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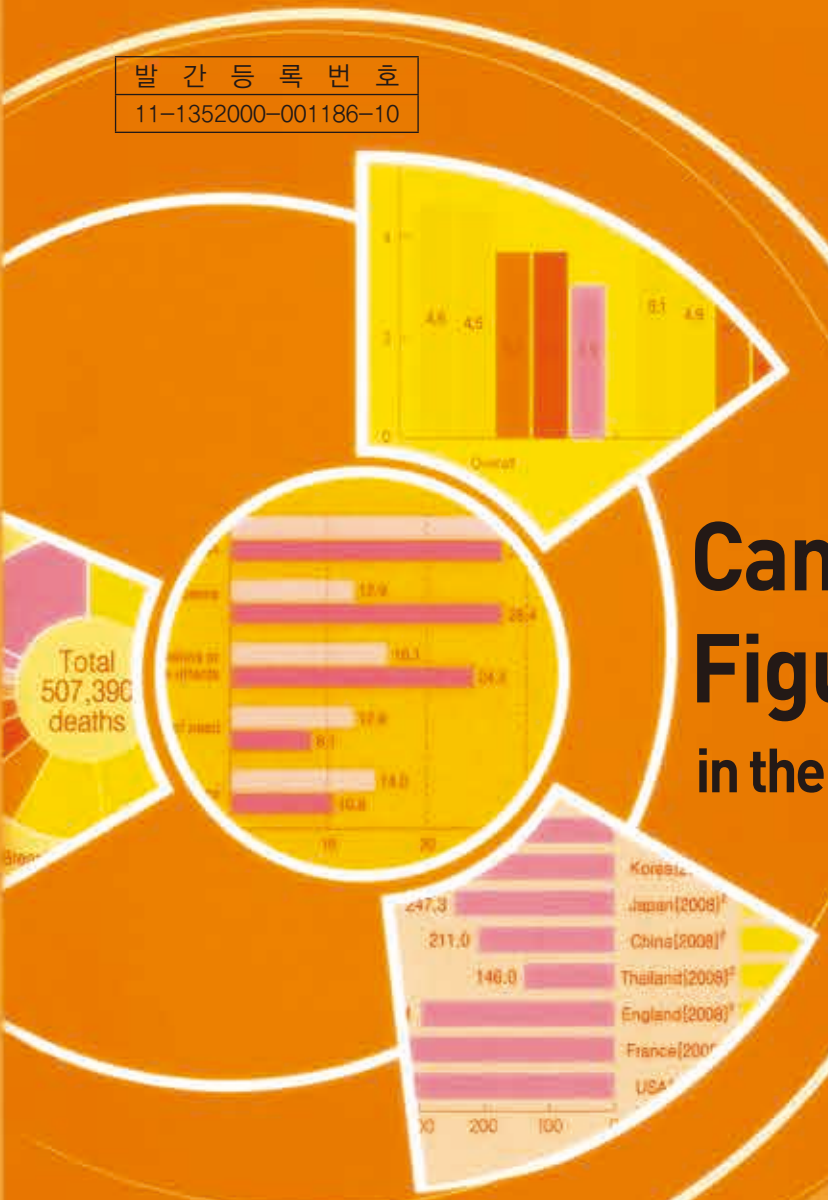



# Cancer Facts & Figures 2016

## in the Republic of Korea

Ministry of Health and Welfare

NATIONAL CANCER CENTER

# Cancer Facts & Figures 2016

# Foreword

Cancer is currently one of the leading causes of death in Korea and patients not only need support from their family, but also the entire society. Among the five leading causes of death at present (cancer, cerebrovascular disease, heart disease, diabetes, and suicide), the socioeconomic cost of cancer is the highest, and patients and their families go through immense physical, emotional, and social challenges.

Fortunately, in Korea, the survival rate of cancer patients has been steadily increasing since 2000, when the National Cancer Control Program was expanded in earnest. The 5-year relative survival rate of cancer patients in the last 5 years (2009-2013, 69.4%) has increased by 15.6% since 2001-2005 (53.8%) and by 28.2% since 1993-1995 (41.2%).

In order to reduce personal suffering, damage, and social burden caused by cancer, as well as to contribute to the promotion of public health, Korea is establishing and implementing a comprehensive plan for cancer control. Recently, The Third Term of the Comprehensive Plan for Cancer Control (2016-2020) has been planned; it includes cancer research projects and comprehensive plans for cancer control at the National Cancer Center (NCC).

The NCC was established in 2000 as part of a nationwide effort to fight cancer. It strives to lower cancer incidence and mortality rates among Korean citizens and to improve the quality of life of cancer patients by performing research, providing treatment, supporting national cancer control programs, and training and educating professionals involved in cancer treatment.

Cancer Facts & Figures of Korea (2015) compiled cancer-related activities of the NCC, other cancer-related reports, and academic papers published in Korea and internationally. We sincerely hope that this would help in broadening the general public's understanding of cancer, and that it can be utilized as a primary source of data for cancer-related research and projects.

I would like to express my profound gratitude to the staff and associates of the NCC, who have made this publication possible.

December 2016

**Kang Hyun Lee, M.D., Ph.D.**

President, National Cancer Center

# Contents

# Chapter 1.
# The Third Term Comprehensive Plan for Cancer Control

## 1.1 The Third Term Comprehensive Plan for Cancer Control

Following the First 10-Year Plan for National Cancer Control (1996-2005) and the Second 10-Year Plan for National Cancer Control (2006-2015), the Korean government implemented the Third Term Comprehensive Plan for Cancer Control (2016-2020) for the effective control and management of cancer at the national level.

The Third Term Comprehensive Plan for Cancer Control (2016-2020) incorporates the evaluation of the goals of each project in the Second Term Comprehensive Plan for Cancer Control in terms of the structure indicator, process indicator, and result indicator, and suggest the draft plan for the comprehensive plan for cancer control through the review of domestic and overseas data, analysis of the policy, and collection and review of the opinions of the experts. The significance of the plan is that it provides a system for systematic driving the national cancer control project to improve the quality of life for citizens by considering the changed policy environment in domestic and foreign countries, including Increased expectations of cancer patients and family and financial expansion.

With a vision of improving the quality of life by decreasing the social, economic, and emotional burden of cancer patients as well as their families, the objective of the Third Term Comprehensive Plan for Cancer Control is to decrease the incidence of cancer to the average incidence in the Organisation for Economic Co-operation and Development(OECD) member countries to promote early screening, to increase the cancer survival rate, to improve the quality of life of the terminal-stage cancer patients and cancer survivors and building infrastructures for precision medicine.

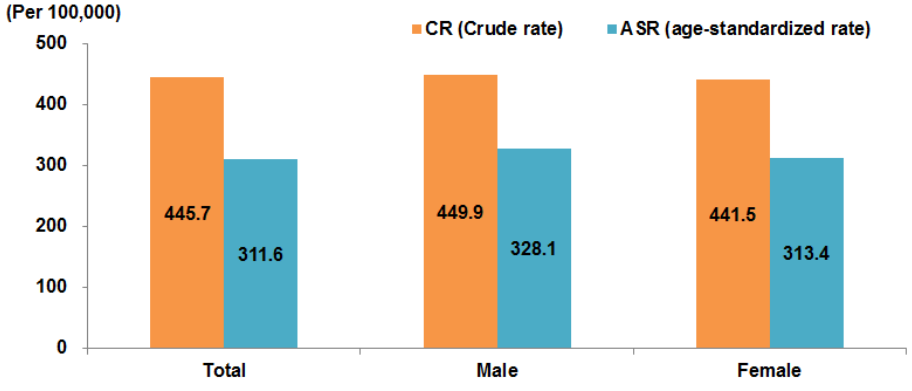
# Chapter 2.
# Basic Facts

# 2.1 Cancer Incidence

## Cancer Incidence Rates

In Korea, the age-standardized cancer incidence rate in 2013 was 311.6 per 100,000 individuals (328.1 for males and 313.4 for females).

### Cancer Incidence Rates (2013)



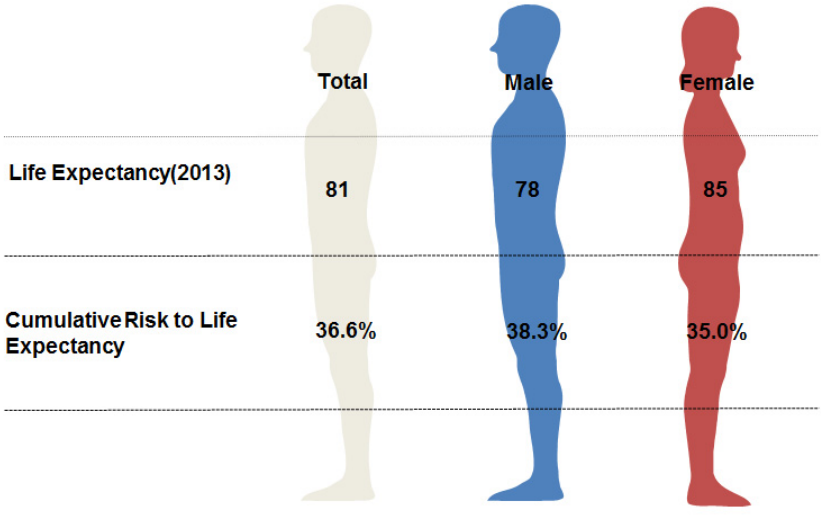

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

Note) The age-standardized rate (ASR) was calculated based on Korea's mid-year population of 2000

## Cumulative Risk of Cancer

The cumulative risk of cancer during average life expectancy was 36.6%. The risk for males was higher than that for females at 38.3% and 35.0%, respectively.

### Cumulative Risk of Cancer (2013)




Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

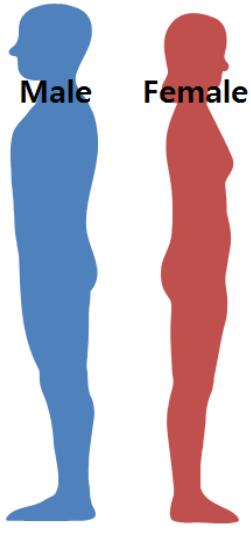
## Proportion of Cancer Incidences

In males, stomach cancer occurred most frequently, accounting for 17.8% of all cases, followed by colon and rectum cancer (14.6%), lung cancer (14.2%), and liver cancer (10.6%).

In females, thyroid cancer occurred most frequently, accounting for 30.5% of all cases, followed by breast cancer (15.4%), colon and rectum cancer (9.9%), stomach cancer (8.9%), and lung cancer (6.3%).

### Proportion of Cancer Incidences (2013)

| | | | | |
|---|---|---|---|---|
| Stomach | 17.8% | | 30.5% | Thyroid |
| Colon and rectum | 14.6% | | 15.4% | Breast |
| Lung | 14.2% | | 9.9% | Colon and rectum |
| Liver | 10.6% | | 8.9% | Stomach |
| Prostate | 8.4% | | 6.3% | Lung |
| Thyroid | 7.4% | | 3.7% | Liver |
| Bladder | 2.7% | | 3.3% | Cervix uteri |
| Kidney | 2.6% | | 2.3% | Gallbladder etc. |
| Pancreas | 2.6% | | 2.3% | Pancreas |
| Gallbladder etc. | 2.4% | | 2.0% | Overy |
| Others | 16.7% | | 15.4% | Others |



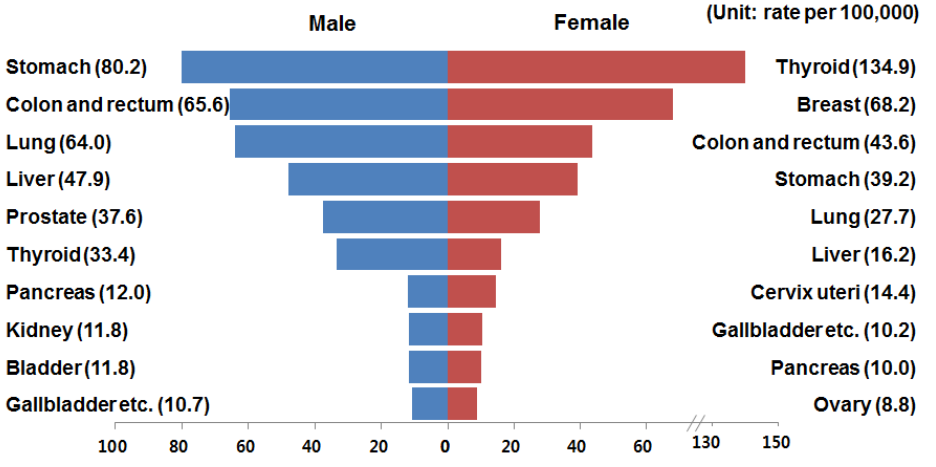

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Site-Specific Cancer Incidence Rates by Gender

In males, the crude incidence rate[1)] of stomach cancer was 80.2 per 100,000 individuals. The incidence rates for colon and rectum, lung, and liver cancers were 65.6, 64.0, and 47.9, respectively.

In females, the crude incidence rate of thyroid cancer was 134.9. The incidence rates for breast, colon and rectum, and stomach cancers were 68.2, 43.6, and 39.2, respectively.

### Crude Rates of Ten Major Cancer Sites by Gender (2013)



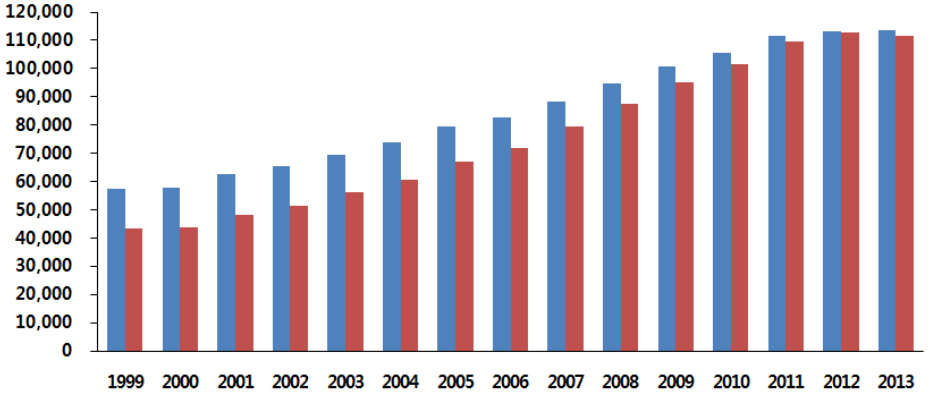

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

1) Crude incidence rate = Number of new cancer cases / Mid-year population × 100,000

## The number of cancer

The number of cancers increased from 101,772 in 2000 to 225,343 in 2013 (113,744 males and 111,599 females)

### The number of cancer (1999-2013)




Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

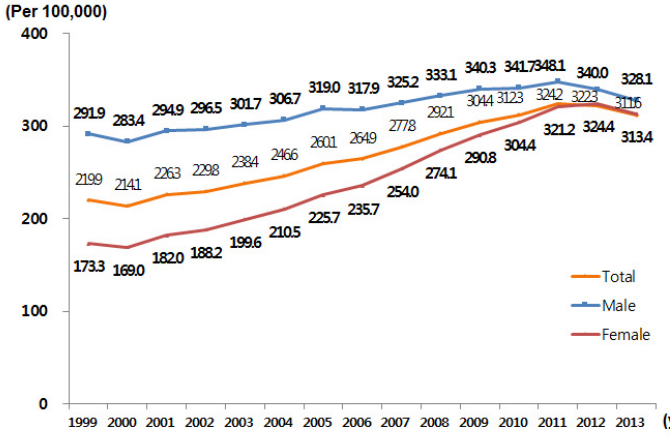
## Trends in Age-standardized Incidence Rates

From 1999 to 2013, the total incidence rate for all cancers increased by 1.4% and 5.4% each year in males and females, respectively.

In males, rates of liver and lung cancers decreased, while the rates of thyroid, prostate, and colon and rectum cancers increased by 24.3%, 11.4%, and 5.6%, respectively.

In females, rates of cervix uteri and liver cancers decreased, but the rate of thyroid cancer increased sharply by 22.4% each year. The rates of breast, colon, rectum and lung cancers also increased.

### Trends in Age-standardized Incidence Rates (1999-2013)




| Gender | Annual rate of change (%) |
|---|---|
| Total | 3.3 * |
| Male | 1.4 * |
| Female | 5.4 * |

* P < .05

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

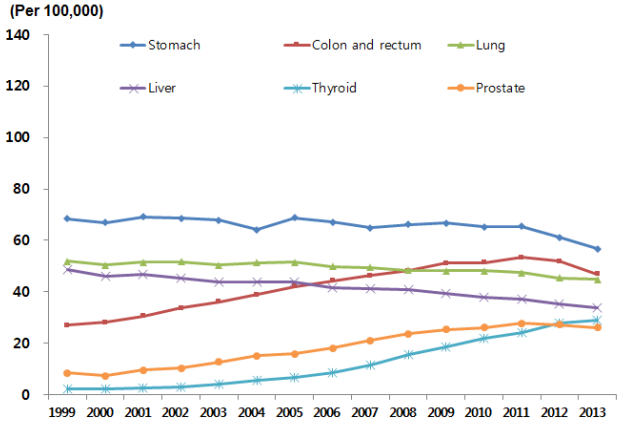
Note) The age-standardized rate (ASR) was calculated based on Korea's mid-year population of 2000

## Trends in Age-standardized Incidence Rates Of Major Cancer

In males, rates of liver, lung and stomach cancers decreased, while those of thyroid, prostate, and colon and rectum cancers increased by 24.3%, 10.5%, and 5.0%, respectively.

In females, rates of cervix uteri and liver cancers decreased, but the rate of thyroid cancer sharply increased by 20.9% each year, and the rates of breast, colon and rectum and lung cancers also increased.

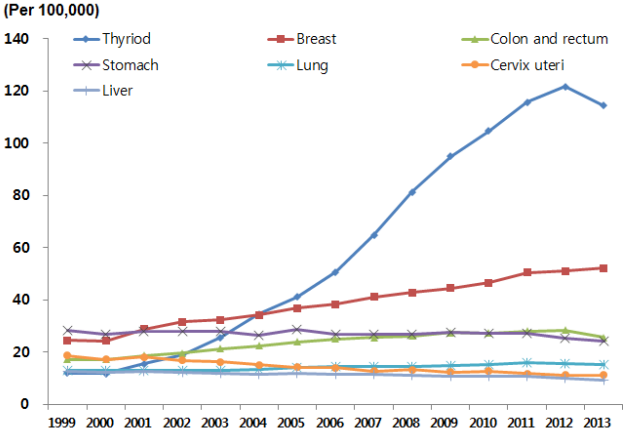
## Trends in Age-standardized Incidence Rates of Major Cancers: Male (1999-2013)




| Cancer | Year | | Annual rate of change (%) |
|---|---|---|---|
| | 1999 | 2013 | |
| Stomach | 68.4 | 56.8 | -0.8* |
| Colon and rectum | 27.0 | 46.9 | 5.0* |
| Lung | 51.9 | 44.9 | -0.9* |
| Liver | 48.5 | 33.7 | -2.3* |
| Thyroid | 2.3 | 28.8 | 23.4* |
| Prostate | 8.5 | 26.2 | 10.5* |

* P < .05

## Trends in Age-standardized Incidence Rates of Major Cancers: Female (1999-2013)




| Cancer | Year | | Annual rate of change (%) |
|---|---|---|---|
| | 1999 | 2013 | |
| Thyroid | 11.9 | 114.4 | 20.9* |
| Breast | 24.5 | 52.1 | 5.7* |
| Colon and rectum | 17.1 | 25.5 | 3.7* |
| Stomach | 28.3 | 24.0 | -0.7* |
| Lung | 12.9 | 15.3 | 1.6* |
| Cervix uteri | 18.6 | 11.1 | -3.7* |
| Liver | 12.6 | 9.2 | -1.8* |

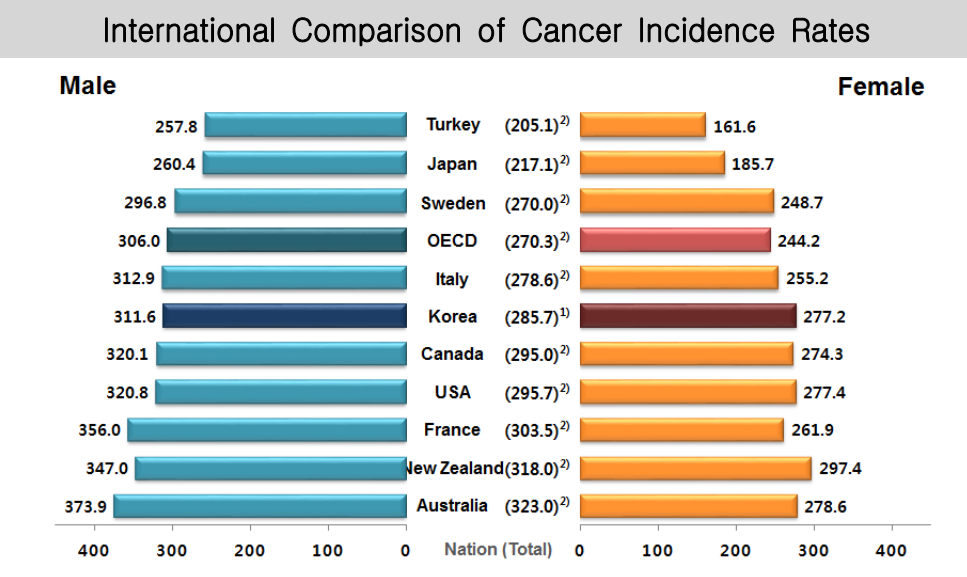
* P < .05

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

Note) The age-standardized rate (ASR) was calculated based on Korea's mid-year population of 2000

## Comparison of Age-Standardized Cancer Incidence Rates with Other Countries

The age-standardized cancer incidence rate of Korea is higher than that of OECD for both males and females.




Source 1) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015
2) GLOBOCAN 2012, IARC 2013

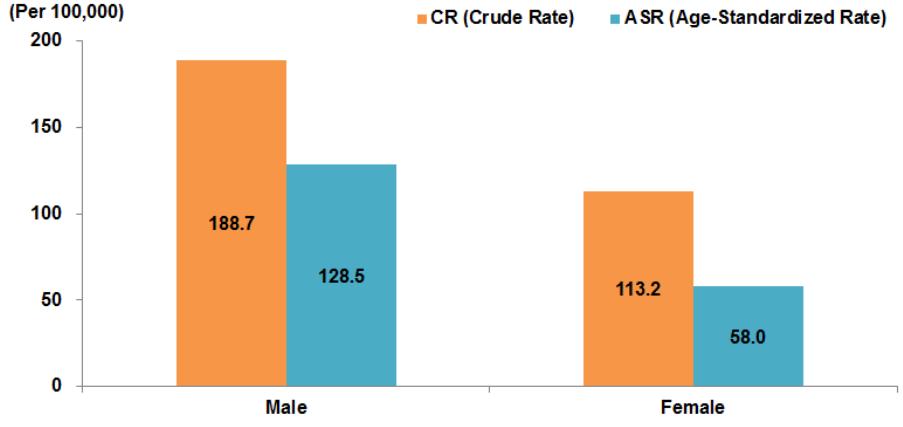
Note) Age-standardized incidence rates use the world standard population, and exclude other malignant neoplasms of the skin (C44)

# 2.2 Cancer Mortality

## Cancer Mortality Rates

The age-standardized cancer mortality rates in Korea in 2013 were 128.5 per 100,000 males and 58.0 per 100,000 females.

### Cancer Mortality Rates (2014)



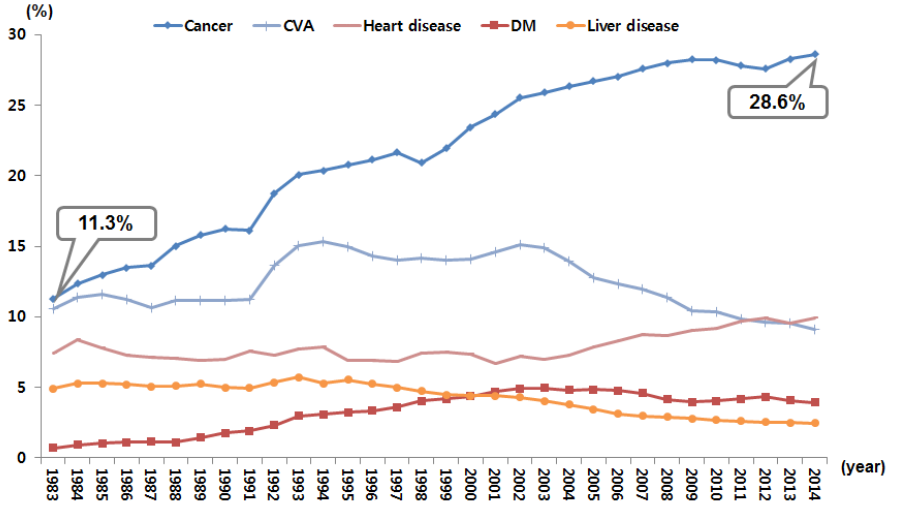

Source) STATISTICS KOREA, 2015

Note) The age-standardized rate (ASR) was calculated based on Korea's mid-year population of 2000

## Causes of Death

Cancer has been the leading cause of death in Korea since 1983, accounting for 11.3% of the total number of deaths in 1983. Deaths from cancer have increased steadily to account for 28.6% of total deaths in 2013.

### Causes of Disease Deaths (1983-2014)

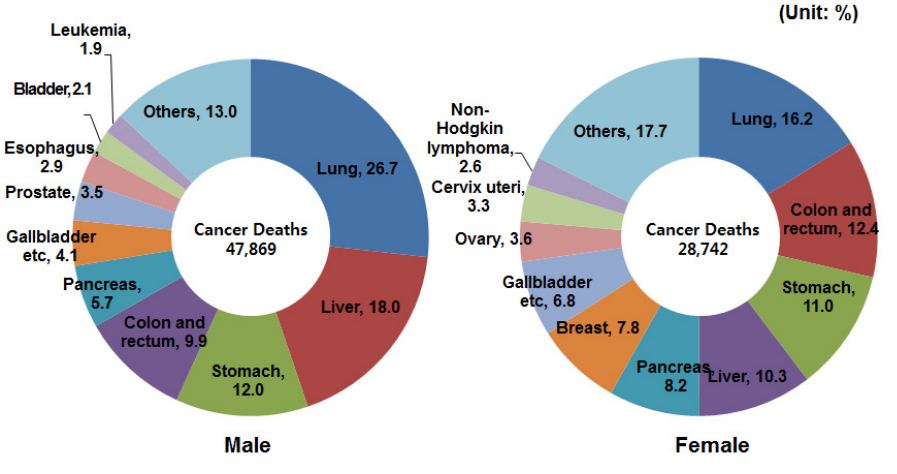



Source) STATISTICS KOREA, 2015

## Proportion of Cancer Deaths

In 2013, lung, liver, stomach, and colon and rectum cancers accounted for 26.7%, 18.0%, 12.0%, and 9.9% of cancer deaths in males, respectively. For females, lung, colon and rectum, stomach, and liver cancers accounted for 16.2%, 12.4%, 11.0%, and 11.0%, respectively.

### Proportion of Cancer Deaths (2014)

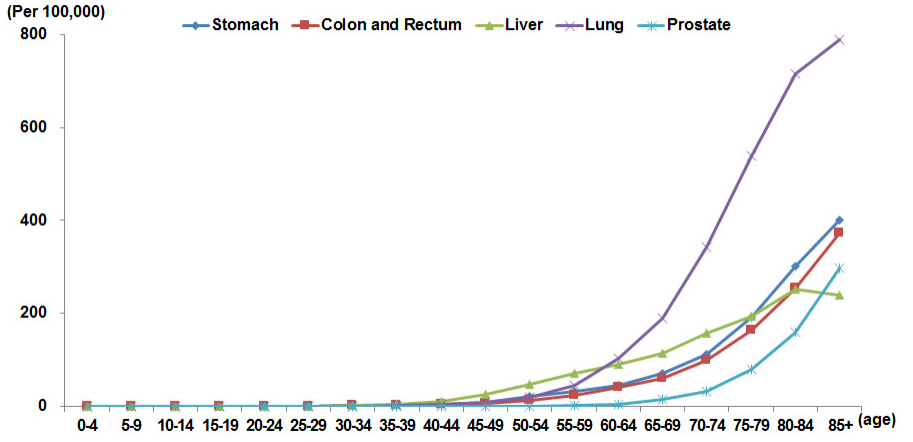



Source) STATISTICS KOREA, 2015

## Age-specific Mortality Rates of Major Cancers by Gender

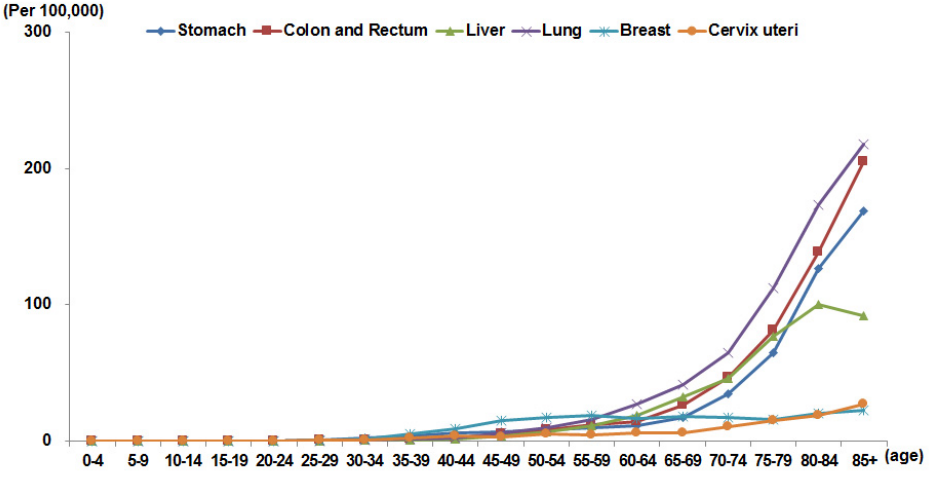
The age-specific mortality rates of major cancers in 2014 indicate that the rates are higher for older patients.

## Age-specific Cancer Mortality Rates: Male (2014)




Source) STATISTICS KOREA, 2015

## Age-specific Cancer Mortality Rates: Female (2014)



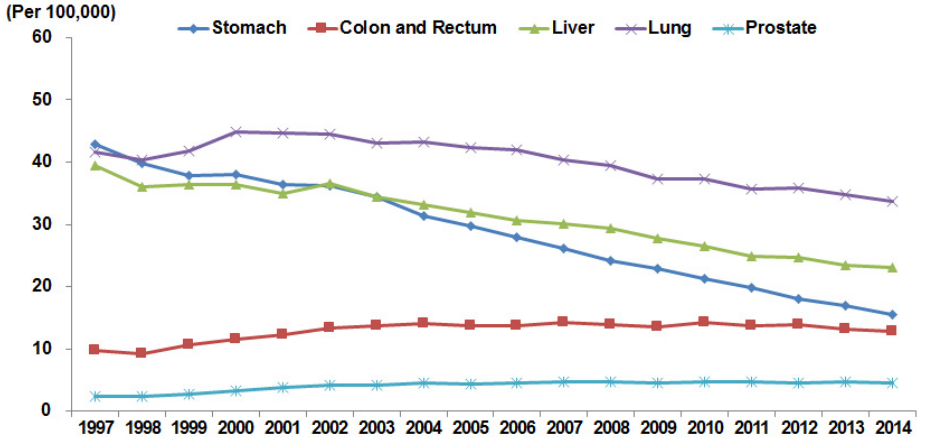

Source) STATISTICS KOREA, 2015

## Age-standardized Mortality Rates of Major Cancers by Gender

The age-standardized mortality rates of stomach and liver cancers have fallen in males. The rate of lung cancer in males has been decreasing since 2000.

