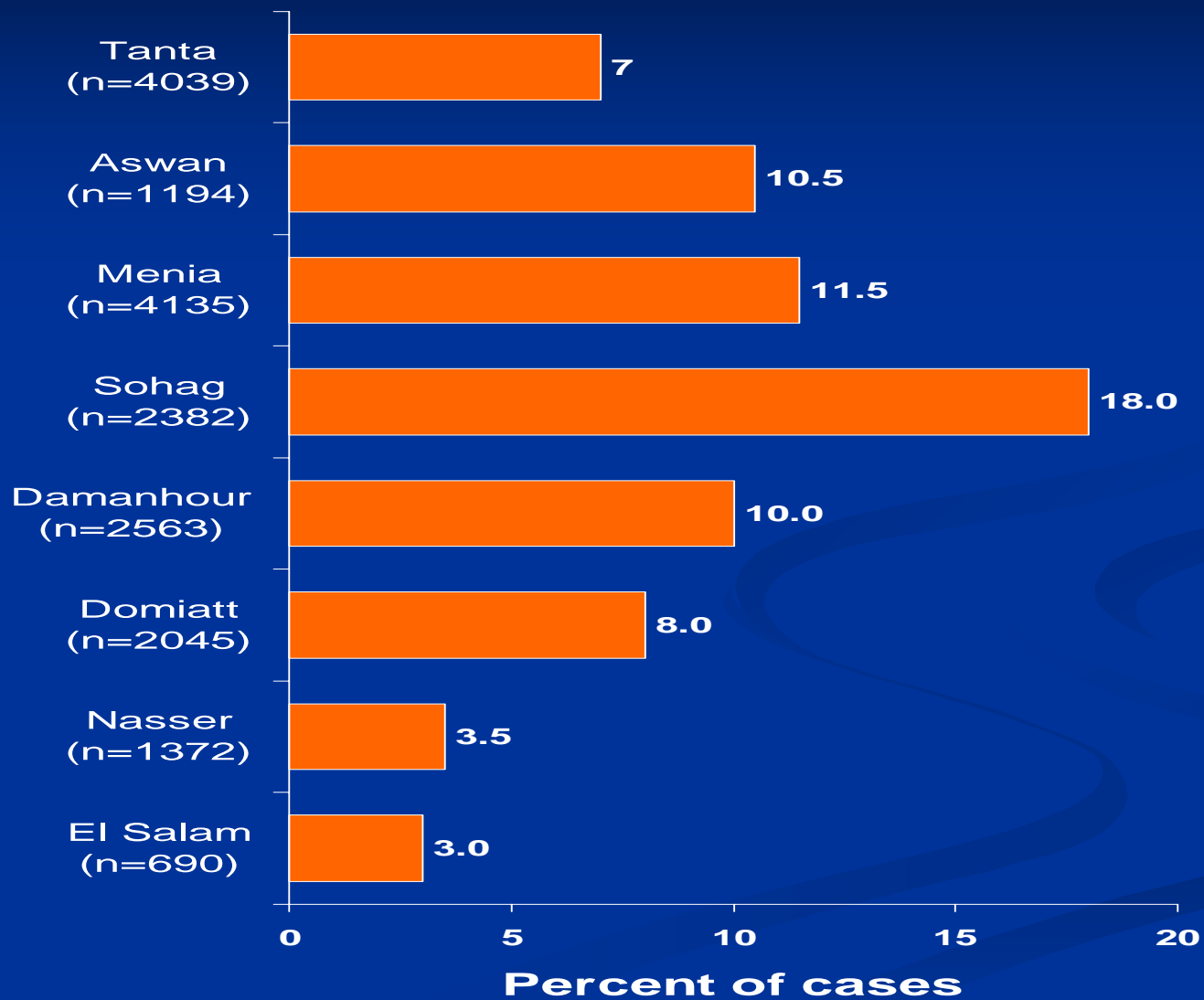
# Frequency of Bladder Cancer in Arab World (Males)



