

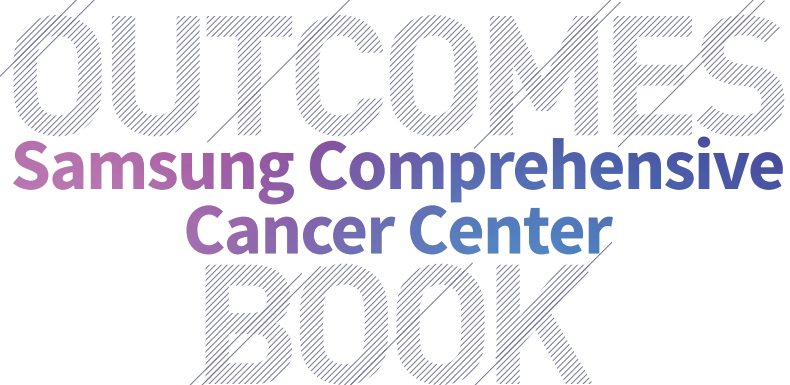
OUTCOMES

Samsung Comprehensive Cancer Center

BOOK

2024

Vol. 04



OUTCOMES

**Samsung Comprehensive
Cancer Center**

BOOK

2024

Vol.04

At the Center of Hyper Precision Cancer Medicine



In 2008, Samsung Comprehensive Cancer Center was established as Korea's first and largest cancer medical center. With the spirit of respect for life, the best treatment, research, and education have been diligently performed to realize healthy humanity and a happy life.

It has been 17 years since its establishment, and by publishing the 4th <Outcomes Book>, Samsung Comprehensive Cancer Center presents the new standard of cancer treatment by doubling its efforts and seeking medical quality improvement.



General Director's Message

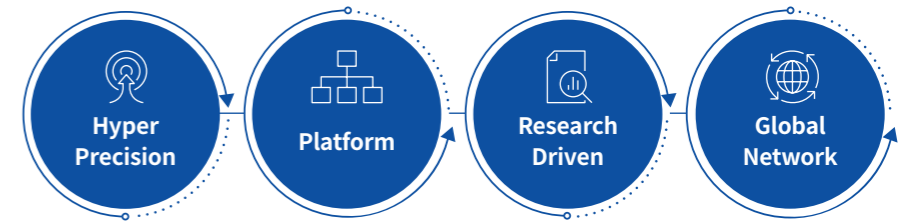


One Step Further: From Treating Cancer to Becoming a Hub for Cancer Research and Development

At Samsung Comprehensive Cancer Center, we've moved beyond our role as a leading cancer treatment facility in Asia to become a pioneering hub for cancer research and development. Our commitment to implementing the most advanced cancer treatments, including genomic analysis, immunotherapy, proton therapy and robotic surgery, has raised the standard of care. These advances are central to our journey toward "hyper-precision medicine" a goal we are pursuing with tools such as next-generation sequencing (NGS) and artificial intelligence. This approach enables detailed analysis of cancer characteristics, genetic profiles, family history and specific patient complications.

Our multidisciplinary and comprehensive approach to cancer care sets us apart as an innovator in the field. This includes the use of minimally invasive robotic surgery, which improves precision and recovery, and the use of advanced radiation therapies, such as intensity-modulated radiation therapy (IMRT) and proton therapy, which provide targeted and effective treatment. In addition to excellence in cancer care, our center serves as a leader in oncology research and development. We actively participate in groundbreaking studies and trials that advance the understanding and application of novel therapeutics modalities. This progressive stance pushes us beyond the boundaries of conventional treatment methods and positions us at the forefront of innovation in cancer treatment and research.

Personalized Hyper Precision Treatment



At Samsung Comprehensive Cancer Center, we understand that effective cancer care goes far beyond treatment. By taking a holistic approach, we cover every aspect of the cancer journey, from initial diagnosis to post-treatment support. This comprehensive care model is exemplified by our establishment of Korea's first Cancer Education Center and Supportive Care Center. These facilities play a critical role in educating and supporting patients and their families throughout their cancer journey. In addition, our innovative New Visitor Center process ensures that each patient's treatment plan is carefully tailored from the outset.

These initiatives, combined with our superior clinical outcomes, such as remarkable five-year survival rates that exceed SEER and National Cancer Statistics in Korea, underscore our commitment not only to lead in advanced cancer treatments but also to provide compassionate, patient-centered care.

Our dedication to quality and innovation is exemplified in this Outcomes Book. It reflects our ongoing efforts to improve the quality of cancer care and establish benchmarks for patient treatment. By sharing key metrics such as survival and re-operation rates, we aim to raise the bar for cancer care.

General Director of Samsung Comprehensive Cancer Center

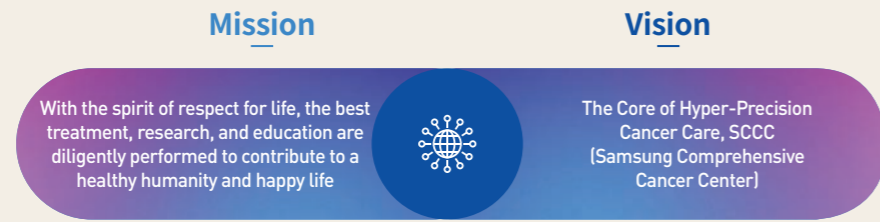
Woo-Yong Lee

01 Core Values

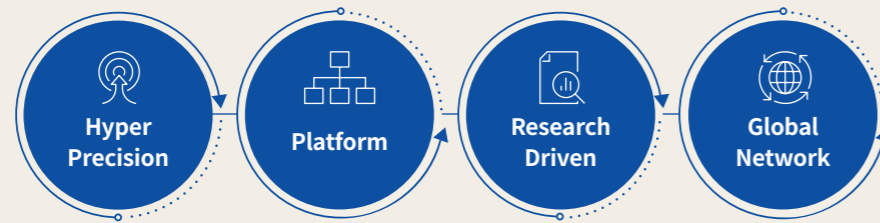
Mission, Vision and Core Values



In April 2013, we expanded our cancer center to the Comprehensive Cancer Center in an effort to provide a more specialized and comprehensive care. In 2023, we re-structured our long-term strategies and vision to achieve 'Hyper-precision Medicine'.



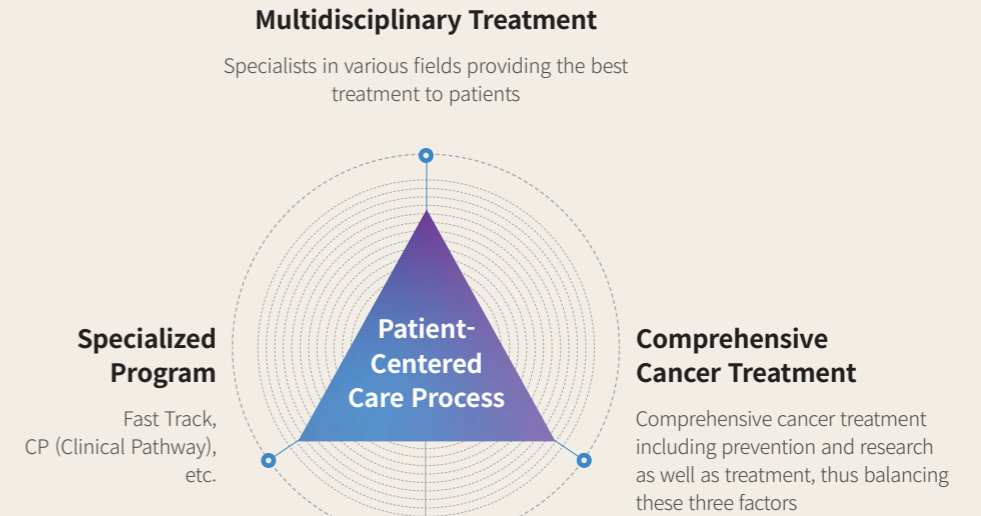
Core Values



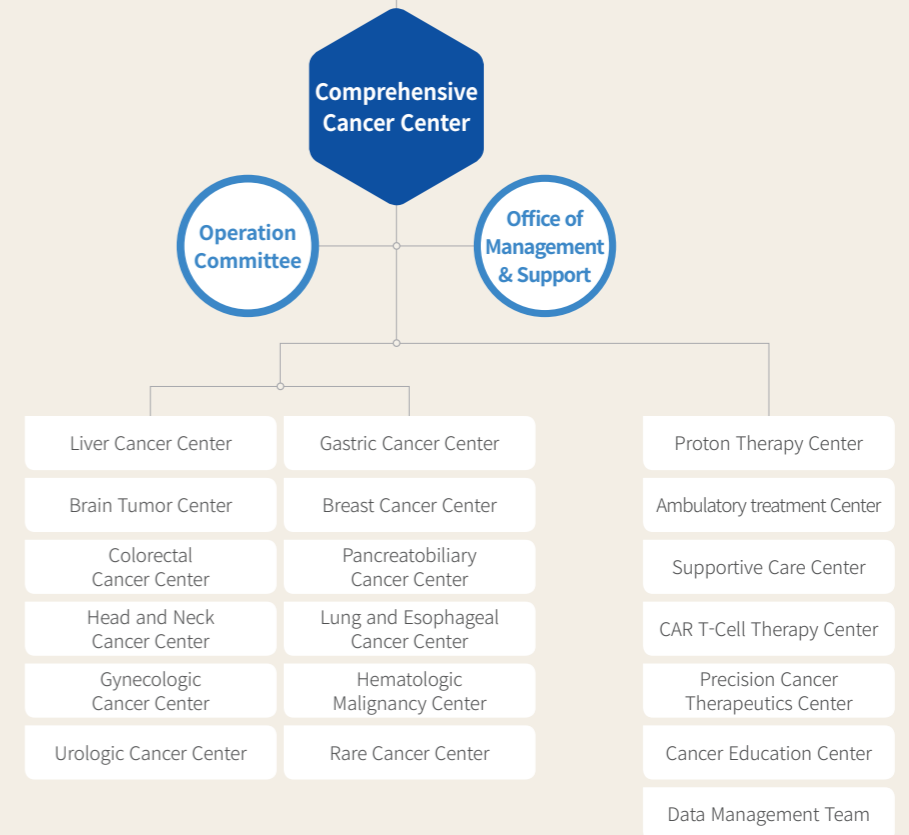
Direction of Strategy



Strengths of Cancer Medical Center



Organizational Structure



02 Milestone

2008~2011, 2013, 2018
Medical Korea Award
in General Hospital Cancer Center

Selected by 2022-2024 Newsweek
World's Best Specialized Hospitals
For oncology, Ranked 1st for 3 consecutive years in the Asia.
In 2024, 3rd in the World