The mortality rate of stomach cancer in females has shown the largest decrease. The rates of liver and cervix cancers have also decreased. In contrast, the rates of colon and rectum, breast and lung cancers have gradually increased.

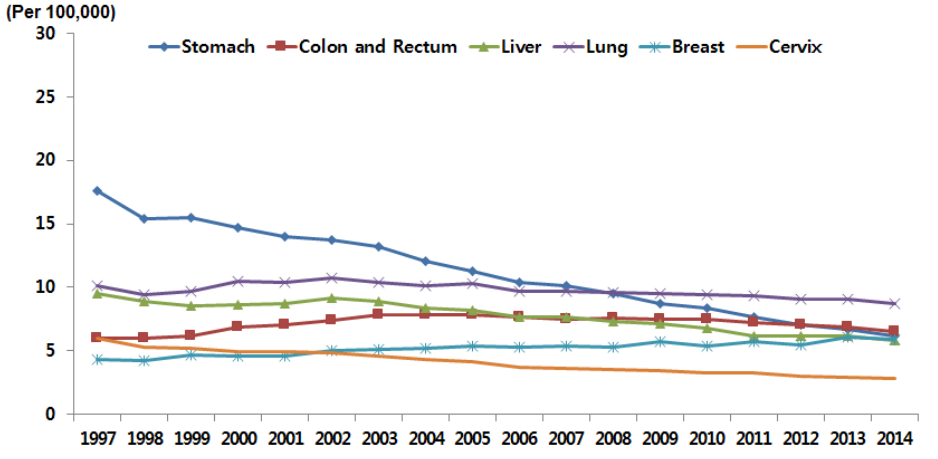
## Age-standardized Mortality Rates of Major Cancers: Male (1997-2014)




Source) STATISTICS KOREA, 2015

Note) The age-standardized rate (ASR) was calculated based on Korea's mid-year population of 2000

## Age-standardized Mortality Rates of Major Cancers: Female (1997-2014)




Source) STATISTICS KOREA, 2015

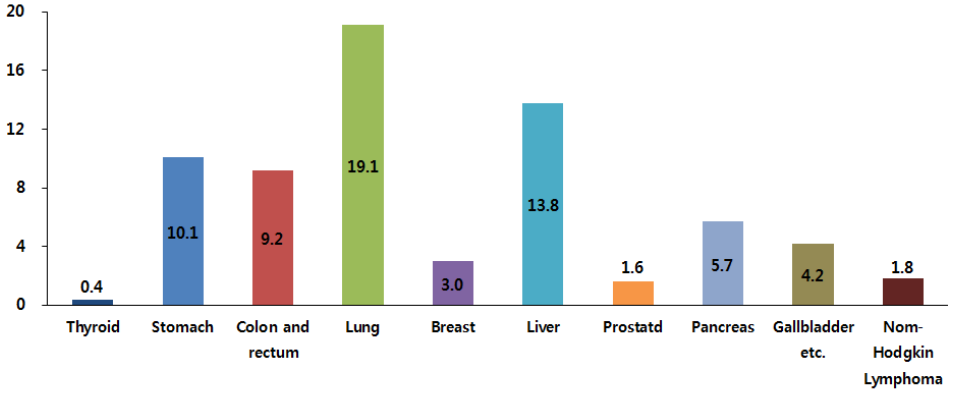
Note) The age-standardized rate (ASR) was calculated based on Korea's mid-year population of 2000

Cervix cancer: C53-55 (International Classification of Disease, ICD-10)

## Comparison of Age-standardized Mortality Rate in Ten Major Cancer

In 2014, lung, liver, stomach, colon and rectum, pancreas, gallbladder, prostate, bladder, kidney, thyroid cancers accounted for 19.1 per 100,000, 13.8 per 100,000, 10.1 per 100,000, 9.2 per 100,000, 5.7 per 100,000 4.2 per 100,000, 3.0 per 100,000, 1.8 per 100,000, 1.6 per 100,000 and 0.4 per 100,000 of cancer deaths, respectively.

### Comparison of Age-standardized Mortality Rate in Ten Major Cancer (2014)



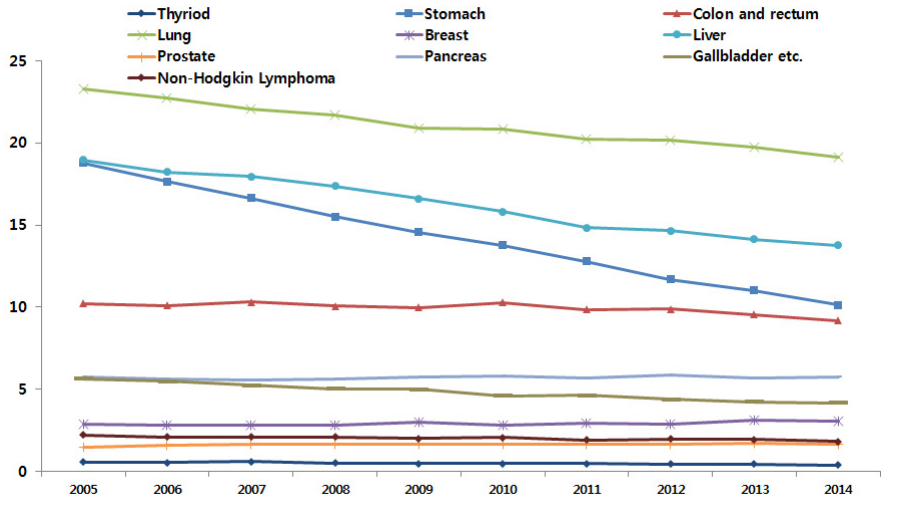

Source) STATISTICS KOREA, 2015

Note) The age-standardized rate (ASR) was calculated based on Korea's mid-year population of 2000

## Trends of Age-standardized Mortality Rate in Ten Major Cancer

The Age-standardized mortality rate of stomach, lung. and liver cancers has shown the largest decrease. On the other hand, thyroid, breast, prostate, pancreas, and non-Hodgkin lymphoma cancers trend has been similar. Colon and rectum cancer has shown decrease.

### Trends of Age-standardized Mortality Rate in Ten Major Cancer (2005-2014)




Source) STATISTICS KOREA, 2015

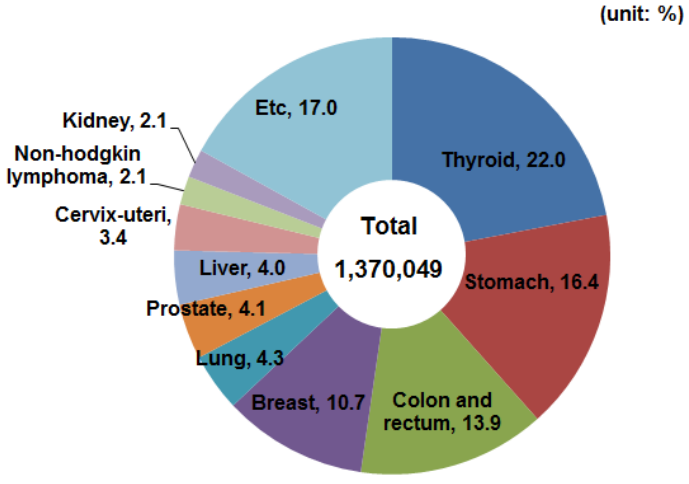
Note) The age-standardized rate (ASR) was calculated based on Korea's mid-year population of 2000

# 2.3 Cancer Prevalence

## Cancer Prevalence

Between 1999 and 2013, 1,370,049 patients were diagnosed with cancer in Korea. The thyroid was the most prevalent cancer site, followed by the stomach, colon and rectum, breast, lung and prostate.

### Cancer Prevalence (2013)




Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

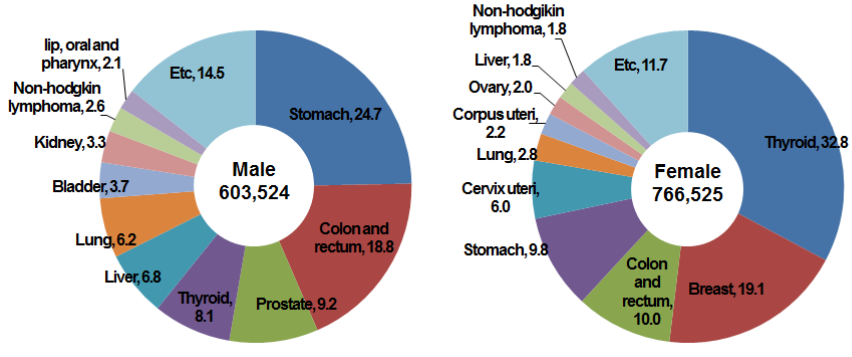
## Cancer Prevalence by gender

In male, stomach cancer was the most prevalent cancer site, followed by the colon and rectum, prostate, thyroid, liver and lung.

In Female, the thyroid was the most prevalent cancer site, followed by the breast, colon and rectum, stomach and cervix uteri.

### Cancer Prevalence (2013)

(unit: %)

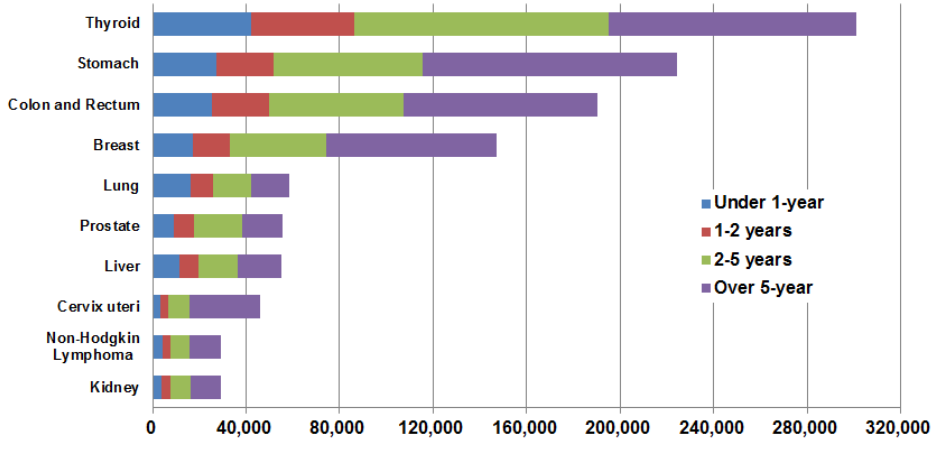



Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Cancer Prevalence by Time since Diagnosis

Among patients diagnosed with cancer between 1999 and 2013, stomach cancer showed the highest prevalence in patients of five-years or longer, followed by thyroid, colon and rectum, and breast cancers.

### Cancer Prevalence by Time since Diagnosis (2013)



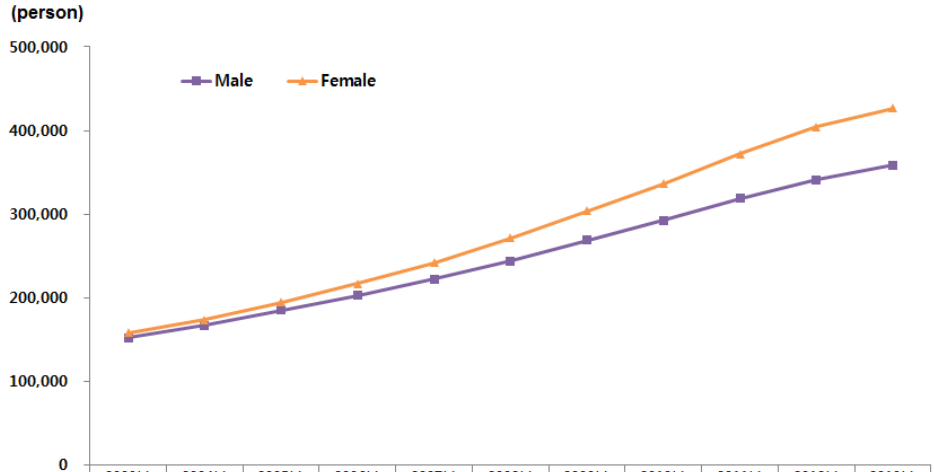

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Five-year Cancer Survivors

The number of five-year cancer survivors increased from 311,137 in 2003 to 785,599 in 2013 (358,541 males and 427,058 females).

The percentage of five-year cancer survivors among the general population was 1.55% (1.42% of males and 1.69% of females) in 2013.

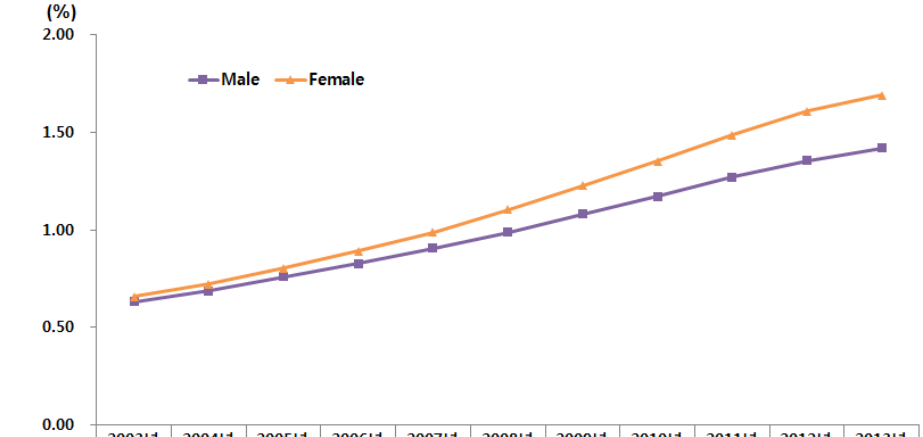
## Estimated Number of Five-year Cancer Survivors (2003-2013)




| | 2003년 | 2004년 | 2005년 | 2006년 | 2007년 | 2008년 | 2009년 | 2010년 | 2011년 | 2012년 | 2013년 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Male | 152,607 | 166,938 | 185,374 | 202,930 | 222,804 | 244,369 | 269,031 | 292,754 | 318,784 | 341,407 | 358,541 |
| Female | 158,530 | 174,250 | 195,069 | 217,038 | 242,232 | 271,781 | 304,008 | 336,690 | 372,192 | 404,438 | 427,058 |

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Percentage of Five-year Cancer Survivors (2003-2013)




| | 2003년 | 2004년 | 2005년 | 2006년 | 2007년 | 2008년 | 2009년 | 2010년 | 2011년 | 2012년 | 2013년 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Male | 0.63 | 0.69 | 0.76 | 0.83 | 0.90 | 0.99 | 1.08 | 1.17 | 1.27 | 1.36 | 1.42 |
| Female | 0.66 | 0.72 | 0.80 | 0.89 | 0.99 | 1.10 | 1.23 | 1.35 | 1.49 | 1.61 | 1.69 |

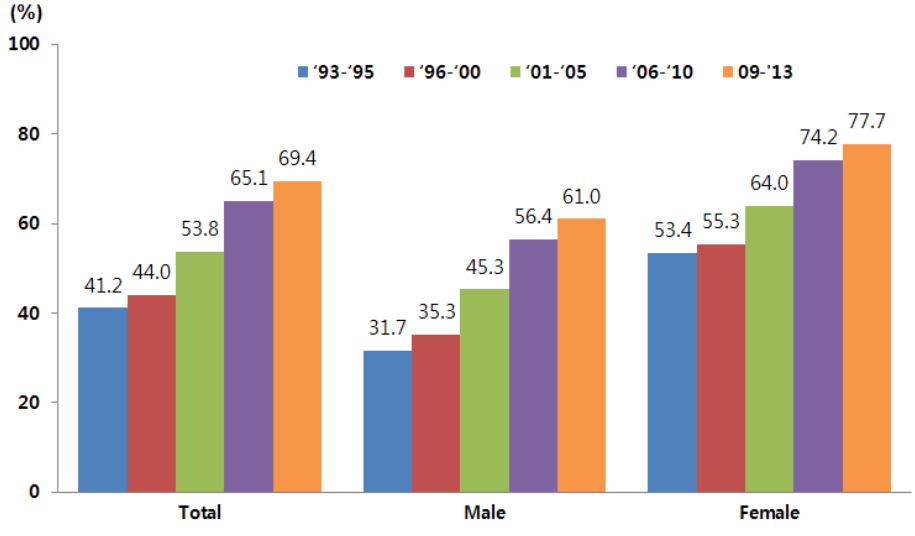
Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

# 2.4 Cancer Survivors

## Five-year Relative Cancer Survival Rates

The five-year relative cancer survival rate[2] from 2009 to 2013 was 69.4%, which is a 28.2% points and 15.6% points increase from 1993 to 1995 (41.2%) and 2001 to 2005 (53.8%), respectively. The survival rate has shown a steady improvement, and more than half of current patients with cancer in Korea survive for five years or longer.

Five-year Relative Cancer Survival Rates (1993-2013)



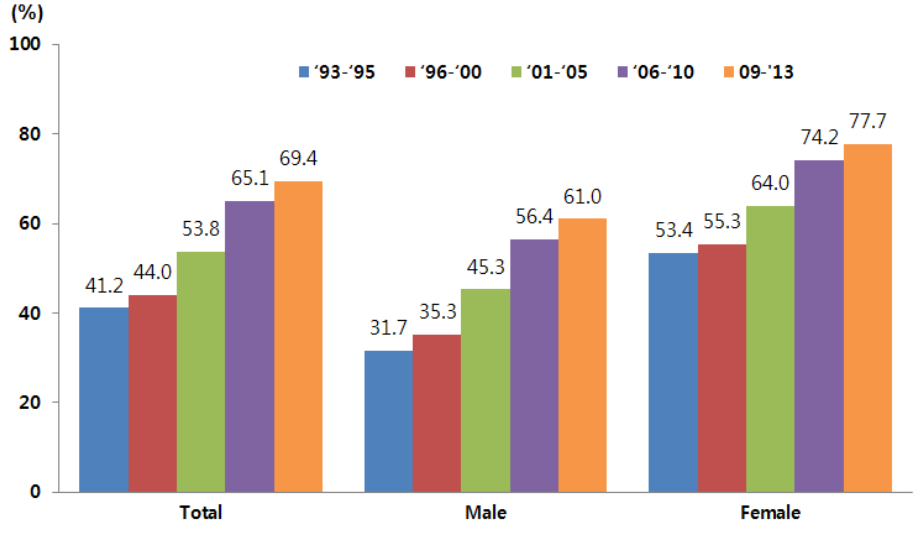

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

2) The relative survival rate is calculated by dividing the observed survival rates among patients with a disease by the expected survival rate among the general population of the same gender and age group. It excludes deaths from other causes.

## Five-year Relative Cancer Survival Rates ( Except for Thyroid, Prostate Cancer)

Excluding thyroid and prostate cancers, the five-year relative cancer survival rate[3] from 2009 to 2013 was 60.5%, which is a 25.2% point and 10.6% point increase from 1993 to 1995 (40.3%) and 2001 to 2005 (49.9%), respectively. The survival rate has shown a steady improvement, and more than half of current patients with cancer in Korea survive for five years or longer.

**Five-year Relative Cancer Survival Rates (Except for Thyroid, Prostate Cancer) (1993-2013)**



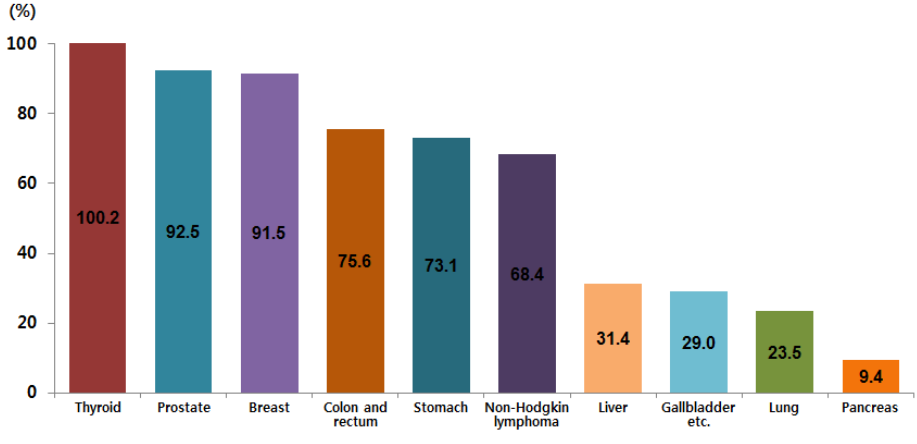

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

3) The relative survival rate is calculated by dividing the observed survival rates among patients with a disease by the expected survival rate among the general population of the same gender and age group. It excludes deaths from other causes.

## Five-year Relative Survival Rates according to Major Cancer Sites

The five-year relative survival rates for thyroid, prostate, breast, colon and rectum, and stomach cancers were 100.2%, 92.5%, 91.5%, 75.6%, and 73.1%, respectively.

### Five-year Relative Survival Rated by Major Cancer Sites (2009-2013)

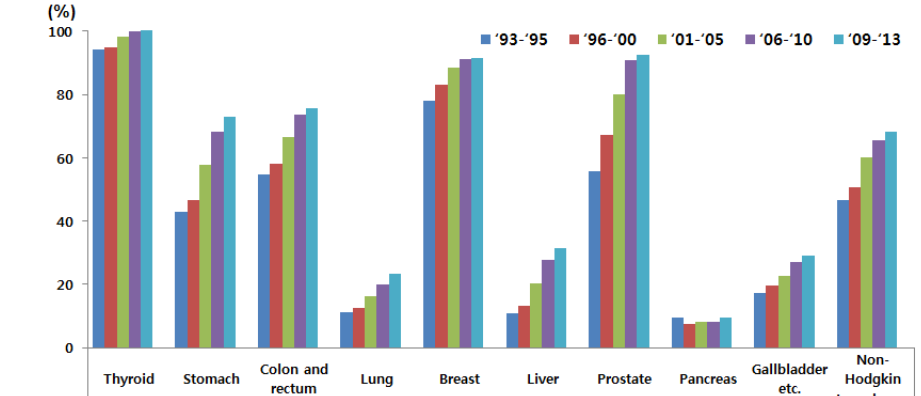



Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Comparison of Five-year Relative Survival Rates

Among major cancers, prostate cancer showed the most significant improvement from 2009 to 2013 (up by 36.6% points from 1993 to 1995), followed by stomach cancer (30.3% points), non-Hodgkin lymphoma (21.8% points), and colon and rectum cancer (20.8% points). Survival rates of all major cancers, with the exception of pancreas cancer, improved.

### Comparison of Five-year Relative Survival Rates (1993-2013)




| | Thyroid | Stomach | Colon and rectum | Lung | Breast | Liver | Prostate | Pancreas | Gallbladder etc. | Non-Hodgkin Lymphoma |
|---|---|---|---|---|---|---|---|---|---|---|
| '93-'95 | 94.2 | 42.8 | 54.8 | 11.3 | 77.9 | 10.7 | 55.9 | 9.4 | 17.3 | 46.6 |
| '96-'00 | 94.9 | 46.6 | 58.0 | 12.7 | 83.2 | 13.2 | 67.2 | 7.6 | 19.7 | 50.8 |
| '01-'05 | 98.3 | 57.7 | 66.6 | 16.2 | 88.5 | 20.2 | 80.2 | 8.2 | 22.8 | 60.0 |
| '06-'10 | 99.9 | 68.1 | 73.5 | 20.0 | 91.1 | 27.8 | 91.0 | 8.3 | 27.1 | 65.5 |
| '09-'13 | 100.2 | 73.1 | 75.6 | 23.5 | 91.5 | 31.4 | 92.5 | 9.4 | 29.0 | 68.4 |
| variance* | 6.0 | 30.3 | 20.8 | 12.2 | 13.6 | 20.7 | 36.6 | 0.0 | 11.7 | 21.8 |

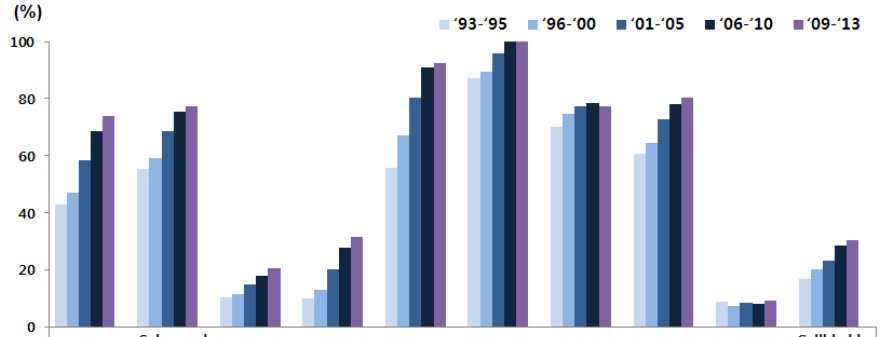
Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Comparison of Five-year Relative Survival Rates by Gender

Survival rates of all major cancers in female, with the exception of pancreas cancer, improved.

The survival rates of thyroid cancer in male showed the greatest decrease between 2009 and 2013, followed by the incidence of prostrate, kidney, colon and rectum cancers. The survival rates of thyroid cancer in females showed the greatest decrease between 2009 and 2013, followed by the incidence of breast, cervix, uteri, and colon and rectum cancers.

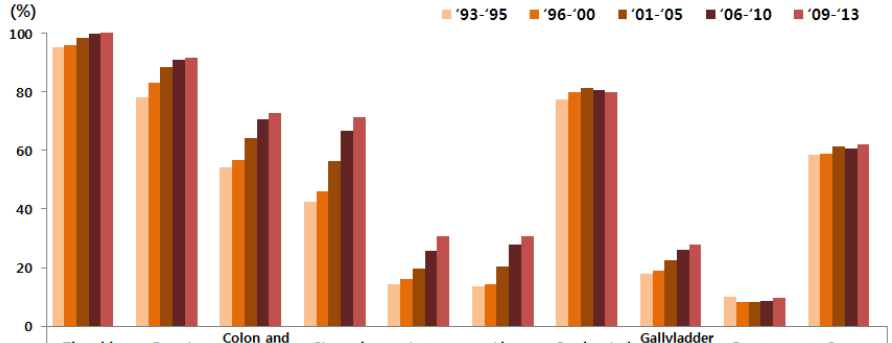
## Comparison of Five-year Relative Survival Rates: Male (1993-2013)




| | Stomach | Colon and rectum | Lung | Liver | Prostate | Thyroid | Bladder | Kidney | Pancreas | Gallbladder etc. |
|---|---|---|---|---|---|---|---|---|---|---|
| '93-'95 | 43.0 | 55.3 | 10.4 | 9.9 | 55.9 | 87.2 | 70.0 | 60.8 | 8.8 | 16.6 |
| '96-'00 | 46.9 | 59.0 | 11.6 | 12.9 | 67.2 | 89.5 | 74.8 | 64.4 | 7.3 | 20.3 |
| '01-'05 | 58.4 | 68.5 | 15.0 | 20.2 | 80.2 | 95.8 | 77.4 | 72.8 | 8.2 | 23.3 |
| '06-'10 | 68.8 | 75.4 | 17.7 | 27.8 | 91.0 | 100.1 | 78.6 | 78.1 | 8.0 | 28.3 |
| '09-'13 | 73.9 | 77.5 | 20.5 | 31.6 | 92.5 | 100.6 | 77.4 | 80.5 | 9.2 | 30.2 |
| variance* | 30.9 | 22.2 | 10.1 | 21.7 | 36.6 | 13.4 | 7.4 | 19.7 | 0.4 | 13.6 |

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Comparison of Five-year Relative Survival Rates: Female (1993-2013




| | Thyroid | Breast | Colon and rectum | Stomach | Lung | Liver | Cervix uteri | Gallvladder etc. | Pancreas | Ovary |
|---|---|---|---|---|---|---|---|---|---|---|
| '93-'95 | 95.4 | 78.0 | 54.2 | 42.6 | 14.2 | 13.6 | 77.5 | 18.0 | 10.1 | 58.7 |
| '96-'00 | 95.9 | 83.2 | 56.8 | 46.0 | 16.2 | 14.2 | 80.0 | 19.1 | 8.1 | 58.9 |
| '01-'05 | 98.7 | 88.5 | 64.2 | 56.4 | 19.7 | 20.4 | 81.3 | 22.3 | 8.1 | 61.4 |
| '06-'10 | 99.9 | 91.1 | 70.7 | 66.7 | 25.7 | 27.7 | 80.5 | 26.0 | 8.5 | 60.8 |
| '09-'13 | 100.1 | 91.5 | 72.6 | 71.5 | 30.6 | 30.8 | 80.1 | 27.9 | 9.7 | 62.0 |
| variance* | 4.7 | 13.5 | 18.4 | 28.9 | 16.4 | 17.2 | 2.6 | 9.9 | -0.4 | 3.3 |

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Five-year Relative Survival Rate by SEER summary stage

In the case of stomach, prostate and breast cancers, earlly diagnosis rate is more than half of current patients with cancer.

In Localized, prostate, thyroid, breast, stomach, colon and rectum has shown a higher 5-year survival rate. On the other hands, liver and pancreas cancers have shown a lower 5-year survival rate.

In Regional, lung, liver, pancreas, colon and rectum cancers have shown a lower 5-year survival rate. Thyroid, prostate, and breast cancers have shown a higher 5-year survival rate.

