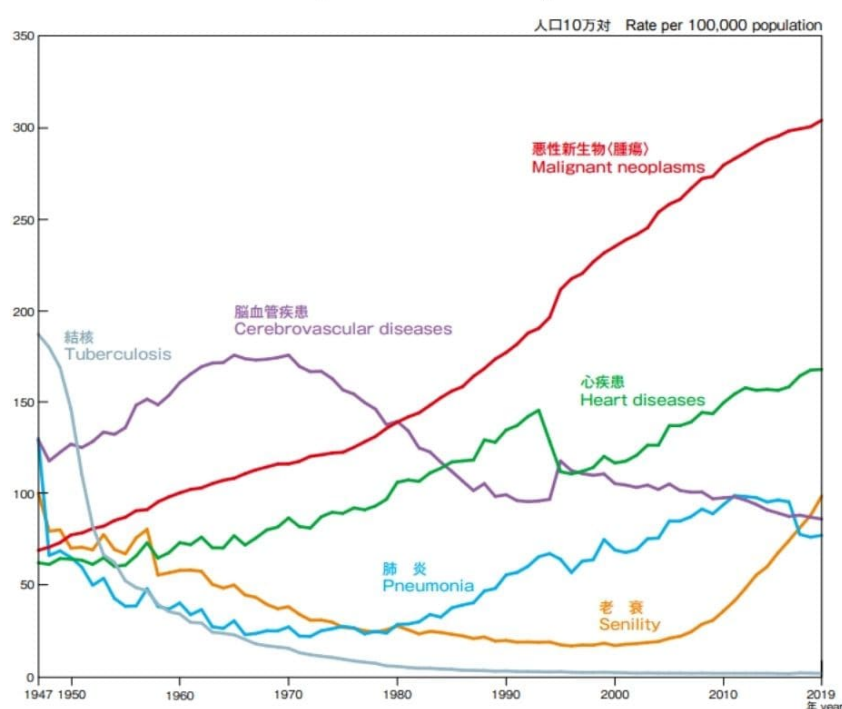


Cancerworld

What is efficiency in Japan and Korea

Adriana Albini / 28 May 2021

Trends in Mortality Rate for Leading Causes of Death



Highest Mortality since 1981

Mortality(2019) - 376,425(220,339 men, 156,086 women)

Incidence(2017) - 977,393(588,869 men, 418,510 women)

The [SPCC seminar on Improving Efficiency in Cancer Care, "What is efficiency in Japan and Korea"](#) was chaired by Kazuo Tamura, Professor emeritus at Fukuoka University, and an immediate past President of JASCC, the Japanese Association of Supportive Care in Cancer. Japan and Korea are industrialized countries, with a well-organized healthcare system, national health insurance, and health promotion. However, said prof. Tamura, there are still many issues to solve, related not only to cancer but also to other lifestyle related diseases. Japan and Korea may speak different languages but share many aspects of culture. One of the main issues for both countries is the rapid decline of birth rate. These aging societies face limited resources for health and cancer care, and ever rising medical costs.

The first speaker, to talk about Efficiency of Cancer Care in Japan, was **Dr Kiyotaka Watanabe**, medical oncologist, Professor of Medicine at Teikyo University hospital, Tokyo and a chairman of Education committee of JASCC.

