

# CANCER REGISTRATION IN INDONESIA

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## History of Cancer Registration in Indonesia

Cancer data in Indonesia are mainly based on pathology diagnosis, compiled from all pathology laboratories. Cancer data produced by other departments (e.g Surgery, Obstetrics and Gynaecology) comprise case series of cases seen or treated in that department. Some cancer data were also obtainable from reports of hospitals, recording the numbers of cancer patients treated as inpatients or outpatients.

Before 1970 health facilities (including medical doctors and diagnostic equipment) were very minimal especially in the cancer field. The first priority at that time was to overcome infectious diseases which were the most important causes of morbidity and mortality. A first step toward population based cancer registration was taken by the department of pathology Diponegoro University in Semarang. Since 1970, this registry has been able to produce minimum incidence rates of cancer for the population of Semarang city. Population based cancer incidence data have been available since 1985, the first data from the cancer registry in Semarang, for the period 1985-1989, was published in 1990, with support by the Indonesian Cancer Foundation.

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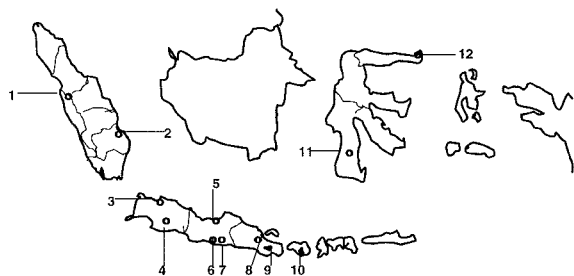
## Present Status

Indonesia consists of more than 3000 islands, located between Asia and Australia. The area is 1.919.317 sq km, divided into 26 provinces. The population of Indonesia at the 1990 census was 179.4 million (89.4 million males and 90 million females).

A cooperation between the Department of Health, Indonesia Cancer Foundation and Association of Indonesian Pathologists was established to carry out collection of data on cases of cancer diagnosed in pathology departments country-wide. Cancer data were actively collected by 12 departments of pathology in 10 provinces.

Because of various problems, population based cancer registration was only performed in Semarang.

The population in the 10 provinces (12 cancer registries) are shown in Table 1, and Fig 1. The area covered by these 12 pathology registries is 382 928 sq-km (19.95% of total Indonesia's area), with the population 139 328 300 (75.4% of total population).



**Figure 1. Map of Indonesia**

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## Incidence Data

### "The National Data"

The total number of new cancer cases in 1994 from 12 cancer registries, based on pathological reports, was 23.310 (8459 males and 14.820 females). The most common cancer sites in males were colon-rectum (1002 cases), nasopharynx (856), skin (833), soft tissue (501), prostate gland (449), and in females they were cervix (4126 cases), breast (2743), ovary (1200), colon rectum (902) and skin (831).