## Male to Female Ratio of Bladder Cancer Cases in Arab World

Country	Number of Males	Number of Females	Male to Female ratio
Lebanon	273	43	6.4
Egypt (NCI)	1,511	403	3.7
Egypt (Gharbiah)	267	58	4.6
Saudi Arabia	150	37	4.1
Jordan	146	16	9.1
Kuwait	14	7	2.0
Tunisia	514	43	12.0
Algeria	728	107	6.8
Bahrain	16	4	4.0

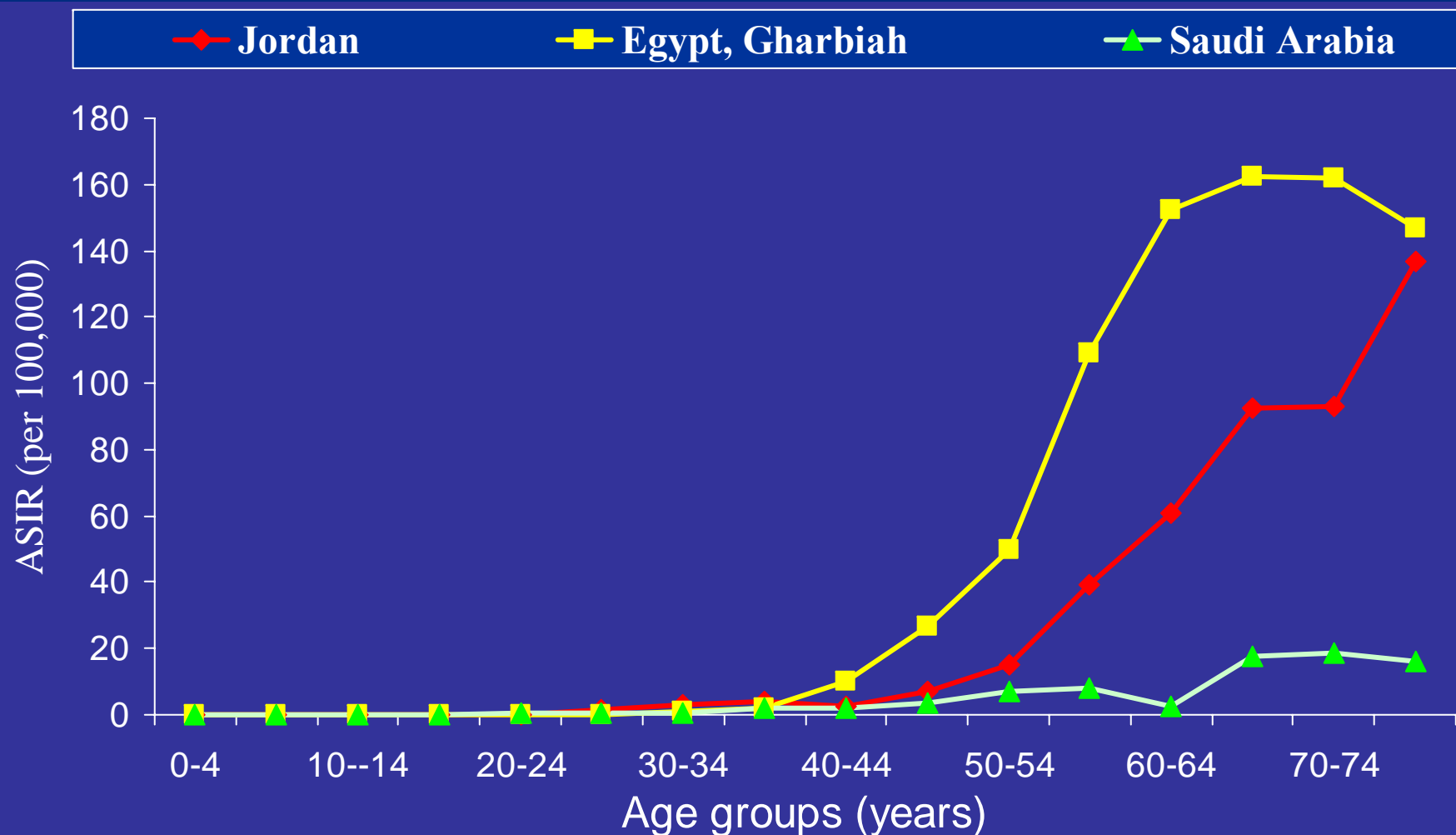
# Frequency of Bladder Cancer Central Cancer Registry (1/1/99-31/6/01), Egypt