2010

- 30,000 cases of radiotherapy
- Korea's No. 1 clinical trial center
- The 1st Samsung Comprehensive Cancer Center symposium

2012

- Performed 10,000 thoracoscopic surgeries (first in South Korea)
- Performed 5,000 gamma knife surgeries in the shortest time in South Korea
- Achieved the lowest 30-day postoperative mortality rate for stomach and colorectal cancer (Health Insurance Review and Assessment Service; HIRA)
- Held the 2nd Samsung Cancer Center Symposium

2013

- **Official opening of the Samsung Comprehensive Cancer Center**
- Conducted the first successful 3D printer-assisted sinus cancer surgery in South Korea
- Ranked no. 1 for stomach and colon cancer, with the lowest mortality rates(HIRA)
- Designated as a research center hospital by the Ministry of Health and Welfare in 2013
- The Intractable Cancer Research Initiative identified a new mechanism of brain tumor formation for first time in the world

2015

- Opening of the personalized cancer care clinics at the Gastric Cancer Center
- Performed 500 nasal-endoscopic brain tumor resections
- Suggested the personal genome analysis treatment for brain tumor for the first time in the world
- SMC and KT signed an MOU for collaborative research on cancer genome analysis
- Genome-based personalized cancer treatment in full swing: Signed an MOU with the Translational Genomics Research Institute (TGen)

2016

- **Opening of the Proton Therapy Center**
- Performed 1,000 endoscopic brain tumor surgeries
- Reached 2,000 hematopoietic stem cell transplantations for adults with hematological malignancies (first in South Korea)
- Held the 4th Samsung Comprehensive Cancer Center Symposium



2024

- **Ranked 3rd in the world for oncology by 2025 Newsweek**
- Opening of the Institute for Quality of Life in Cancer
- Performed 2,000 liver cancer proton therapy (first in South Korea)



2008

2008

- **Opening of the Samsung Cancer Center (largest in Asia)**
- Performed 100 robotic-assisted prostate cancer surgeries
- Successfully performed the first singleport laparoscopic surgery (SPLS) in South Korea



“Contribute to healthy and happy lives among humans by providing the best possible care, research, and education in the spirit of respect for life.”

2011

- Performed 5,000 radiofrequency heat treatments for liver cancer(the highest number of treatments in the world)
- Performed 1,000 single-port surgeries (first in South Korea)
- Ranked no. 1 for lung cancer clinical trials in South Korea
- Hosted the first international symposium

2014

- **Opening of the SCCC Supportive Care Center**
- Performed 3,000 robotic-assisted prostate surgeries
- Performed the world's first one-stop robotic-assisted surgery for stomach and kidney cancer
- Performed 300 microvascular free-flap reconstructions for head and neck cancer
- Samsung Medical Center (SMC) and AstraZeneca signed an MOU for the clinical trials of a new anti-cancer drug for stomach cancer
- Held the 3rd Samsung Comprehensive Cancer Center Symposium



2017

- Performed 10,000 lung cancer surgeries
- Treated 10,000 patients with gynecologic cancer
- Performed 10,000 laparoscopic surgeries for colorectal cancer
- Signed an MOU for collaborative research to develop a precision medicine platform for liver cancer: Agency for science, Technology and Research (A*STAR)

2018

- 10th anniversary of Samsung Comprehensive Cancer Center
- Performed 1,000 robotic-assisted nephrectomies (first in South Korea)
- Treated 1,000 patients with proton therapy
- Held the 5th Samsung Comprehensive Cancer Center Symposium

2019

- Gastric cancer team demonstrated the effectiveness of genomic analysis personalized treatment for gastric cancer (September issue of Nature) Introduced innovative research proposals

2021

- **Opening of the CAR T-Cell Therapy Center**
- Performed 3,000 breast cancer surgeries annually at the Breast Cancer Center

2022

- **Opening of the Precision Cancer Therapeutics Center**
- Performed 15,000 robotic-assisted surgeries
- Held the 6th Samsung Comprehensive Cancer Center Symposium
- Performed 4,000 esophageal cancer surgeries
- Treated 5,000 patients with proton therapy

2023

- **Ranked 5th in the world for oncology by 2024 Newsweek**
- Signed an MOU with Gustave Roussy Hospital, France
- Signed an MOU with Charité Comprehensive Cancer Center, Germany
- Treated 100 patients with CAR T-cell therapy
- Performed 20,000 gamma knife radiosurgeries
- Opening of a Dedicated Referral Desk for Samsung Comprehensive Cancer Center

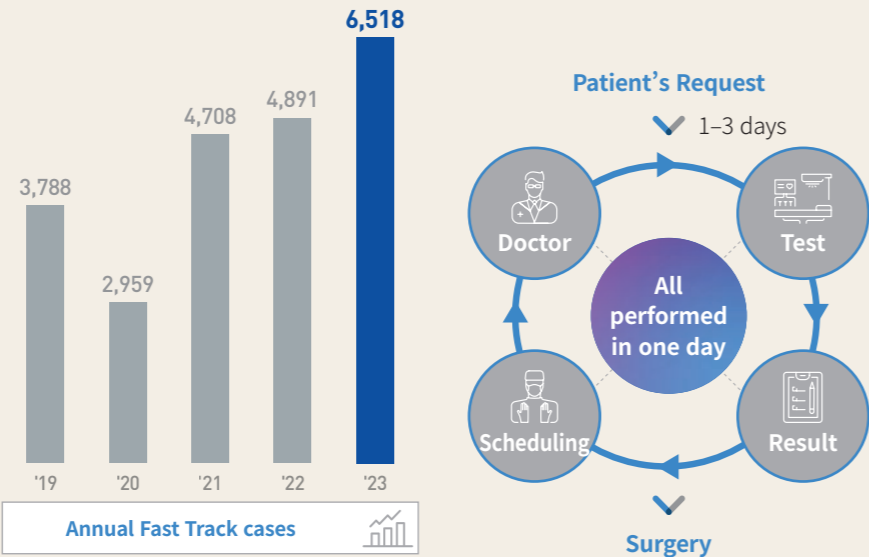
03

The SCCC Specialized Program

Fast Track



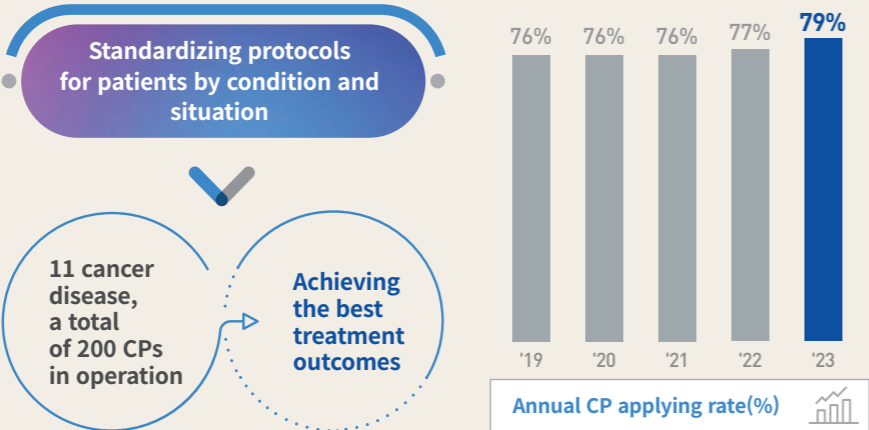
For patients in need of prompt care, SCCC offers Fast Track that allows patients to get tested, obtain the results, and decide on a treatment plan the same day.



Clinical Pathway (Standard treatment guideline)



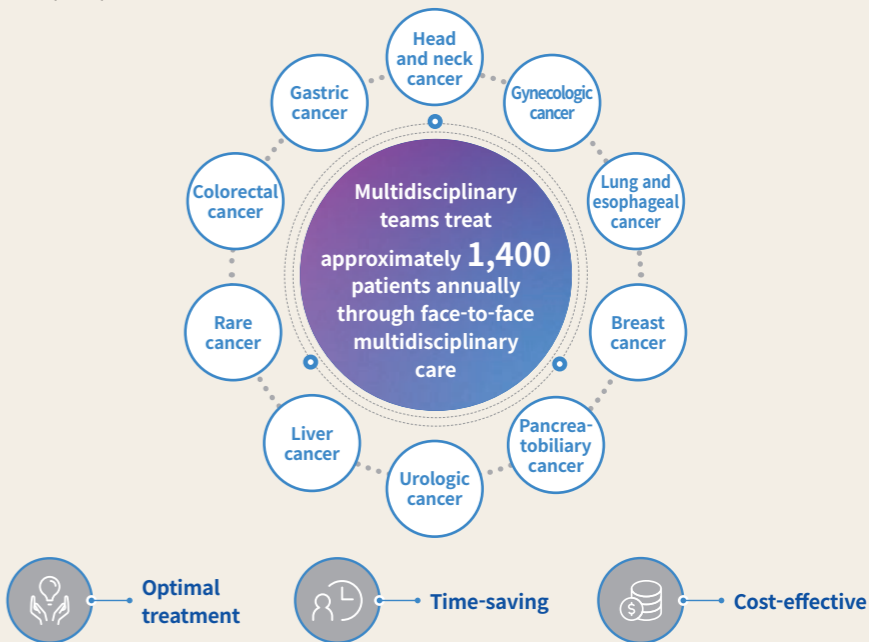
The SCCC established clinical pathways as the basis for patient care, and adherence to these guidelines has led to the best possible cancer outcomes.



Face-to-face Multidisciplinary Treatment



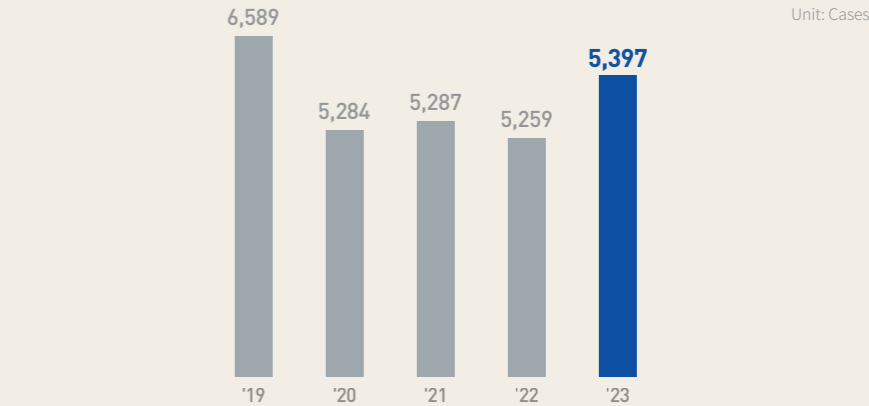
The SCCC was the first to establish center-driven operations and a patient centered, face-to-face multidisciplinary care system in the country. Face-to-face multidisciplinary care for cancer patients refers to a system in which patients and their caregivers meet with specialists from three or more disciplines involved in the disease all in one location to discuss the best course of treatment, rather than having to visit multiple specialists.