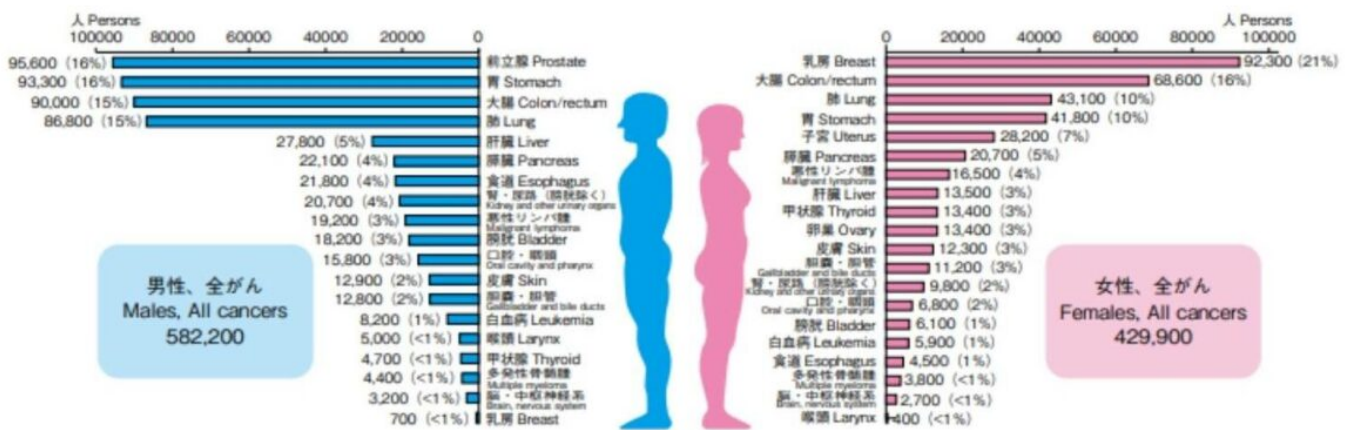
Facts of Cancer in Japan

To introduce the theme of efficiency in cancer care, Dr Watanabe gave a geographical and economical overview of Japan. With its 125 million inhabitants, mainly concentrated in urban areas, Japan is among the highest and most densely populated countries. Over two thirds of the land are covered by forested mountains and hills, while less than 10% is residential and industrial. Japan has one of the strongest and most developed economies in the world.

As in other developed countries, cancer is a major cause of illness with great impact on individuals, families, and communities. About one million Japanese are diagnosed every year. Around 370,000 will die. One in two women and two in three men will get cancer during their lifetime. Cancer mortality in Japan is highest in men, with lung, colorectal, stomach, pancreas, and liver cancers. In women it is colorectal, lung, pancreas, breast, and stomach. The most diagnosed cancers are prostate, stomach, colorectal, lung, and liver cancers in men; and breast, colorectal, lung, stomach, and uterus in women. In the northern part of Japan mortality rates are highest in smoking and salt-intake related tumours, while the south-western part, the island of Kyushu, sees a higher prevalence of viral hepatitis associated pathologies and human T-cell leukaemia virus 1 mortality.

As most developed countries, the survival rate for all cancers is improving. Five-year survival rate is 67% and ten-year is 59%. For some cancers, like breast and prostate, the five-year survival is 90 to nearly 100%, which is a great achievement. However, sometimes it is difficult to efficiently gain benefits equally across the whole population.

Cancer Incidence in 2020 (projected)



Looking at trends in age-adjusted mortality and incidence rate under the age of 75, mortality has been declining since the 1980s, but incidence has been flat in recent years. Breast and colorectal cancer are increasing, while stomach and liver cancer decreasing. As the population ages, cancer incidents and mortality increase. About 60-70% of newly diagnosed cancer patients are over 70 years old. High incidence in the elderly means comorbidity, for example, cardiovascular disease, chronic kidney disease, COPD, or cognitive impairment. The percentage of elderly people has been climbing to 28% in 2020, faster than any other country in the world, and it is estimated to reach 37% by 2045.

Two major events have impacted cancer care in Japan in recent years. In 2011, the Great East Earthquake and its subsequent 15-metre tsunami caused massive destruction, climaxing in the nuclear meltdown of the Fukushima Daiichi Nuclear Plant. About 22,000 people died or went missing. Many people, including cancer patients and survivors, had to live in temporary housing in

unforeseen circumstances. There was an all-round shortage of resources, such as medicines, opioids, clean water, electricity. Demand for acute care and psychological support rose dramatically, and medical staff were put under severe strain. Shortage of resources, lack of access to patients' records, longer waiting times, inadequate follow-ups, affected both patients and healthcare professionals. And now, since last year, the world is facing the long-lasting threat of COVID-19, which causes Acute Respiratory Distress Syndrome (ARDS), septic shock, thromboembolism, and multi-organ failure, often leading to death. Risk mitigation strategies to reduce the negative impact on cancer care are under threat in all areas: prevention, early-detection, treatment workup, and support for patients, families, caregivers, and healthcare professionals.