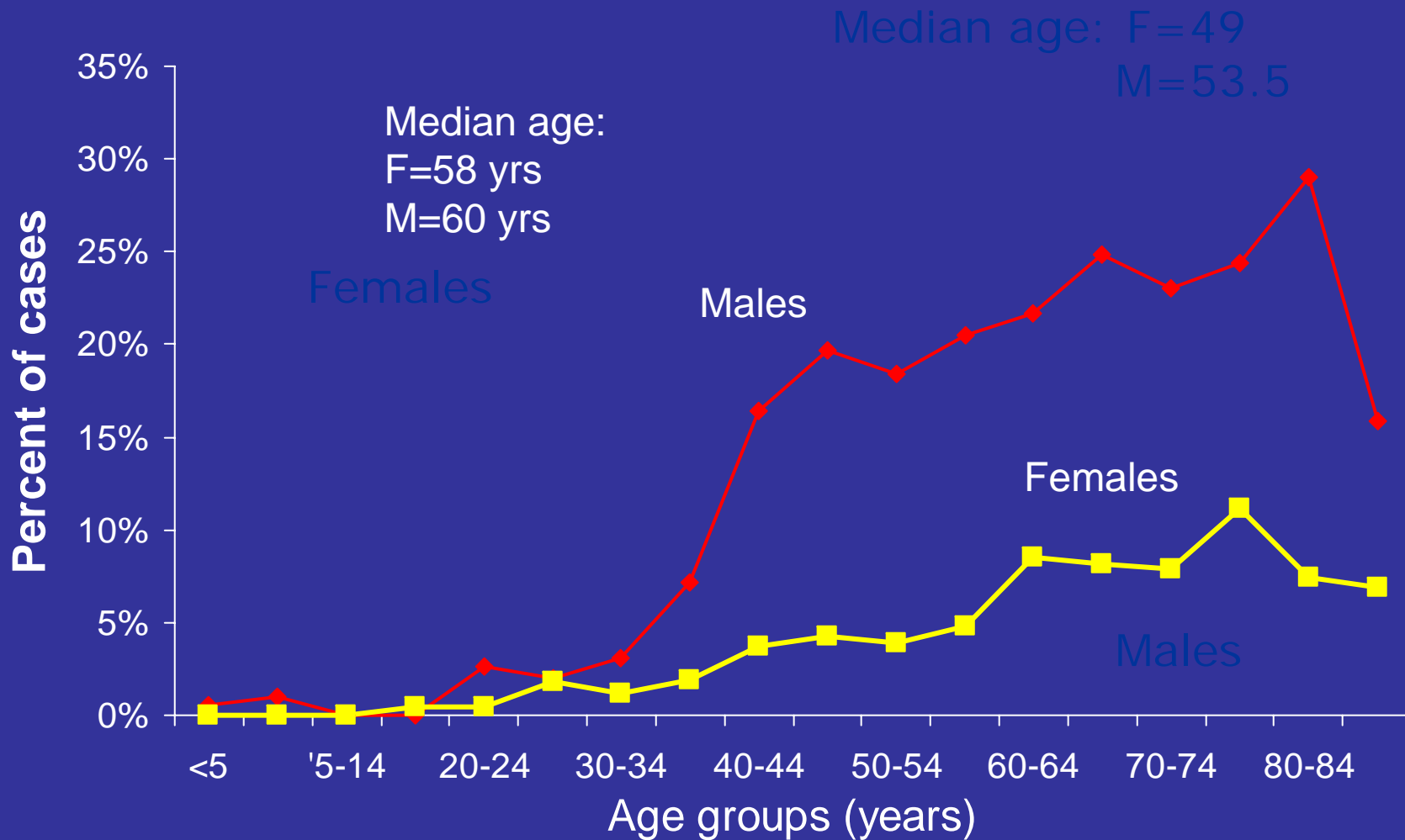
## Age of Bladder Cancer Male Cases in Selected Arab Countries