In Distant Cancer, thyroid, prostate and breast cancers have shown a higher 5-year survival rate. Stomach, lung, liver, colon and rectum and pancreas cancers have shown a relatively lower 5-year survival rat

## Five-year Relative Survival Rates by SEER summary stage : Total (2009-2013)

**(unit: %)**

| Rank | Site | Summary Stage | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Localized | | Regional | | Distant | | Unknown | |
| | | % | 5-year survival | % | 5-year survival | % | 5-year survival | % | 5-year survival |
| | **All Cancers** | **43.8** | **89.0** | **30.9** | **72.7** | **16.3** | **19.7** | **9.0** | **54.0** |
| 1 | Thyroid | 43.0 | 100.6 | 49.6 | 100.4 | 0.7 | 71.8 | 6.8 | 99.2 |
| 2 | Stomach | 58.8 | 95.5 | 23.6 | 59.0 | 11.3 | 5.8 | 6.3 | 44.3 |
| 3 | Colon and rectum | 38.2 | 95.3 | 40.6 | 80.4 | 14.7 | 19.0 | 6.5 | 59.8 |
| 4 | Lung | 19.4 | 58.2 | 26.7 | 31.8 | 44.1 | 5.4 | 9.8 | 16.6 |
| 5 | Breast | 56.6 | 97.9 | 34.8 | 90.2 | 4.8 | 36.8 | 3.8 | 83.1 |
| 6 | Liver | 45.5 | 51.6 | 24.7 | 17.6 | 15.7 | 2.8 | 14.1 | 23.4 |
| 7 | Prostate | 56.8 | 100.6 | 21.8 | 95.7 | 9.0 | 38.6 | 12.4 | 87.6 |
| 8 | Pancreas | 10.6 | 29.7 | 31.6 | 13.6 | 45.6 | 1.7 | 12.2 | 10.4 |
| 9 | Gallbladder etc. | 24.4 | 51.3 | 40.0 | 34.6 | 24.0 | 2.5 | 11.6 | 18.6 |
| 10 | Non-Hodgkin lymphoma | 40.2 | 80.7 | 13.4 | 68.5 | 33.7 | 53.5 | 12.7 | 68.1 |

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

## Five-year Relative Survival Rates by SEER summary stage : Male (2009-2013)

**(unit: %)**

| Rank | Site | Summary Stage | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Localized | | Regional | | Distant | | Unknown | |
| | | % | 5-year survival | % | 5-year survival | % | 5-year survival | % | 5-year survival |
| | **All Cancers** | **42.5** | **85.4** | **28.2** | **60.2** | **19.7** | **16.6** | **9.6** | **47.7** |
| 1 | Stomach | 59.4 | 96.2 | 23.5 | 58.9 | 11.3 | 5.9 | 5.8 | 46.5 |
| 2 | Colon and rectum | 39.7 | 96.7 | 39.9 | 81.4 | 14.2 | 19.3 | 6.2 | 65.0 |
| 3 | Lung | 18.0 | 51.7 | 28.7 | 28.6 | 43.8 | 4.2 | 9.6 | 14.3 |
| 4 | Liver | 45.5 | 52.2 | 25.4 | 17.5 | 15.6 | 2.6 | 13.5 | 23.6 |
| 5 | Prostate | 56.8 | 100.6 | 21.8 | 95.7 | 9.0 | 38.6 | 12.4 | 87.6 |
| 6 | Thyroid | 36.6 | 101.5 | 55.3 | 101.0 | 1.1 | 66.9 | 7.0 | 99.1 |
| 7 | Bladder | 72.2 | 86.3 | 12.3 | 51.4 | 4.3 | 14.0 | 11.1 | 74.6 |
| 8 | Kidney | 70.0 | 96.8 | 10.9 | 69.3 | 13.6 | 13.1 | 5.4 | 65.3 |
| 9 | Pancreas | 9.5 | 30.1 | 31.1 | 13.9 | 48.6 | 1.7 | 10.8 | 11.6 |
| 10 | Gallbladder etc. | 24.4 | 52.5 | 42.7 | 34.6 | 22.0 | 2.4 | 11.0 | 19.4 |

## Five-year Relative Survival Rates by SEER summary stage : Female (2009-2013)

**(unit: %)**

| Rank | Site | Summary Stage | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Localized | | Regional | | Distant | | Unknown | |
| | | % | 5-year survival | % | 5-year survival | % | 5-year survival | % | 5-year survival |
| | **All Cancers** | **45.1** | **92.2** | **33.6** | **82.9** | **12.9** | **24.4** | **8.4** | **61.1** |
| 1 | Thyroid | 44.3 | 100.4 | 48.3 | 100.3 | 0.6 | 73.7 | 6.7 | 99.3 |
| 2 | Breast | 56.6 | 97.9 | 34.8 | 90.2 | 4.8 | 36.8 | 3.8 | 83.1 |
| 3 | Colon and rectum | 35.9 | 92.9 | 41.6 | 79.0 | 15.5 | 18.5 | 7.0 | 52.6 |
| 4 | Stomach | 57.6 | 93.9 | 23.7 | 59.1 | 11.3 | 5.5 | 7.3 | 40.8 |
| 5 | Lung | 22.7 | 70.6 | 22.0 | 41.7 | 45.0 | 8.2 | 10.4 | 21.4 |
| 6 | Liver | 45.5 | 49.8 | 22.3 | 18.1 | 16.2 | 3.5 | 15.9 | 22.8 |
| 7 | Cervix uteri | 57.9 | 92.4 | 27.4 | 73.2 | 7.7 | 24.6 | 7.1 | 66.3 |
| 8 | Gallbladder etc. | 24.4 | 50.2 | 37.3 | 34.5 | 26.1 | 2.6 | 12.3 | 17.9 |
| 9 | Pancreas | 11.9 | 29.4 | 32.3 | 13.2 | 42.0 | 1.7 | 13.8 | 9.4 |
| 10 | Overy | 29.4 | 91.6 | 17.7 | 74.0 | 45.7 | 39.4 | 7.2 | 55.2 |

Source) Ministry of Health & Welfare, Korea Central Cancer Registry, 2015

The five-year relative survival rates of Korea's most common cancers, such as thyroid, stomach, colon and rectum and liver cancers, were higher in Korea than in the United States.

## International Comparison of Five-year Relatives Survival Rates of Major Cancers

(unit: %)

| Site | Korea ('96-'00) | Korea ('01-'05) | Korea ('09-'13) | USA[1] ('05-'11') | Canada[2] ('06-'08) | Japan[3] ('03-'05) |
|---|---|---|---|---|---|---|
| All cancers | 44.0 | 53.8 | **69.4** | 66.5 | 63 | 58.6 |
| Thyroid | 94.9 | 98.3 | **100.2** | 97.9 | 98 | 92.2 |
| Stomach | 46.6 | 57.7 | **73.1** | 29.3 | 25 | 63.3 |
| Colon and rectum | 58.0 | 66.6 | **75.6** | 64.9 | 64 | 69.2 |
| Lung | 12.7 | 16.2 | **23.5** | 17.4 | 17 | 29.7 |
| Liver | 13.2 | 20.2 | **31.4** | 17.2 | 20 | 27.9 |
| Breast | 83.2 | 88.5 | **91.5** | 89.4 | 88 | 89.1 |
| Prostate | 67.2 | 80.2 | **92.5** | 98.9 | 96 | 93.8 |
| Pancreas | 7.6 | 8.1 | **9.4** | 7.2 | 8 | 7.0 |
| Cervix uteri | 80.0 | 81.3 | **80.1** | 67.8 | 74 | 72.2 |

Source)

1) Howlader N, Noone AM, Krapcho M, Garshell J, Miller D, Altekruse SF, Kosary CL, Yu M, Ruhl J, Tatalovich Z,Mariotto A, Lewis DR, Chen HS, Feuer EJ, Cronin KA (eds). SEER Cancer Statistics Review, 1975-2012, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2012/, based on November 2014 SEER data submission, posted to the SEER web site, April 2015.
2) Canadian Cancer Society, Statistics Canada and Provincial/Territorial Cancer Registry. Canadian Cancer Statistics 2015
3) Center for Cancer Control and Information Services, National Cancer Center,Monitoring of Cancer Incidence in Japan - Survival 2003-2005 report 2013

# Chapter 3.
# Cancer Prevention

# 3.1 Attributable risk

## Causes of Cancer

Globally, tobacco use is an important risk factor for cancer, causing over 32% of cancer deaths. This is followed by inappropriate diet patterns, which cause 30% of cancer deaths. Chronic infection is also an important risk factor, causing over 10-20% of cancer deaths. In Korea, however, the most important risk factor for cancer is chronic infection, which contributes in 21.2% of cancer incidences and 24.7% of cancer deaths. Tobacco use in Korea causes 11.9% of cancer incidences and 22.7% of cancer deaths.

## Causes of Cancer

| Risk factors | World (%, 2000)* | Republic of Korea**(2009) | |
|---|---|---|---|
| | | Incidence(%) | Death(%) |
| **Tobacco use** | 32 | 11.9 | 22.7 |
| **Chronic infection** | 10~20 | 21.2 | 24.7 |
| **Diet** | 30 | - | - |
| **Occupational exposure** | 5 | 1.1 | 1.7 |
| **Genetic factor** | 5 | - | - |
| **Alcohol drinking** | 3 | Male 3.0, Female 0.5 | Male 2.8, Female 0.1 |
| **Reproductive factors** | 5 | - | - |
| **Exposure of environmental carcinogen** | 3 | - | - |
| **Radiation exposure** | 3 | - | - |
| **Obesity** | - | Male 1.5, Female 2.2 | - |
| **Lack of physical activity** | - | Male 0.1, Female 1.4 | - |

Source) * World Cancer Report, IARC, 2008

** Park S, et al. Attributable fraction of tobacco smoking on cancer using population-based nationwide cancer incidence and mortality data in Korea. BMC Cancer. 2014 Jun 6;14:406.

*** Shin A, et al. Population attributable fraction of infection-related cancers in Korea. Ann Oncol. 2011 Jun;22(6):1435-42.

**** Park S, et al, Attributable fraction of alcohol consumption on cancer using population-based nationwide cancer incidence and mortality data in the Republic of Korea. BMC Cancer. 2014 Jun 10;14:420.

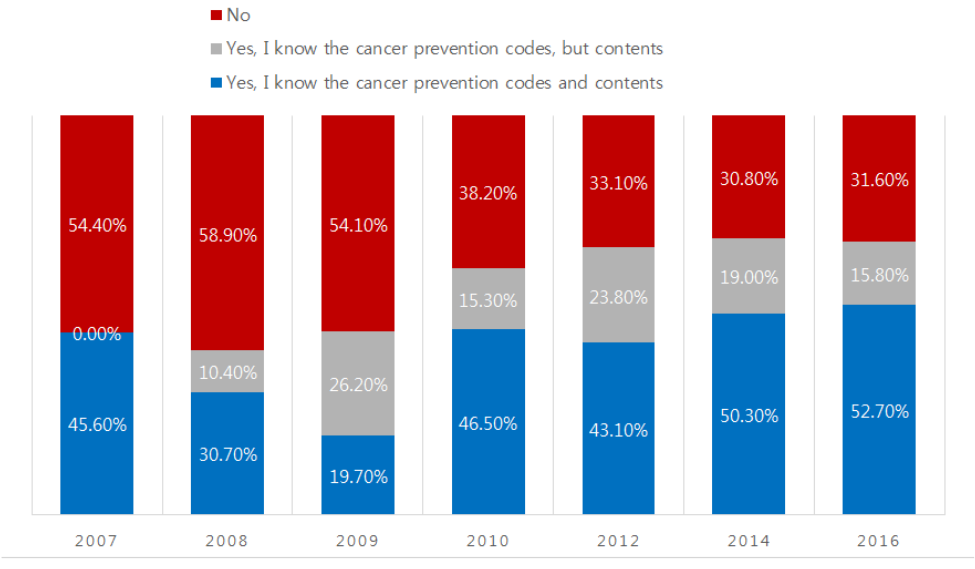
***** Park S, et al. Population-attributable causes of cancer in Korea: obesity and physical inactivity. PLoS One. 2014 Apr 10;9(4):e90871.

# 3.2 Awareness of Cancer Prevention Codes

## Trends for awareness of Cancer Prevention Codes

According to a survey conducted on the awareness and practice of the Ten Codes of Conduct for Cancer Prevention among 1,200 male and female adults 19 years or older, 68.5% said that they saw the codes for cancer prevention in 2016.

Awareness of Cancer Prevention Codes (2016)




Source) National Cancer Center. The Survey on Awareness and Behavior for Cancer Prevention, 2007, 2008, 2009, 2010, 2012, 2014, 2016

## Awareness of the Ten Codes for Cancer Prevention (2016)

Don't smoke and avoid smoke-filled environments

Consume sufficient amounts of fruits and vegetables and balance your diet with a wide range of healthy foods

Limit your salt intake from all sources, and avoid burnt or charred foods

Don't drink alcoholic beverage even lesser than one or two drink per day for cancer prevention

Engage in at least 30 minutes of regular, moderate physical activity on most days of the week

Maintain your body weight within a healthy range

Ensure vaccination against HBV and HPV following the vaccination schedule

Engage in safe sexual behavior to avoid sexually transmitted diseases

Follow all health and safety instructions at work places aimed at preventing exposure to known cancer-causing agents

Undergo routine check-ups following the cancer screening programs

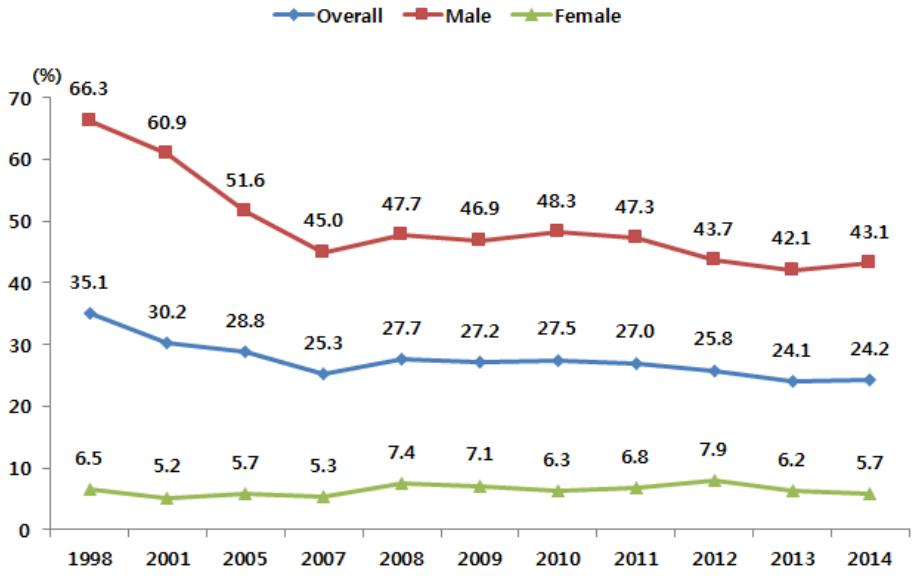
Source) National Cancer Center. The Survey on Awareness and Behavior for Cancer Prevention, 2016

# 3.3 Smoking

## Prevalence and Trends in Cigarette Smoking among Adults

From 1998 to 2014, smoking prevalence in Korea decreased from 66.3% to 43.1% in male adults. However, the rate of decline has slowed down in recent years. Female smoking prevalence has maintained a low level below 10% since 1998.

### Prevalence and Trends in Cigarette Smoking




Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2014

## Adolescent Smoking

In 2015, 7.8% of Korean adolescents repotred that they had smoked for one or more days in the previous 30 days, and 11.7% of high school students had the highest smoking rate compared to 3.3% of middle school students. The smoking rates in both males and females tend to show a steady decline over time.

### Trend of adolescent Smoking

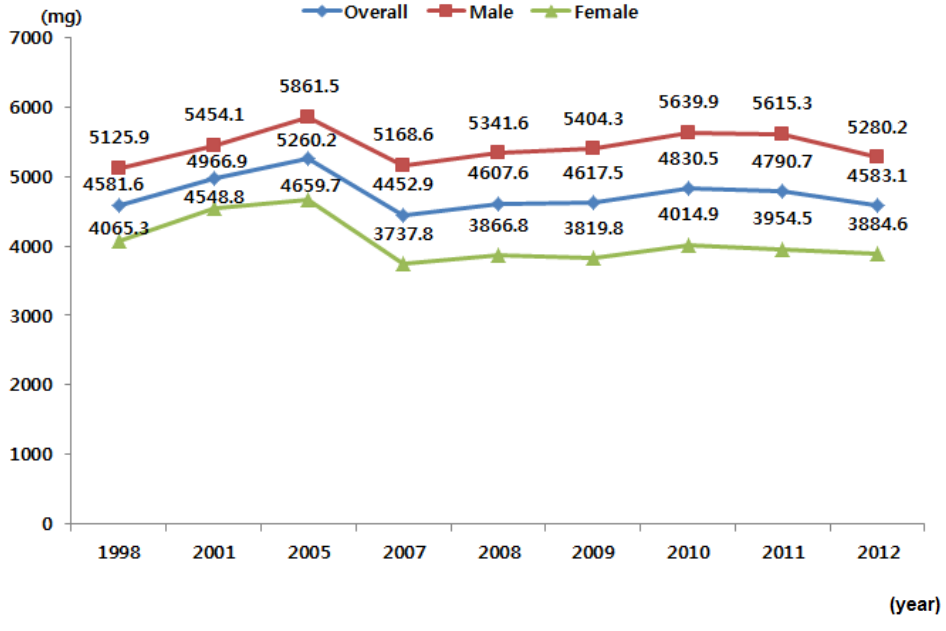

Source) Korea Youth Risk Behavior Web-based Survey, 2015

# 3.4 Overconsumption for Energy and Fat

## Trend of overconsumption for Energy and Fat

For the past 15 years, the Koreans have consumed excessive amounts of sodium, with males consuming more sodium than females.

### Trend of Daily Sodium Intake among Adults (1998-2012)




Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2013

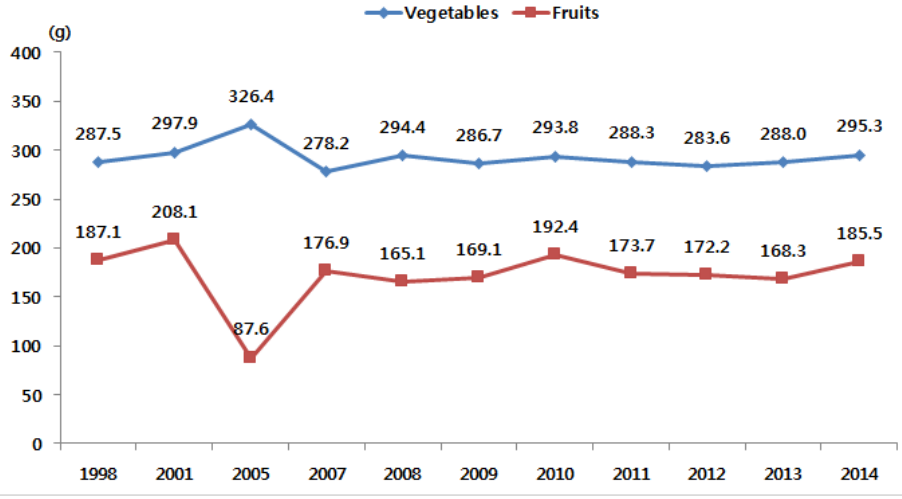
Note) Daily sodium intake targets: 2000mg (suggested by Korean Nutrition Society, 2005)

# 3.5 Consumption of Fruits and Vegetables

## Intake of Fruit and Vegetable

The average daily consumption of fruits and vegetables among adults in 2014 was 185.5g and 295.3g, respectively.

### Average Intake of Fruit and Vegetable among Adults (1998-2014)

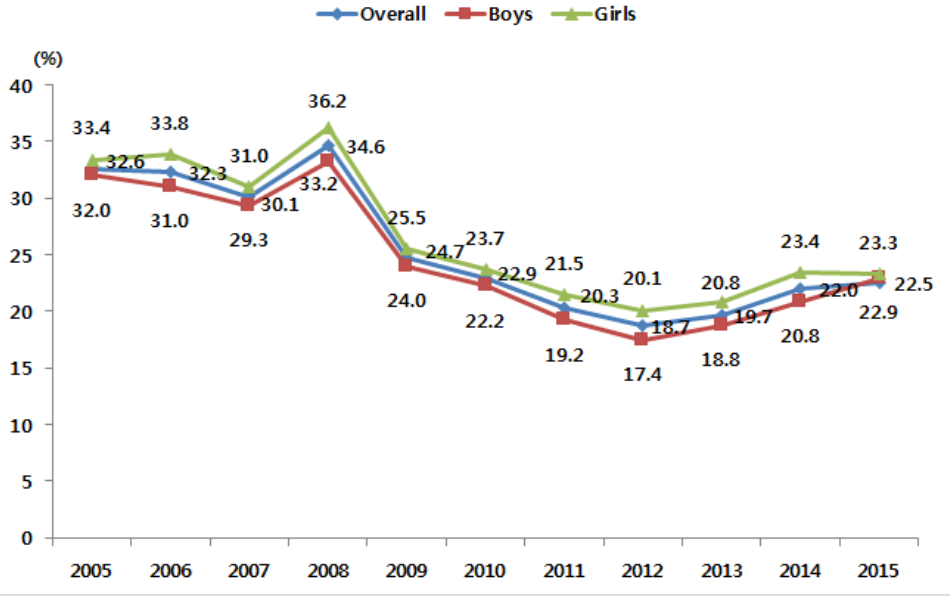



Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2014

## Percentage of Adolescents Who Consume at least One Serving of Fruit Each Day

In 2015, 22.9% of adolescents consumed at least one serving of fruit per day (22.5% of males and 23.3% of females).

### Percentage of Adolescents Who Consume at least One Serving of Fruit Each Day (2005-2015)



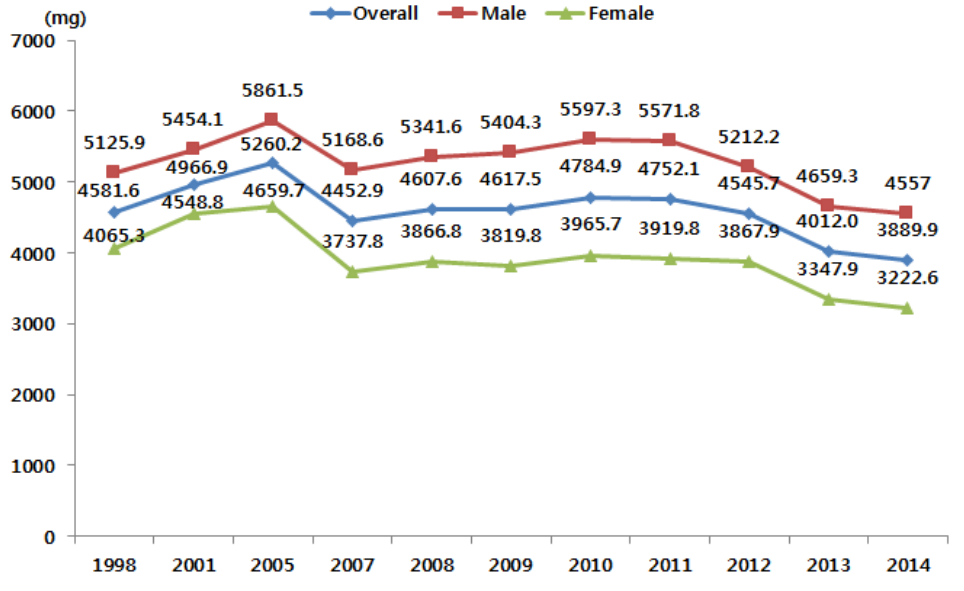

Source) Korea Youth Risk Behavior Web-based Survey, 2015

# 3.6 Sodium Intake

## Sodium Intake among Adults

For the past 10 years, Koreans have consumed excessive amounts of sodium, males more so than females.

Trend of Daily Sodium Intake among Adults (1998-2013)




Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2014

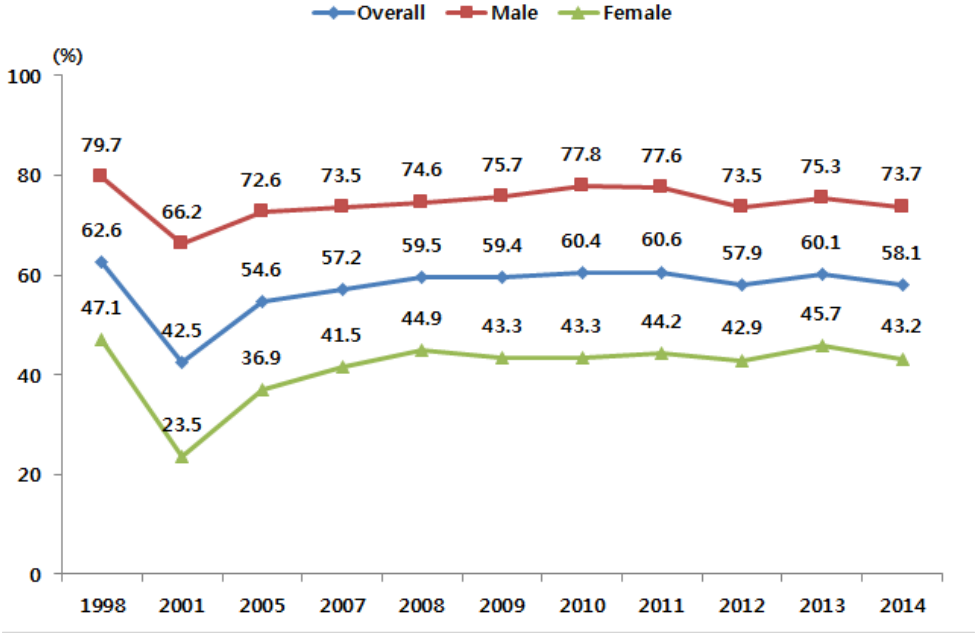
Note) Daily sodium intake targets: 2,000mg (suggested by Korean Nutrition Society, 2005)

# 3.7 Alcohol Consumption

## Prevalence of Alcohol Consumption among Adults[4)]

Percentage of adults who consume one or more glasses of alcohol every month has not decreased for the past 6 years.

Prevalence of Alcohol Consumption among Adults (1998-2013)



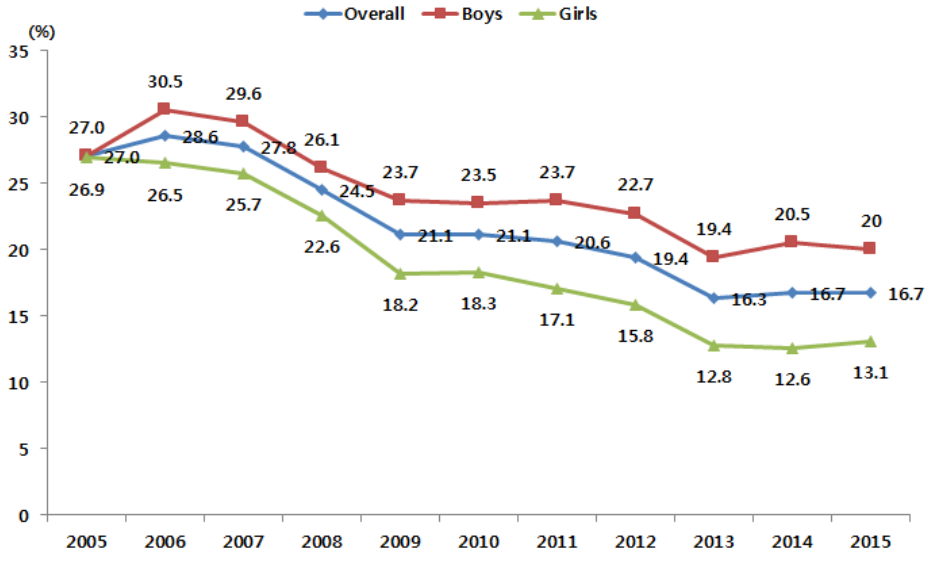

Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2014

4) Prevalence of alcohol consumption among adults: percentage of adults (19 and older) who have consumed one or more glasses of alcohol every month over the past year.

## Alcohol Consumption among Adolescents

Percentage of Korean adolescents who consumed alcohol in 2015 was 16.7% (20.0% for boys and 13.1% for girls).

### Alcohol Consumption among Adolescents (2005-2015)



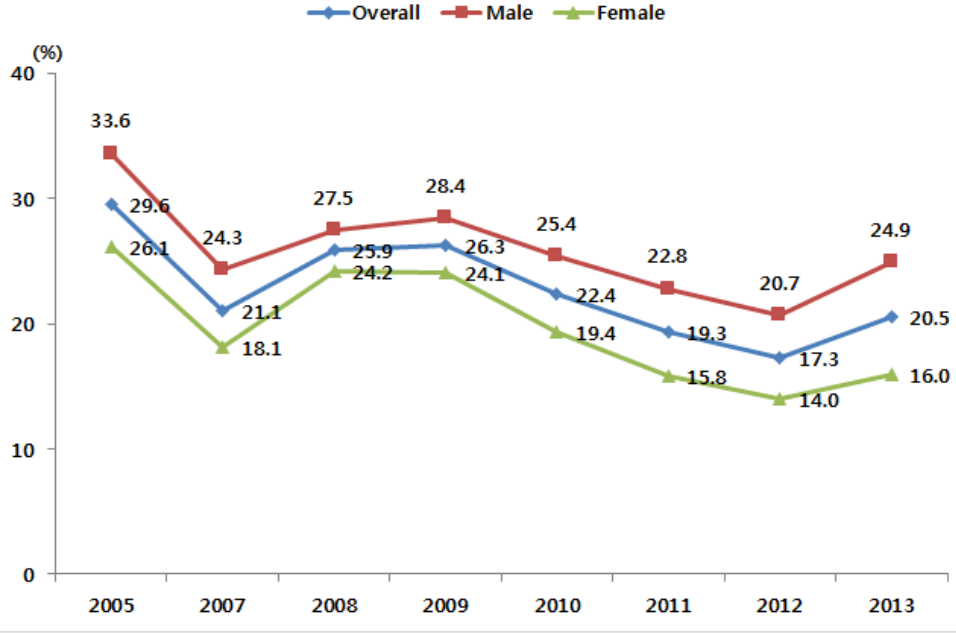

Source) Korea Youth Risk Behavior Web-based Survey, 2015

# 3.8 Physical Activity

## Percentage of Adults Engaging in Moderate or Higher Intensity Level of Physical Activity

In Korea, the percentage of adults engaging in moderate or higher intensity level of physical activity in 2013 was 20.5%.

### Percentage of Adults Engaging in Moderate or Higher Intensity Level of Physical Activity




Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2013

Note)

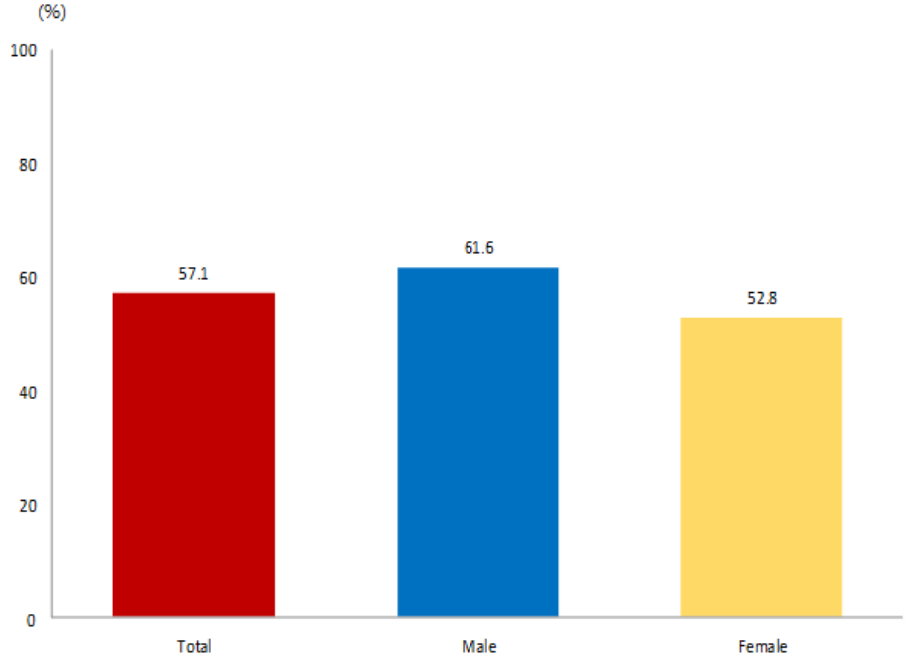
1) The 2010 Health Plan recommends engaging in moderate-intensity physical activity for at least 30 minutes a day, five days a week.

2) Age-standardized rates were calculated based on 2005 Korean population

## Percentage of Aerobic Physical Activity

In 2014, the total percentage of adults (aged 19 and older) who performed aerobic physical activity was 57.1% (61.6% of males and 52.8% of females).