Characteristics of cancer care

Since 1981, when cancer became the leading cause of death in Japan, the government has worked on national strategies for cancer control, and funded research. In 1984 the first Comprehensive 10-year Strategy for Cancer Control launched. In 2007, the Cancer Control Act came into effect, and the Basic Plan to Promote Cancer Control was designed. The Plan has been revised every five years, and now is in its third term. In 2015 an Acceleration Plan for Cancer Control also launched.

The Basic Plan to promote cancer control is firstly drawn out by the National Government and the Minister of Health Labour and Welfare. Then local governments develop the Prefectural Plan to Promote Cancer Control based on local environment and provision. Included are prevention, screening, treatment, research, social support, and education. The version of the Plan revised in 2018 sets three overall goals:

1. prevention and screening based on scientific evidence
2. realization of patient-oriented cancer medicine
3. establishment of a society where patients can live peacefully while maintaining dignity

Health care system

In 1923 the first National Policy for Health Insurance in Japan was established to compensate industrial accident for mine workers. Following reforms to the health insurance system, a universal coverage was launched in 1961, leading to the world's highest life expectancy in 1986. With the increase in ageing population, care insurance for all older people was introduced in 2008, and the legislation for sustainable social security programs was passed to promote community-based integrated care.

To build a clinical support for Japanese residents, about 400 hospitals were assigned as cancer-designated, roughly one per 300,000 people. Each of these hospitals has a cancer-care network in the local province, with high-quality care, and takes a responsible role in promoting the cancer plan.

Toward efficient cancer care

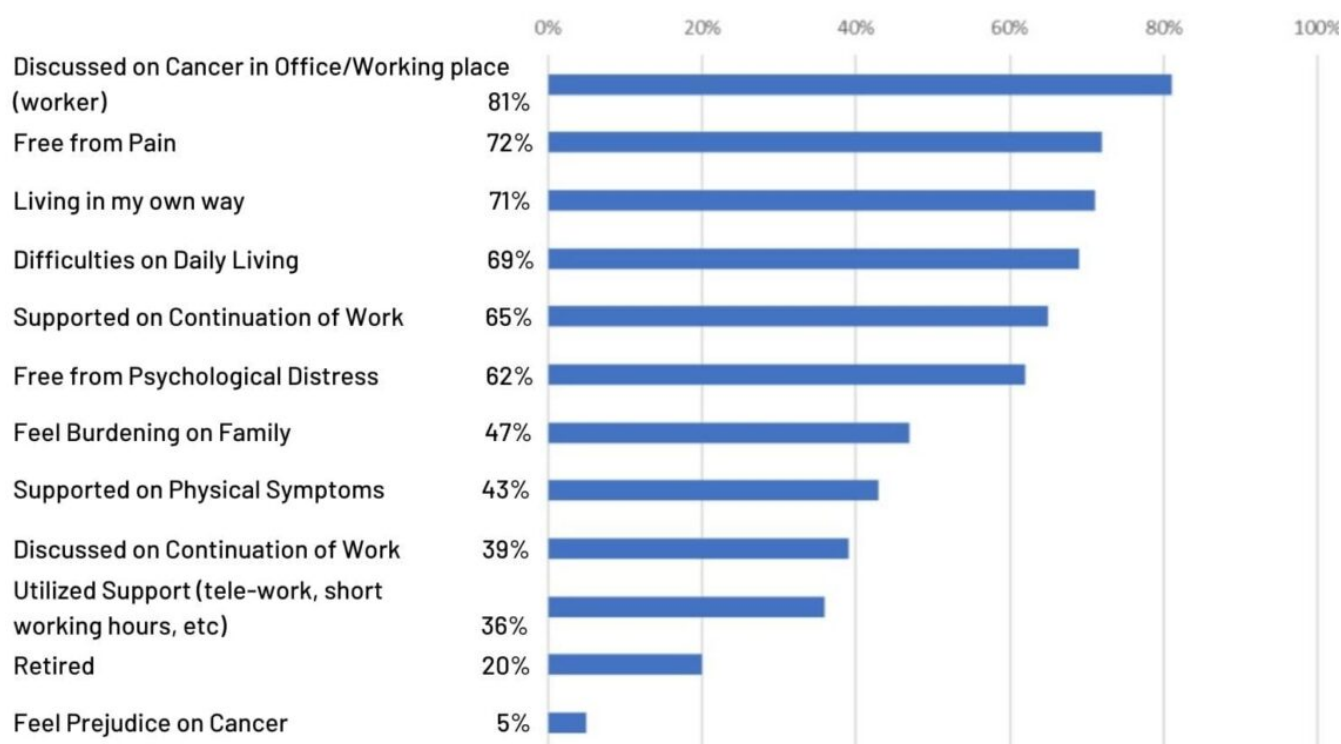
A nationwide survey carried out in 2018 among 7,000 cancer patients revealed that most of them were satisfied with treatment, consulted about cancer and survivorship care, received enough information on treatment and daily life, and had good communication with healthcare professionals. However, only a small proportion was able to get a second opinion, discuss appearance care, or mental pain. It is clear that more physical, psychological, and social support are needed.