Country	Median (years)
Egypt (NCI)	60.0
Egypt (Gharbiah)	61.2
Saudi Arabia	63.1
Jordan	62.9

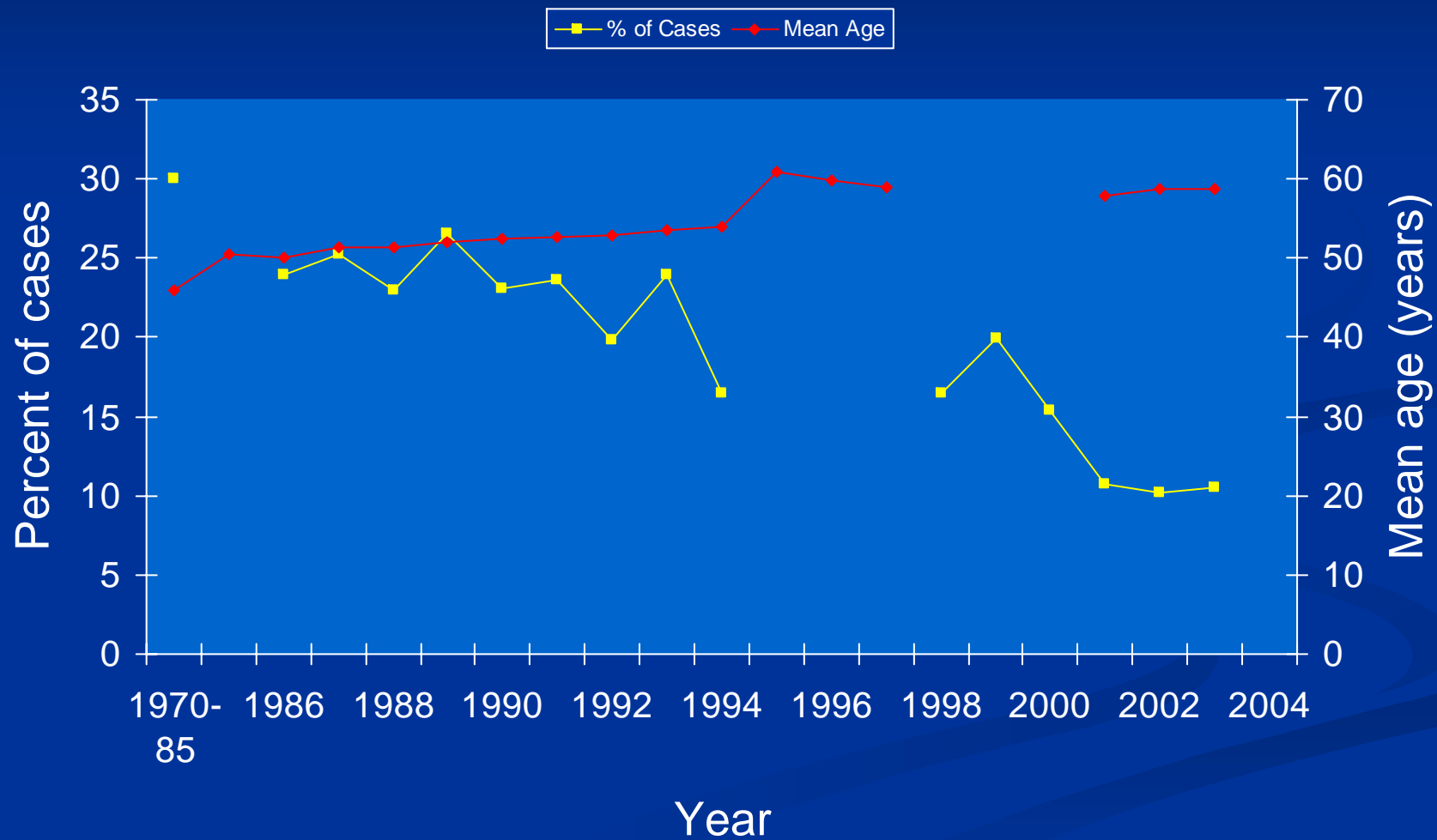
# Age-Specific Incidence Rates (ASIR) of Bladder in Selected Arab Countries (Males)