Non-face-to-face Multidisciplinary Treatment



Non-face-to-face Multidisciplinary treatment refers to a system in which multiple experts gather in one location to examine a patient's disease state in depth and discuss the best course of treatment without having to meet the patient or caregiver face-to-face.



03

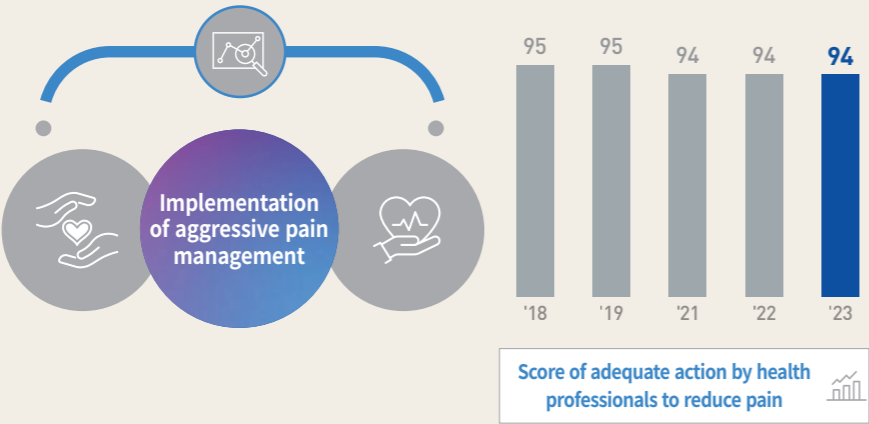
The SCCC Specialized Program

Pain Management for Cancer Patients



Pain is the fifth vital sign, and beyond the burden of pain itself, it is a symptom that needs to be managed because it can cause anxiety, depression, and other problems. Aggressive pain management is used to minimize the physical and psychological distress of cancer patients and increase the effectiveness of treatment.

- Care: Outpatient Cancer Pain Clinic



Cancer Education Center



The SCCC operates a Cancer Education Center to provide information to help cancer patients and their caregivers cope with treatment and life and to provide psychosocial support during treatment. At the Cancer Education Center, cancer education specialists provide evidence-based cancer information through a variety of educational programs and resources.

- Providing the right information**
 - Cancer-specific pathfinders
 - Information about rare cancers
 - Cancer Information videos
 - Collecting and providing cancer related educational materials from other organizations, both domestically and internationally
- Development of cancer education materials**
 - Developing and delivering personalized cancer education materials for cancer patients and caregivers
- Providing cancer education programs**
 - Implementing education programs for the psychosocial support of patients and caregivers → Maximizing the effectiveness of treatment and improving the quality of life
- Providing individual counseling**
 - Oncology nurses are available for individual counseling for patients and caregivers

Cancer Education Center Wellness Program



The Cancer Education Center offers more than 20 different programs to help cancer patients and their caregivers navigate their cancer journey and improve their quality of life.

Type of Cancer Education Programs

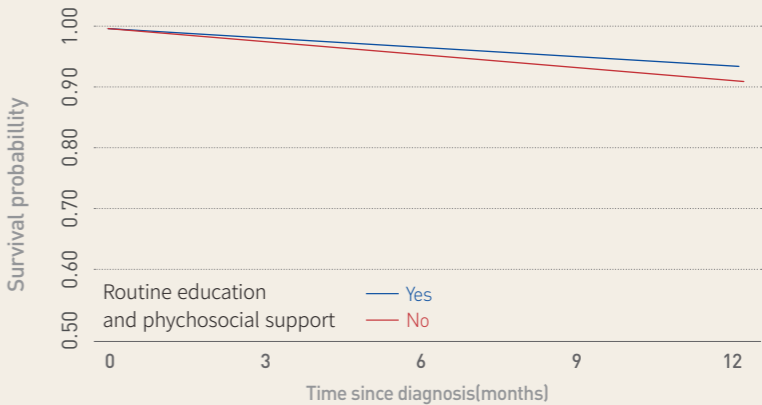
- Guide to cancer center that is beneficial to know
- Central venous catheter management education
- Survivorship after cancer treatment
- 14 things to know about pancreatic cancer diagnosis and treatment
- Sexuality and intimacy during cancer treatment
- Art therapy
- Look good, feel better
- Emotional coaching for cancer patient
- Class Art healing class: For young cancer survivors, etc.



Publication of a Research Paper on the Effectiveness of Cancer Education

A study cancer education center published in the Journal of Affective Disorders reported that **providing systematic education and support to cancer patients experiencing distress at the time of diagnosis can reduce the risk of early mortality in cancer patients by 27%**. Notably, the effect of reducing mortality risk was more pronounced in younger patients. Compared to patients in 60s, patients under 50 years of age showed approximately 63%, and patients in 50s showed approximately 54% reduction in mortality risk. This study scientifically demonstrates the necessity and importance of education and support programs for cancer patients. It highlights that providing appropriate education and support prior to cancer treatment can positively influence patient outcomes.

- **Paper title** Emulating trial to evaluate the effectiveness of routine supportive care on mortality among cancer patients experiencing distress at the time of diagnosis, Journal of Affective Disorders Volume 354, 1 June 2024, Pages 519-525(2024).



Kaplan-Meier curve for one-year survival by routine information and psychosocial support.

03

The SCCC Specialized Program

Digitalization of Cancer Patient Education (Materials)



In order to enhance the accessibility and participation of education, tailored to the needs of cancer patients, **we offer remote education in both interactive and post-treatment management education.**

1. Online and live education through Zoom

- Can cancer patients continue or return work?
- Life after breast cancer
- Living After Ovarian Cancer Treatment
- Dealing with stress
- Emotional coaching for mental health
- Art therapy
- Look good, feel better
- Sexuality and intimacy during cancer treatment
- Management of Menopause and Osteoporosis in Cancer Patients
- Dental Treatment and Oral Care for Cancer Patients
- Understanding hospice palliative care



2. Education on YouTube

- Breast cancer stories not told in the doctor's office
- Live well after cancer

3. Development of a Chabot for Peripheral Central Catheter Management

- A Chabot was developed to increase patient satisfaction and self-management by providing information on how to care for a central line without time and space constraints.

By digitizing the way cancer information is delivered, digital materials are provided in a variety of ways.

1. Cancer information and education through the KakaoTalk channel

2. QR coding of recommended video and book lists

3. Audio books

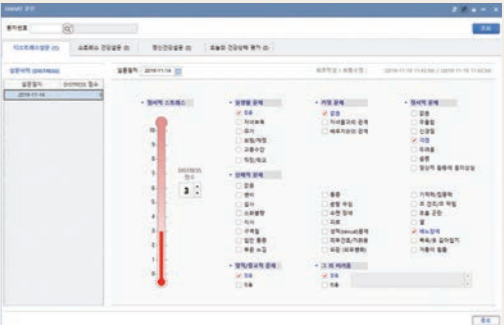
- Understanding Chemotherapy
- 27 Questions and Answers about Radiation Therapy
- A cancer recurrence is scary, but you will be fine.
- Going back to work after cancer treatment
- Guide to life after cancer treatment
- Life after Hematopoietic Stem Cell Transplantation



Distress Screening



SCCC was the first in South Korea to set the paradigm for cancer treatment based on comprehensive care. **In order to minimize physical and emotional stress, especially for cancer patients, distress screening is conducted at the diagnosis stage.**

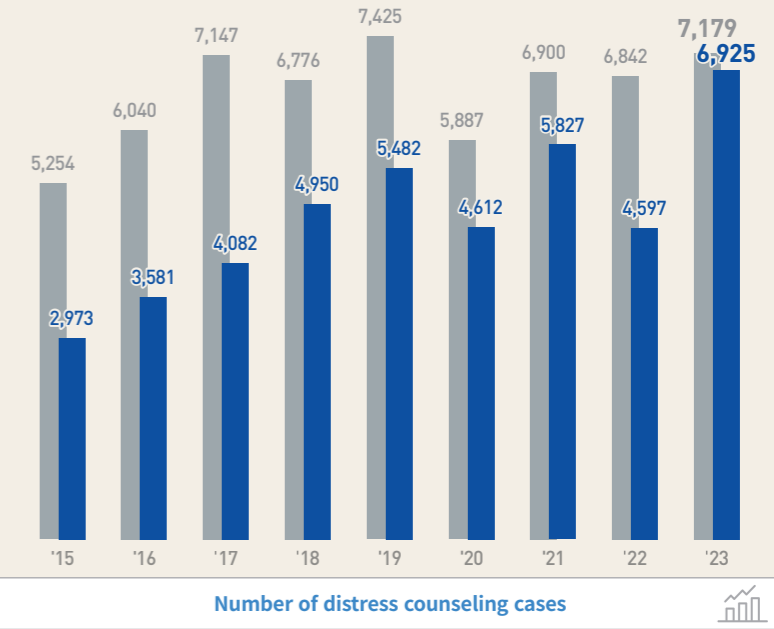


Distress counseling cases



The distress counseling cases are as follows:

- Number of patients to be screened for Distress Thermometer (DT):
- Number of patients screened