Survivors can face difficulties in daily living and continuation of work, they might fear to be a burden to their families, feel guilty or discriminated against. Although the cancer care plan in Japan on the

whole is working well, there are still challenges such as the implementation of cost-effective interventions, leveraging disparity between regions, improve income and literacy, defeat stigma attached to the perception of cancer, compensate for lack of information about survivors' trajectory, social or financial support, and avoid late adverse events.

Healthcare costs grow along with high quality care and the implementation of newer treatments. The healthcare expenditure is financed through a government scheme and health insurance schemes are subsidized by the government. In Japan there are relatively low out-of-pocket costs in healthcare with high gross expenditure. This means that social security costs are financed with deficit bonds, passing the burden on to future generations.

Physical, Psychological and Social Support are Needed



Future perspectives

Dr Watanabe concluded his talk identifying five essential elements to improve efficiency in cancer care in Japan: establish and make prevail evidence-based medicine, personalized and precision medicine, multidisciplinary care team, comprehensive care plan, and integration into health policy. For efficient cancer care, integration into health policy is key; prevention and screening for secondary cancer, uniform and seamless high-quality treatment and supportive care, and shared decision making are essential. Next generation sequencing can improve targeted therapy, allow minimal surgery, or radiotherapy, maximizing quality of care. Social recognition and support, such as employment of survivors is important for society coexisting. To empower survivors and healthcare professionals, education involving patients, survivors, families, and citizens will promote acquisition of social resilience, health literacy, and good communication.

Prof. Inkeun Park, medical oncologist at Gachon University Gil Medical Center, Incheon, Korea, spoke next on Efficiency in Cancer Care in Korea.

Korea is a divided nation since the Korean War, and by Republic of Korea we are referring to South

Korea. South Korea is densely populated, and about 20% of the population lives in Seoul's metropolitan area. Essential health care has rapidly improved in the past decades. For example, in 2020, infant mortality was around 2 per 1000 live births, compared to 80 in 1960. And life expectancy at birth reached between 80 and 85 years of age in 2019.