### Aerobic Physical Activity in Adults (2014)




Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2014

Note)

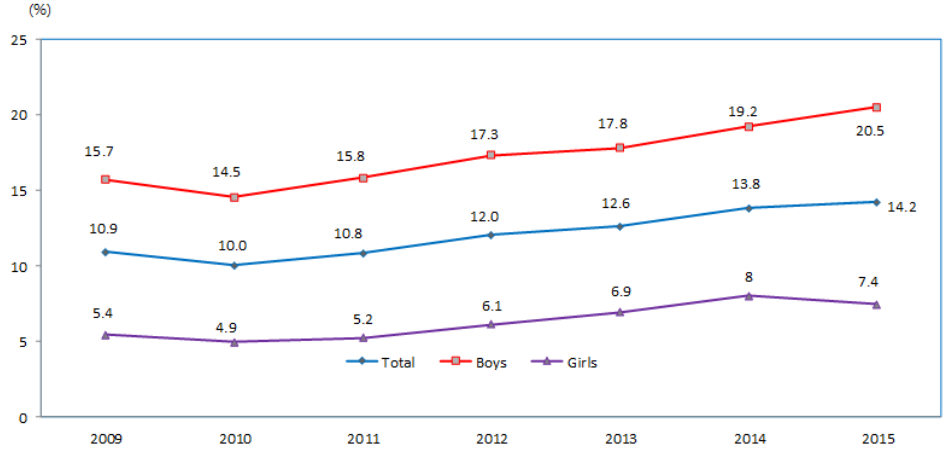
1) Aerobic physical activity : Percentage of aerobic physical activity for engaging in moderate-intensity physical activity over 2 hours and 30 minutes or in high-intensity physical activity over 1 hours and 15 minutes or in mixing with moderate-intensity and high-intensity physical activity for 1-2 minutes once a week.

2) Age-standardized rates were calculated based on 2005 Korean population

## Percentage of Adolescents Engaging in Physical Activity for at least 60 minutes a day, 5 days a week

In 2014, the percentage of adolescents engaging in physical activity for at least 60 minutes a day, five days a week was 14.2% (20.5% of boys and 7.4% of girls).

### Percentage of Adolescents Engaging in Physical Activity for at least 60 minutes a day, 5 days a week



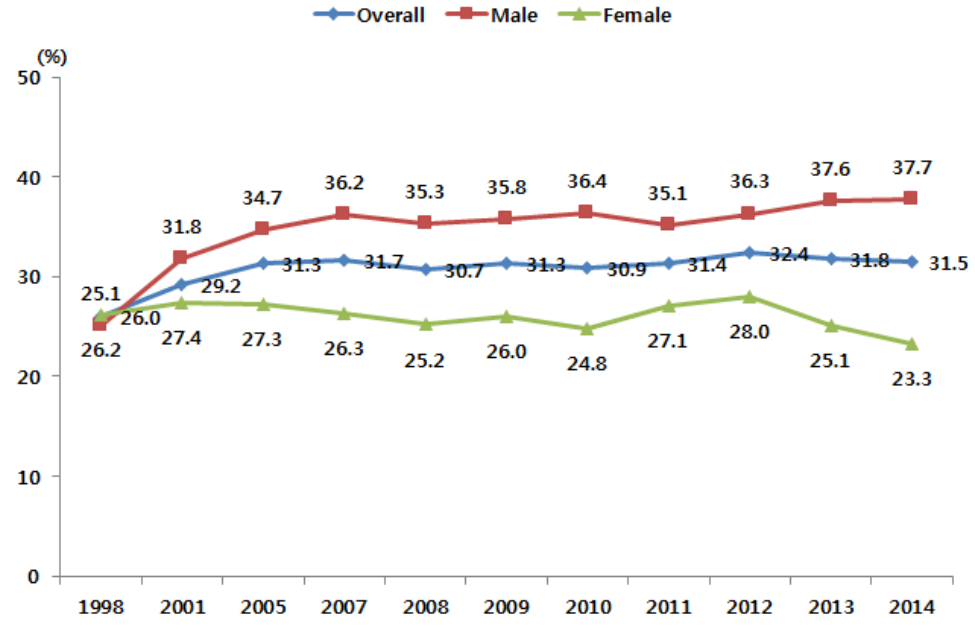

Source) Korea Youth Risk Behavior Web-based Survey, 2015

# 3.9 Obesity

## Obesity Trend among Adults

Obesity among adults (19 and older, standardized) increased from 26.0% in 1998 to 31.7% in 2007. However, the rate has stayed at around 30% for the past five years. Male obesity rate has shown a gradual increase in the past ten years, female obesity rate has also increased in the recent four years.

### Trend of Obesity Rate among Adults (1998-2014)




Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2014

Note)

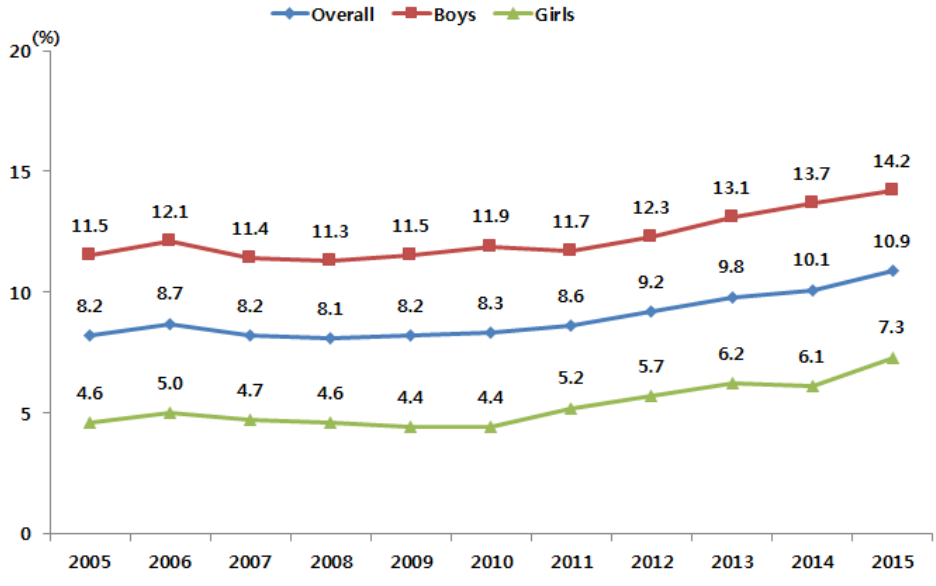
1) The age-standardized rates were calculated based on 2005 Korean population.

2) Obesity: body mass index(BMI)≥25

## Obesity Trend among Adolescents[5)]

Obesity rate among adolescents was 10.9% in 2015 (14.2% of boys and 7.3% of girls).

Obesity Trend among Adolescents (2005-2015)




Source) Korea Youth Risk Behavior Web-based Survey, 2015

Note) Obesity: body mass index(BMI)≥25, or more than 95 percentile of BMI distribution

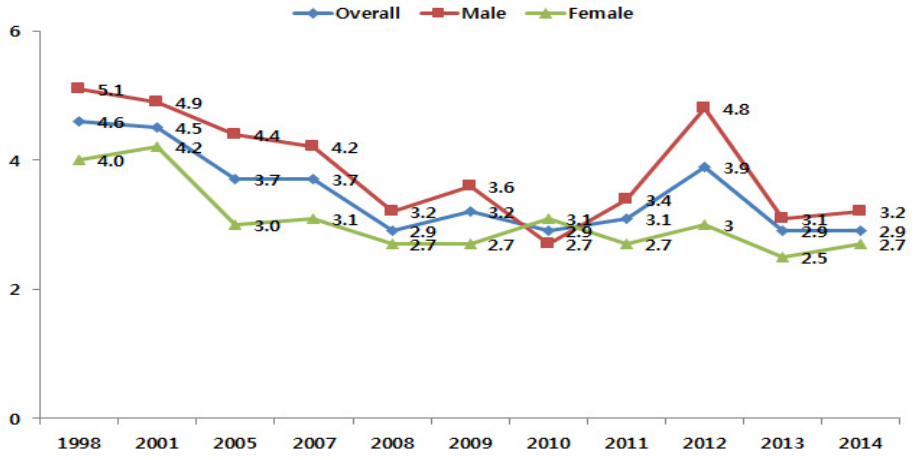
5) Adolescent obesity rate: percentage of adolescents(13 to 18 years old) whose body mass index(BMI) is more than 95% in the BMI distribution or more than 25 BMI

# 3.10 Infection

## HBsAg Seropositivity

An hepatitis B virus infection is one of the major risk factors of liver cancer. HBsAg seropositivity[6], which indicates the presencce of hepatitis B virus infection (in individuals 10 years and older, standardized), was high 7-8% of the population) in the 1970s and 1980s. Since the hepatitis B vaccine was included in the national immunization program in 1995, HBsAg seropositivity has steadily decreased from 4.6% in 1998 to 2.9% in 2014.

HBsAg Seropositivity (1998-2014)




Source) Korea Health Statistics. Korea National Health and Nutrition Examination Survey, 2014

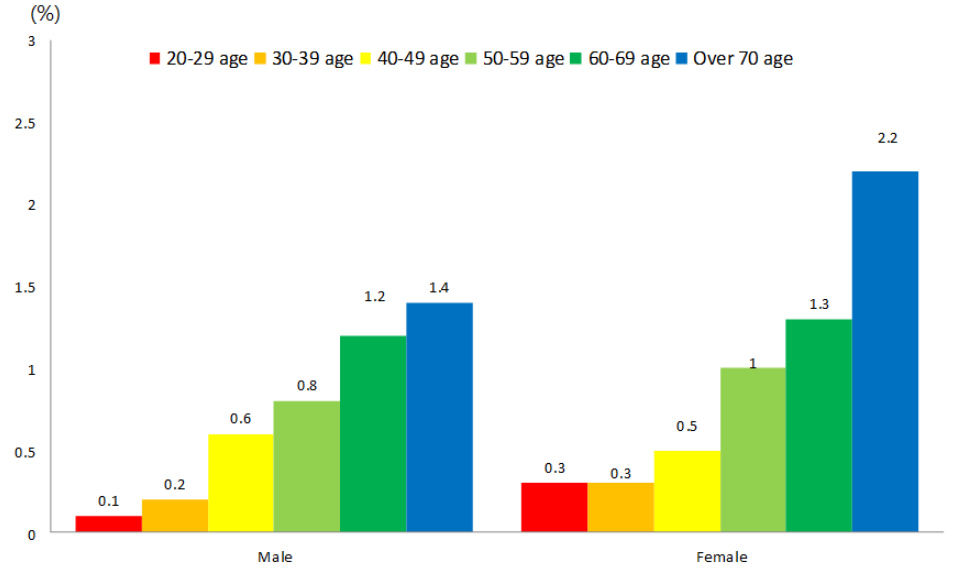
Note) The age-standardized rates were calculated based on 2005 Korean population

6) HBsAg seropositivity: percentage of individuals(10 years and older) who have tested positive for HBsAg

## Hepatitis C Seropositivity

The hepatitis C virus infection (hepatitis C seropositivity)[7] rate was high in both genders and increased with age. The infection rate among females (0.1-2.2%) was higher than te rate among males (0.1-1.4%).

### Hepatitis C Seropositivity by gender (2012~2014)




Source) Korea Youth Risk Behavior Web-based Survey, 2015

Note) The age-standardized rates were calculated based on 2005 Korean population

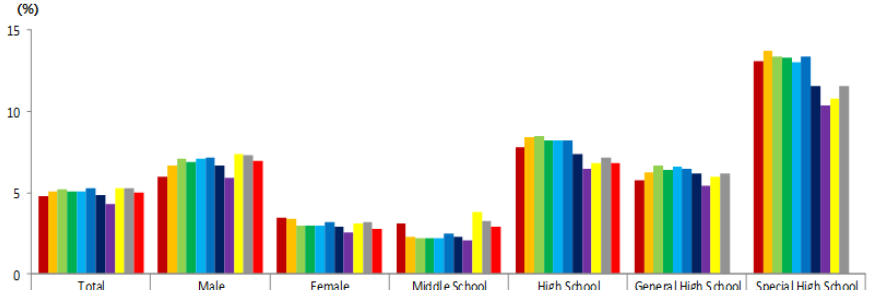
7) Hepatitis C seropositivity: percentage of individuals(10 years and older) who have tested positive for Hepatitis C infection

# 3.11 Safety Sex Life

## Rate of Sex Experience in Adolescents

Sex experience rate of adolescents[8] was higher in 2014 (5.0%) compared to 2005 (4.8%). The sex experience rate of Male adolescents (7.0%) was more twice as high as the sex experience rate of female adolescents (2.8%) in 2015.

### Trend of Sex Experience Rate in Adolescents (2005~2015)




| | Total | Male | Female | Middle School | High School | General High School | Special High School |
|---|---|---|---|---|---|---|---|
| 2005(M1-H2) | 4.8 | 6 | 3.5 | 3.1 | 7.8 | 5.8 | 13.1 |
| 2006(M1-H3) | 5.1 | 6.7 | 3.4 | 2.3 | 8.4 | 6.3 | 13.7 |
| 2007(M1-H3) | 5.2 | 7.1 | 3 | 2.2 | 8.5 | 6.7 | 13.4 |
| 2008(M1-H3) | 5.1 | 6.9 | 3.0 | 2.2 | 8.2 | 6.4 | 13.3 |
| 2009(M1-H3) | 5.1 | 7.1 | 3 | 2.2 | 8.2 | 6.6 | 13 |
| 2010(M1-H3) | 5.3 | 7.2 | 3.2 | 2.5 | 8.2 | 6.5 | 13.4 |
| 2011(M1-H3) | 4.9 | 6.7 | 2.9 | 2.3 | 7.4 | 6.2 | 11.6 |
| 2012(M1-H3) | 4.3 | 5.9 | 2.6 | 2.1 | 6.5 | 5.4 | 10.4 |
| 2013(M1-H3) | 5.3 | 7.4 | 3.1 | 3.8 | 6.8 | 6 | 10.8 |
| 2014(M1-H3) | 5.3 | 7.3 | 3.2 | 3.3 | 7.2 | 6.2 | 11.6 |
| 2015(M1-H3) | 5 | 7 | 2.8 | 2.9 | 6.8 | | |

M1: Middle School 1st year
H2: High School 2nd year
H3: High School 3rd year
Source) Korea Youth Risk Behavior Web-based Survey, 2015

8) Sex experience rate : People who had been sex experienced in their life

# 3.12 Carcinogenic Risk Factors

## Incidence and Mortality Rate of Carcinogenic Risk Factors in Korea

The general public is interested in carcinogenic risk factors present in their environment, because people are routinely exposed to these factors including various air pollutants.

In order to make it easier for the general public to identify and note scientifically proven carcinogens, the results of various studies have been reviewed and summarized by the International Agency for Research on Cancer (IARC) to provide a list of carcinogens “likely to cause cancer in humans” (Group 1).

Figure 1. Information of Carcinogenic Risk Factors for Cancer Prevention

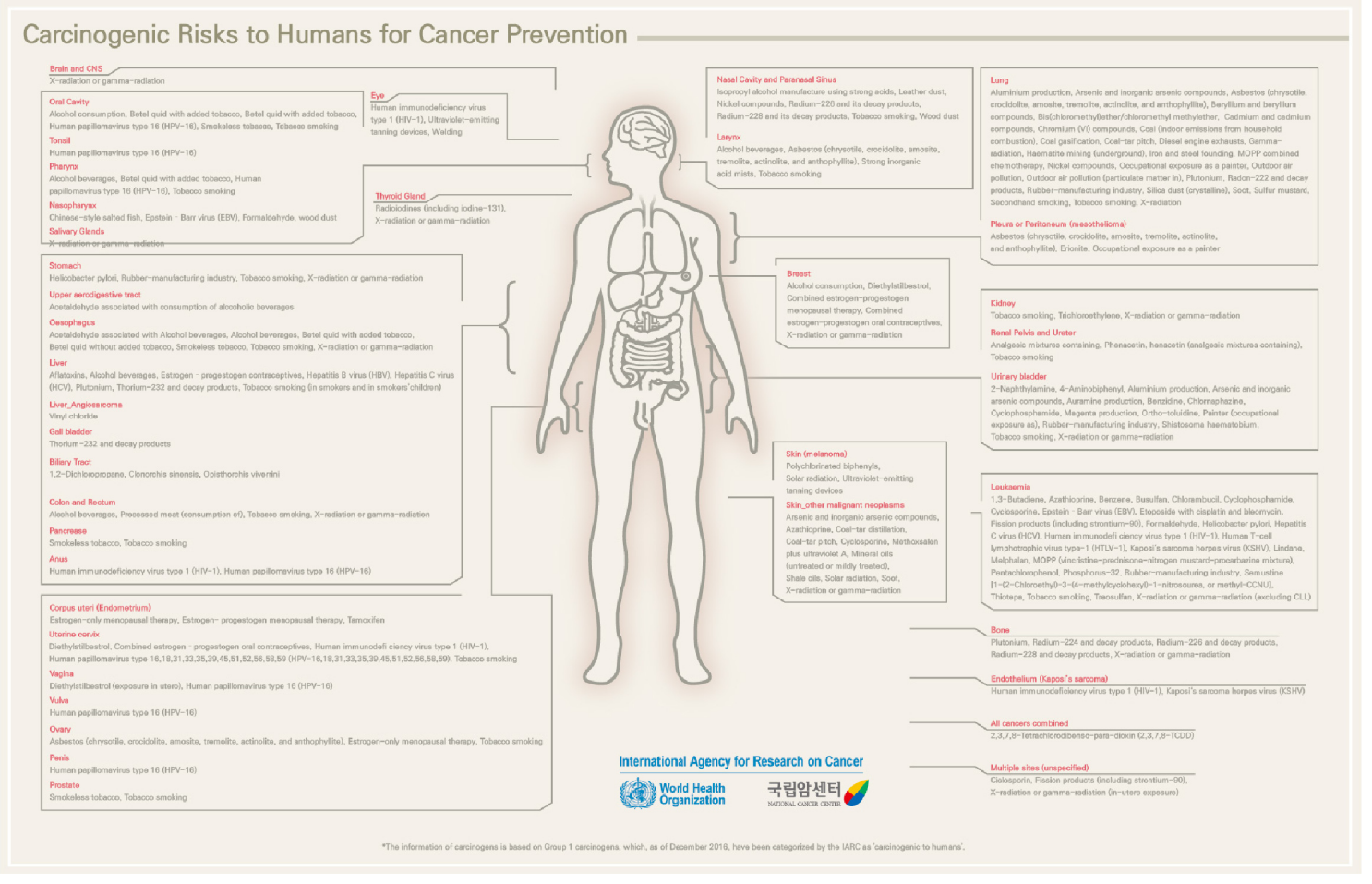


Figure 2. The Occurrence of Incidence by Major Cancer Type and Group 1 Carcinogenic Risk Factors

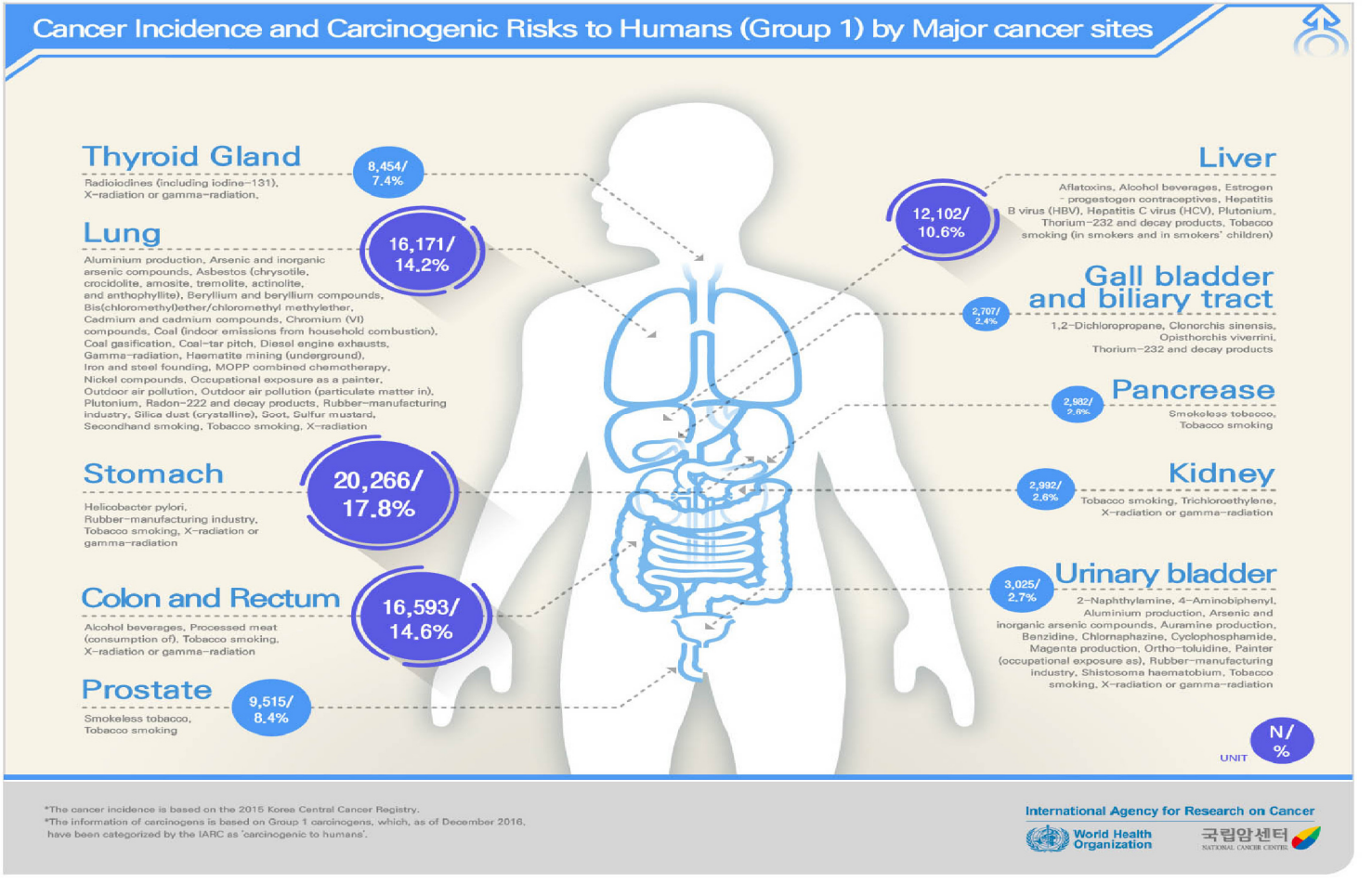


Figure 3. The Occurrence of Incidence by Major Cancer Type and Group 1 Carcinogenic Risk Factors (for female)

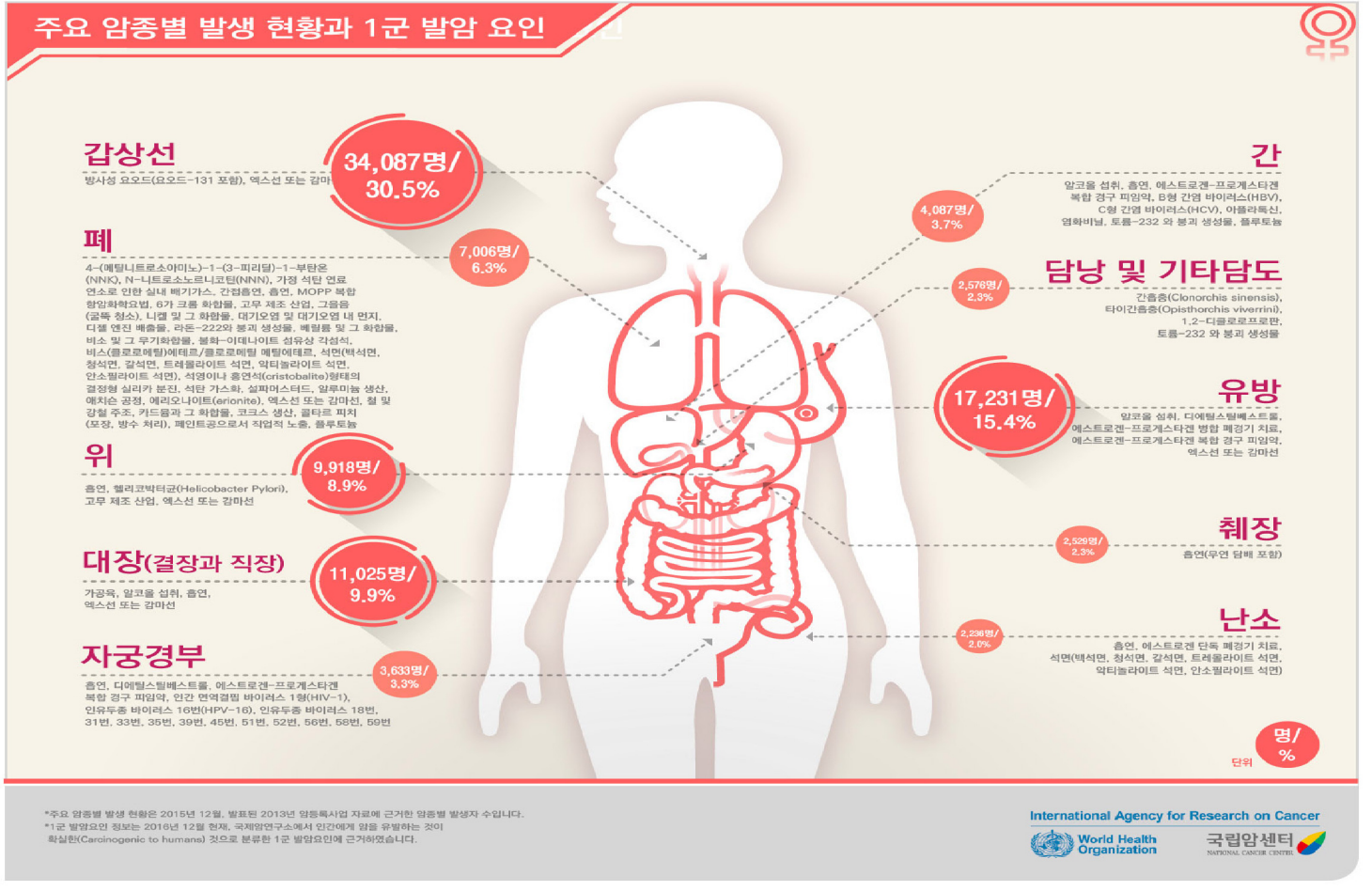
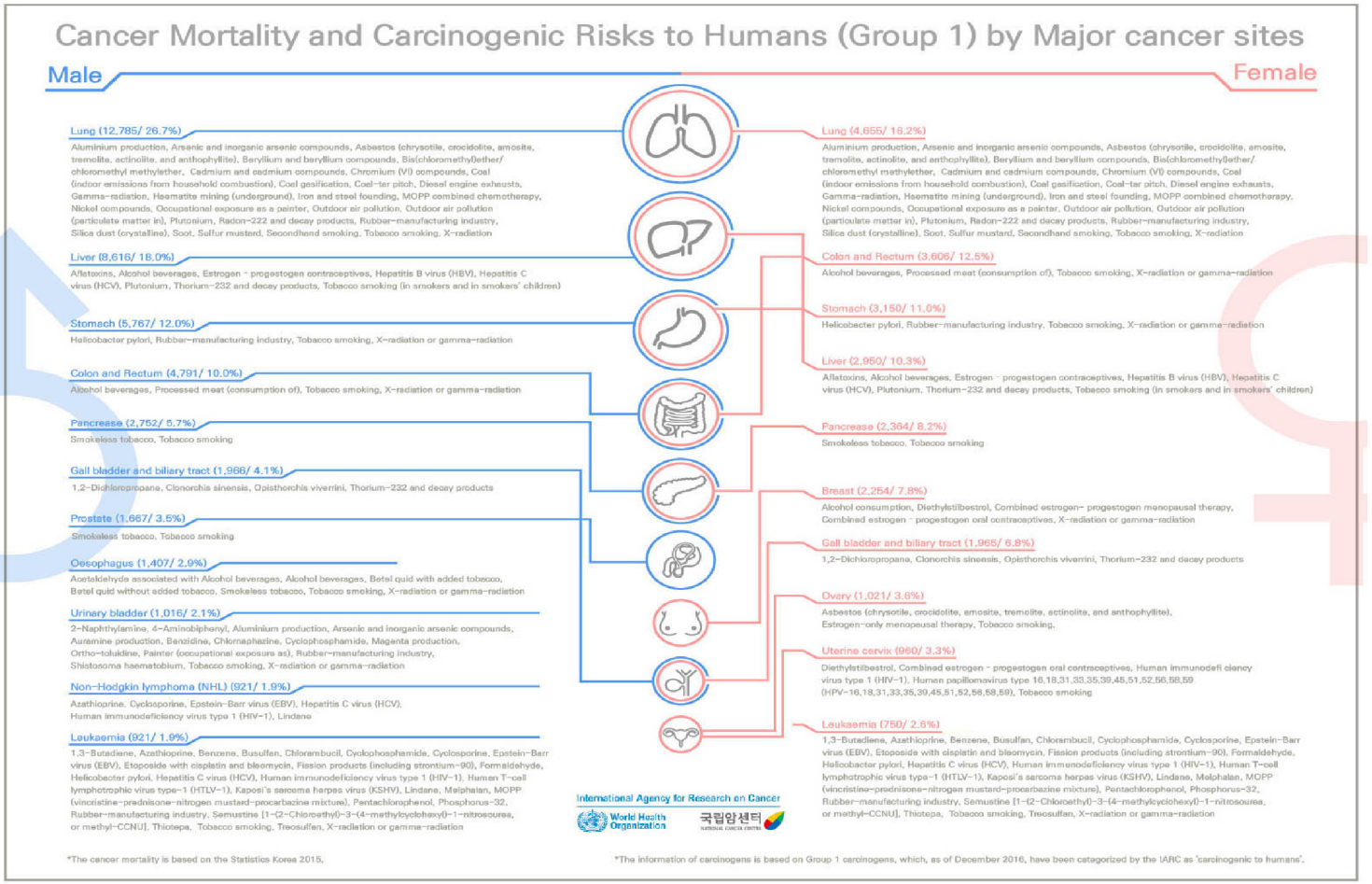


Figure 4. The Occurrence of Mortality by Major Cancer Type and Group 1 Carcinogenic Risk Factors



# Chapter 4.
# Cancer Screening Program

# 4.1 Cancer Screening Rates[9)]

## Cancer Screening Rates

The average lifetime screening rate[10)] of the five major cancers identified in the National Cancer Screening Program in 2015 was 79.9%, and the average cancer screening rates with recommendatio n[11)] was 65.8%. The screening rate[12)] for all cancers increased 1.69 times from 2004 to 2015.

In 2015, stomach cancer had the highest screening rates(74.8%), followed by cervix uteri cancer (65.6%), breast cancer (61.2%), colon and rectum cancer (59.5%), and the high-risk group of liver cancer (28.1%).

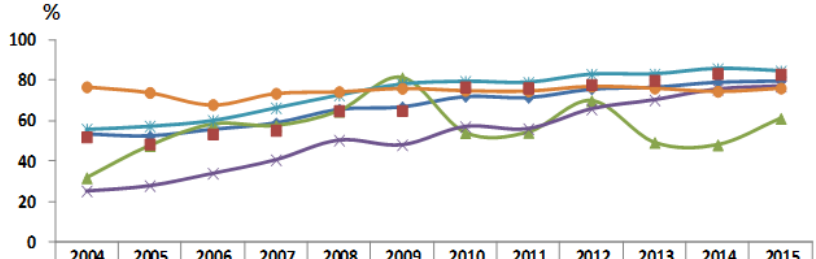
9) Cancer Screening Rates: the results of status and recognition for cancer screening (Korean National Cancer Screening Survey) in 4,000 adults (40-74 years old men and 30-74 years old women) who had been never diagnosed with cancer. A stratified, multistage sampling design was used to represent of the national population according to geographical area, age, and sex in 2015.