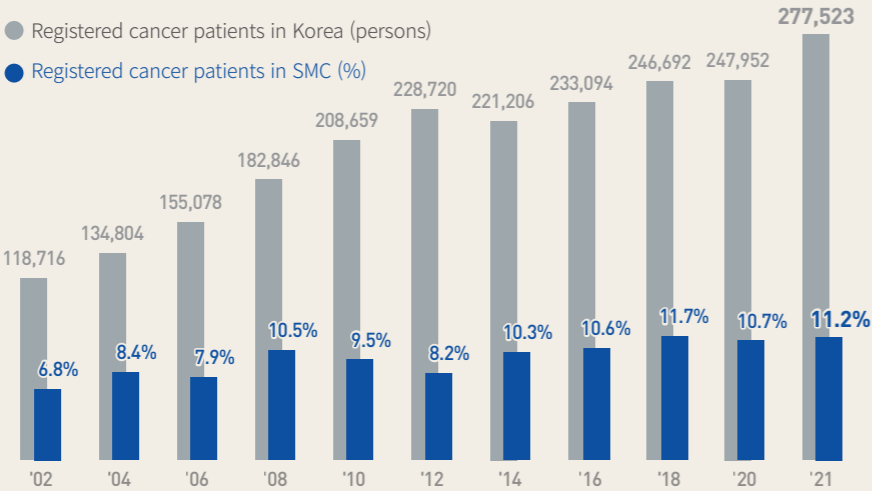
04

The SCCC Patients Status

Cancer Incidences in Korea



According to the Korea Central Cancer Registry in 2024, there were about 278,000 cancer patients in Korea in 2021. **Of total 31,000 patients, which comprised about 11% of the entire cancer patient population in Korea, were treated at the Samsung Comprehensive Cancer Center.**

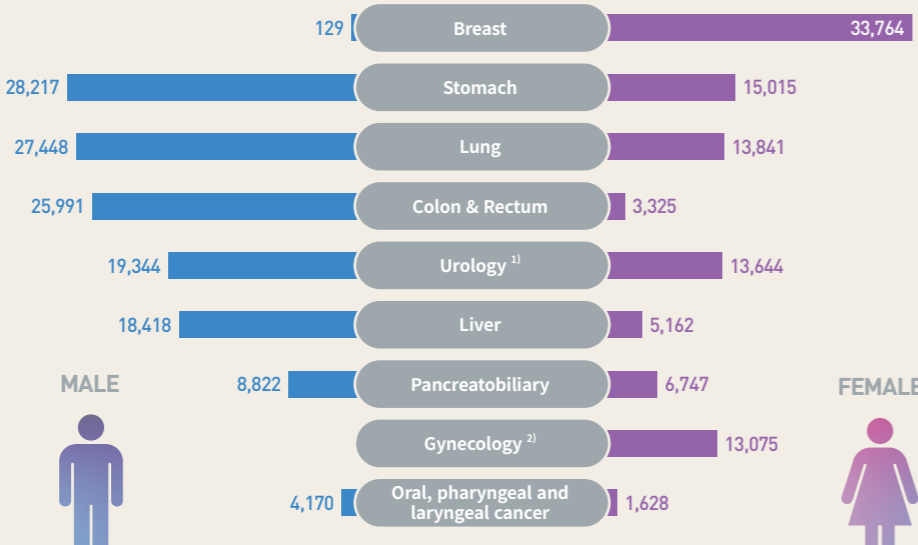


※ Source: Korea Central Cancer Registry (December 2020)

Distribution of Cancer patient by Gender and Type



The distribution of patients by gender and cancer type from 2008 to 2022 showed that **stomach, lung and colon & rectum cancers were most common in men, in order of incidence rate. Breast, stomach and lung cancers were most common in women.**

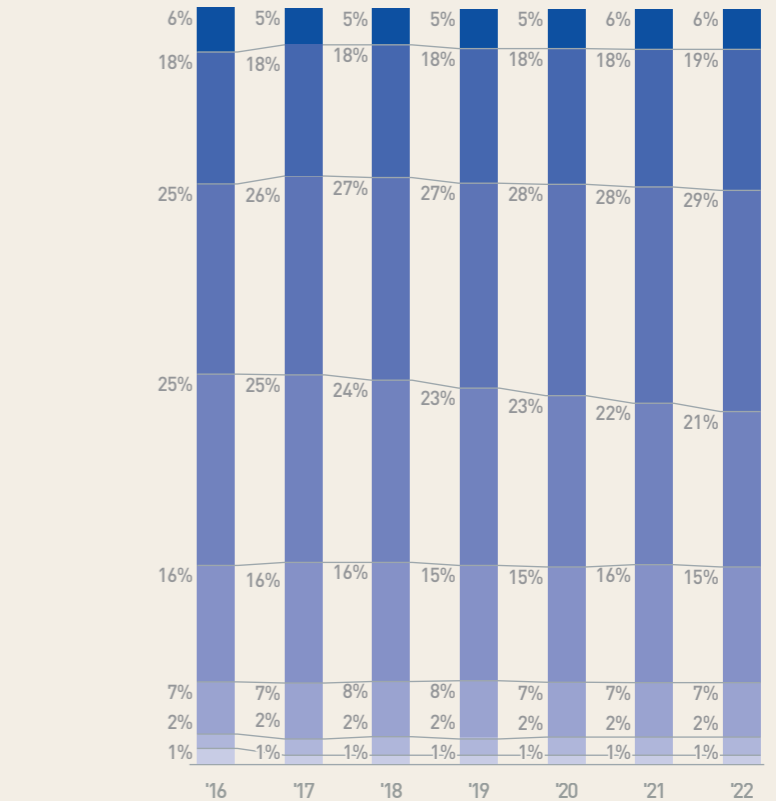


※ ¹⁾ Urology (prostate cancer, bladder cancer, kidney cancer), ²⁾ Gynecology (ovarian cancer, cervical cancer)

Distribution of Cancer patients by Age



There are wide range of cancer patients by age at Samsung Comprehensive Cancer Center. When examining the trend since 2008, it is evident that the number of cancer patients aged 60 and above has been steadily increasing. **In 2022, among the cancer patients treated at Samsung Comprehensive Cancer Center, those aged 60 and above account for 54% of the total patient population.**



MALE	≥80	1,133	1,280	1,411	1,601	1,447	1,718	1,636
	70~79	3,313	4,755	5,111	5,429	4,685	5,604	5,436
	60~69	4,738	7,095	7,741	8,245	7,421	8,751	8,560
	50~59	4,747	6,682	6,997	7,082	5,965	6,660	6,203
FEMALE	40~49	2,936	4,375	4,542	4,663	4,006	4,813	4,355
	30~39	1,301	1,973	2,181	2,339	1,948	2,281	2,151
	20~29	348	564	650	648	645	730	632
	<20	370	344	360	376	279	305	281