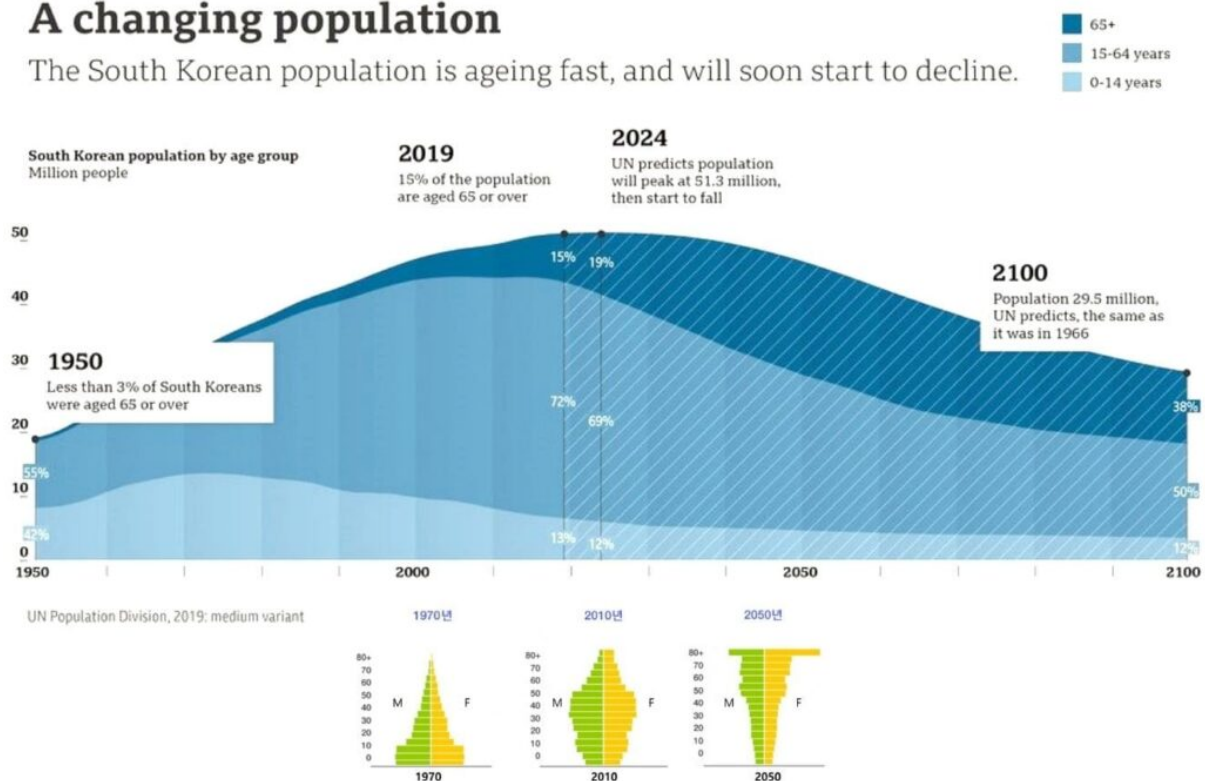
Like Japan, Korea has a rapidly ageing society and a low birth rate, so its population will soon start to decline in number, with more deaths than births, with dire consequences to medical costs.

The smoking rate remains high, especially in men. And, due to westernizing lifestyle, obesity is on the rise. Koreans are extremely competitive, even from childhood. The dark side effects of this are high liquor consumption to compensate for stress and suicide rates due to lack of coping with problems. Malignant cancer is now the leading cause of death and most people face death in hospital.

Korea is a very rapidly aging society

A changing population

The South Korean population is ageing fast, and will soon start to decline.



Characteristics of Korean health care system

South Korea's health insurance is a public and single payer, universal coverage, fee-for-service payment system. Hospitals provide medical service and claim the insurance fee from HIRA. HIRA stands for Health Insurance Review and Assessment, and is a government agency. HIRA decides whether to reimburse or not, and then the NHIS pays the insurance fee to the hospital. Patients also contribute some copay to the hospital. All Koreans have access to the national health insurance system.

Despite this, healthcare coverage rate is only around 65%. Therefore, when patients get non-reimbursable service, they must pay 100% out-of-pocket money. Off-label use of drugs is prohibited in Korea. All healthcare providers must be enrolled in the NHIS.

The number of doctors per 1000 inhabitants is lower than in other developed countries. Korea has

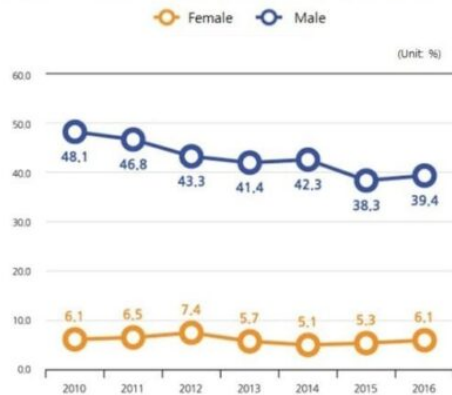
2.4 compared to the 3.5 OECD average. Despite the small number of doctors, Korea has one of the most efficient healthcare systems in the world.

The number of hospital beds and medical equipment are higher than the OECD average and, due to easy accessibility, people meet with their doctors frequently. Like other countries, there is a medical delivery system, but no legal barrier prohibits hospital/doctor shopping.