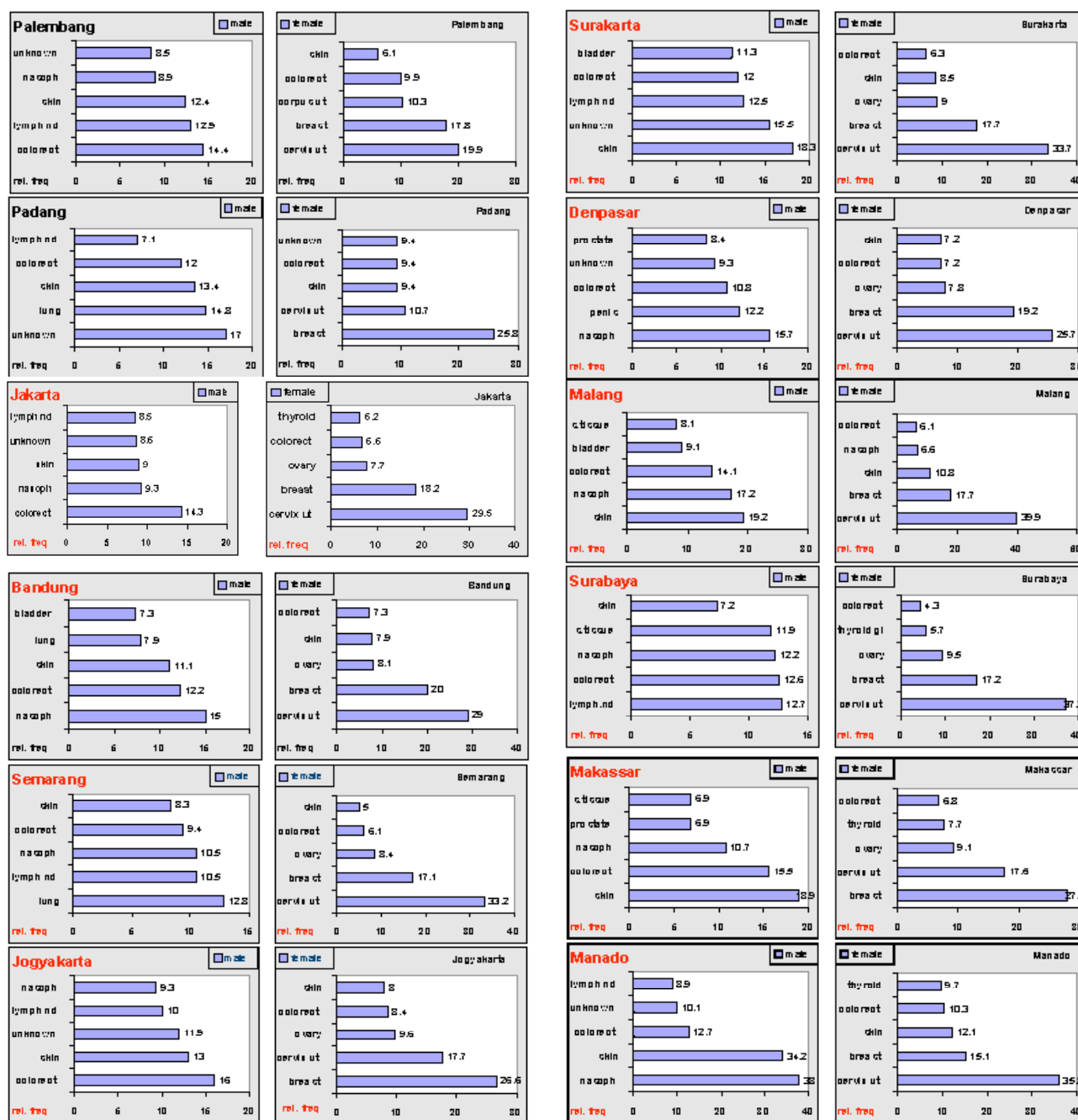
### Regional Variation

The data from the pathological diagnosis of cancer in the different regions can only be compared in terms of relative frequencies.

## Epidemiology of Most Common Cancers

**Table 1. Registries and Poulation Figures**

Province	Registry	Population	Pop.Density (per sq.km)
West Sumatra	1. Padang	80	4.000.200
South Sumatra	2. Palembang	61	6.313.100
Jakarta	3. Jakarta	12.495	8.259.200
West Jawa	4. Bandung	765	35.384.300
Central Jawa	5. Semarang	834	28.520.600
	6. Surakarta		
Jogyakarta	7. Jogyakarta	2.913.000	919



**Figure 2. Cancer Incidence in Indonesia 1994 - Relative Frequencies in Males and Females**

In females, cervix cancer is the most common cancer in most of the centres, and breast cancer second, except for Padang, Jogjakarta and Makassar, where the order is reversed. In males, the situation is more variable. Overall, colo-rectal cancer and skin cancer are the main malignancies, followed by nasopharyngeal cancer. There is a lot of variation between the centres. Overall, although lung is not a frequent cancer site, in Semarang and Padang it is the most common male cancer. Penis cancer is frequently observed only in Denpasar (Bali), where it is in second rank.

*Cervix Cancer*

Cancer of the cervix is the most common cancer among Indonesian women. The incidences (Relative Frequencies) range from 10.7% in Padang to 39.9% in Malang.

Age specific incidence for Semarang residents is shown in figure 3d. The curve pattern shows the peak incidence in the 45-54 age group, followed by slightly decreasing and increasing in the >65 age group. In Semarang, histologically, it was found that 1044 cases (89.2%) were squamous cell carcinoma, 40 cases (3.4%) adenocarcinoma and 87 cases (7.4%) adeno-squamous carcinoma. Stage at diagnosis is often advanced, 13.2% cases FIGO stage I, 29.4% cases stage II, 51.5% cases stage III and 5.9% stage IV.