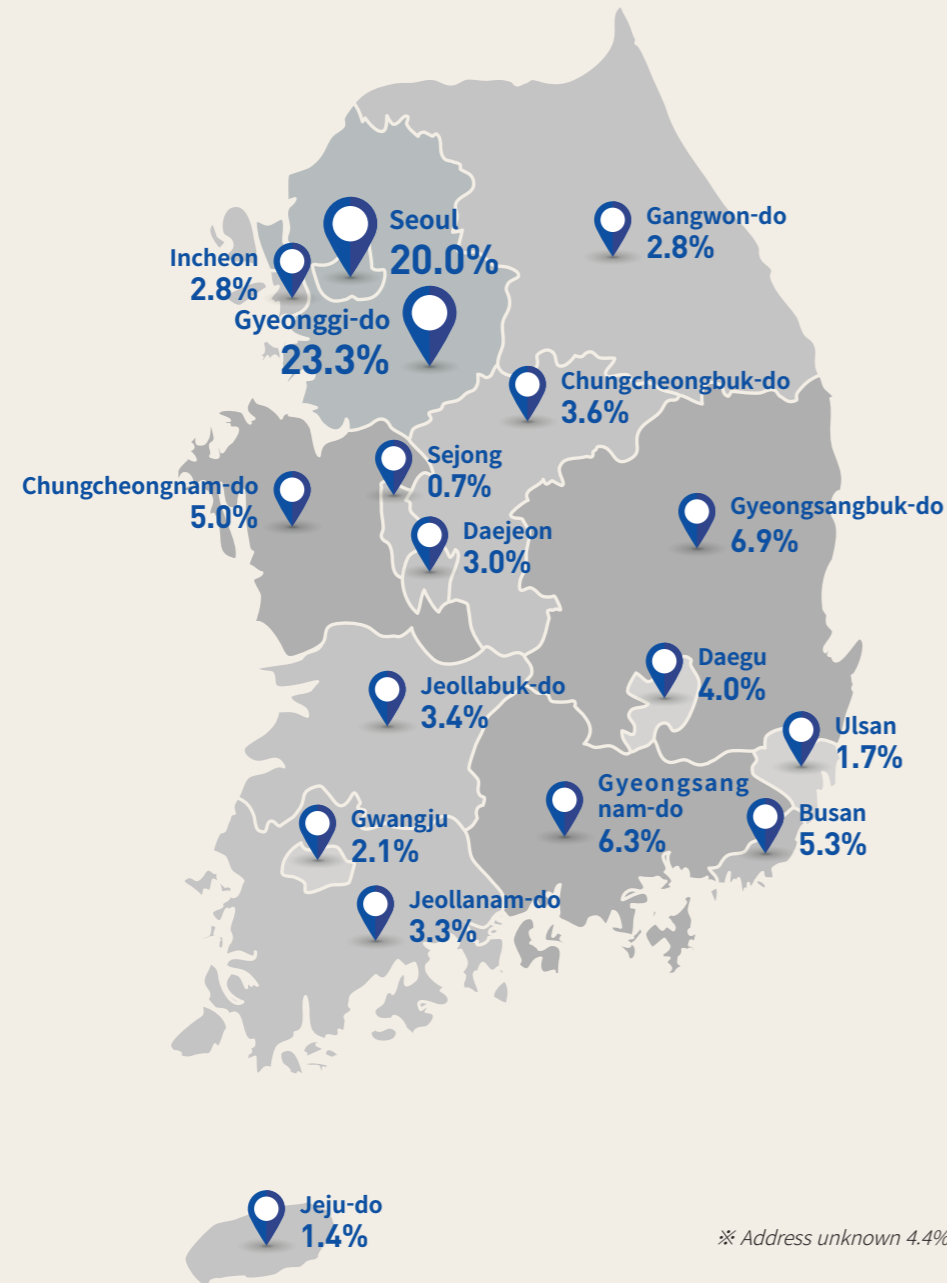
04

The SCCC Patients Status

Distribution of Cancer patients by Region



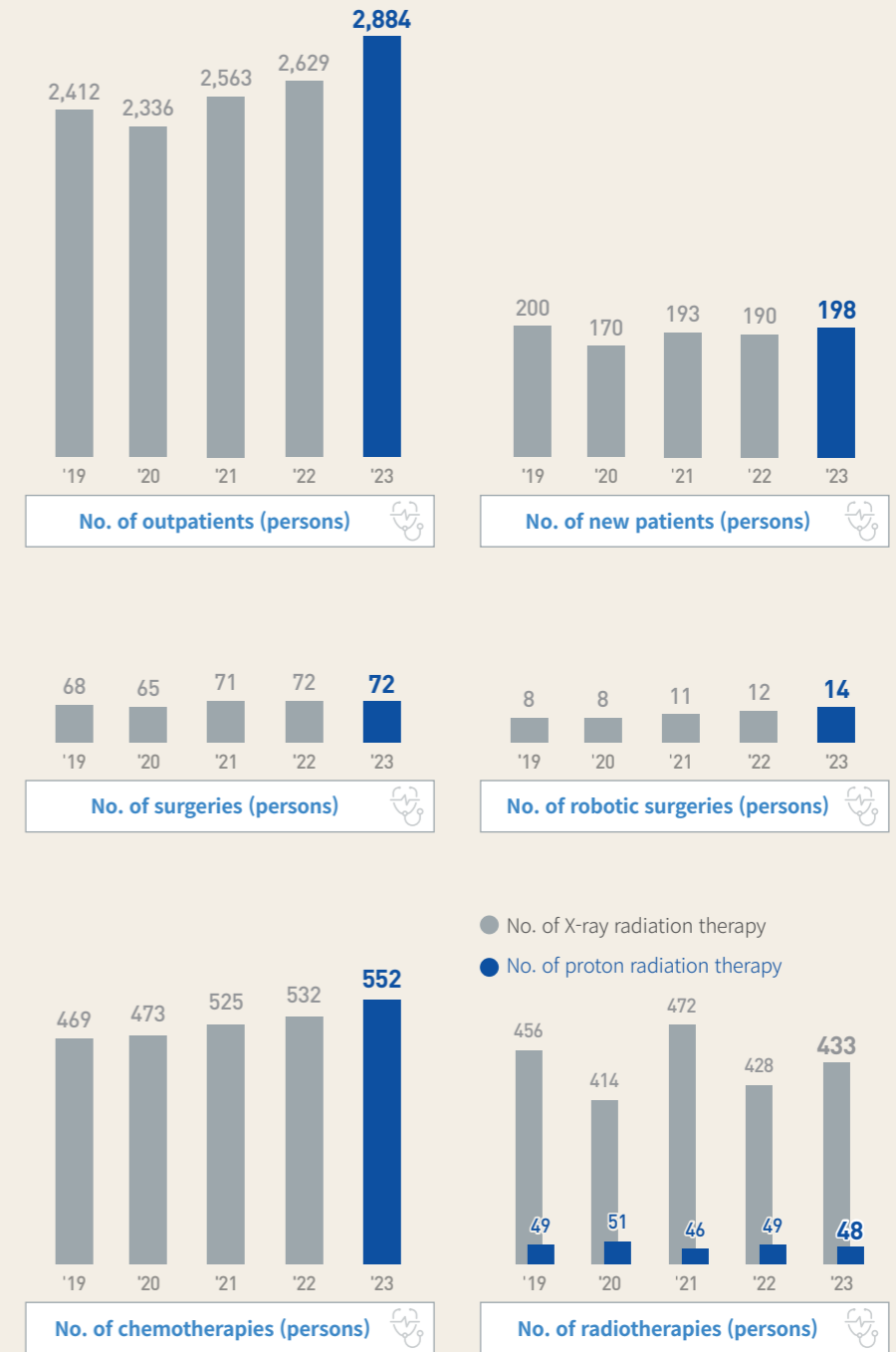
Cancer patients from all over the country visit the Samsung Comprehensive Cancer Center, and **about 43% of patients treated at the SCCC are from the Seoul-Gyeonggi region.**



Treatment Status per Day



The diagnosis and treatment status of average daily cancer patients is as follows;



※ Outpatient Cancer Treatment at the Comprehensive Cancer Center

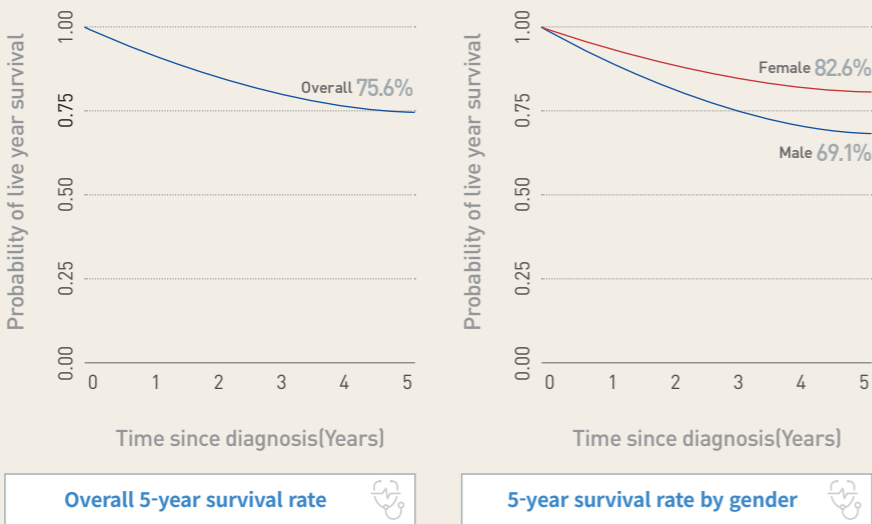
05

The SCCC Cancer Patient Survival Rates

Survival rates of Cancer Patients



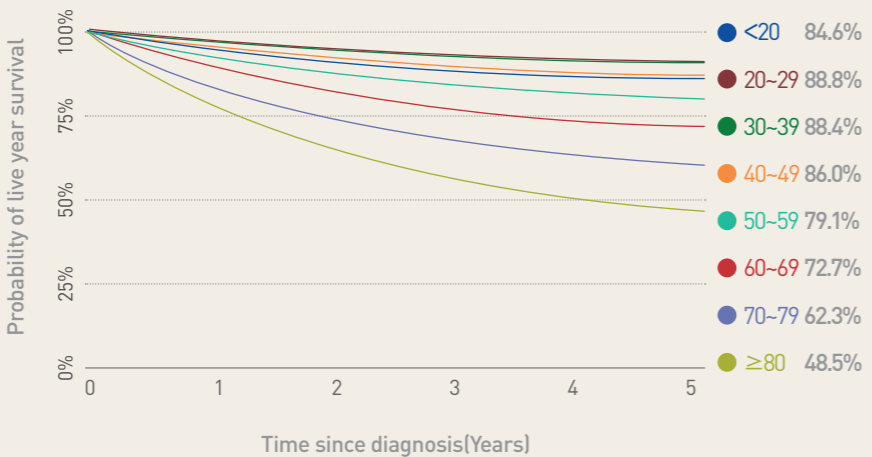
The SCCC has an excellent reputation in the surgical treatment of early-stage cancer patients as well as in the treatment of advanced cancer patients. Based on the surveillance, epidemiology, and end results (SEER) program, distant-stage patients account for about 28.32% of all cancer patients, receiving the best treatment through multidisciplinary care. **The 5-year observed survival rate for all cancer patients treated at the SCCC is 75.6%: 69.1% for men and 82.6% for women—the highest in the world.**



Survival rates by Age



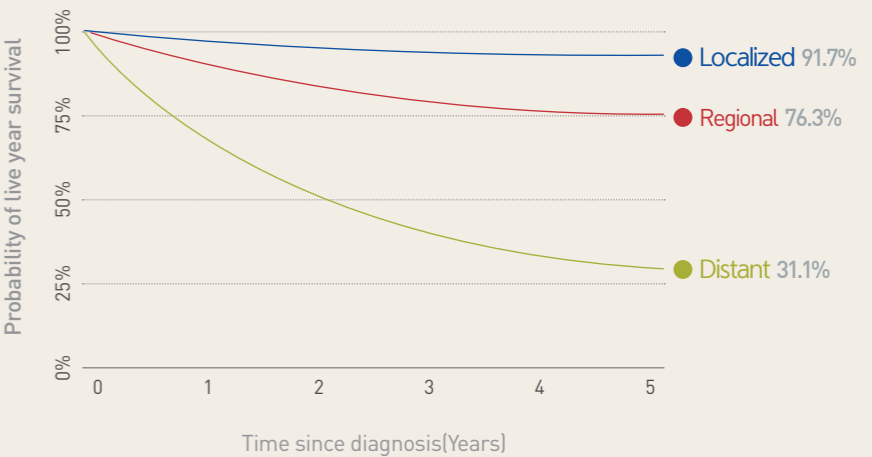
The survival rate varies by age groups. **The 5-year survival rate is over 60% even for those older than 70 years of age.**



Survival rates by Stage



Observed survival rate by SEER summary stage also exceeds 91% for localized stages and 31% for distant stages.



5-year Relative Survival rates



The results of comparing Samsung Comprehensive Cancer Center with Korea and the USA for 5-year relative survival rates provide a solid proof of our clinical excellence.