As a result, the concentration of patients to extra-large hospitals phenomenon has become a serious social and medical issue.

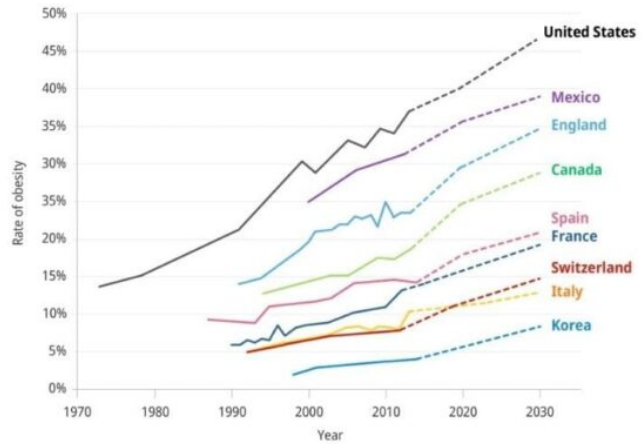
Trend of cardiovascular risk factors in Korea

2010~2016 Current Smoking Rate of Population Over 19



*Percentage of smokers who smoked more than 5 packs (100 cigarettes) in life and are currently smoking
Source: Ministry of Health and Welfare, 『Statistical Yearbook of Health and Welfare』

Projected rates of obesity



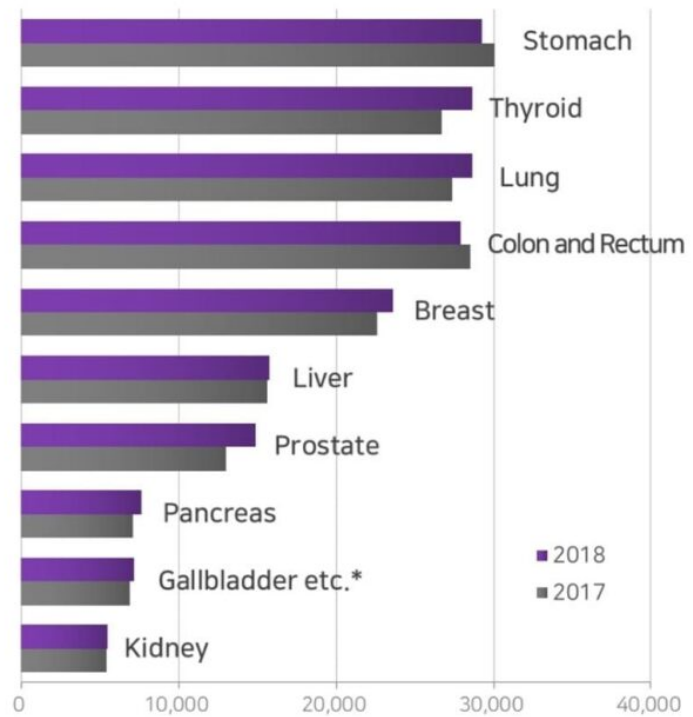
Trends of cancer and characteristics of cancer care

In 2018, there were more than 200,000 new cancer cases in Korea. One in three people is at risk of cancer during their lifetime. Cancer incidence has been rising steadily for two decades. This is probably due to population ageing, change in lifestyle and increased detection by screening programs. Stomach, colorectal, lung, breast, and liver cancer are the most common. Stomach and liver cancers are decreasing due to *Helicobacter pylori* eradication and hepatitis B vaccination. But breast and prostate cancers are increasing. The abrupt increase of thyroid cancer is probably due to the use of thyroid ultrasonography during private medical checkups. Stomach and lung cancers are the most common in men, and breast cancer in women. Interestingly, thyroid cancer is the most common cancer in adolescents and young adult, also, probably, due to thyroid ultrasonography.

Although cancer incidence is rising, age standardized incidence-rates are still lower than the OECD average. Crude cancer mortality is higher than 10 years ago, except for liver and stomach cancer. But death from cancer is relatively low compared to other countries. Also, five-year survival rates of common cancers are generally high, especially for stomach cancer. The Cancer Control Act was legislated in 2003. The Act deals with cancer centers, checkup services, research fund, registration statistics, etc. There are 13 government-designated regional cancer centers in Korea. Most of them are National University Hospitals. In regional cancer centers, integrated cancer survivors support-program is provided, but this is only a pilot project at present.