10) Lifetime screening rate: percentage of individuals who have undergone screening for at least one cancer.

11) Cancer screening rates with recommendation: percentage of individuals who have undergone screening as part of the National Cancer Screening Program (for stomach, breast, and cervix uteri cancers) or based on cancer screening recommendation (for other types of cancer, such as liver and colon and rectum cancers)

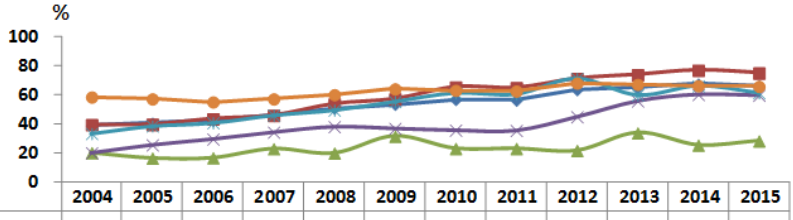
12) Screening rate = (number of screened individuals / candidates) × 100

## Lifetime Cancer Screening Rates (2004-2015)




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 53.4 | 52.4 | 55.7 | 58.9 | 65.7 | 66.9 | 72.1 | 71.6 | 75.8 | 76.8 | 79.3 | 79.9 |
| Stomach | 52.0 | 48.5 | 53.5 | 55.3 | 65.0 | 65.1 | 76.7 | 76.2 | 77.9 | 80.0 | 83.4 | 83.0 |
| Liver | 31.8 | 47.7 | 58.3 | 57.6 | 64.8 | 81.3 | 54.2 | 54.3 | 69.9 | 49.3 | 48.1 | 61.2 |
| Colon & Rectum | 25.3 | 27.9 | 34.0 | 40.7 | 50.4 | 48.1 | 57.1 | 56.1 | 65.8 | 70.3 | 75.6 | 77.1 |
| Breast | 55.9 | 57.4 | 60.2 | 66.4 | 72.7 | 78.1 | 79.5 | 79.0 | 83.0 | 83.1 | 85.8 | 84.6 |
| Cervix uteri | 76.8 | 74.0 | 68.0 | 73.6 | 74.4 | 76.1 | 75.0 | 74.8 | 77.1 | 76.2 | 74.6 | 76.2 |

## Cancer Screening Rates with Recommendation (2004-2015)




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Mean | 38.8 | 40.3 | 42.3 | 45.6 | 50.7 | 53.3 | 56.6 | 56.1 | 63.4 | 64.7 | 67.3 | 65.8 |
| Stomach | 39.2 | 39.4 | 43.3 | 45.6 | 53.5 | 56.9 | 65.1 | 64.6 | 70.9 | 73.6 | 76.7 | 74.8 |
| Liver | 20.0 | 16.3 | 16.5 | 22.7 | 19.7 | 31.3 | 22.9 | 22.9 | 21.5 | 33.6 | 25.2 | 28.1 |
| Colon & Rectum | 19.9 | 25.4 | 29.4 | 34.1 | 37.9 | 36.7 | 35.5 | 35.3 | 44.7 | 55.6 | 60.1 | 59.5 |
| Breast | 33.2 | 38.4 | 40.6 | 45.8 | 49.3 | 55.2 | 61.1 | 60.4 | 71.0 | 59.7 | 66.0 | 61.2 |
| Cervix uteri | 58.3 | 57.0 | 54.9 | 57.0 | 59.9 | 63.9 | 62.9 | 62.4 | 67.9 | 67.0 | 66.1 | 65.6 |

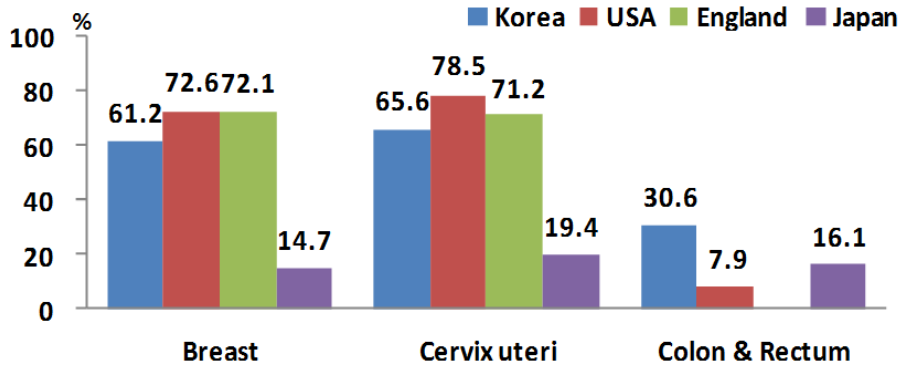
Source) Korean National Cancer Screening Survey, 2004-2015

## Cancer Screening Rates: International Comparison

A comparison of the cancer screening rate based on recommendation in Korea with those in other countries showed that the screening rate for cervix uteri cancers (65.6%) in Korea was lower than those of England (71.2%) and the United States (78.5%).

The rate of fecal occult blood testing (FOBT) during colon and rectum cancer screenings in Korea was 30.6%, which was higher than the rates in the United States (7.9%) and Japan (16.1%).

Cancer Screening Rates: International Comparison




Source) Korean National Cancer Screening Survey, 2004-2015

## Cancer Screening Rates: International Comparison

| | | Korea [1] | USA [2] | England [3] [4] | Japan [5] |
|---|---|---|---|---|---|
| Breast | Cancer Screening Rates | **61.2%** | **72.6%** | **72.1%** | **14.7%** |
| | Target Population | 40 & over | **50-74** | **50-70** | **40**& over |
| | Frequency | every 2 years | every 2 years | every 3 years | **2**every 2 years |
| | Test or Procedure | Mammography | Mammography | Mammography | Mammography **& CBE*** |
| Cervix uteri | Cancer Screening Rates | **65.6%** | **78.5%** | **25-49, 71.2%**<br>**50-64, 78.4%** | **19.4%** |
| | Target Population | **30**& over | **21-65** | **25-64** | **20**& over |
| | Frequency | every 2 years | every 3 years | **25-49,** every 3.5 years<br>**50-64,** every 5.5years | every 2 years |
| | Test or Procedure | Pap smear | Pap smear | Pap smear | Pap smear |
| Colon & Rectum | Cancer Screening Rates | **30.6%** | **7.9%** | - | **16.1%** |
| | Target Population | **50**& over | **50**& over | **60-69** | **40**& over |
| | Frequency | every 1 years | every 2 years | every 2 years | every 1 years |
| | Test or Procedure | FOBT | FOBT | FOBT | FOBT |

Source)

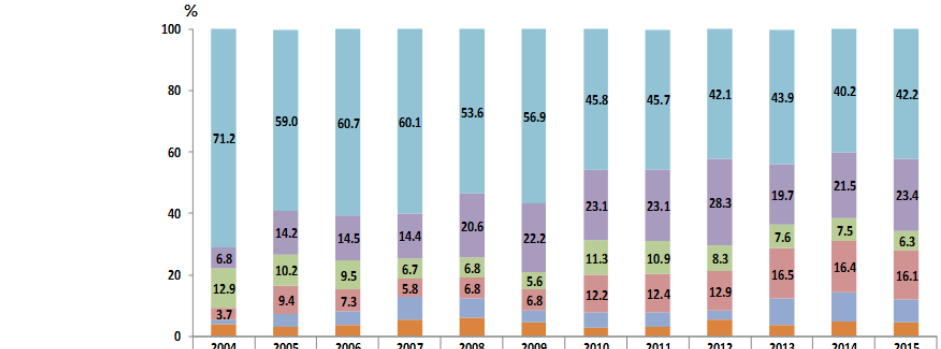
1) Korean National Cancer Screening Survey, 2015
2) National Cancer Institute. Cancer Trends Progress Report, 2015
3) NHS Cancer Screening Programmes, NHS Breast Screening Programme Annual Review, 2013-14, 2015
4) NHS Cancer Screening Programmes, NHS Cervical Screening Programme Annual Review, 2013-14, 2015
5) Health Statistics in Japan, 2010

Note) CBE(clinical breast examination), FOBT(fecal occult blood test)

## Reasons for Not Undergoing Cancer Screening

From 2004 to 2015, the percentage of people who said that they did not undergo cancer screening because they believed they were healthy decreased (71.2% in 2004 to 42.2% in 2015), whereas the percentage of those who said that they did not have time to be screened increased (6.8% in 2004 to 23.4% in 2015).

### Reasons for Not Undergoing Cancer Screening (2004-2015)




| | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Belief of healthiness | 71.2 | 59.0 | 60.7 | 60.1 | 53.6 | 56.9 | 45.8 | 45.7 | 42.1 | 43.9 | 40.2 | 42.2 |
| Time constraints to be screened | 6.8 | 14.2 | 14.5 | 14.4 | 20.6 | 22.2 | 23.1 | 23.1 | 28.3 | 19.7 | 21.5 | 23.4 |
| Too expensive | 12.9 | 10.2 | 9.5 | 6.7 | 6.8 | 5.6 | 11.3 | 10.9 | 8.3 | 7.6 | 7.5 | 6.3 |
| Too painful, unpleasant | 3.7 | 9.4 | 7.3 | 5.8 | 6.8 | 6.8 | 12.2 | 12.4 | 12.9 | 16.5 | 16.4 | 16.1 |
| Fear of detection | 1.7 | 4.2 | 4.3 | 7.5 | 6.3 | 4.0 | 4.9 | 4.8 | 3.1 | 8.5 | 9.6 | 7.6 |
| Others | 3.8 | 2.9 | 3.7 | 5.5 | 5.9 | 4.5 | 2.8 | 3.0 | 5.3 | 3.7 | 4.9 | 4.4 |

Source) Korean National Cancer Screening Survey, 2004-2015

# 4.2 National Cancer Screening Program

## National Cancer Screening Pogram Statistics (2005-2014)

### Guidelines of the National Cancer Screening Program*

| Cancer | Target Population | nterval | Test or Procedure |
|---|---|---|---|
| Stomach | Age 40 & Over | 2 years | Endoscopy or UGI |
| Liver | Age 40 & Over<br>High risk group † | 1 year | Sonography & AFP |
| Colon & rectum | Age 50 & Over | 1 year | FOBT:<br>in case of an abnormal result,<br>Colonoscopy or DCBE |
| Breast | Age 40 & Over<br>Woman | 2 years | Mammography |
| Cervix uteri | Age 30 & Over<br>Woman | 2 years | Pap smear |

Source) National Cancer Center, 2015

Note)

1) UGI: upper gastro-intestinal series
2) AFP: serum alpha-feto protein test
3) FOBT: fecal occult blood test
4) DCBE: double-contrast barium enema

*National Cancer Screening Program(2014)

There were some revisions of National Cancer Screening Program in 2016

1.Liver cancer screening interval was changed from one year to six months.

2.Cervix uteri cancer screening target population was changed. It was expansion from 30 & over to 20 & over.

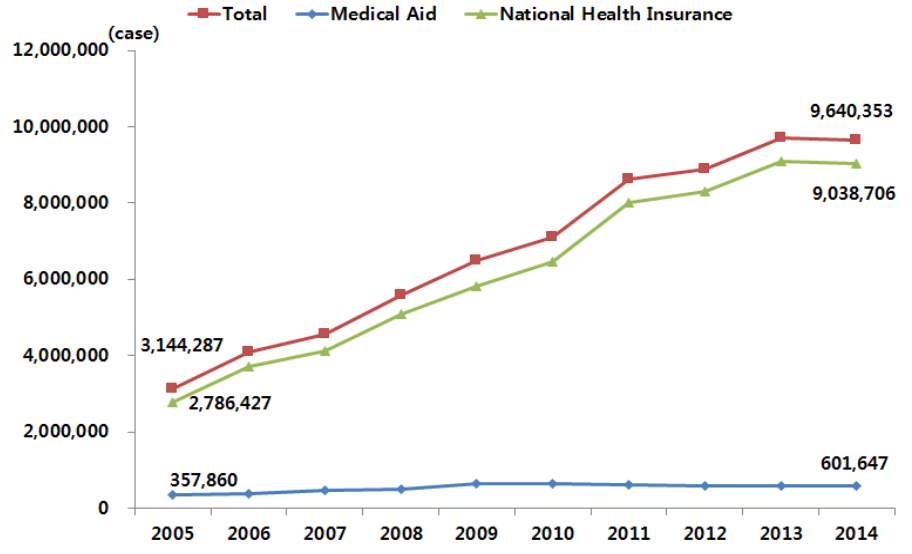
†High-risk group: HBsAg positive, anti-HCV Ab positive, or diagnosed with liver cirrhosis

## Number of Participants in the National Cancer Screening Program

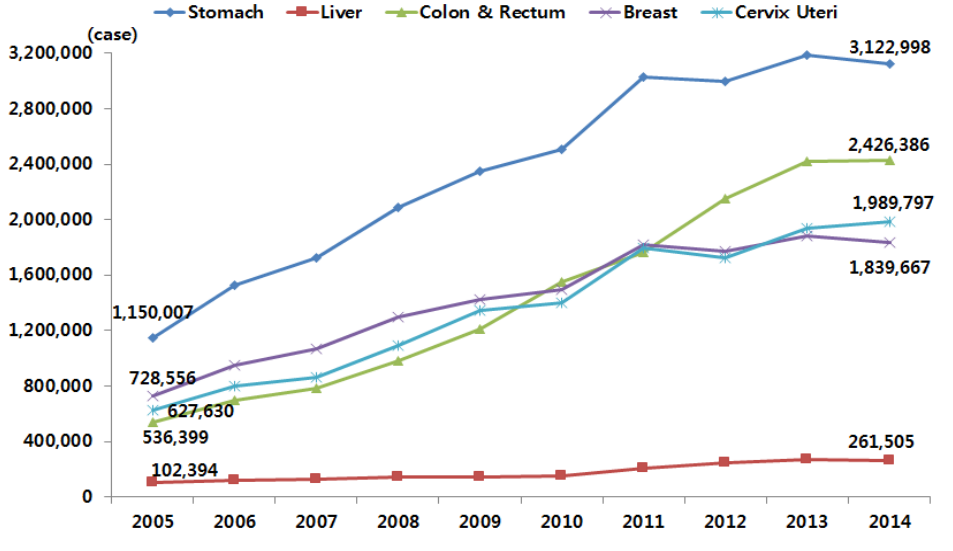
The target population of the National Cancer Screening Program consists of those insured by Medical Aid and the National Health Insurance program. The number of screened individuals insured by the National Health Insurance program increased from 2,786,427 in 2005 to 9,038,706 in 2014.

In 2014, among the five cancers in the National Cancer Screening Program, the cancer with the highest number of individuals screened was stomach cancer (3,122,998), followed by colon and rectum cancer (2,426,386).

## Number of Participants in the National Cancer Screening Program (2005-2014)




## Number of Participants in the National Cancer Screening Program by Cancer Sites (2005-2014)



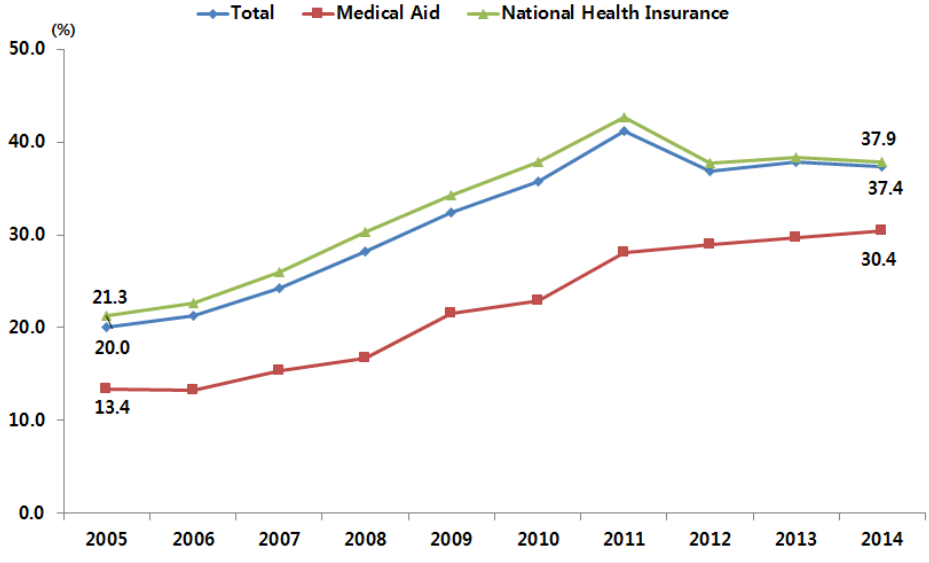

Source) National Cancer Center, 2015

## Participation Rates in the National Cancer Screening Program

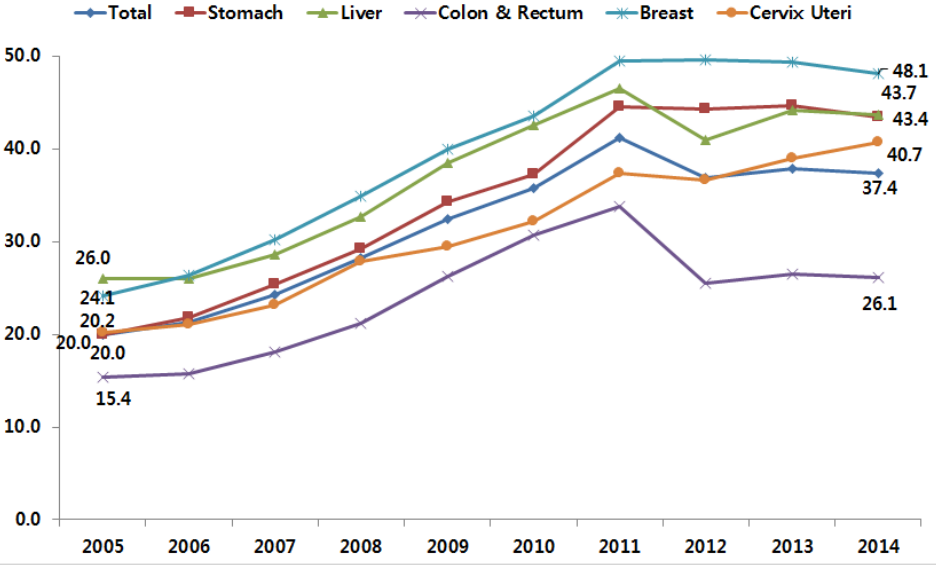
The overall rate of participation in the National Cancer Screening Program was 37.4% in 2014 (30.4% of Medical Aid recipients and 37.9% of the National Health Insurance holders).

In 2014, screening for breast cancer had the highest participation rate (48.1%), followed by liver cancer (43.7%) and stomach cancer (43.4%).

## Participation Rates in the National Cancer Screening Program(2005-2014)




## Participation Rates in the National Cancer Screening Program by Cancer Sites (2005-2014)




Source) National Cancer Center, 2015

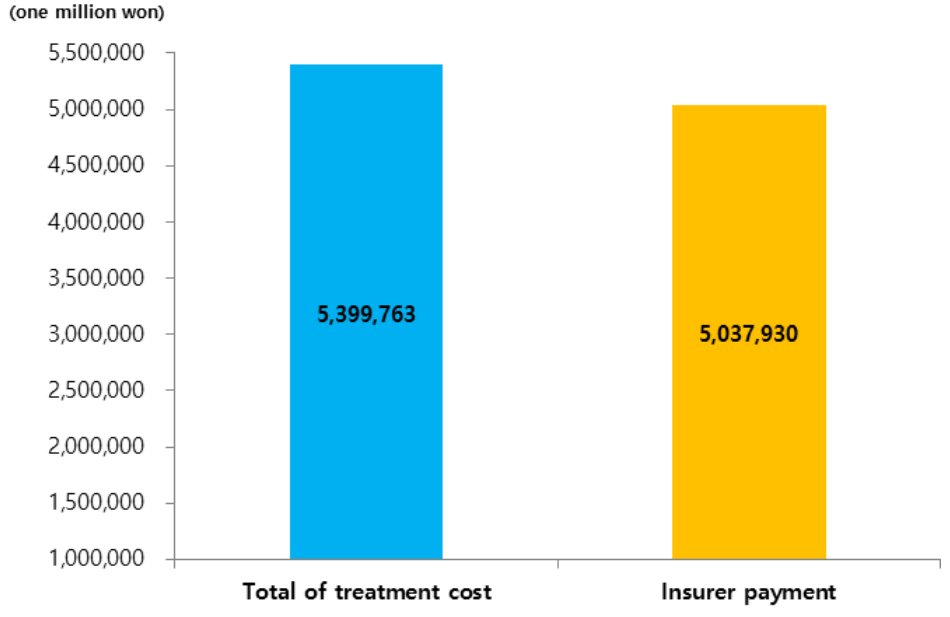
# Chapter 5.
# Financial Aid Program and Regional Cancer Center

## Health Insurance Coverage of Cancer Treatment and Expenditure

In 2015, the total treatment cost for 1,027,828 cancer patients covered by the National Health Insurance was 5,399,763 million won (excluding non-insured areas, such as selective treatments, ultrasound tests, and hospital bed upgrade).

Health insurance expenditure accounted for 93.3% of the total cost or 5,037,930 million won.

Health Insurance Coverage of Cancer Treatment and Expenditure (2015)

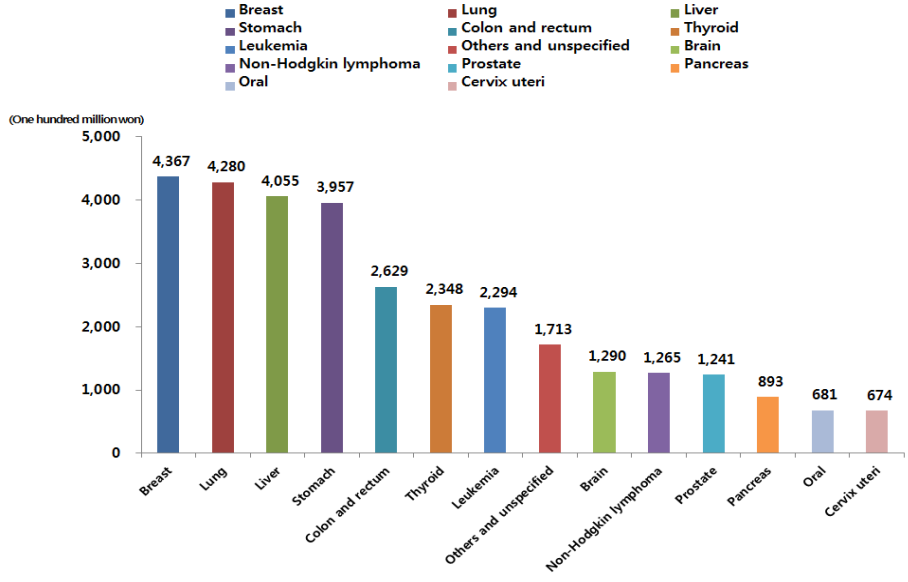



Source) National Health Insurance Corporation. Analysis on cost of cancer patients, 2015

## Insurance Coverage of Expenses for the Treatment of Major Cancers

Of the 3.807 trillion won expenditure from the National Health Insurance Corporation, breast cancer was responsible for the highest percentage (436.7 billion won, 11.5%), followed by lung cancer (428.0 billion won, 11.2%), liver cancer (405.5 billion won, 10.7%), stomach cancer (395.7 billion won, 10.4%), and colon and rectum cancer (262.9 billion won, 6.9%). The ten most common cancers accounted for 74.1% of the total expenditure.

### Health Insurance Expenditures for Major Cancers (2012)




Source) National Health Insurance Corporation. Analysis on cost of cancer patients, 2012

# 5.2 Cancer Patient Financial Aid Program

## Cancer Patient Financial Aid Program

The Cancer Patient Financial Aid Program was started in 2002 to subsidize the medical costs of pediatric cancer patients, and was expanded to include adult cancer patients in 2005. Currently, it supports adult cancer patients 18 and over among Medicaid beneficiaries (including the quasi-poor class), lung cancer patients (Medicaid beneficiaries and National Health Insurance enrollees qualifying for health insurance fee criteria), and National Health Insurance enrollees newly diagnosed through National Cancer Screening Program.

Cancer Patient Financial Aid Program for pediatric cancer patients, supports cancer patients under 18 years (Medicaid beneficiaries and Korean National Health Insurance enrollees qualifying for an income and asset standard).

**Cancer Patient Financial Aid Program (2015)**

| Beneficiary type | | Cancer type | Annual maximum payment | Starting year |
|---|---|---|---|---|
| Adult (18 and over) | • National Cancer Screening Program examinee | Stomach cancer, breast cancer, cervical cancer, liver cancer, colorectal cancer | 2 million KRW (Insurer payment) | 2005 |
| | • Medicaid beneficiary (including the quasi-poor class) | All cancers | 1.2 million KRW (Insurer payment)<br>1 million KRW (copayment) | |
| | • Lung cancer patients<br>- Medicaid beneficiary | Primary lung cancer | 1.2 million KRW (Insurer payment)<br>1 million KRW (copayment) | |
| | • Lung cancer patients<br>- National Health Insurance enrollees | Primary lung cancer | 2 million KRW (Insurer payment) | |
| Child (under 18) | • Medicaid beneficiary (including the quasi-poor class) | All cancers | Leukemia : 30 million KRW<br>Otherwise: Maximum 20 million KRW<br>(30 million KRW for Hematopoietic stem cell transplantation) | 2002 |
| | • National Health Insurance enrollees (those qualifying for insurance fee criteria) | | | |

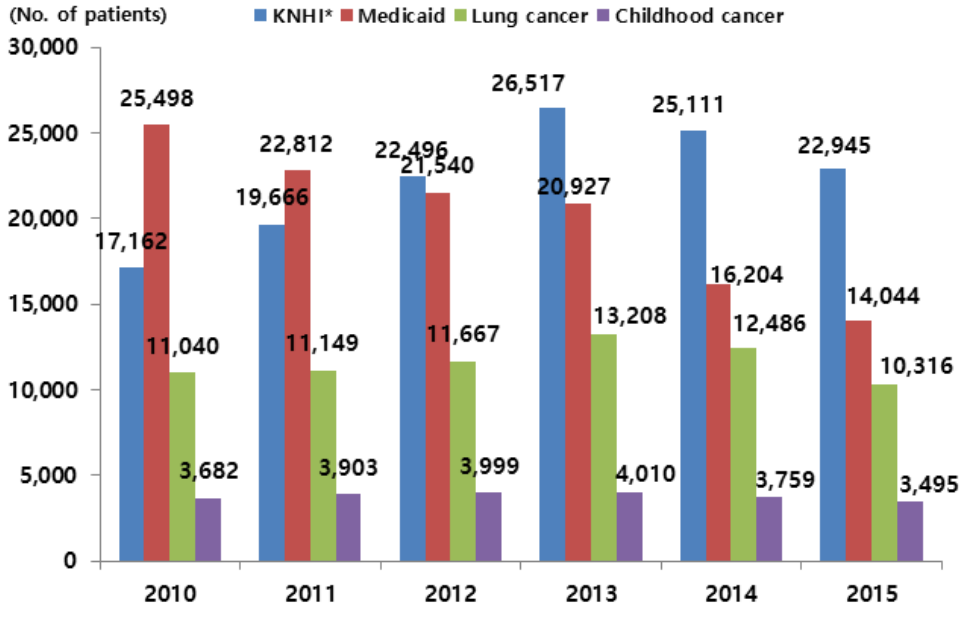
Source) National Cancer Center 2015

## Results of the Financial Aid Program for Cancer Patients

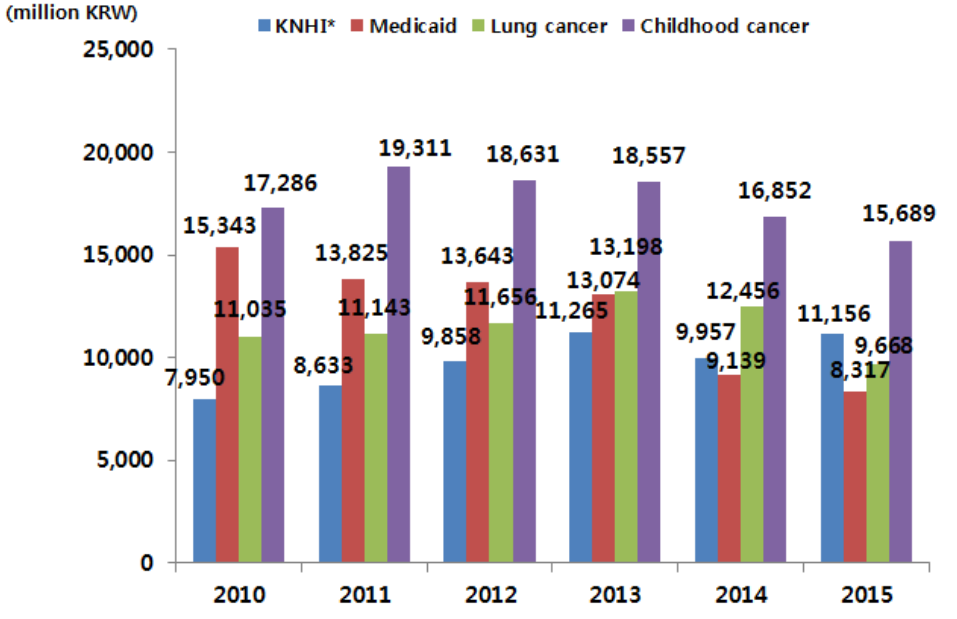
The number of adult National Health Insurance enrollees among the Cancer Patient Financial Aid Program beneficiaries increased from 17,162 in 2010 to 22,899 in 2015, respectively. The numbers of adult Medicaid beneficiaries and adult lung cancer patients decreased from 25,498 in 2010 to 14,028 in 2015 and from 11,040 in 2010 to 10,288 in 2015, respectively. The numbers of pediatric cancer patients also decreased from 3,682 in 2010 to 3,482 in 2015

Cancer Patient Financial Aid payment for adult National Health Insurance enrollees increased from 8 billion won in 2010 to 11.1 billion won in 2015, respectively. However, Cancer Patient Financial Aid payment for adult Medicaid beneficiaries, and adult lung cancer patients decreased from 15.3 billion won in 2010 to 8.3 billion won and from 11 billion won in 2010 to 9.6 billion won in 2015, respectively. Also, payment for pediatric cancer patients decreased from 17.3 billion won to 15.6 billion won in 2015.