Unit: %

Cancer type SMC ³⁾ ('17~'21)	USA ¹⁾ ('14~'20)	Korea ²⁾ ('17~'21)	SMC ³⁾ ('17~'21)
Stomach	41.7%	77.9%	89.2%
Colon & Rectum	64.6%	74.3%	83.1%
Lung	31.0%	38.5%	61.5%
Esophagus	23.3%	42.8%	63.9%
Breast	91.2%	93.8%	97.0%
Liver	22.4%	39.3%	62.4%
Prostate	97.5%	96.0%	99.2%
Kidney	80.9%	86.4%	94.1%
Bladder	78.4%	77.0%	81.9%
Pancreas	13.0%	15.9%	23.7%
Gallbladder and Biliary trac	20.7%	28.9%	38.9%
Non-Hodgkin Lymphoma	76.2%	65.4%	79.8%
Cervix	67.4%	79.9%	82.9%
Ovary	50.9%	65.9%	72.9%
Brain & Central nervous system	35.6%	39.7%	40.3%

※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

06

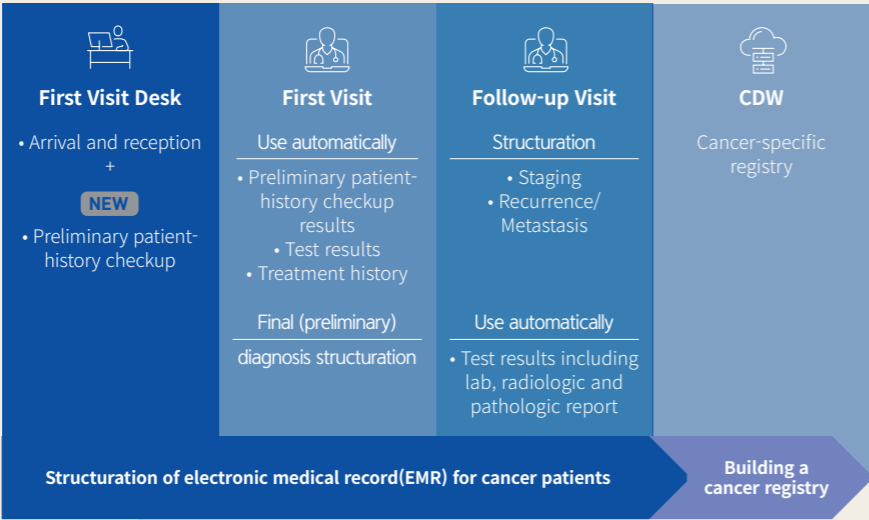
The SCCC Cancer Registry

Process



The Cancer Registry for Samsung Comprehensive Cancer Center (SCCC) is being established on the purpose of prospective and accurate real-world clinical data collection. To make this complicated project possible, we introduced several new processes and systems as follows;

- 1) We introduced preliminary patient-history check-up process by the specialized nurses to accurately and systematically collect each cancer patient's basic medical history, including past and current illness record, medical prescription lists, family history, and current symptoms and signs, etc. This process will be given to all new cancer patients before clinic.
- 2) We structured and standardized the electronic medical record (EMR) forms for each cancer types for doctors to use them without increasing the work-load and without missing the valuable clinical data at the same time.
- 3) We established cancer-type specific registry in clinical data warehouse (CDW) and it is updated every day automatically.
- 4) We developed various feedback and quality control programs to continuously enhance the data accuracy, including publishing newsletters for each cancer types and regular meetings with clinicians.



Expectation



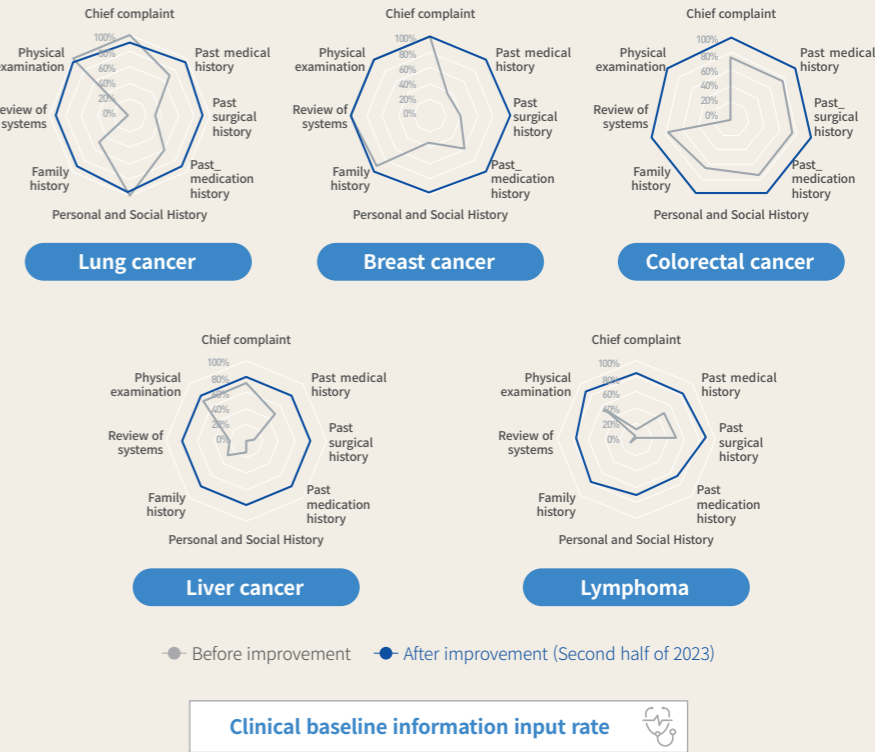
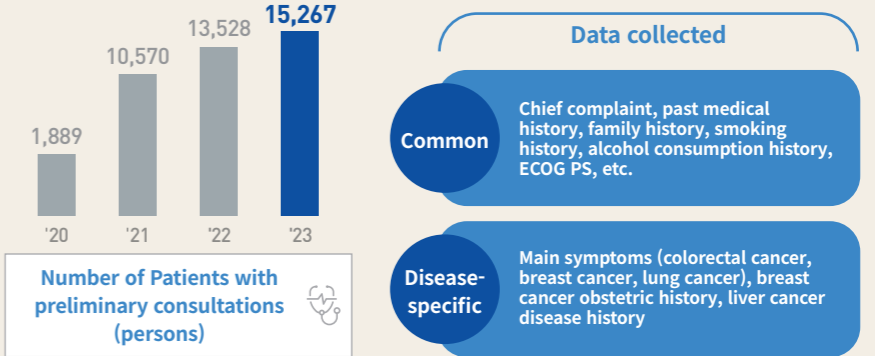
We will provide more convenient and efficient real world big-data research environment by this innovative cancer registry system, and ultimately this effort is expected to contribute to the improvement of cancer patient treatment.

- EMR standardization
- Save a time for preparation and clinic
- Data collection with a constant criteria
- Prevention of vanishing clinical data
- Build and maintain a qualified cancer registry with multidisciplinary discussions
- Save a time for data analysis
- Facilitation of research using cancer big data from cancer registry

Preliminary Patient-History Checkup(PHC)



At the time of first visit, an expert nurse performs an interview to fill-up cancer-specific history and record form. Currently, we operate PHC on patients with liver, colon, breast, lung, Pancreatobiliary cancers and lymphoma. Almost all cancer types will be covered soon.



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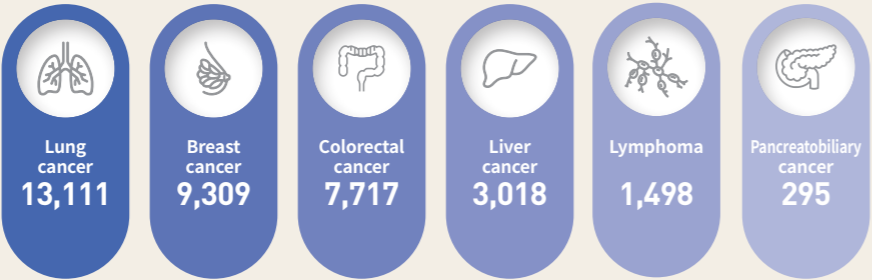
The SCCC Cancer Registry

EMR form and Cancer Registry

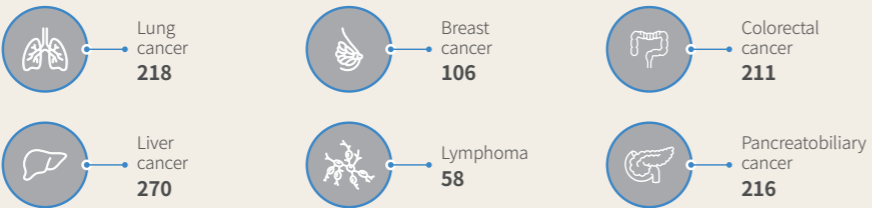


The structuring and standardization of EMR improves the accuracy and fidelity of the collected clinical data including diagnosis, staging, and current disease status (e.g., disease recurrence and/or metastasis and their specific sites). **These specifically updated EMR forms for each cancer types are designed to collect valuable clinical data without increasing clinician's work load and not too-complicated for clinicians to see in the clinic.** The collected data are automatically uploaded into a cancer specific registry in CDW after anonymization, laying the foundation for big data research. We completed prospective cancer registries for cancer types as follows, and the number of cancer types covered are increasing fast.

(Duration: Registry Open Month ~ '23. 12)



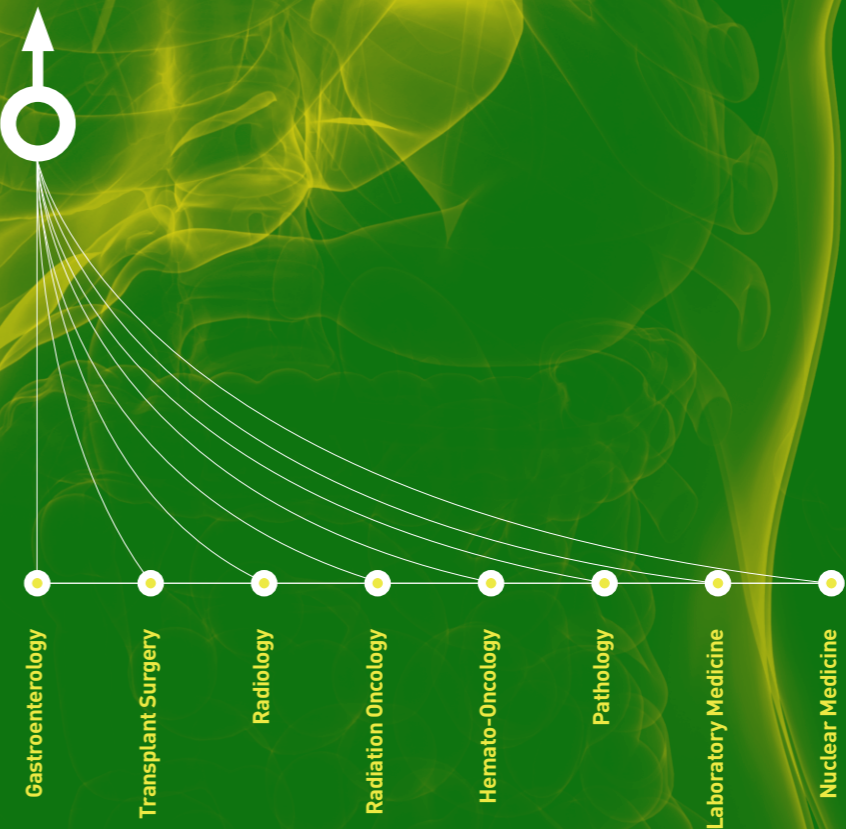
Data content					
Major categories	Basic information	Diagnosis / staging	Test information	Treatment information	Current disease information
Sub categories	Basic patient information, date of diagnosis, etc.	Diagnosis, staging, etc.	Blood tests, imaging tests, surgical pathology, etc.	Surgery, procedures, Chemotherapy, Radiotherapy, etc.	Recurrence, metastasis, death information, etc.