Number of Cases by Cancer Sites in Korea (2017-2018)

Cancer Sites	Number of cases		Difference	
	2018 (A)	2017 (B)	Cases (C=A-B)	Percent (C/B*100)
Stomach	29,279	30,039	-760	-2.5
Thyroid	28,651	26,693	1,958	7.3
Lung	28,628	27,392	1,236	4.5
Colon and Rectum	27,909	28,489	-580	-2.0
Breast	23,647	22,610	1,037	4.6
Liver	15,736	15,613	123	0.8
Prostate	14,857	13,000	1,857	14.3
Pancreas	7,611	7,111	500	7.0
Gallbladder etc.*	7,179	6,903	276	4.0
Kidney	5,456	5,402	54	1.0
All cancers	243,837	235,547	8,290	3.5



National cancer screening covers most common cancers. Started in 1999 for low-income Medical Aid recipients, the screening program has expanded its target population to include national health insurance beneficiaries. After implementation, cancer screening rate increased initially, but it has been stagnant for a while.

Korean doctors usually follow international cancer guidelines, like the ones from ASCO or ESMO, but academic societies have provided Korean guidelines for some diseases. In real world practice, doctors have to consider HIRA reimbursement guidelines to avoid cutbacks.

The service provided is fast, but medical personnel suffer from overwork. From primary clinic to tertiary centers the waiting time to see a specialist is short. Diagnostic tests and treatment are carried out immediately. The number of medical oncologists is small, so one oncologist sees between 30 and 60 patients in a 3-4-hour session. Usually, oncologists do not just treat one type of cancer, but several. Most cancer care is performed at tertiary hospitals, such as private academic ones.

Clinical trials, including international SIT are very active in Korea, but the vast majority are funneled into Seoul. There are 45 tertiary hospitals that play an important role in cancer care, almost half of which are located around Seoul. HIRA regularly assesses the quality of cancer care in hospitals curing cancer patients. As for tertiary hospitals, about half of the ones that got "grade 1" in all 4 cancers are located near Seoul. The number of megavoltage radiotherapy machine per million inhabitants in is 4.0, which means that radiotherapy facilities are generally well-distributed. However, the distribution throughout the country is not even, with most radiotherapy facilities situated in the capital. As already mentioned, patient concentration into extra-large hospitals is problematic. One third of the total medical expenses of the national health insurance comes from the Big 5 hospitals in Seoul.

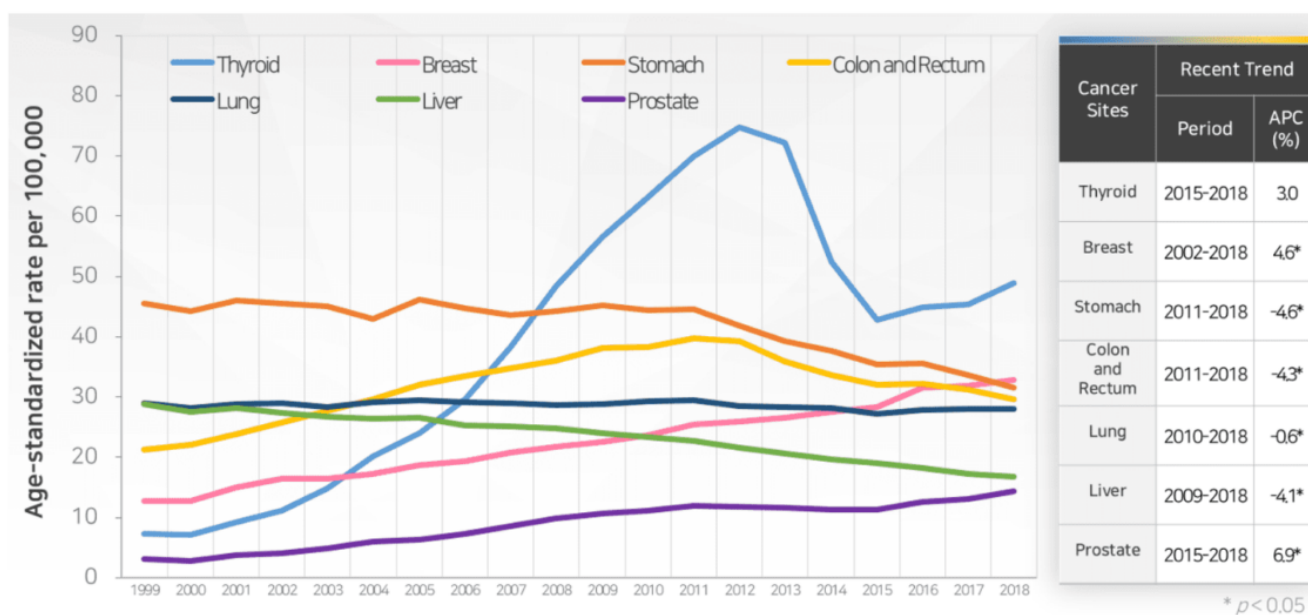
Oncologists are under pressure to make critical decisions within 5-10 minutes, and patients spend