## Cancer Patients Financial Aid Program Results (Number of Beneficiaries, 2010-2015)



## Cancer Patients Financial Aid Program Results (Payment, 2010-2015)




Source) National Cancer Center. Patient Financial Aid System 2015

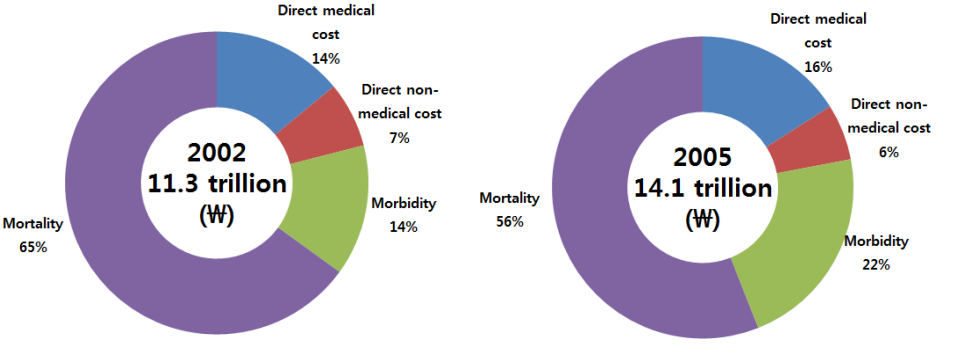
*KNHI: Korean National Health Insurance

# 5.3 Socioeconomic Costs of Cancer

## Socioeconomic Costs of Cancer

Socioeconomic costs of cancer in Korea increased from 11.3 trillion won in 2002 to 14.1 trillion won in 2005.

### Socioeconomic Costs of Cancer



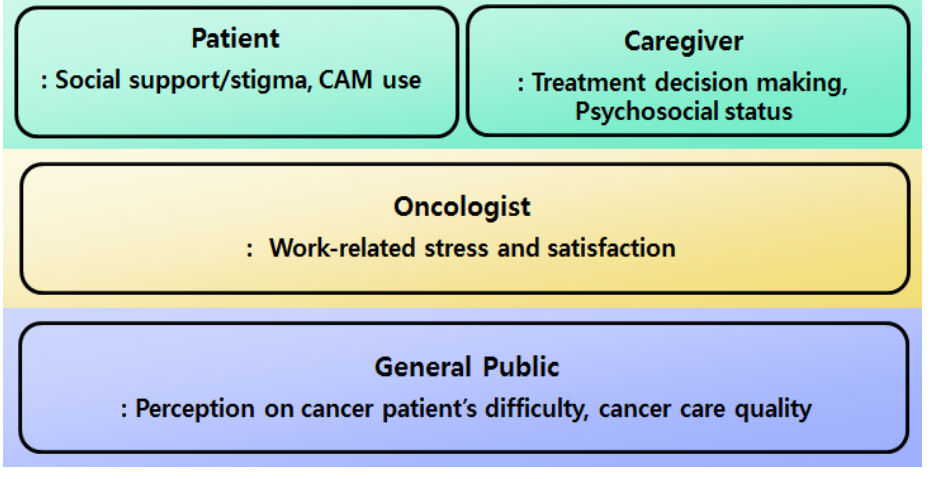

Source) Kim JH et al. J Prev Med Public Health 2009

# 5.4 Survey on Cancer Treatment

From July to September of each year since 2008, the National Cancer Center has conducted a nationwide survey with cancer patients, caregivers, and oncologists in NCC and 12 regional cancer centers throughout Korea.

In 2013, the survey covered areas including 1) cancer care experience of both patients and caregivers, 2) oncologists' work-related burnout and satisfaction, 3) general public's perception on cancer-related issues.

Subjects and Major Content of Survey on Cancer Treatment (2013)



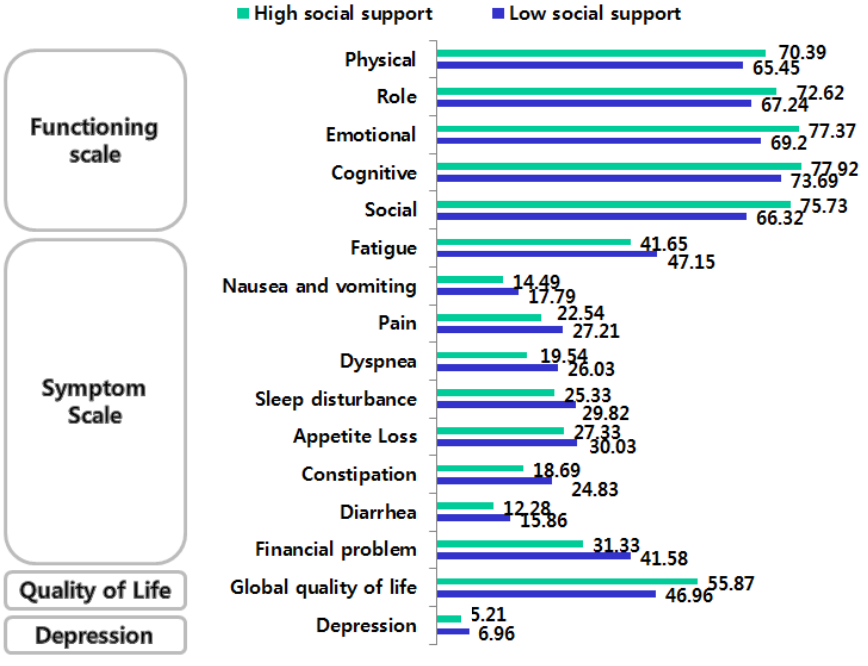

Source) National Cancer Center. Quality, Equity, and Coverage in Cancer Care 2013

## Effects of Social Support on Cancer Patients

We investigated how perceived social support is associated with depression and quality of life among cancer patients.

Patients with low levels of perceived social support reported significantly higher levels of depression, lower scores on all functional scales, higher scores on all three symptom scales, lower global health/quality of life scale scores

### Effects of Social Support on Cancer Patients (2012)




Source) Eom CS et al. Psycho-Oncology 2013

Cancer survivors with low levels of perceived social support were more likely to continue smoking.

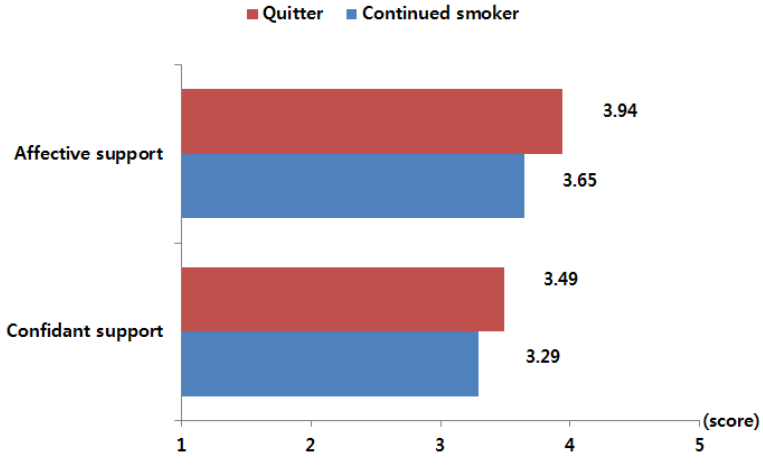
Among 493 participants who were smoking at the time of cancer diagnosis, 131(26.6%) continued to smoke at the time of survey.

Continued smokers assessed their levels of confidence and effective support to be lower than those of quitters.

In a multivariate logistic regression analysis, current alcohol consumption, early cancer stage, lung cancer diagnosis, and high perceived social support showed significant associations with smoki ng continuation.

Our study suggests that perceived social support may be an important factor for smoking cessation and maintenance of smoking cessation.

## Effects of Social Support on Cancer Patients (2012)




Source) Yang HK et al. Japanese Journal of Clinical Oncology 2013

## Stereotypes Associated with Cancer Patients

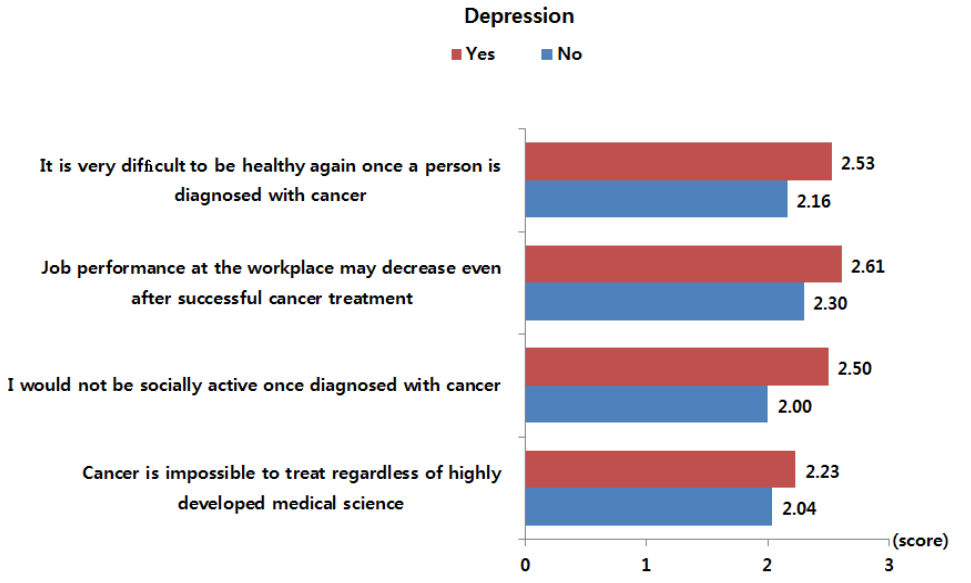
To evaluate the possible association between cancer stigma and depression among cancer patients, cancer stigma was assessed by using a set of 12 questions grouped in three domains; incurability, stereotypes about cancer patients, and experience of social discrimination.

A total of 466 cancer patients were included in the study. Over 30% of the study participants had negative attitudes toward cancer and held stereotypical views on themselves. About 10% of the participants had experienced social discrimination due to cancer, and 24.5% reported clinically significant depressive symptoms.

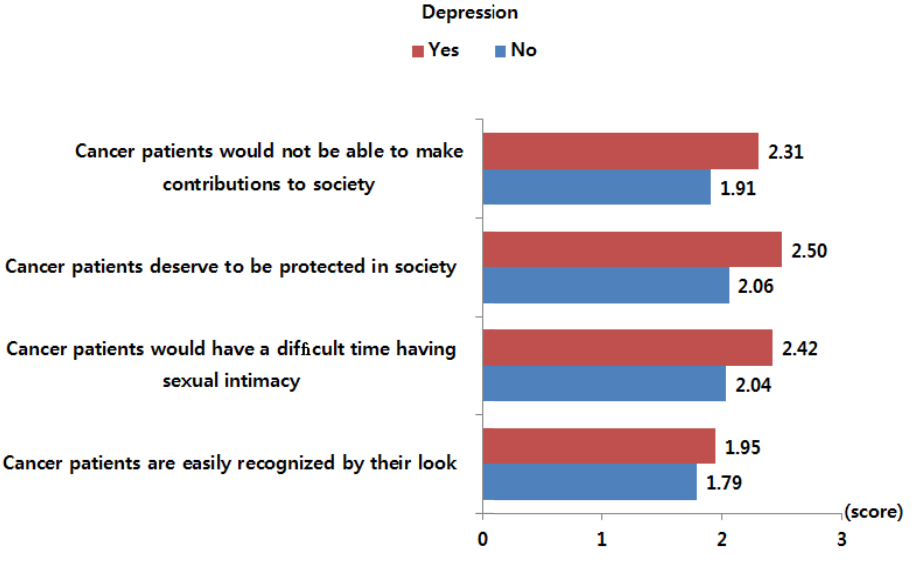
The biggest stereotype about cancer patients was that their 'Job performance at the workplace may decrease even after a successful cancer treatment', followed by 'Cancer is impossible to treat even with highly developed medical science'.

Patients who had experienced cancer stigma were 2.5 times more likely to develop depression than patients with positive attitudes.

## Cancer Patients' Sense of Incurability (2010)

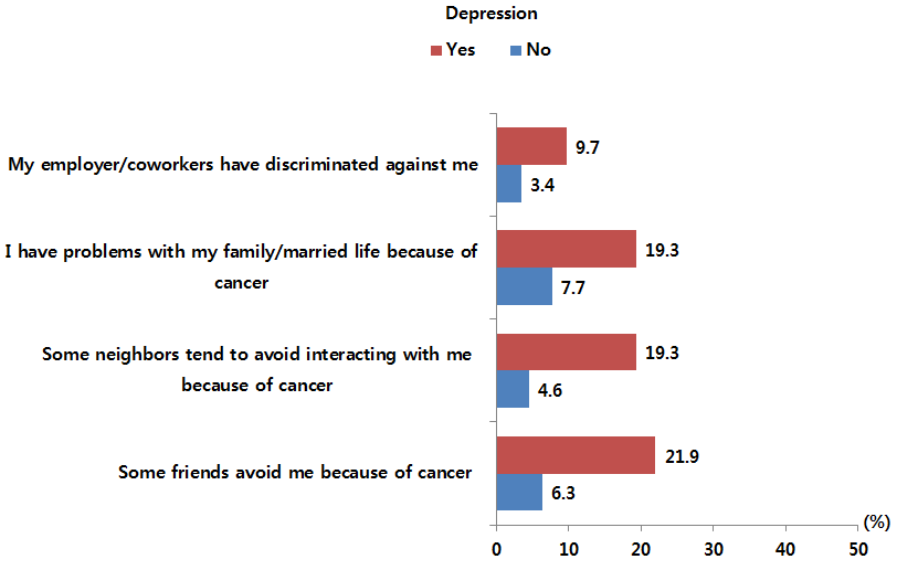



## Stereotypes Experienced by Cancer Patients (2010)




Source) Cho JH et al. Psycho-Oncology 2013

## Social Discrimination toward Cancer Patients (2010)




Source) Cho JH et al. Psycho-Oncology 2013

## Experience of Using Complementary and Alternative Medicine(CAM)

Cancer patients were analyzed for their use of complementary and alternative medicine (CAM) after cancer diagnosis.

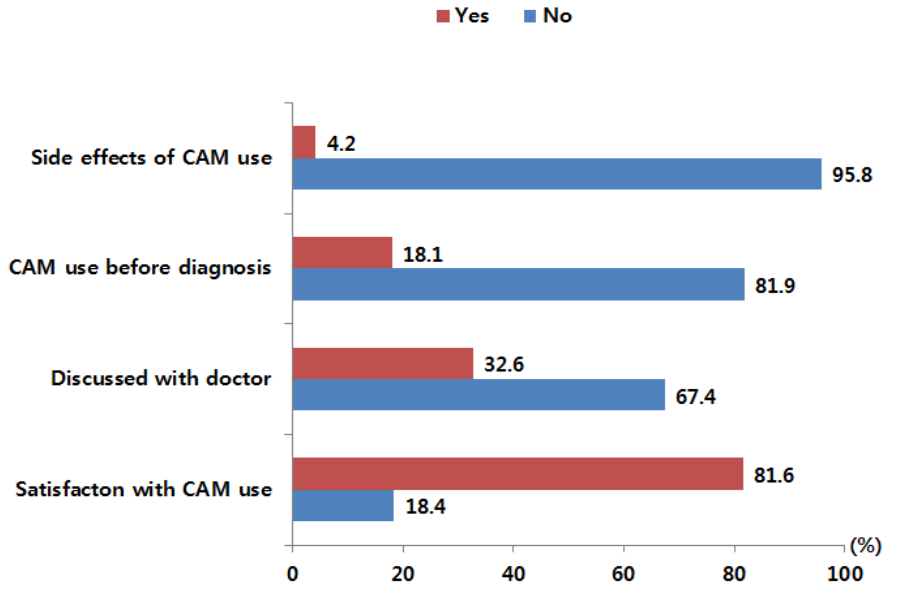
We found that 25.3% (674 of 2,661) had used CAM, whereas 38.3% (258 of 674) of those who had used CAM had discontinued CAM therapy. The most frequently used form of CAM was herbs (43.5%).

Major reasons for discontinuation of CAM included ineffectiveness (23.9%), financial burden (22.9%), and physician's opposition (13.7%).

Among those who experienced CAM, 18% reported they had used CAM before cancer diagnosis, and 32% had consulted an oncologist about CAM use. Most of the patients were satisfied with CAM use, and only 5% reported side effects of CAM.

Other factors associated with discontinuation of CAM included metastatic cancer, long duration of cancer treatment (more than five years), dissatisfaction, and side effects from CAM therapy.

## Experience of Using CAM




Source) Kim SY et al. Asian Pacific Journal of Cancer Prevention 2013

## Cancer Patients and Caregivers Making Decision about Treatment

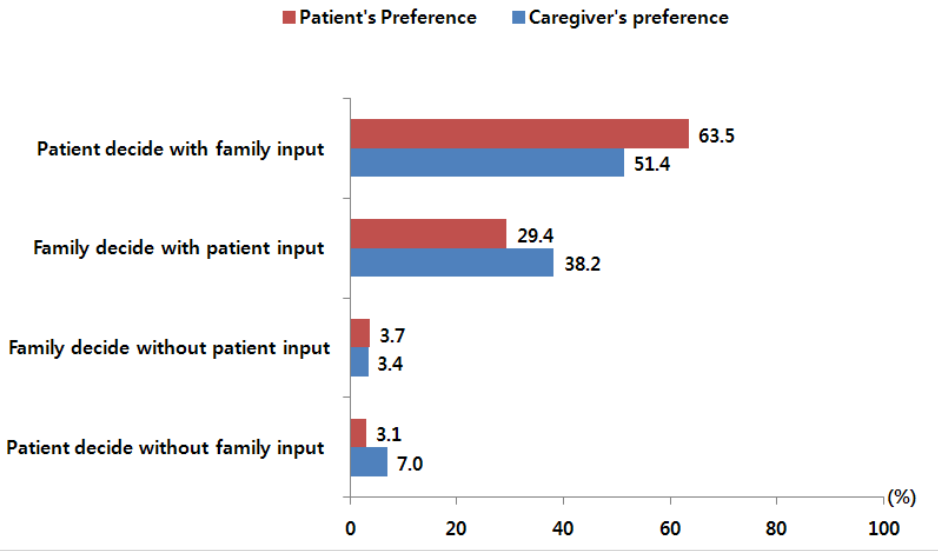
We looked into how patients and family caregivers felt about being involved in the decision-making process regarding cancer treatment.

A national survey was conducted with 990 patient–caregiver dyads. A majority of patients (63.5%) and about a half of caregivers (51.4%) expressed preference for allowing patients to make primary decisions on treatment with family input. A smaller percentage of patients (29.4%) and caregivers (38.2%) preferred family members to make primary decisions with patient input. Only a small proportion of patients and caregivers expressed preference for unilateral decision-making.

Patients with higher educational background showed preference for greater levels of decision-making concordance, whereas lower levels of concordance were evident in younger patients, less educated caregivers, dyads of a child patient and an adult caregiver (as opposed to a spouse–patient dyads), and families having difficulties talking about cancer.

Most patients and family caregivers valued and expected family involvement in treatment decision-making. However, there is little explicit agreement about which party in the dyad should take decisional leadership and who should play a supporting role.

## Treatment-Related Decision Making Roles of Cancer Patients and Caregivers (2012)




Source) Shin DW et al. Psycho-Oncology 2013

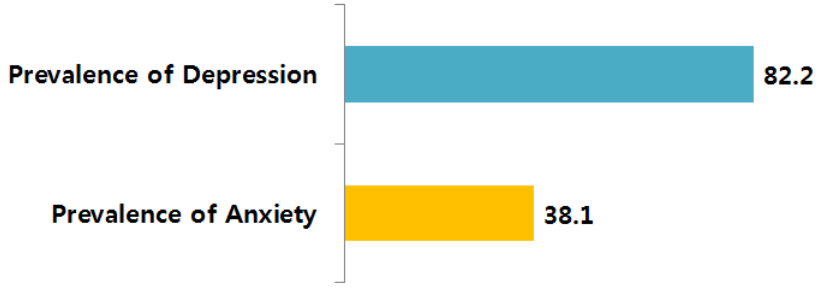
## Psychological Health of Caregivers

We identified the prevalence and predictors of anxiety and depression, as well as suicidal ideation and attempts of suicide among family caregivers of cancer patients in Korea.

The prevalence of anxiety in family caregivers was 38.1 %: 20.3 % reported mild anxiety, 13.3 % reported moderate anxiety, and 4.6% reported severe anxiety.

The prevalence of depression was 82.2%: 40.4% reported mild depression, 25.5% reported moderate depression, and 16.3% reported severe depression.

### Depression and Anxiety in Cancer Patients and Caregivers (2011)




Source) Park BY et al. Supportive Care in Cancer 2013

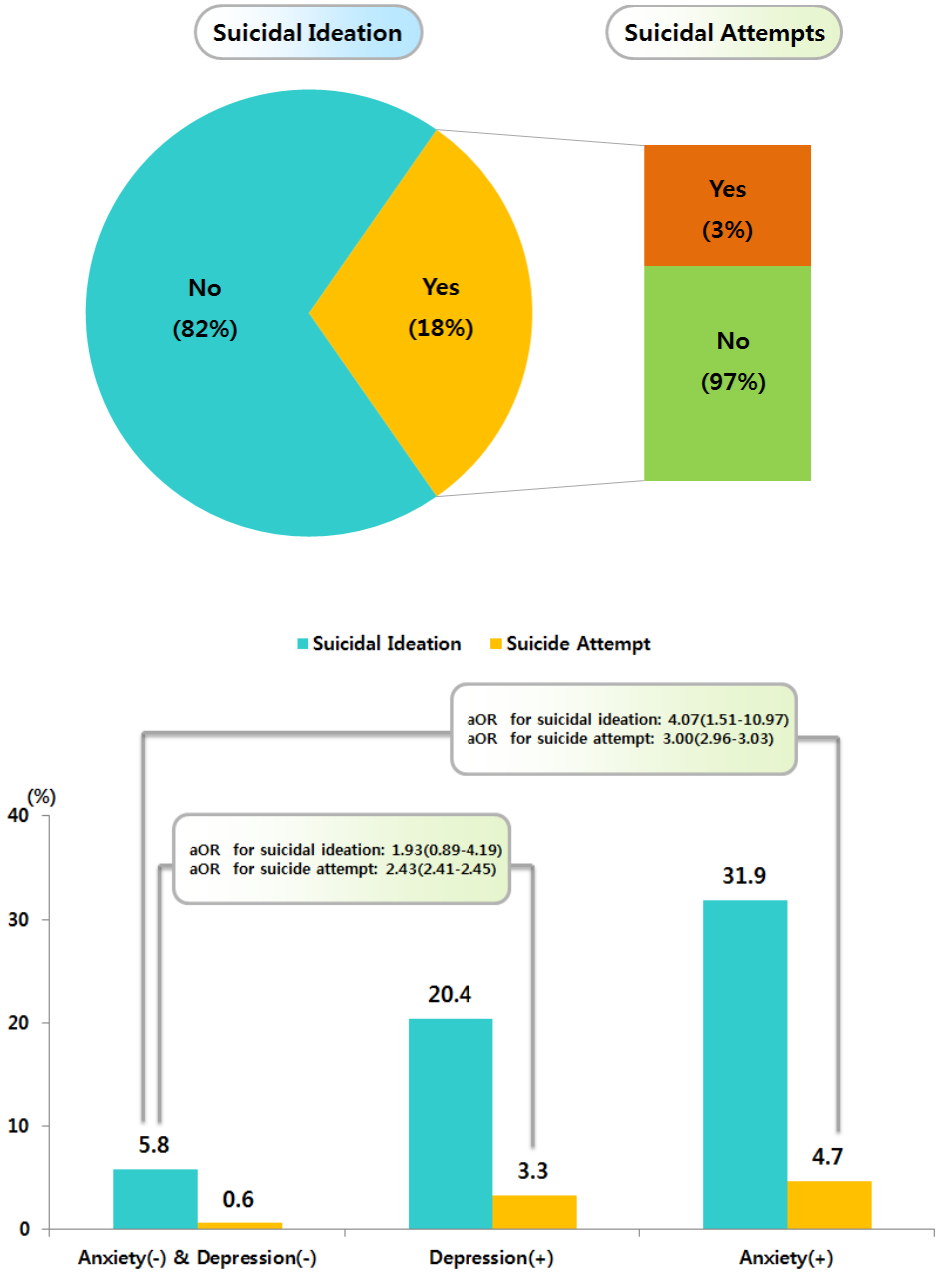
A total of 17.7% family caregivers reported suicidal ideation, and 2.8% had attempted suicide during the previous year.

Among family caregivers with anxiety, 31.9% had suicidal ideation and 4.7% attempted suicide; the corresponding values for family caregivers with depression were 20.4% and 3.3%, respectively.

Family caregivers with anxiety or depression showed higher adjusted odds ratios (aOR) for suicidal ideation than those without such symptoms.

Among family caregivers with anxiety or depression, females, unmarried individuals, individuals who were unemployed during caregiving, and those with a low quality of life with respect to financial matters were found to be have a high risk of suicide.

## Suicidal Ideation and Attempts by Cancer Patients and Caregivers (2011)




Source) Park BY et al. PLos One 2013

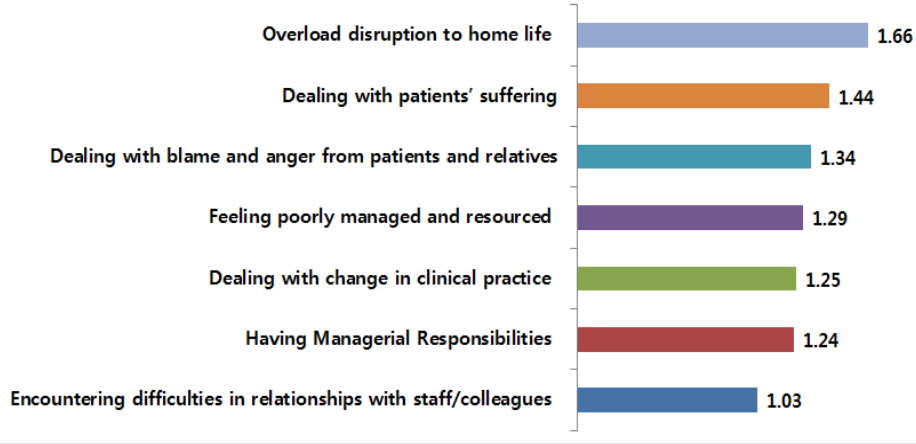
## Work-Related Stress and Satisfaction of Oncologists

In 2013, a survey was conducted among 680 oncologists working at the national and regional cancer centers to evaluate the levels of work-related stress and satisfaction based on a four-point scale (scores from zero to three).

Among the areas of work-related stress experienced by oncologists, 'Overload disruption to home life' scored highest with 1.66, indicating that it is the primary cause of stress.

Specific items receiving high scores included 'Having conflicting demands on your time(e.g., patient care/management/research /college: 1.89 points)', and 'Having a conflict of responsibilities (e.g., clinical vs. managerial; clinical vs. research: 1.88 points).'

Work-Related Stress of Oncologists (2013)




Source) National Cancer Center. Quality, Equity, and Coverage in Cancer Care, 2013

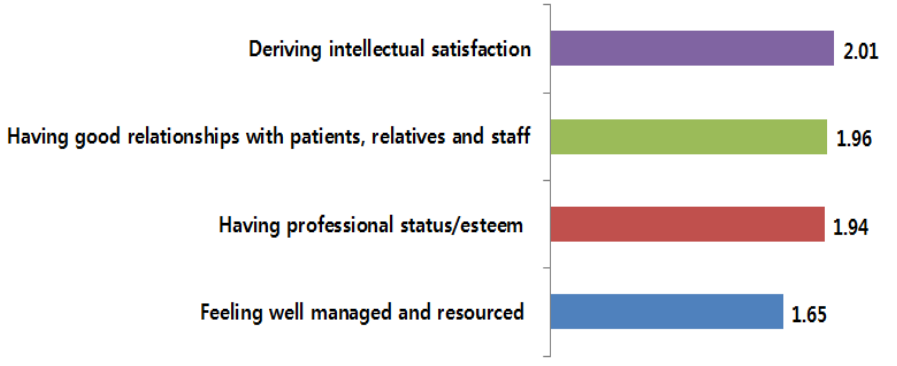
According to the survey results on the level of work-related satisfaction of oncologists, 'Deriving intellectual stimulation from teaching' was the area with highest satisfaction (2.01 points), while 'Feeling well managed and resourced' had the lowest score of 1.65.

Specific items that received high scores included 'Being an expert in a specialist area' (2.3 points) and 'Having good relationships with patients' (2.08 points). On the other hand, 'Feeling you have adequate financial resources to do a good job' scored the lowest (1.23 points).

Analyzing the survey results on work satisfaction, men on average experienced less stress and showed a higher level of work satisfaction than women. Individuals who are older, earning higher income, and displaying higher satisfaction with their income level were shown to have less stress and higher satisfaction about their work. On the other hand, longer night shifts and weekly treatment hours tended to increase work stress and reduce work satisfaction.

In terms of overall levels of work stress and satisfaction, the average work stress score was 2.12 and the average satisfaction score was 2.72.

## Work Satisfaction of Oncologists




Source) National Cancer Center. Quality, Equity, and Coverage in Cancer Care, 2013

## Public Perception of Cancer-Related Issues

We asked the public about their perception about the quality of cancer treatment, satisfaction about cancer policy and their perspectives on cancer patients.

The target population was men and women 40-70 years old who had never been diagnosed with cancer.

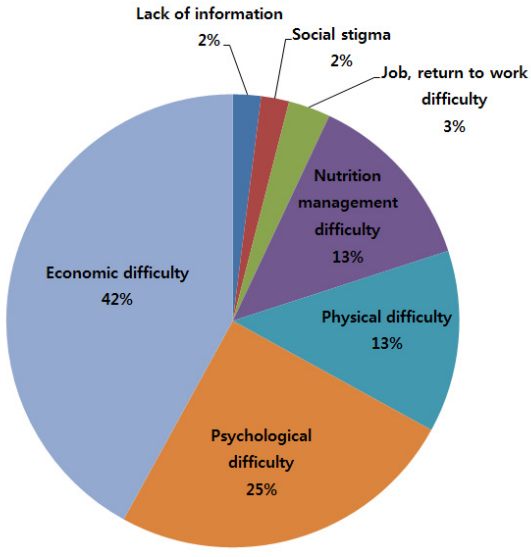
We surveyed 2,000 households throughout Korea in 2012.

The general perception about the difficulties facing cancer patients was 'Financial difficulty' (42%), followed by 'Emotional difficulty' (25%), 'Physical difficulty' (13%).

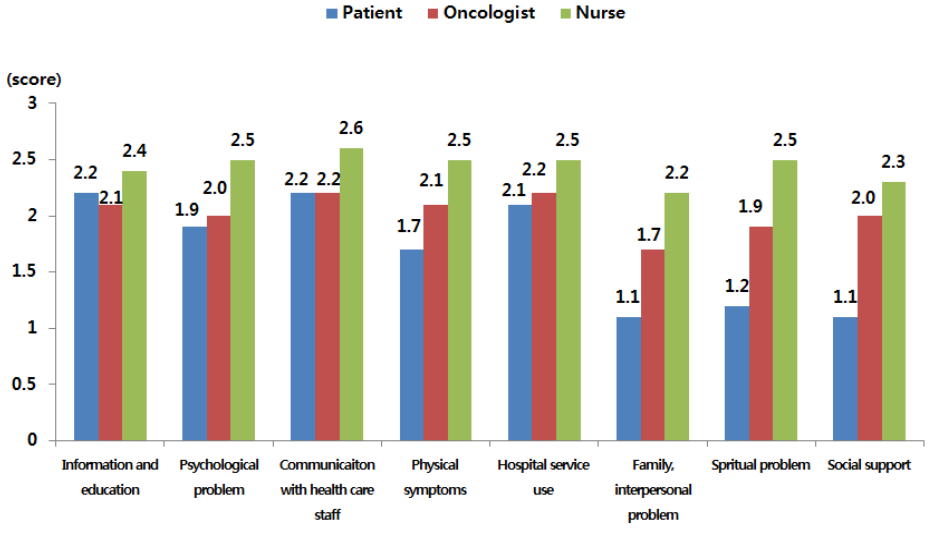
When we asked a similar question to cancer patients and medical providers, such as oncologists and nurses, regarding the most important service for cancer patients, cancer patients said 'Information about financial support for medical expenses from government' was most important, while medical providers thought 'Communication with the hospital staff' was.