# Age-Specific Frequency of Bladder Cancer, NCI Egypt 2002- 03



# Relative Frequency of Bladder Cancer & Mean Age, NCI Egypt 1970- 2003



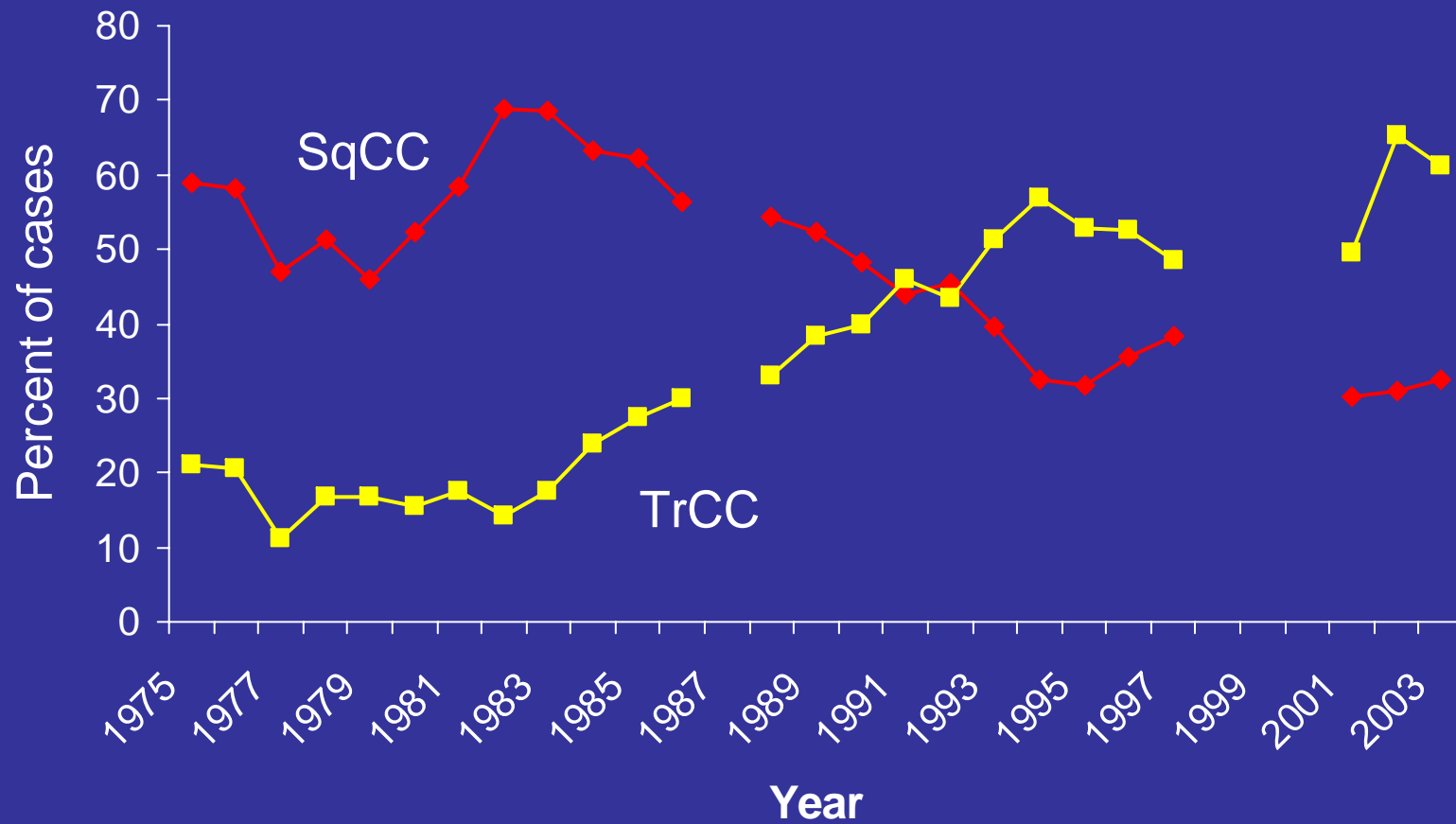
## **Histological Type of Bladder Cancer**