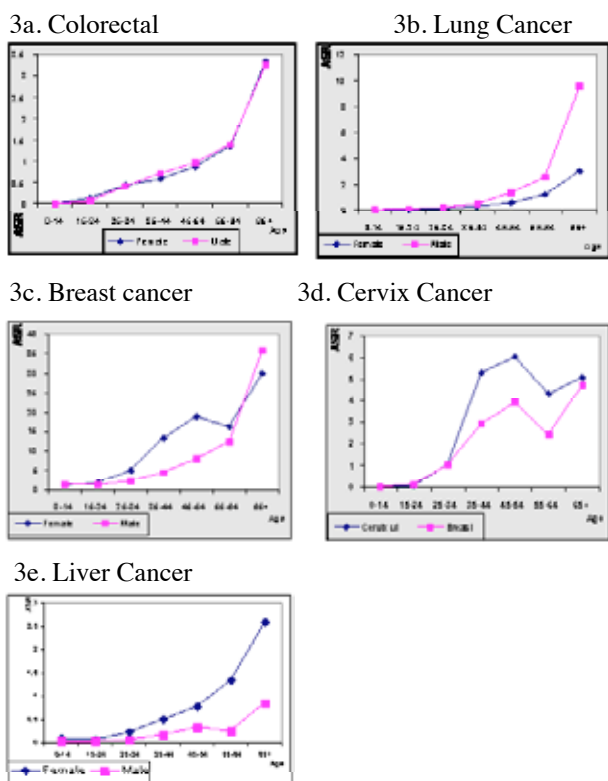


Figure 3. Incidence of Cancer, by Age, Semarang, 1990-1999

*Breast Cancer*

Breast cancer is the second most common cancer among Indonesian women. The relative frequency ranges from 17.7% in Malang to 27.9% in Makassar. With respect to age, most of the cases are diagnosed in the 55-64 age group, while among Semarang residents the age specific incidence increases progressively by age (Fig 3c). Histologically, most of the cases are diagnosed as infiltrating duct carcinoma (88.3%).

*Colo-Rectal Cancer*

Form 12 cancer registries it was found that colo-rectal cancer is one of the five frequent cancer found in males and females. The relative frequencies ranges from 4.3% in Surabaya (female) to almost 10% in Palembang ( female ) and from 9.4% in Semarang to 15.5% in Makasar ( males). During 1990-1999 among Semarang residents, the annual age standardized rate (ASR) was found slightly higher in male ( 6.8) than in females ( 6.3) (Fig 4), and the curves of age specific incidence are similar in the two sexes (Fig 3a). Histologically, the most frequent type was adenocarcinoma

**Population-based Cancer Incidences in Semarang**

At the present, the only population based cancer incidence data are those calculated for the residents of Semarang. A total

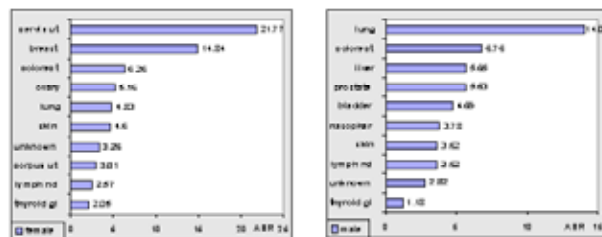


Figure 4. Ten Most Frequent Cancer Sites in Semarang 1990 - 1999

of 6822 new cancer cases ( 2614 males and 4208 females ) were diagnosed in Semarang residents, during the period 1990-1999.

The distribution and incidence of the ten most frequent cancer sites for males and females is shown in figure 4. The incidence of lung cancer is increasing especially among females. The curve of this cancer related to the age groups presented in figure 3b.

The overall incidence of cancer has shown a tendency to increase, in females from 78.1 (1990-1994) to 90.4 (1995 – 1999), and in males from 60.8 (1990-1994) to 70.7 (1995 – 1999

**Research Studies**

The registries have been involved in a variety of studies in the epidemiology of cancer. Particular areas of interest have been the epidemiology cancer in children, cervix cancer, breast cancer, skin cancer, lung cancer and nasopharyngeal cancer.

**Future Activities**

The future activities are to improve routine data collection and analysis, and to improve the organisation of cancer registries. With the support of the Indonesia Cancer Foundation, the Department of Health and the Association of Indonesian Pathologists, this goal will be achieved.

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