The general public sympathized with cancer patients' hardship, not only physical challenges, but also emotional, social, and financial difficulties.

## Public Opinion Regarding Difficulties Facing Cancer Patients (2012)




## Opinions of Cancer Patients and Oncologists Regarding Services Important to Cancer Patients (2012)



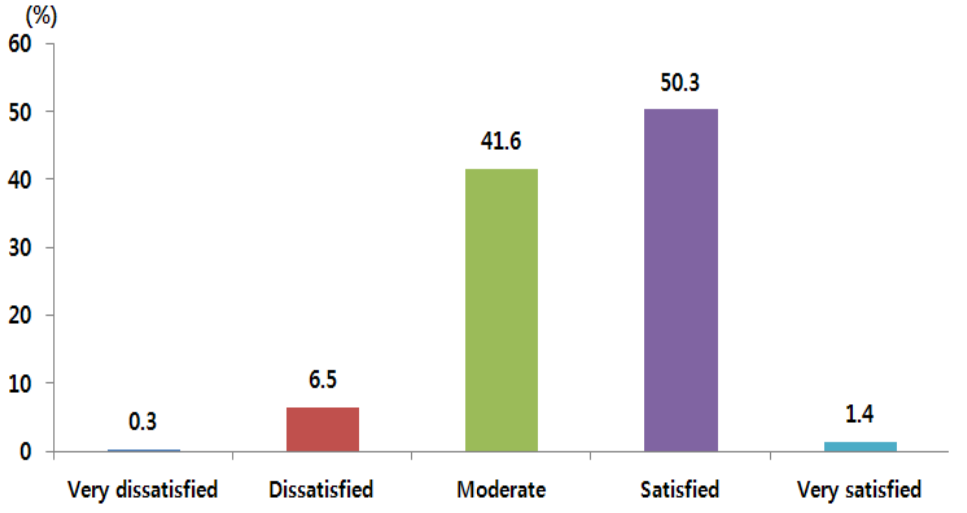

Source) National Cancer Center. Quality, Equity, and Coverage in Cancer Care, 2013

## Public's Satisfaction on Cancer Care Quality and Cancer-Related Policy

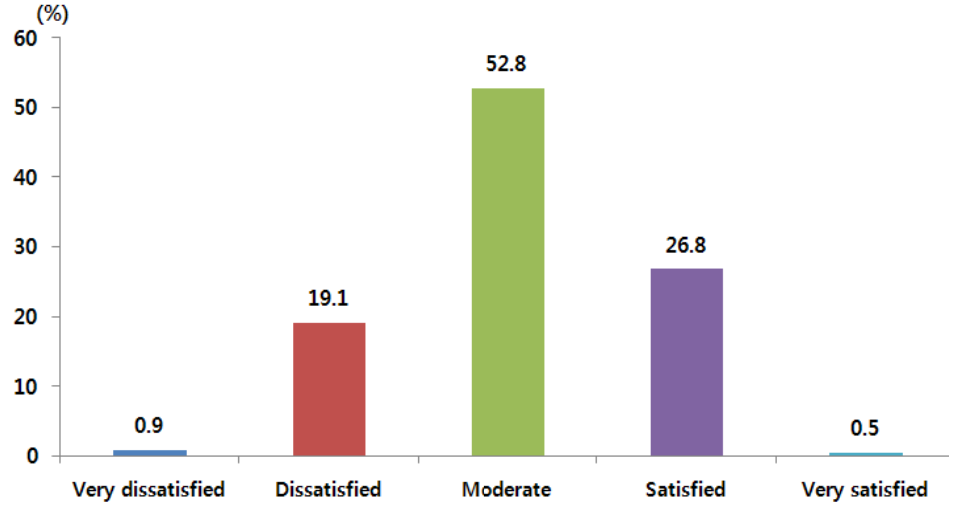
Regarding the overall quality of cancer care, including therapeutic techniques and cancer survival rate, half of the public were satisfied, 41% felt that the level of quality was average, and only 6% were dissatisfied.

26% of the public were satisfied with cancer policies, including cancer screening, benefits, and financial subsidies. About half said moderate satisfaction with cancer-related policies.

## Satisfaction on Overall Level of Cancer Care (2012)



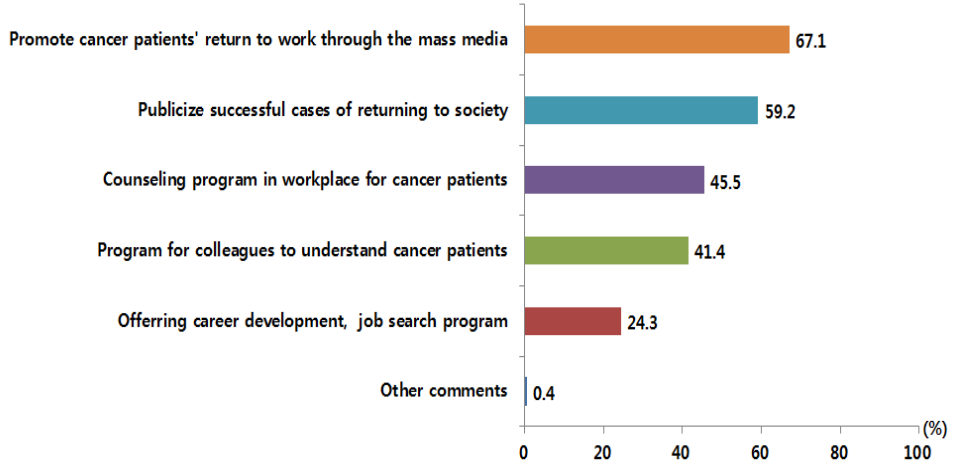

## Satisfaction on Overall Policy on Cancer Patients (2012)



## Public Opinion on Improving Cancer Patients' Return to Society

For helping cancer patients return to society after treatment, the public thought the most effective way is to 'Promote cancer patients' return to work through the mass media' (67%), followed by 'Publicize successful cases of returning to society' (60%).

### Requirements for Improving Awareness of Cancer Patients' Return to Society (2012)




Source) National Cancer Center. Quality, Equity, and Coverage in Cancer Care, 2013

# 5.5 Regional Cancer Center

## Locations of Regional Cancer Centers

Regional cancer centers have been implemented to alleviate the symptoms of cancer patients in the provinces, to reverse the relevant infrastructures' tendency to concentrate on Seoul, and to establish a regional cancer control system in accordance with the National Cancer Control Programs.

Between 2004 and 2006, nine national university hospitals in provincial areas were designated as the comprehensive Regional Cancer Centers (RCCs). In 2011, three private university hospitals were selected as specialized RCCs. As of 2015, 12 RCCs are in operation.

- 2004: Jeonnam (Chonnam National Univ. Hwasun Hospital),
  Jeonbuk (Chonbuk National Univ. Hospital),
  Gyeongnam (Gyeongsang National Univ. Hospital)
- 2005: Busan (Pusan National Univ. Hospital),
  Daejeon (Chungnam National Univ. Hospital),
  Daegu/Gyeongbuk (Kyungpook National Univ. Medical Center)
- 2006: Gangwon (Kangwon National Univ. Hospital),
  Chungbuk (Chungbuk National Univ. Hospital),
  Jeju (Jeju National Univ. Hospital)
- 2011: Incheon (Gachon Univ. Gil Medical Center),
  Gyeonggi (Ajou Univ. Hospital),
  Ulsan (Ulsan Univ. Hospital)

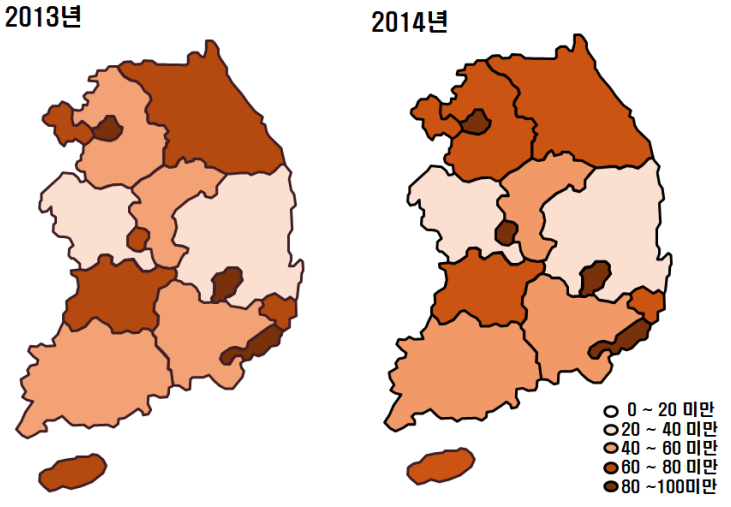
## Regional Cancer Centers in Korea


Source) National Cancer Center, 2016

## Self-Sufficiency of Cancer Patients[13)]

Self-sufficiency of cancer patients refers to the proportion of the visits cancer patients made to medical institutions in their area of residence. It is an indicator of the pattern of outflow of medical service at the regional level. The monitoring of self-sufficiency began in 2010.

### Self-Sufficiency of Cancer Patients[14)]




13) Self-sufficiency: The proportion of the visits cancer patients made to medical institutions in their residence area (relevance index (RI): Ratio using the local medical facilities of the medical usage of local residents)

14) NHIS's Registry data of Health Insurance Benefits(2014)

According to the data calculated based on the NHIS's Registry Data of Health Insurance Benefits, the level of self-sufficiency was highest in Daegu in 2014, and a similar trend was observed in recent years. Meanwhile, Gyeongbuk had the lowest level.

Comparing the trends in self-sufficiency levels of 16 cities. and provinces in the country between 2013 and 2014, Gyeongnam's level increased the most (0.18%), followed by Ulsan (0.17%) and Daejeon (0.16%). In the same period, All cities are increased in self-sufficiency levels.

## Trend in Self-Sufficiency Levels in 16 Cities (2013-2014)[15)]

(Unit : %)

| Region | Overall | | |
|---|---|---|---|
| | 2013(A) | 2014(B) | Change in self-sufficiency*(%p) |
| Seoul | 87.1 | 92.5 | 6.2 |
| Busan | 76.4 | 85.2 | 11.5 |
| Chungbuk | 44.1 | 50.2 | 13.8 |
| Chungnam | 34.6 | 37.7 | 9.0 |
| Daegu | 81.7 | 91.4 | 11.9 |
| Daejeon | 70.8 | 82 | 15.8 |
| Gangwon | 58.1 | 64.3 | 10.7 |
| Gwangju | 55.6 | 58.8 | 5.8 |
| Gyeongbuk | 28.4 | 32.4 | 14.1 |
| Gyeonggi | 55.2 | 61.5 | 11.4 |
| Gyeongnam | 45.3 | 53.5 | 18.1 |
| Incheon | 62.9 | 69.9 | 11.1 |
| Jeju | 69.8 | 79 | 13.2 |
| Jeonbuk | 64.6 | 73.2 | 13.3 |
| Jeonnam | 49.5 | 54.7 | 10.5 |
| Ulsan | 61.2 | 71.9 | 17.5 |

$$*_{Change \in self-sufficiency level(\%)} = \frac{(self-sufficiency \in 2013) - (self-sufficiency \in 2012)}{self-sufficiency \in 2012} \times 100$$

15) NHIS's Registry Data of Health Insurance Benefits (2013, 2014)

# Chapter 6.
# Palliative Care

# 6.1 Status of Palliative Care Institutions

## Current Status of Palliative Care Institutions

To expand the services of palliative care for terminal cancer patients, the Ministry of Health and Welfare enacted the Notification of Palliative Care Institution Designation Standards in September 2008, and by 2015, 66 palliative care institutions had been established. Since 2005, the Ministry of Health and Welfare has invited public palliative care institutions to be subsidized for their operating expenses.

### Current Status of Palliative Care Institutions (2015)

| Section | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 |
|---|---|---|---|---|---|---|---|---|
| Designated institutions | 19 | 40 | 42 | 46 | 56 | 54 | 57 | 66* |
| Beds | 282 | 633 | 675 | 755 | 893 | 867 | 950 | 1100 |

*As of December 2015

Source) National Cancer Center, 2015

## Designated Palliative Care Institutions (2015)

| No. | Region | Name |
|---|---|---|
| 1 | Seoul | Seoul St. Mary's Hospital |
| 2 | | St. Paul's Hospital |
| 3 | | Korea Univ. Guro Hospital |
| 4 | | National Medical Center |
| 5 | | Seoul Dongbu Hospital |
| 6 | | Seoul Bukbu Hospital |
| 7 | | Seoul Seonam hospital |
| 8 | | Seoul Seobuk Hospital |
| 9 | | Seoul Medical Center |
| 10 | | Jeonjinsang Clinic |
| 11 | | Jung-Ang Veterans Hospital |
| 12 | | Korea Cancer Center Hospital |
| 13 | Busan | Dongnae St.Mary's Hospital |
| 14 | | Busan St. Mary's Hospital |
| 15 | | Busan Regional Cancer Center |
| 16 | | Busan Veterans Hospital |
| 17 | Daegu | Keimyung Univ. Dongsan Medical Center |
| 18 | | Daegu Catholic Univ. Medical Center |
| 19 | | Daegu·Gyeongbuk Regional Cancer Center |
| 20 | | Daegu Veterans Hospital |
| 21 | | Daegu Veterans Hospital |
| 22 | | Daegu Fatima Hospital |
| 23 | Daejeon | Daejeon St. Mary's Hospital |
| 24 | | Daejeon Veterans Hospital |
| 25 | | Daejeon Regional Cancer Center |
| 26 | Gwangju | Gwangju Christian Hospital |
| 27 | | Gwangju Veterans Hospital |
| 28 | | St. John of God Hospital |
| 29 | Incheon | Catholic KwanDong Univ.International St. Mary's Hospital |
| 30 | | Catholic Univ.of Korea Incheon St. Mary's Hospital |
| 31 | | Inchon Regional Cancer Center |
| 32 | | Inha University Hospital |
| 33 | Ulsan | Ulsan Regional Cancer Center |

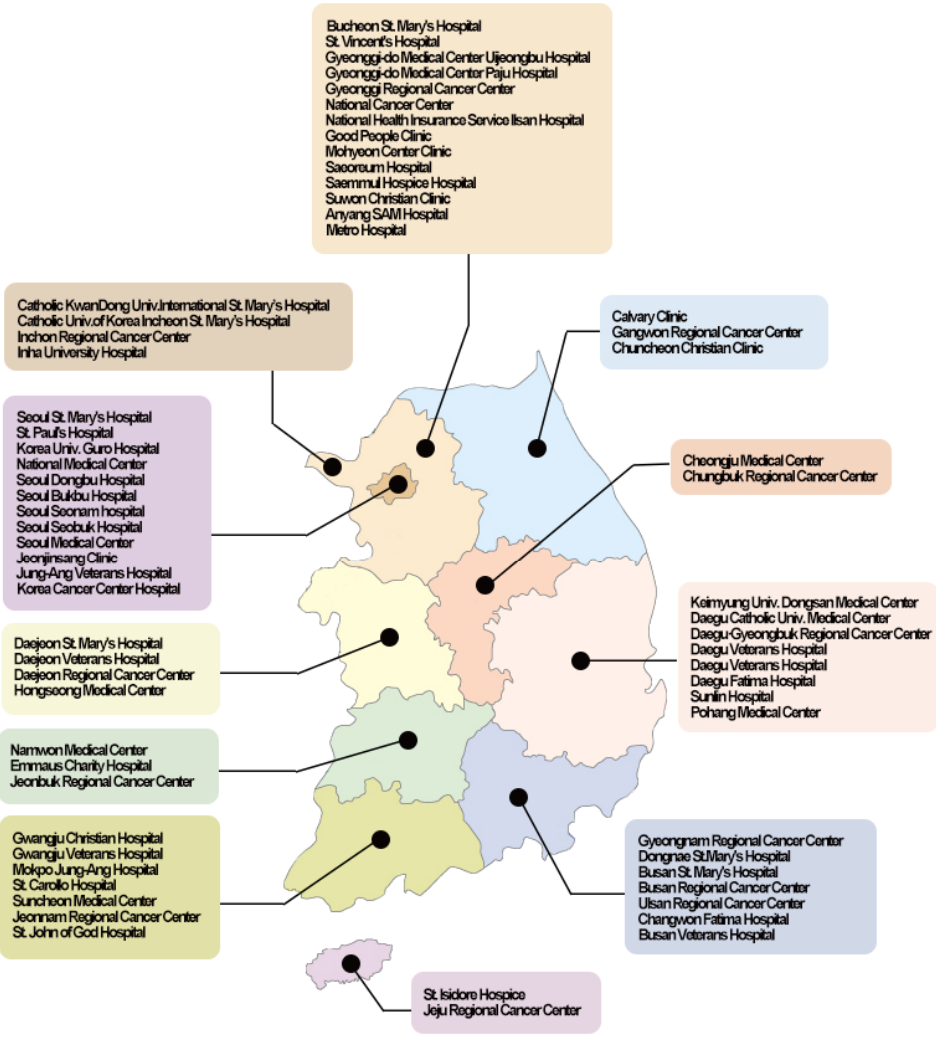
## Designated Palliative Care Institutions (2015)

| No. | Region | Name |
|---|---|---|
| 34 | Gyeonggi | Bucheon St. Mary's Hospital |
| 35 | | St. Vincent's Hospital |
| 36 | | Gyeonggi-do Medical Center Uijeongbu Hospital |
| 37 | | Gyeonggi-do Medical Center Paju Hospital |
| 38 | | Gyeonggi Regional Cancer Center |
| 39 | | National Cancer Center |
| 40 | | National Health Insurance Service Ilsan Hospital |
| 41 | | Good People Clinic |
| 42 | | Mohyeon Center Clinic |
| 43 | | Saeoreum Hospital |
| 44 | | Saemmul Hospice Hospital |
| 45 | | Suwon Christian Clinic |
| 46 | | Anyang SAM Hospital |
| 47 | | Metro Hospital |
| 48 | Gangwon | Calvary Clinic |
| 49 | | Gangwon Regional Cancer Center |
| 50 | | Chuncheon Christian Clinic |
| 51 | Chungbuk | Cheongju Medical Center |
| 52 | | Chungbuk Regional Cancer Center |
| 53 | Chungnam | Hongseong Medical Center |
| 54 | Jeonbuk | Namwon Medical Center |
| 55 | | Emmaus Charity Hospital |
| 56 | | Jeonbuk Regional Cancer Center |
| 57 | Jeonnam | Mokpo Jung-Ang Hospital |
| 58 | | St. Carollo Hospital |
| 59 | | Suncheon Medical Center |
| 60 | | Jeonnam Regional Cancer Center |
| 61 | Gyeongbuk | Sunlin Hospital |
| 62 | | Pohang Medical Center |
| 63 | Gyeonnam | Gyeongnam Regional Cancer Center |
| 64 | | Changwon Fatima Hospital |
| 65 | Jeju | St. Isidore Hospice |
| 66 | | Jeju Regional Cancer Center |

* Designated Palliative Care Institutions in 2015

Source) National Cancer Center, 2015

## Designated Palliative Care Institutions (2015)



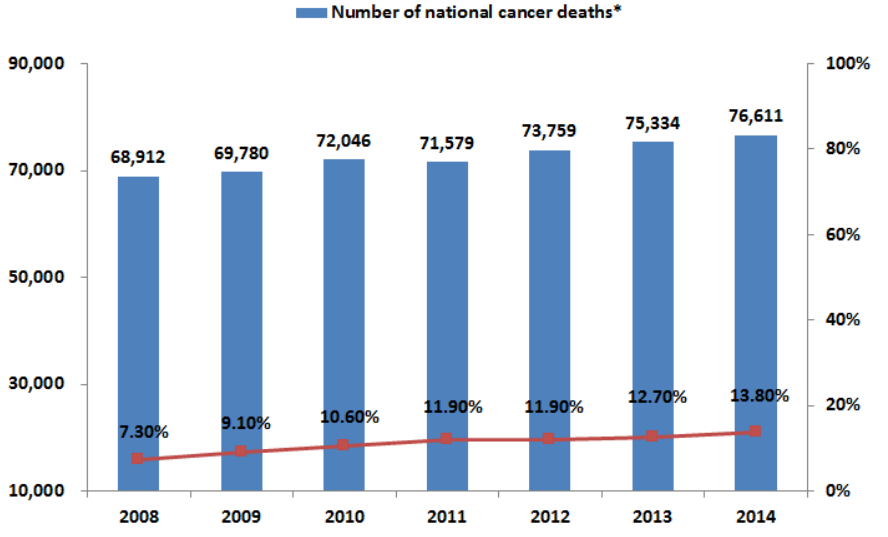

* 66 Palliative Care Institutions are designed in 2015

Source) National Cancer Center, 2015

## Utilization of Palliative Care Institution

In 2014, 10,559 cancer patients used 57 palliative care institutions. Among those who died from cancer, 13.8% had used palliative care institutions.

### Utilization of Palliative Care Service (2008-2014)




| Year | New inpatients* | Number of national cancer deaths** | Rate of Palliative Care Service Utilization*** |
|---|---|---|---|
| 2008 | 5,046 | 68,912 | 7.3% |
| 2009 | 6,365 | 69,780 | 9.1% |
| 2010 | 7,654 | 72,046 | 10.6% |
| 2011 | 8,494 | 71,579 | 11.9% |
| 2012 | 8,742 | 73,759 | 11.9% |
| 2013 | 9,573 | 75,334 | 12.7% |
| 2014 | 10,559 | 76,611 | 13.8% |

* Source) Palliative care practice status of application, 2009-2015

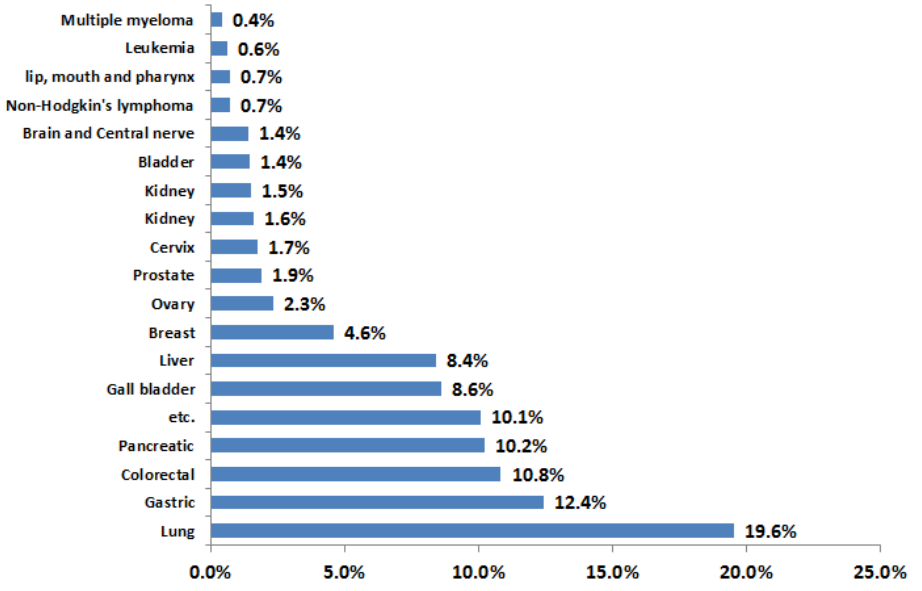
** Source) STATISTICS KOREA. Annual report on the cause of death statistics, 2008-2014

*** (Number of new inpatients / number of national cancer deaths) x 100

Source) National Cancer Center, Support for activation of palliative care service, 2015

In 2015, 11,462 cancer patients used palliative care institutions. According to the types of cancer, the number of lung cancer patients was the highest (2,241, 19.6%), followed by gastric cancer (1,426, 12.4%), colorectal cancer (1,242, 10.8%), pancreatic cancer (1,170, 10.2%), and gall bladder cancer (988, 8.6%).

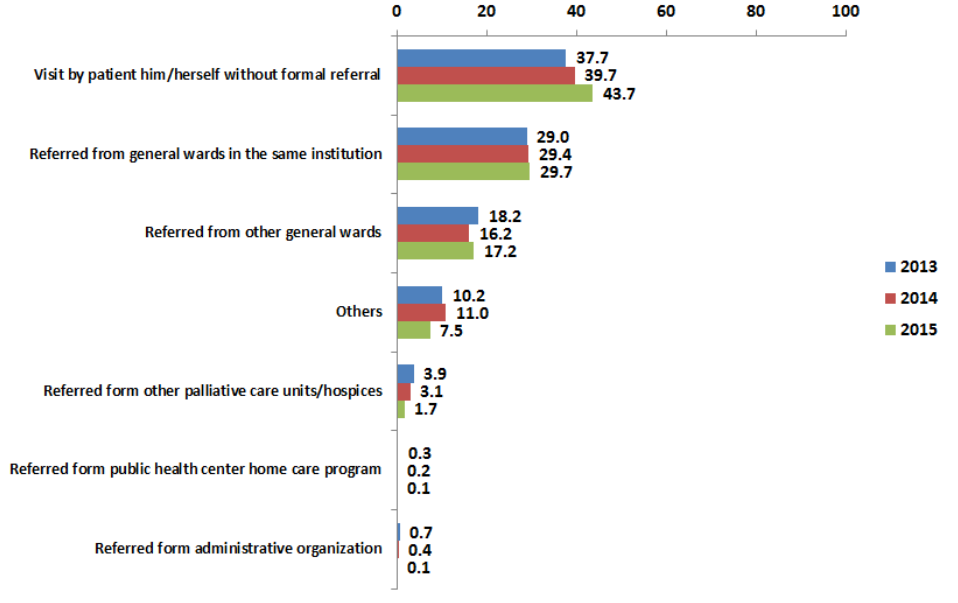
Use of Hospice and Palliative Care Services by Types of Cancer (2015)




Source) National Cancer Center. Support for activation of palliative care service, 2015

As for admission routes of patients who used palliative care institutions in 2015, the highest number of patients visited the institution without formal referral (4,690, 43.7%), followed by patients who were referred from the general wards in the same health institution (3,184, 29.7%), and from other health institutions or wards (1,850, 17.2%).

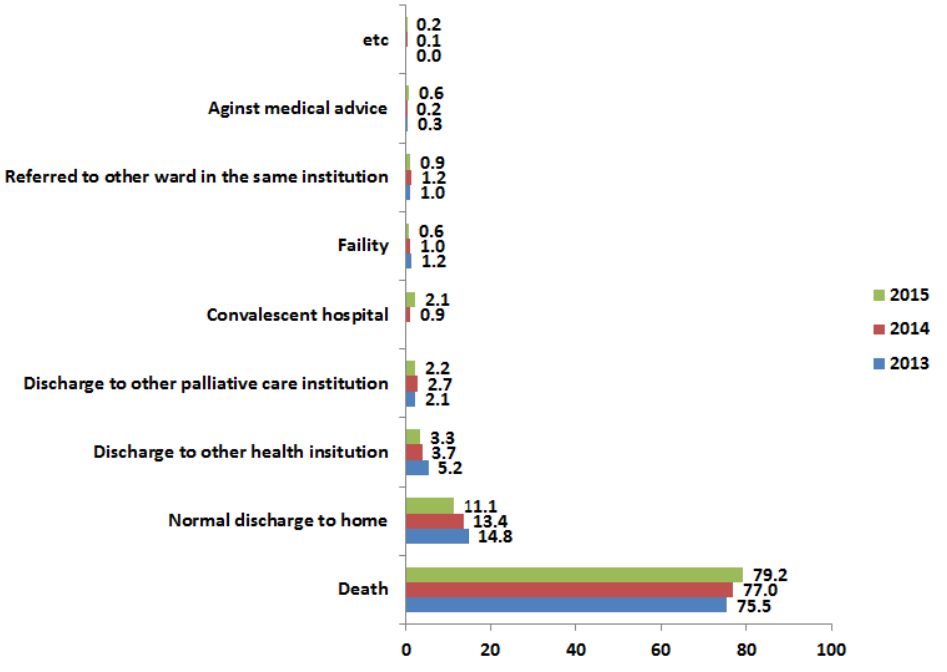
## Admission Routes to Palliative Care Institutions (2013-2015)




Source) National Cancer Center. Support for activation of palliative care service, 2015

The most common reason for discharge from initial admission was death (8,289, 79.2%), followed by discharge to home (1,157, 11.1%), and discharge to another health institution (343, 3.3%).

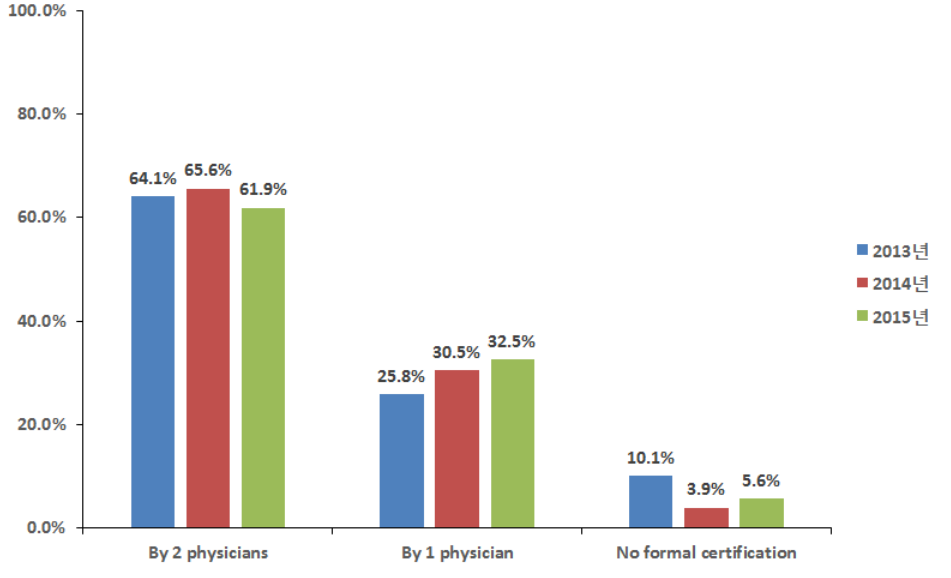
Reasons for Discharge from Palliative Care Institution (2013-2015)




Source) National Cancer Center. Support for activation of palliative care service, 2015

Regarding the status of terminal diagnosis or physician's note, 7,091 patients (61.9%) were diagnosed by two or more physicians, 3,726 (32.5%) were diagnosed by one physician, and 646 (5.6%) did not receive a diagnosis.