- **The first differential pattern which characterizes bilharzial bladder cancer is the histological type of the tumor.**
- **SCC type is the most frequent type of cancer in countries with a high prevalence of Bilharziasis**
- **TCC type is low in areas with Bilharziasis**

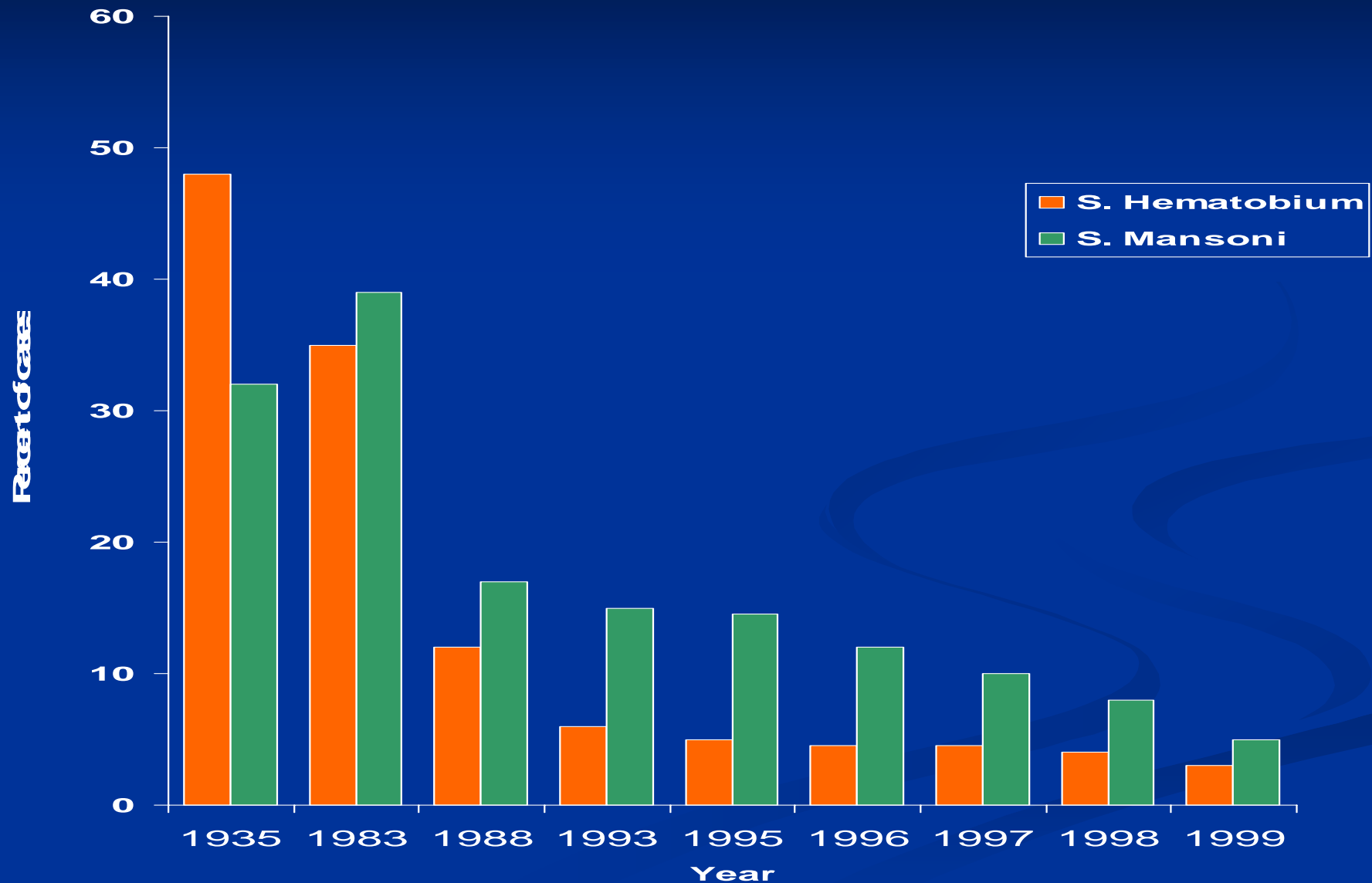
## Most Frequent Pathological of Bladder Cancer Male Cases in Selected Arab Countries