LIVER CANCER CENTER

The Liver Cancer Center is leading the treatment of liver cancer by providing the best treatment options for patients with liver cancer.

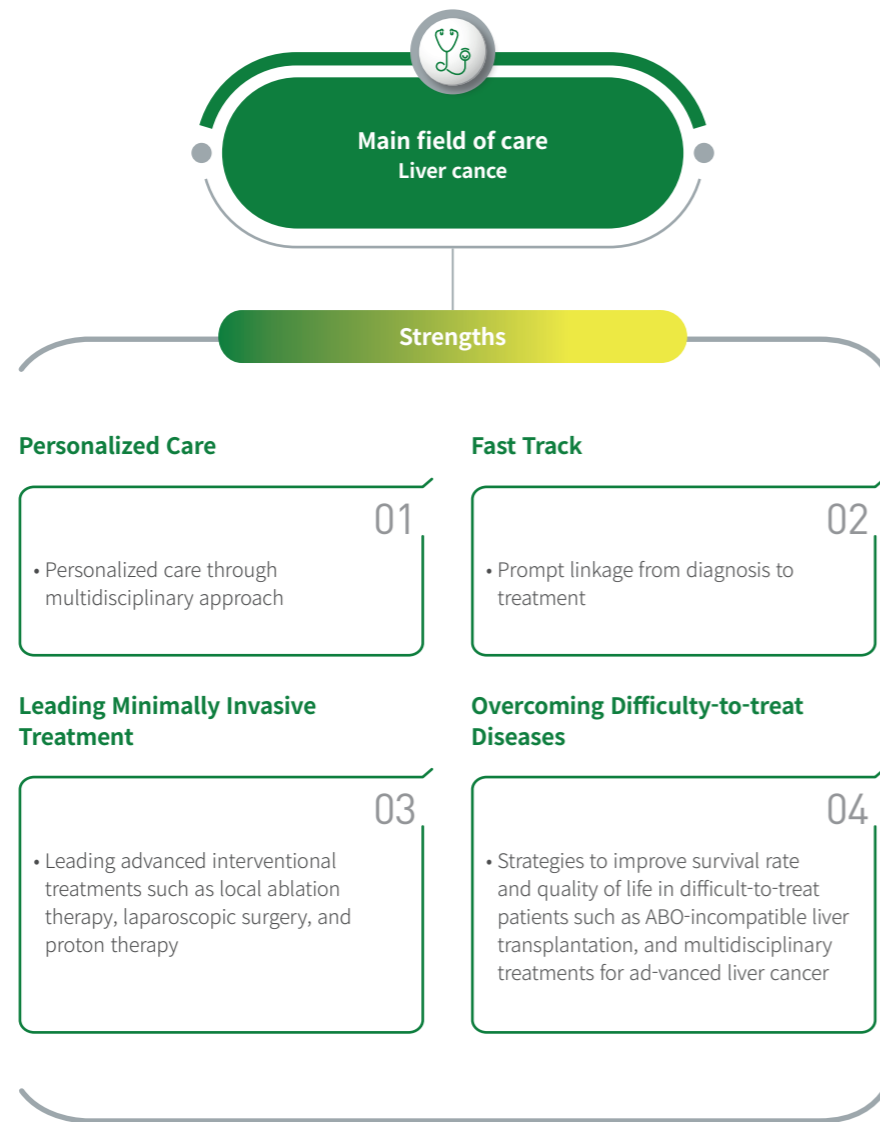
- We provide personalized treatment through patient-centered multidisciplinary approach.
- Our expertise and experiences have shown world-class outcomes in all areas of liver cancer treatment.



01 Introduction

General Information

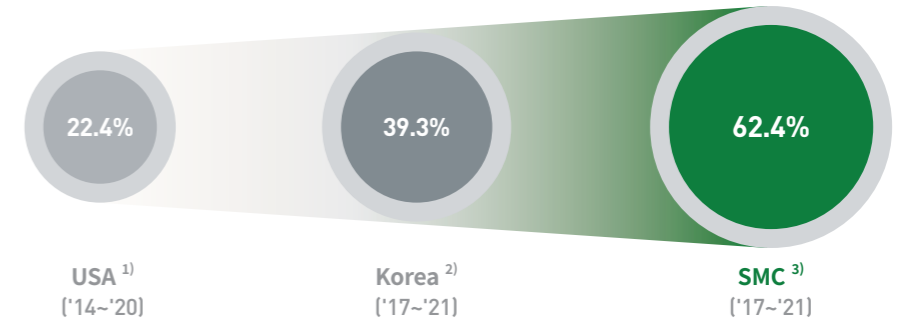
Medical faculties of the Liver Cancer Center are active in liver cancer treatment, research and development of novel medical device. We perform world-class medical care and research in all fields, including liver resection, liver transplantation, local ablation therapy, transarterial embolization, external beam radiotherapy, and systemic treatment.



02 Treatment Result

5-year Survival rate

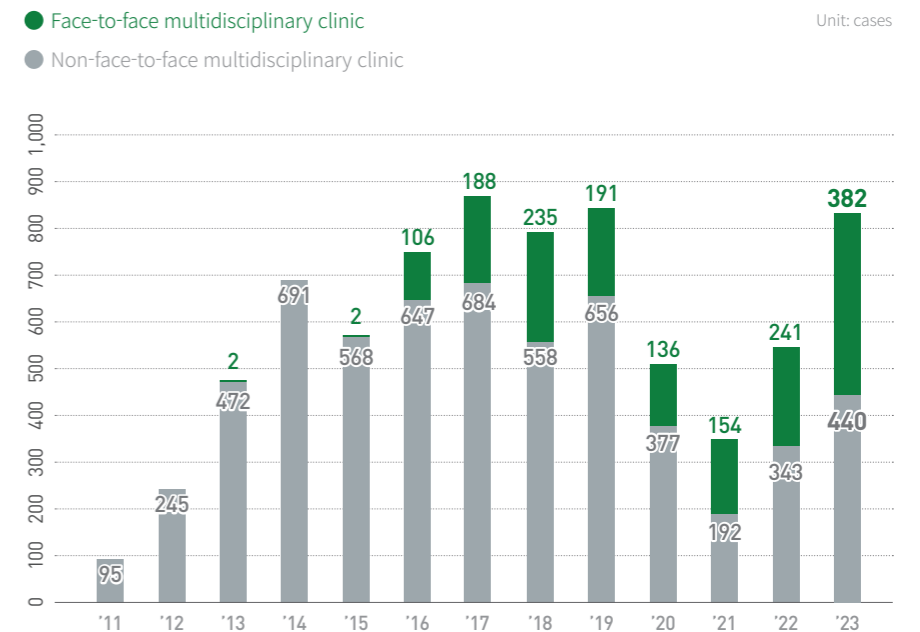
The 5-year relative survival rate of patients treated at the liver cancer center is 62.4%, which is far beyond the survival outcomes of other institutions.



※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

Multidisciplinary Treatment

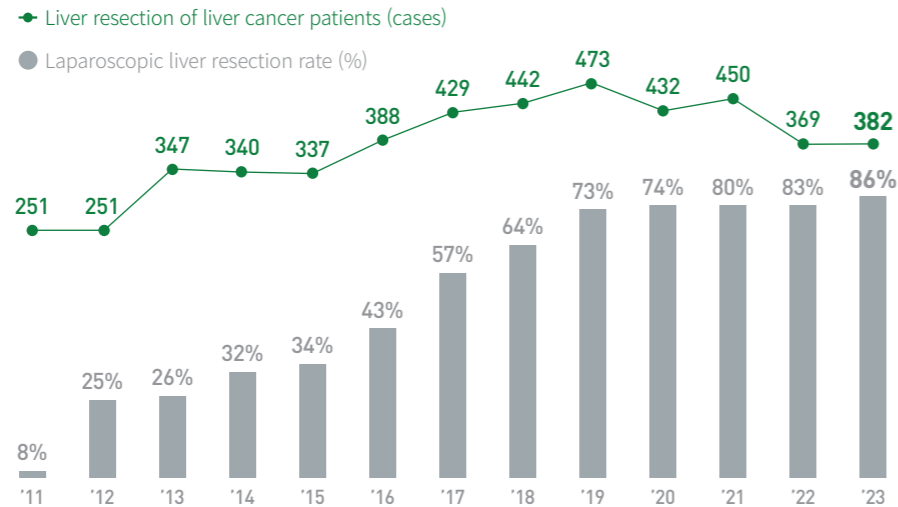
Personalized therapy is pursued through multidisciplinary approach to improve treatment outcomes in patients with liver cancer. Since 2016, we have been actively operating face-to-face multidisciplinary clinics and as of 2023, we have achieved a cumulative total of 1,600 cases.



02 Treatment Result

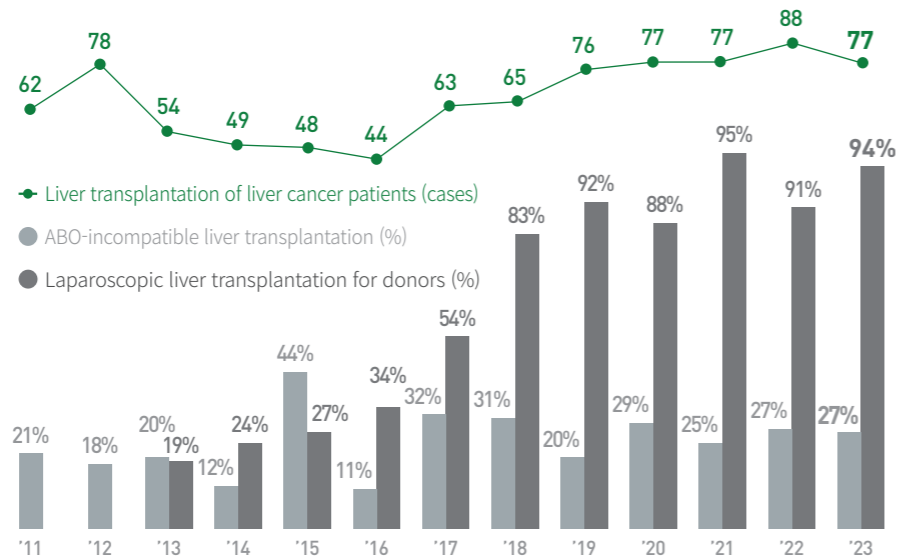
Liver Resection

We have extensive experience in performing more than 380 liver resections per year for liver cancer patients. Recently, laparoscopic liver resection is performed in more than 80% of total cases. Moreover, laparoscopic liver resection is also actively performed in patients over 70 years of age.