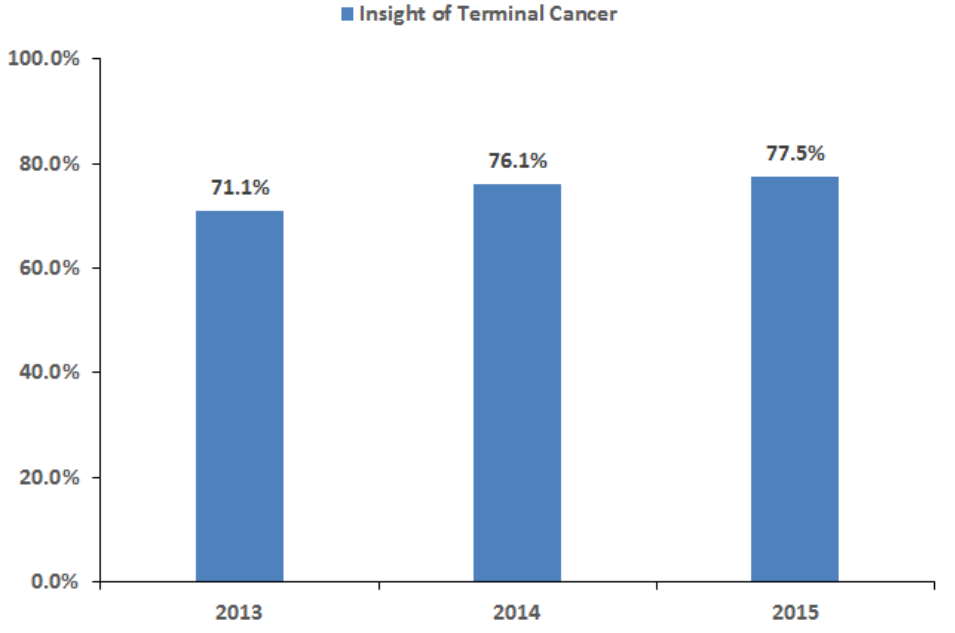
## Status of Terminal Cancer Diagnosis (2013-2015)




Source) National Cancer Center. Support for activation of palliative care service, 2015

Patients' awareness of terminal cancer changed from 76.1% in 2014 to 77.5% in 2015, implying that the level of awareness is still insufficient.

## Awareness of Terminal Cancer (2013-2015)

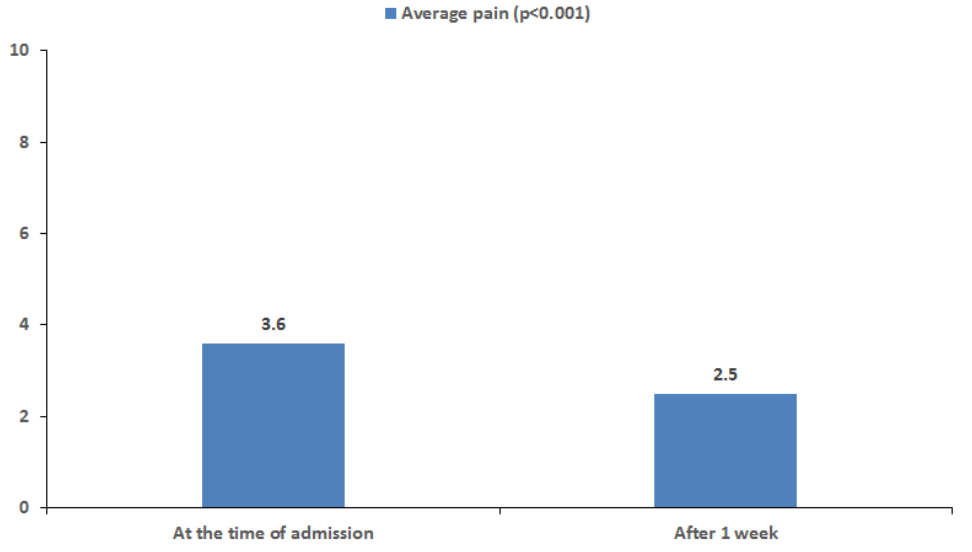



Source) National Cancer Center. Support for activation of palliative care service, 2015

## Improvement of Pain Conditions at Palliative Care Institutions

Average level of pain after a week of admission to palliative care institutions declined from 3.6 to 2.5.

Improvement of Pain Condition after 1 Week at Palliative Care Institution




Source) National Cancer Center. Support for activation of palliative care service, 2015

## Overall Satisfaction of Bereaved Family Using Palliative Care Institutions

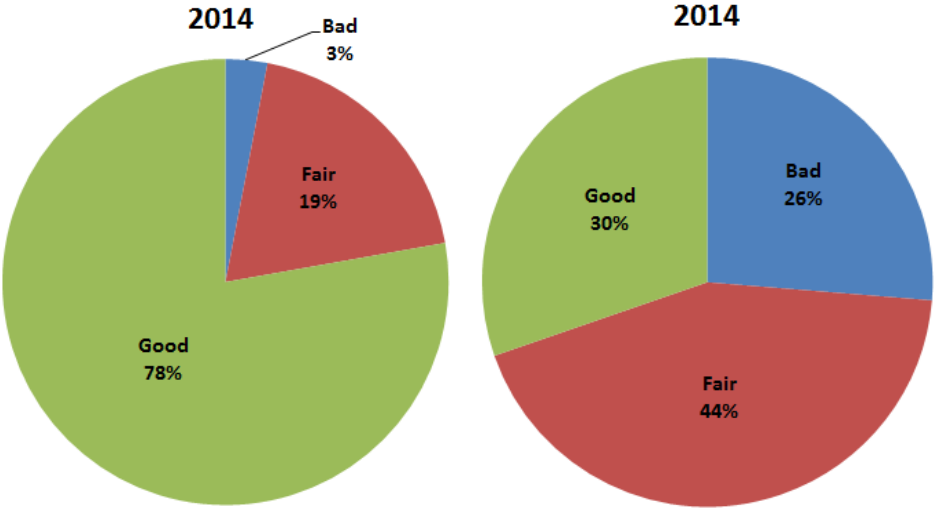
1. Purpose of the survey

To assess the overall satisfaction of bereaved families how had used palliative care institutions regarding the service quality and general experience.

2. Details and results

In 2014, 30% of patients said that they were satisfied with cancer centers they had previously used. In comparison, 78% of patients said they were satisfied with palliative care institutions.

### Satisfaction with Palliative Care Institution




Source) National Cancer Center. Support for activation of palliative care service, 2015

## Assessment of End-of-life

According to the result of a survey on the satisfaction of patients who used palliative care institutions, more than 70% of the respondents were satisfied with the physicians and palliative care teams in terms of their proper handling, expert knowledge, skill, and teamwork. Non-waiting hospitalization received the lowest level of satisfaction (65.1%).

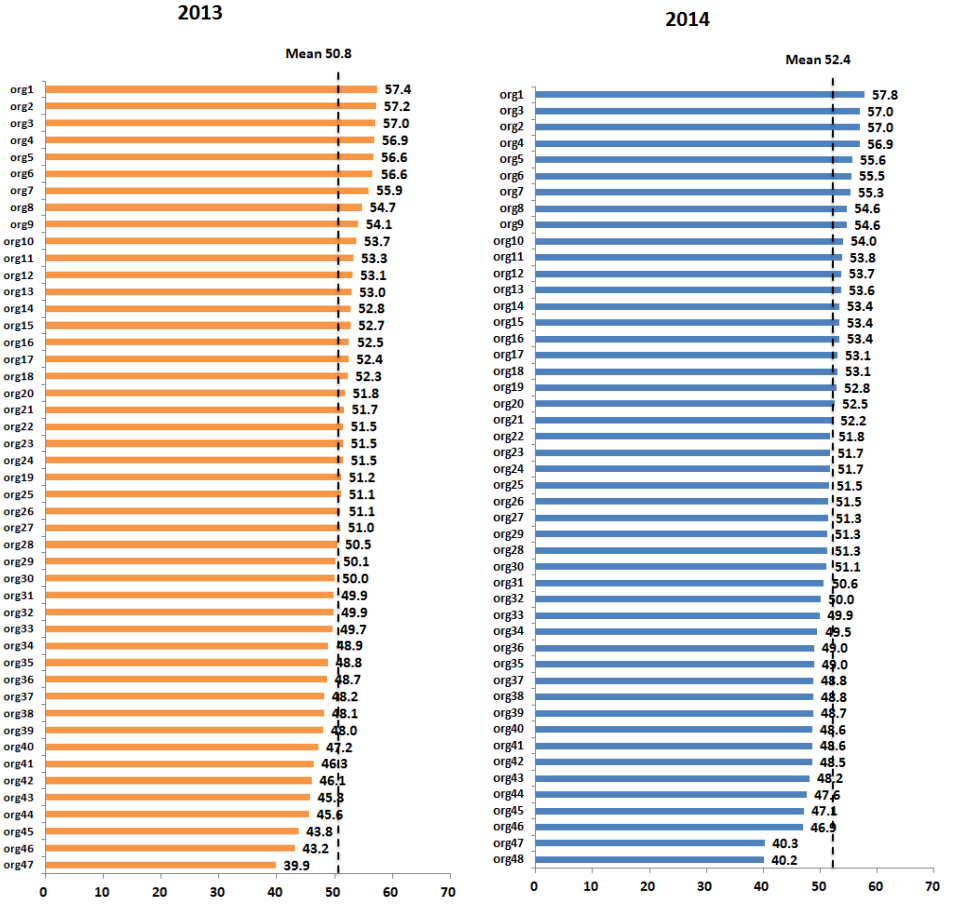
### Assessment of End-of-life

| | 2012 | | 2013 | | 2014 | | P-value |
|---|---|---|---|---|---|---|---|
| | Mean | S.D. | Mean | S.D. | Mean | S.D. | |
| 1) Physician's swift action | 75.0 | 19.7 | 74.8 | 19.7 | 74.7 | 19.5 | 0.9270 |
| 2) Nurse's expert knowledge and skill | 75.7 | 19.2 | 76.5 | 19.5 | 76.9 | 18.7 | 0.3783 |
| 3) Palliative care team's effort to meet patient's needs | 77.4 | 18.7 | 77.8 | 20.5 | 77.2 | 19.3 | 0.7573 |
| 4) Physician's explanation to patient | 70.6 | 22.9 | 71.0 | 23.5 | 71.7 | 22.6 | 0.5305 |
| 5) Physician's explanation to patient's family | 77.1 | 21.3 | 76.6 | 21.2 | 77.7 | 21.5 | 0.5124 |
| 6) Convenient and pleasant facility | 71.5 | 22.5 | 72.5 | 23.4 | 73.5 | 22.8 | 0.1251 |
| 7) Consideration for maintaining health | 68.0 | 22.6 | 69.6 | 23.0 | 71.1 | 22.0 | 0.0049 |
| 8) Reasonable cost | 73.3 | 21.8 | 73.4 | 21.1 | 74.9 | 20.7 | 0.1712 |
| 9) Non-waiting hospitalization | 63.6 | 25.8 | 63.0 | 26.6 | 65.1 | 25.6 | 0.1562 |
| 10) Palliative care teamwork | 75.1 | 20.3 | 75.8 | 20.3 | 76.6 | 19.2 | 0.2112 |
| 11) Social worker's offer proper advice or service to patient and patient's family | . | . | . | . | 73.8 | 22.4 | . |

Measurement tool: (Care Evaluation Scale) short version with 11 items
and 6-point scale : 0 (Strongly Disagree) – 20 (Disagree) – 40 (Slightly Disagree)
– 60 (Slightly Agree) - 80 (Agree) – 100 (Strongly Agree)

The end-of-life quality score varied significantly among palliative care institutions from 39.9 to 57.4 ($p<0.001$) in 2013, and from 40.2 to 57.8 ($p<0.001$) in 2014.

## Assessment of End-of-life




* The end-of-life quality score: GDI 1-10 sum of score, 0-70

※Average end-of-life quality score among all institutions: 50.8 (2013), 52.4 (2014)

※Excludes institutions with less than 5 available answers

Source) National Cancer Center. Support for activation of palliative care service, 2015

# 6.3 Training Status of Palliative Care Manpower

## Current Status of Palliative Care Manpower Training

The standard training program has developed from 2006 to 2008 and had pilot test in late 2008. It has operated around palliative care institutes and local cancer centers from 2009 with e-learning program which has started from 2011.

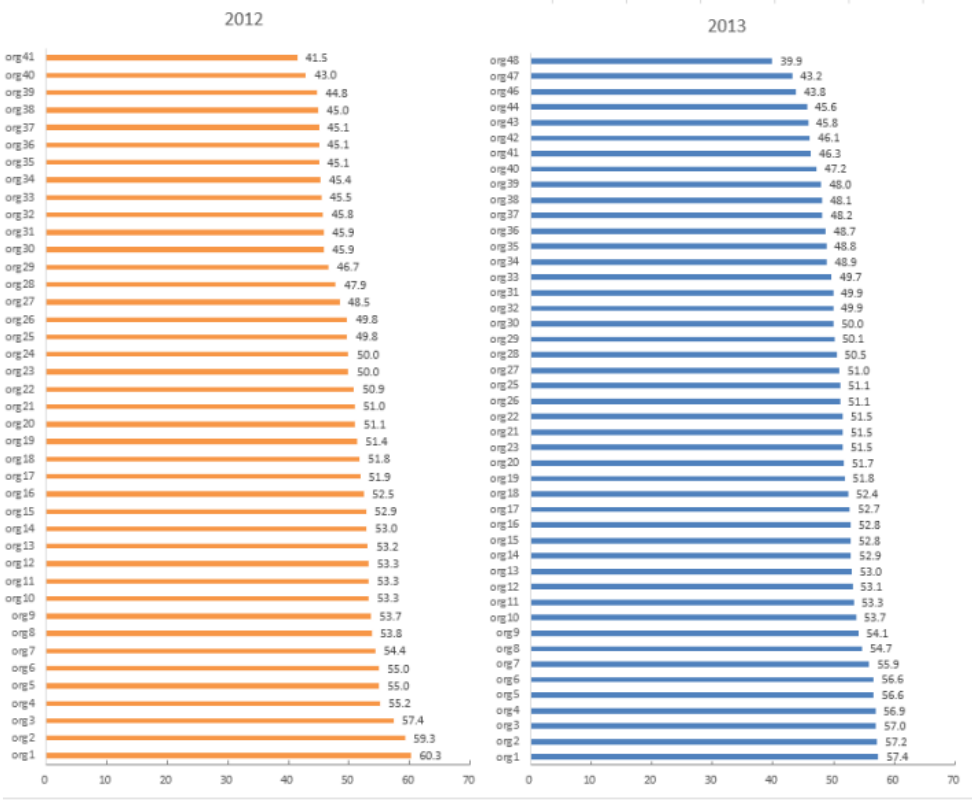
### Status of Palliative Care Manpower Training

| | | 2013 | 2014 | 2015 | Total |
|---|---|---|---|---|---|
| | | Number of completion | | | |
| Standard training | Doctor | 45 | 48 | 81 | 174 |
| | Nurse | 148 | 209 | 248 | 605 |
| | Social worker | 53 | 36 | 52 | 141 |
| | Priest | 27 | 30 | 31 | 88 |
| | Other | 55 | 81 | 43 | 179 |
| e-Learning | Doctor | 59 | 97 | 157 | 313 |
| | Nurse | 152 | 179 | 449 | 780 |
| | Social worker | - | 28 | 120 | 148 |

Source) National Cancer Center, 2015

## Assessment of End of Life

The end-of-life quality score varied significantly among palliative care institutions, from 41.5 to 60.3 ($p<0.001$) in 2012 and from 39.9 to 57.4 ($p<0.001$) in 2013.




※ The end-of-life quality score: GDI 1-10 sum of score, 0-70

※ Average end-of-life quality score among all institutions: 51.6 (2012), 50.8 (2013)

※ Excludes institutions with less than 5 available answers

Source) National Cancer Center. Support for activation of palliative care service, 2014

# Chapter 7.
# Information on Cancer Statistics

# 7.1 Information·Education for Cancer

## Cancer information provided by National Cancer Information Center

According to the number of construction for cancer information database from 2003 to 2014, the database of 17 cancers are constructed in 2003, and increasing annually until 2014, total 100 cancers are constructed. Also, continually renewing the existing construction for cancer to provide the latest information.

Status of Construction of Cancer Information Databases (2003-2014)

| Year | Development Statement | Detailed Statement |
|---|---|---|
| 2003 | 17 cancers | Stomach cancer, lung cancer, liver cancer, colorectal cancer, breast cancer, thyroid cancer, cervical cancer, pancreatic cancer, bladder cancer, prostate cancer, kidney cancer, brain tumor, laryngeal cancer, young child leukemia, young child lymphoma, neuroblastoma, Wilms tumor |
| 2004 | 5 cancers | Oral cancer, gallbladder cancer, biliary tract cancer, choroid melanoma, carcinoma of the small intestine, pharynx cancer |
| 2005 | 7 cancers | Acute myelocyte leukemia, acute lymphoblastic leukemia, acoustic neurinoma, spinal cancer, pituitary adenoma, metastatic brain tumor, neuroglioma |

| Year | Development Statement | Detailed Statement |
|---|---|---|
| 2006 | 11 cancers | Brain tumor in childhood, epithelial squamous cell cancer, basal cell carcinoma, malignant melanoma, mycosis fungoides, epithelial ovarian cancer, chronic myeloid leukemia, multiple myeloma, myelodysplastic syndrome, ureter cancer, pudendum cancer |
| 2007 | 10 cancers | Malignant lymphoma, endometrial cancer, gestational trophoblastic disease, testis cancer, gastric lymphoma, non-small-cell lung cancer, esophageal cancer, small-cell lung cancer, uterine sarcoma, gastrointestinal stromal tumor |
| 2008 | 12 cancers | Vaginal cancer, germ cell tumors of the ovary, skin cancer, parathyroid carcinoma, salivary gland cancer, unknown primary neoplasm, penile carcinoma, retinoblastoma, rectal carcinoid tumore, gastric carcinoid tumor, tonsillar cancer, eye tumor |
| 2009 | 13 cancers | Sarcoma, rectal cancer, anal carcinoma, gallbladder cancer, biliary tract cancer, colorectal cancer, urethra cancer, malignant bone tumor, male breast cancer, adrenal gland cancer, malignant soft-tissue tumor, meningioma, glioblastoma multiforme |
| 2010 | 5 cancers | Thymus cancer, tongue cancer, lung adenocarcinoma, lung squamous epithelium cell, thymus cancer |
| 2011 | 5 cancers | Chronic lymphoblastic leukemia, malignant mesothelioma, Intrahepatic cholangiocarcinoma, ampullar of vater cancer, astrocytoma |

| Year | Development Statement | Detailed Statement |
|---|---|---|
| 2012 | 5 cancers | Duodenal cancer, metastatic bone tumor, pseudomyxoma, sinonasal cancer, diffuse large B-cell lymphoma |
| 2013 | 5 cancers | Lip cancer, non-Hodgkin's lymphomas, heart cancer, pleura cancer, Kaposi's sarcoma |
| 2014 | 5 cancers | Ureter cancer, Paget's disease, hepatoblastoma, mediastinal cancer, rhabdomyosarcoma |

Source) National Cancer Information Center http://www.cancer.go.kr 2015

## Other types of cancer by National Information Center

| | Detailed Statement |
|---|---|
| Prevention and Screening | Common cancer prevention, No smoking, Diet, Drinking, Exercise, Health weight, Infection, Occupational cancer, National cancer screening, Cancer Screening Recommendations, Carcinogen information |
| Management Information | Rehabilitation, Symptom management, Diet |
| Cancer Statistics | Incidence, Mortality, Survival rate, Prevalence |
| Educational Materials | Leaflet, Brochure, Video, Image (infographic, etc.), FAQ |
| Support program | Regional cancer center, Financial aid program, Hospice service, etc. |

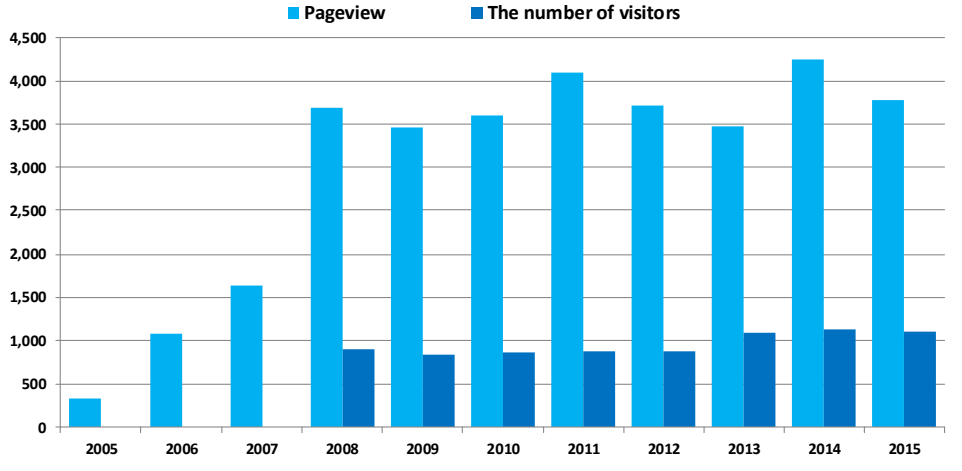
Source) National Cancer Information Center http://www.cancer.go.kr 2015

## Cancer Information Service

### ▪ Internet Service for Cancer Information

The number of visitors who are using the internet service (www.cancer.go.kr) for cancer information from National Cancer Information Center in 2015 is 1,101,000 and the number of pageview is 3,780,000.

**The number of visitors and internet pageview of National Cancer Information Service(2005~2015)**



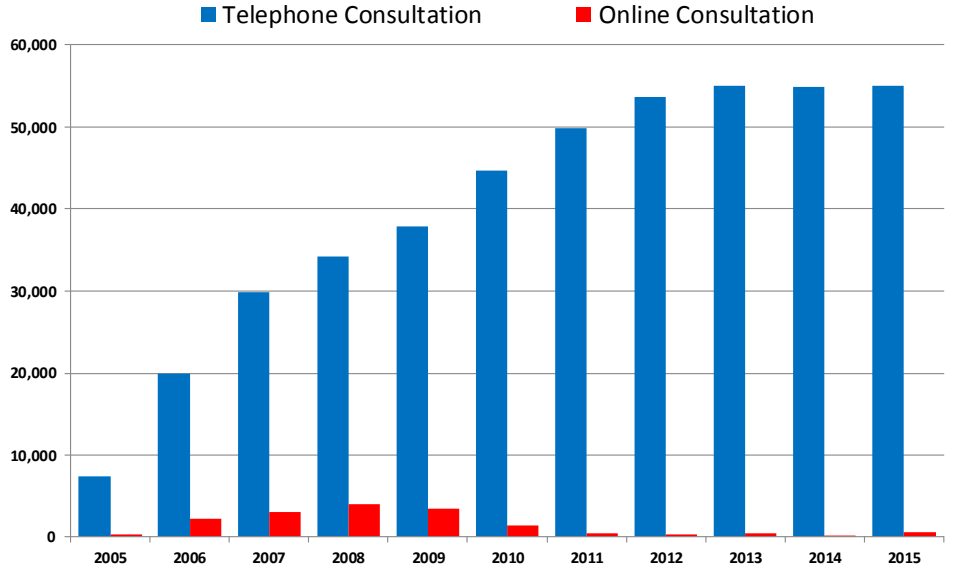

※ The Log Analysis begins on January in 2008

Source) National Cancer Information Center http://www.cancer.go.kr 2015

▪ Counseling Service for Cancer Information

In 2015, the number of telephone consultation(1577-8899) among the counseling service for cancer information is 55,000 and the number of online consultation is 549.

Number of Telephone and Online Consultations of National Cancer Information Service (2005-2015)




Source) National Cancer Information Center http://www.cancer.go.kr 2015

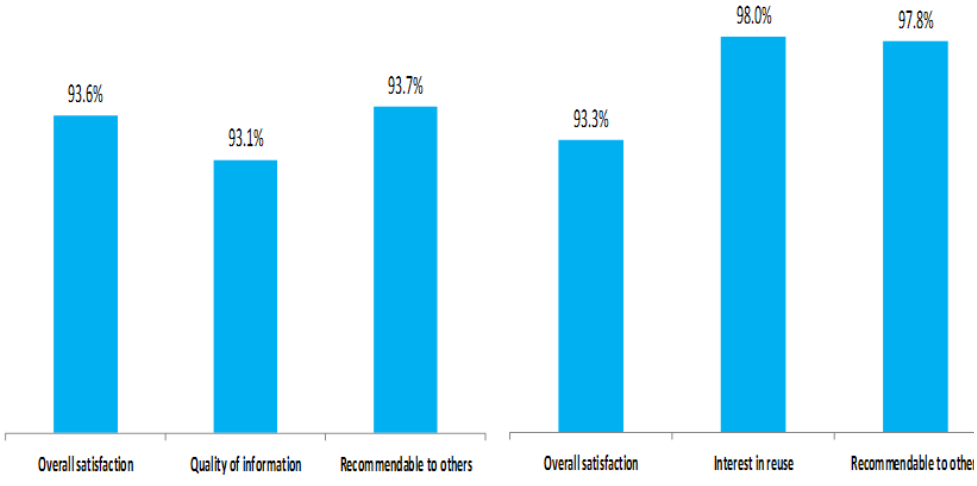
## Cancer Information Internet and Telephone Counseling Service Satisfaction

In 2015, an annual user satisfaction survey of cancer information Internet service of National Cancer Information Center was conducted. A total of 3,910 answered.

Users' satisfaction on national cancer information service through Internet was 93.6%.

From a survey of randomly selected 1,200 people among 55,000 users of telephone counseling service, overall user satisfaction result was 93.3%.

### User Satisfaction with the Cancer Information Telephone Service (2015)




[User Satisfaction of Internet Service] [User Satisfaction of Telephone Service]

Source) National Cancer Information Center http://www.cancer.go.kr 2015

## Number of Developed Cancer Information Educational Materials

From 2006 to 2015, educational materials about cancer information has been developed. Starting with development of leaflets to explain cancer and cancer screening in 2006, a total of 127 educational materials has been developed, including eight materials which were developed in 2015.

### Number of Cancer Information Educational Materials Developed (2006-2014)

| Year | Number of development | Details |
|---|---|---|
| 2006 | 28 | Cancer description (11) - Cancer, stomach cancer, liver cancer, colorectal cancer, breast cancer, cervical cancer, lung cancer, thyroid cancer, pancreas cancer, bile duct·gallbladder cancer, prostate cancer |
| | | Leaflets for cancer screening (6) - Cancer, stomach cancer, liver cancer, colorectal cancer, breast cancer, cervical cancer |
| | | Panel (11) - Understanding cancer, stomach cancer, liver cancer, colorectal cancer, breast cancer, cervical cancer, lung cancer, prostate cancer, National Cancer Information Center, National Cancer Control Program, guidelines of cancer prevention rules |
| 2007 | 10 | Leaflets (5) - Breast self-examination, cancer prevention rules for the public, prevention and control of clonorchis sinensis, cancer prevention and screening, Please speak out about your pain! |
| | | Videos (2) - Breast cancer screening videos, educational videos for esophageal cancer patients |

| Year | Number of development | Details |
|---|---|---|
| | | Bookmarks (2) - Pain ruler for doctors, pain ruler for patients |
| | | Pamphlet (1) - Current status and policy recommendations for hospice and palliative care |
| 2008 | 24 | Wobbler (1) - Breast self-examination |
| | | Pamphlet (PDF) (1) - Do the cancer screening in advance, when you are still healthy (5 major cancers) |
| | | Video (1) - Moving beyond breast cancer |
| | | Leaflets (2) - National support program for cancer patients, leaflets for lymphedema: upper limb |
| | | A4 leaflets (11) - Hospice organization for terminal cancer patients, National Cancer Screening Program guide, National Cancer Screening Program, breast self-examination, cancer prevention rules for the public, stomach cancer prevention and screening, liver cancer prevention and screening, colorectal cancer prevention and screening, breast cancer prevention and screening, cervical cancer prevention and screening, 14 recommendations for cancer patients and their families |
| | | Resizing panels (8) - Understanding cancer, stomach cancer, liver cancer, colorectal cancer, breast cancer, cervical cancer, lung cancer, prostate cancer |
| 2009 | 7 | Poster (1) - Please speak out about your pain!<br>Leaflet (1) - National Cancer Information Center leaflet<br>A4 leaflet (1) - What Is Lymphedema?<br>Pamphlet (1) - Buddy Who Will Support You through Cancer?<br>Video (1) - Animation for understanding cancer, cancer screening campaign, 10 rules for cancer prevention |

| Year | Number of development | Details |
|---|---|---|
| 2010 | 8 | Leaflet (1) - Lymphedema: lower limb<br>A4 leaflets (2) - Lymphedema: Lymphedema self-measurement, lymphedema - treatment and management of lymphedema<br>Symptom management educational animations for cancer patients (5) - Infection, anorexia, nausea and vomiting, stomatitis, constipation |
| 2011 | 6 | Symptom management educational animations for cancer patients (5) - Lymphedema, bleeding, hand and foot syndrome, alopecia, fatigue<br>Cancer information storytelling picture book (1) - A Great Commotion in the Star of Health |
| 2012 | 11 | Symptom management educational animations for cancer patients (5) - Sexuality, exercise, depression and anxiety, symptom, diet<br>Cancer infographics (5) - Utilization of cancer information, lifestyle and genes, alcohol, cancer incidence rates, cancer prevalence rates·cancer survival rates<br>National Cancer Information Center introduction leaflet (1) |
| 2013 | 19 | Symptom management educational animations for cancer patients (5) - Exercise 2, symptom 2, insomnia, diarrhea, changes in the nervous system<br>Cancer information motion graphic (1) - National Cancer Information Center promotional motion graphic<br>Cancer information UCC (3) - No smoking 1, diet 2<br>Cancer infographics (10) - 10 common cancers in Koreans |
| 2014 | 6 | Management of patients after breast cancer surgery, management of patients after cervical cancer surgery (2)<br>Cancer prevention Braille book (Know about Cancer, Win against Cancer) (1)<br>Cancer information motion graphic (National Cancer Information Center promotional motion graphic) (1)<br>Cancer information storytelling picture book |

| Year | Number of development | Details |
|---|---|---|
| 2015 | 8 | Cancer prevention brochure for Multicultural families(3)<br>Breast self-examination brochure(1)<br>Cancer prevention campaign bridge(3)-screening, diet, exercise<br>National Cancer Information Center promotional motion graphic(1) |

Source) National Cancer Information Center http://www.cancer.go.kr 2015

# 7.2 Cancer Registration System in Korea

## Cancer Registration System in Korea

Cancer registration in Korea began in 1980 with the Central Cancer Registration Project, which involved compiling cancer data from training hospitals. Since the early 1990s, regional cancer registration projects have been carried out to calculate cancer incidences in respective regions.

In order to accurately calculate cancer-related statistics and constantly monitor related figures, the Ministry of Health & Welfare is conducting national cancer registration and statistics projects with the Korea Central Cancer Registry and 11 regional cancer registries (Busan, Daegu/Geyongbuk, Gwangju/Jeonnam, Incheon, Daejeon (Chungnam, Sejong), Ulsan, Jeju, Gangwon, Chungbuk, Jeonbuk, and Gyeongnam). In addition, clinical and academic societies operate their own cancer registries for various types of cancer.

The Korea Central Cancer Registry has implemented the national cancer incidence database, which includes data from type-specific cancer registries and 11 regional cancer registries. In 2005, the Korea Central Cancer Registry published cancer incidence data for the 1999–2001 period. Since then, the registry has been releasing cancer registration statistics, and regional cancer registries have been producing similar data regarding the citizens of their respective regions.

## Population-based Cancer Registries


Source) National Cancer Center, 2015

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