Country	TrCC	SqCC
Egypt (NCI)	62.8%	26.8%
Egypt (Gharbiah)	54.0%	24.0%
Saudi Arabia	85.3%	5.0%
Jordan	81.0%	NA

# Changing Pattern of Bladder Cancer Type, NCI 1975-2003

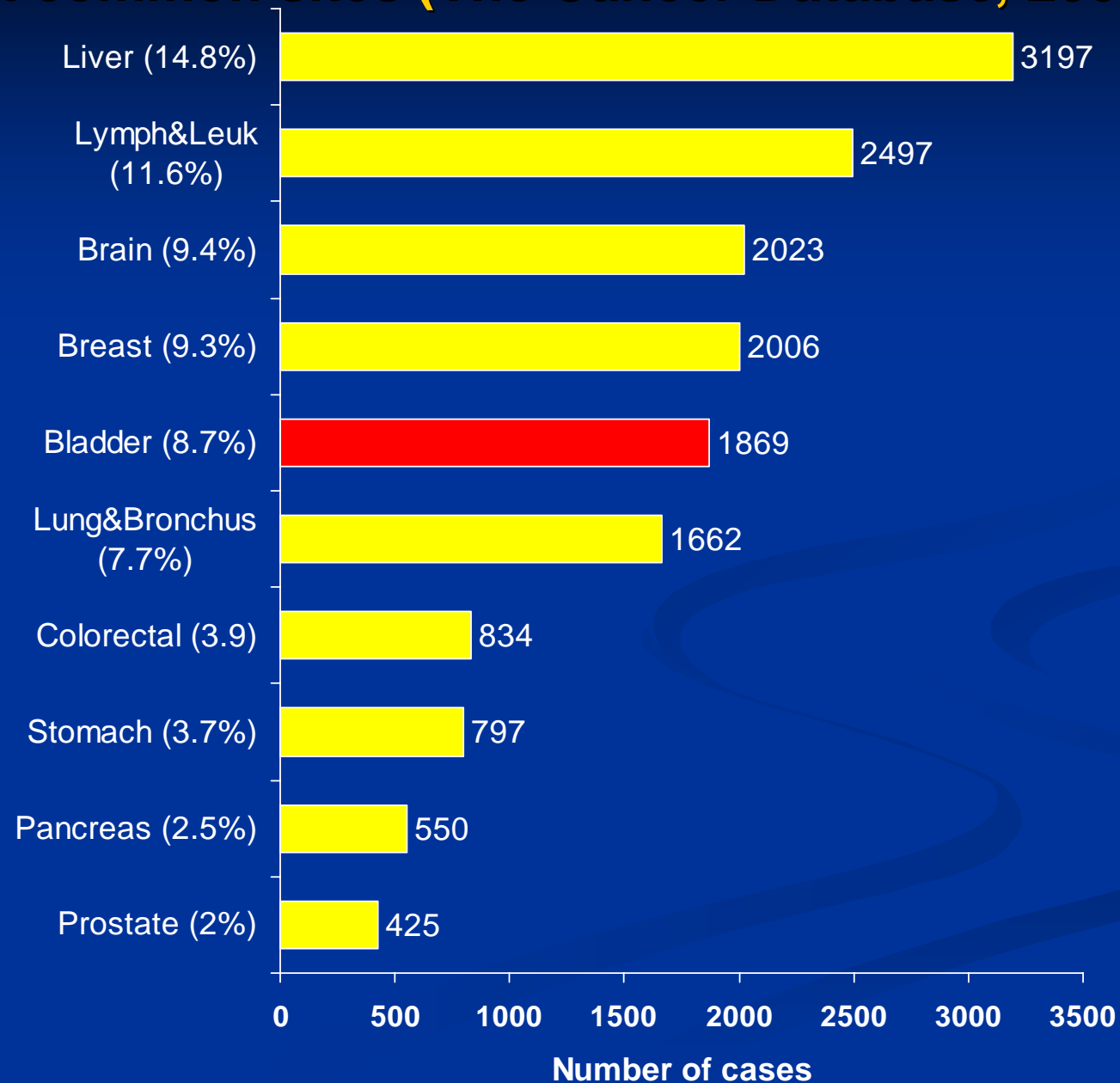


# Prevalence of Bilharziasis Egypt, 1935-1999



# Egypt Mortality Statistics, 2001

## Most common sites (The Cancer Database, 2001)



## Egypt Mortality Statistics, Bladder Cancer, 2001 (The Cancer Database, 2001)

	Number of cases	% of all cancer deaths
Males	1486	12.1%
Females	383	4.1%
Total	1869	8.7%

# Risk Factors of Bladder Cancer

## I. Chemical Agents

- A. Industrial Hazards: dye, chemical, rubber, and related industries
- B. Tryptophan Metabolites: BC patients excrete more
- C. Nitrosamines: The amount of nitrosamines extracted from bilharzial patients and bladder cancer patients is 70 times higher than those extracted from the urine of normal subjects
- D. Drugs: Anti-bilharzial drugs, Phenacetin-Containing Drugs
- E. Smoking

# Risk Factors of Bladder Cancer

## II. Enzymes

- **A. Urinary  $\beta$ -Glucuronidase**
  - Elevated in bilharzial-infested patients.
- **B. Nitrate Reductase Activity in Urine**
  - Increase in the urine of bilharzial or bladder cancer
- **C. Sulfatases**
  - Increase in the urine of bladder cancer patients and bilharzial patients.

# Risk Factors of Bladder Cancer

## III. Possible Co-carcinogens (Promoters)

### ■ A. Bilharziasis

- Mechanical irritation of the urothelium by schistosoma eggs
- Hepatic damage due to bilharzial infestation may influence synthesis of Vitamin A

# Risk Factors of Bladder Cancer

## III. Possible Co-carcinogens (cont'd)

### ■ B. Diet

- *1. Vitamin A and B Deficiencies*
- *2. Saccharin & Cyclamate*
- Coffee ??
- Deficiency of Essential Fatty Acids ??
- Bracken fern ??

# Conclusions

- Data suggest that frequency of bladder cancer is decreasing in Egypt
- There is a significant differences between gender
- Frequency of bladder cancer varied between the different cancer centers, between 3% to 18% of all cancer cases
- There is a change in histological type

**Thank You**