much time in transportation and waiting for test results, while they can only meet their doctor for a fleeting moment. Korea ranks among the top ten countries for industry-sponsored trials and early phase trials. However, most of the clinical trials are performed at the Big 4 hospitals in Seoul, so patients treated at a local hospital have less opportunities to enter clinical trials.

Inefficiencies of cancer care in Korea and how to overcome them

In Korea, the hematology-oncology subspecialty of internal medicine started only recently so a small number of oncologists is practicing now. As a result, systemic treatment of metastatic cancer is carried outside medical oncology. Unfortunately, a dedicated training system for chemotherapy and newer drugs are missing in those departments. Multi-disciplinary clinic is still underutilized too, and the service fee is reimbursable only for doctors, to a maximum of five, so, very few doctors attend the meetings. Various specialists are needed in caring for cancer patients, but in Korea some specialty positions are not covered, for example, palliative care, intensive care, hospitalist, oncology nurse specialist. So, usually, medical oncologists give supportive and palliative care during and after chemotherapy. Hospice and palliative care facility utilization rate is low.

Trends in Major Cancers (1)
(Both sexes, 1999-2018)



1) Major sites selected based on 2018 crude rates

Age-standardized Rate (ASR) was standardized to the Korean standard population (year 2000)

APC, Annual Percentage Change

It is impossible to change the current situation in Korea all at once. Long-term plans need to be set to encourage multidisciplinary practice and activate collaboration to diversify multidisciplinary participants. Reformation of service fees is a priority. Patients need not only cancer doctors but also psychiatrists, psychologists, social workers, dieticians, genetic counselors, etc.

It is also important to beef up the oncology specialty and educate other specialties about supportive/palliative care. Patients with cancer need emotional and mental support during the course of their diagnosis and treatment. However, utilization of emotional and mental health is inefficient in Korea. The Psycho-oncology Society was established only recently and, despite their effort, the reimbursement system and social stigma act as obstacles.

Caregivers also suffer from physical and psychological burden. They participate very actively in the treatment course, especially when the patients are elderly. The stressful condition can make them feel depressed and at times suicidal, but there are no programs for family members of cancer patients. Awareness of the need of mental health support must be raised and prejudice towards psychiatric treatment reduced. Reformation of service-fee is also an important issue.

Although, Korea has an excellent screening program, cancer screening rates have remained stagnant for a decade. The screening program for hereditary cancer is lacking and screening for newly increasing cancers, like prostate cancer, needs to be considered. Income-related disparities are also an issue. People with the lowest income quartile who need the screening the most, show the lowest screening rate. The screening program needs to diversify by introducing a risk stratified approach, and screening for other cancers must be added. To raise cancer screening rate, a government level incentive system might be considered.

South Korea has a very sophisticated healthcare and cancer care systems. To improve its efficiency the main areas to look at are ways to reduce the concentration of patients to extra-large hospitals, optimize a multidisciplinary approach, provide a stronger emotional and mental health support to patients and family members, and resolve the stagnation in cancer screening.