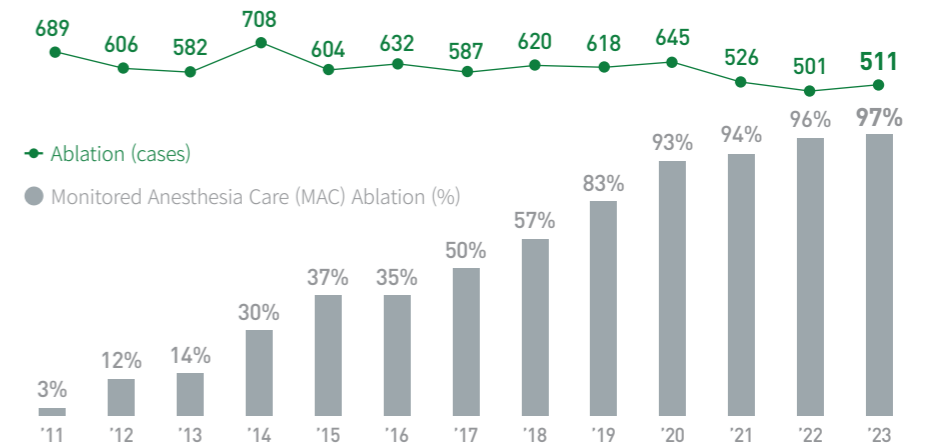
Liver Transplantation

The optimal time for liver transplantation in patients with liver cancer is determined through multidisciplinary approach. Moreover, laparoscopic surgery is performed to ensure the safety of liver donors. Recently, liver transplantation has become possible for those with different blood types.



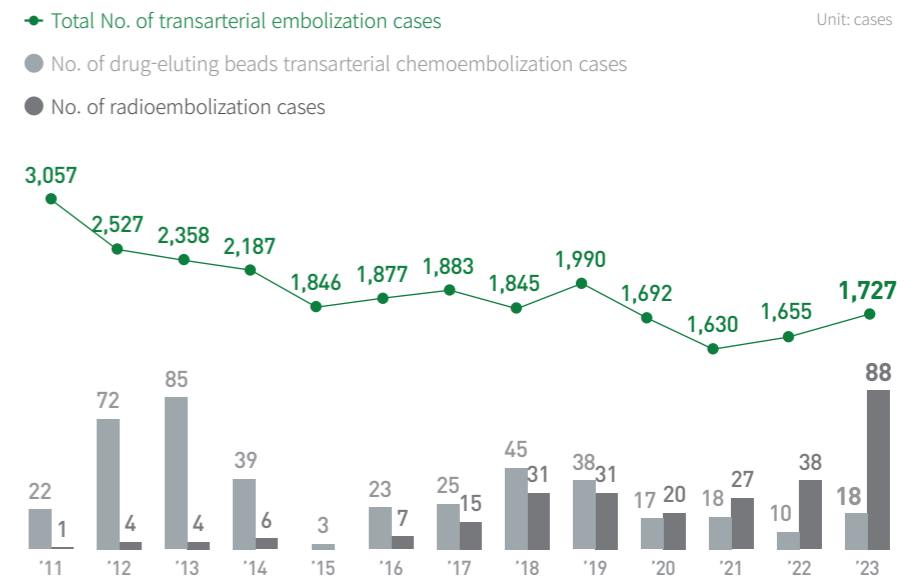
Local Ablation Therapy (Radio Frequency Ablation, Microwave Ablation, Cryoablation)

Local ablation therapy is the core of minimally invasive treatment for liver cancer. Since the first experience of radiofrequency ablation (RFA) in Korea in April 1999, the liver cancer center has accumulated over 13,000 cases by September 2023. These accumulated experiences and achievements are leading the world in related treatment fields.



Transarterial Embolization

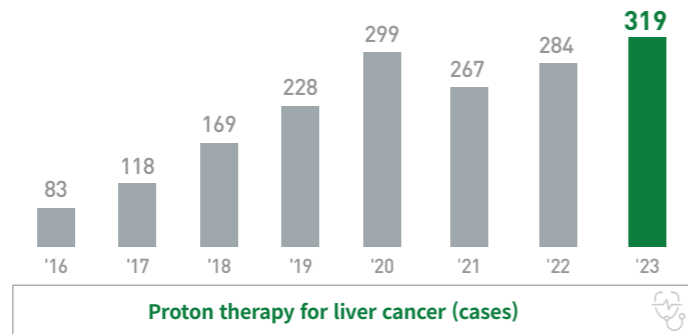
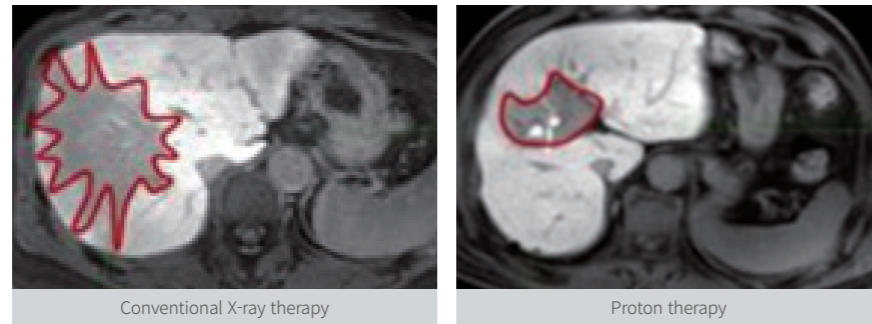
In consideration of the characteristics of the tumor, transarterial chemoembolization, drug-eluting bead transarterial chemoembolization (DEB+TACE), and radioembolization are performed. Procedures combining radiofrequency ablation or external beam radiotherapy are also actively performed.



02 Treatment Result

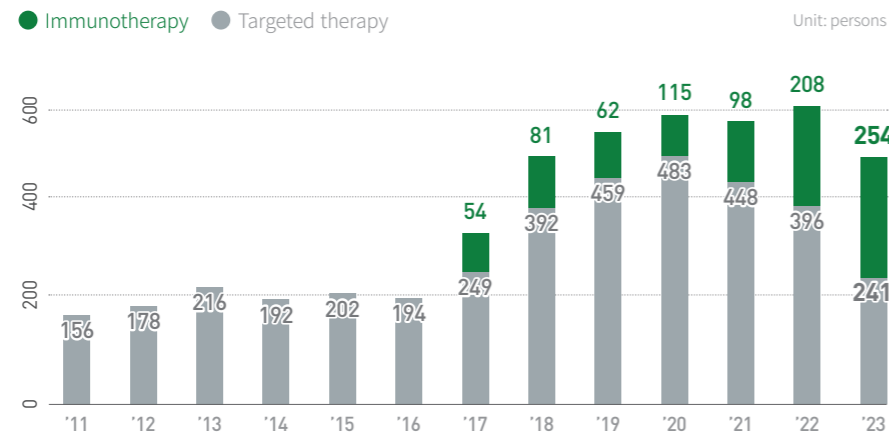
Proton Therapy

Since the opening of the Proton Therapy Center in January 2016, proton therapy has provided new hope for liver cancer patients with its excellent treatment outcomes. In 2024, it achieved a milestone of 2,000 cases of proton therapy for liver cancer patients, a first in the country.



Systemic Therapy

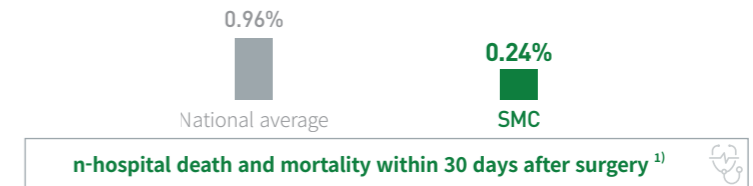
Currently, we provide targeted therapy and immunotherapy to about 500 liver cancer patients annually. We offer personalized patient care through a multidisciplinary approach and NGS (Next-Generation Sequencing) testing. Various new clinical trials using novel targeted therapies and immunotherapies are currently ongoing.



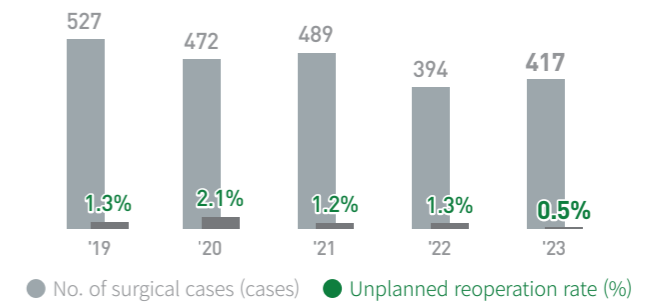
03 Quality Management

Quality Management

Each year, the Liver Cancer Center evaluates and improves the quality of clinical services to ensure a safe clinical environment and provide best treatment

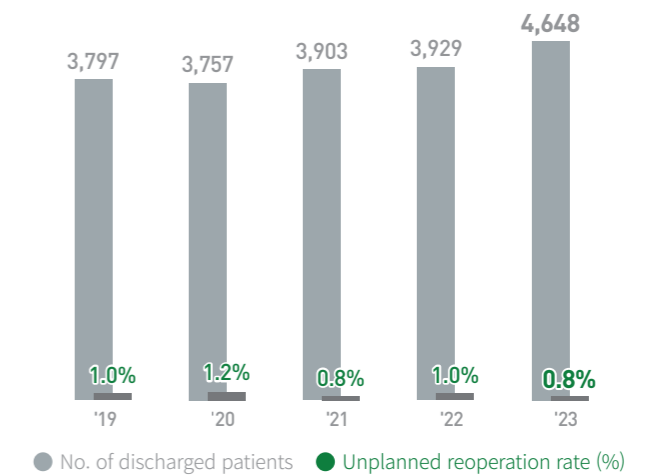


※ ¹⁾ 4th Appropriateness Evaluation Report for Liver Cancer Treatment from Health Insurance Review and Assessment Service (October 2022), (C22.0 Liver cell carcinoma, C22.1 Intrahepatic bile duct carcinoma, C78.7 Secondary malignant neoplasm of liver and intrahepatic bile duct)



Unplanned reoperation rate within the same hospitalization period

※ Excluding liver transplantation cases due to liver cancer

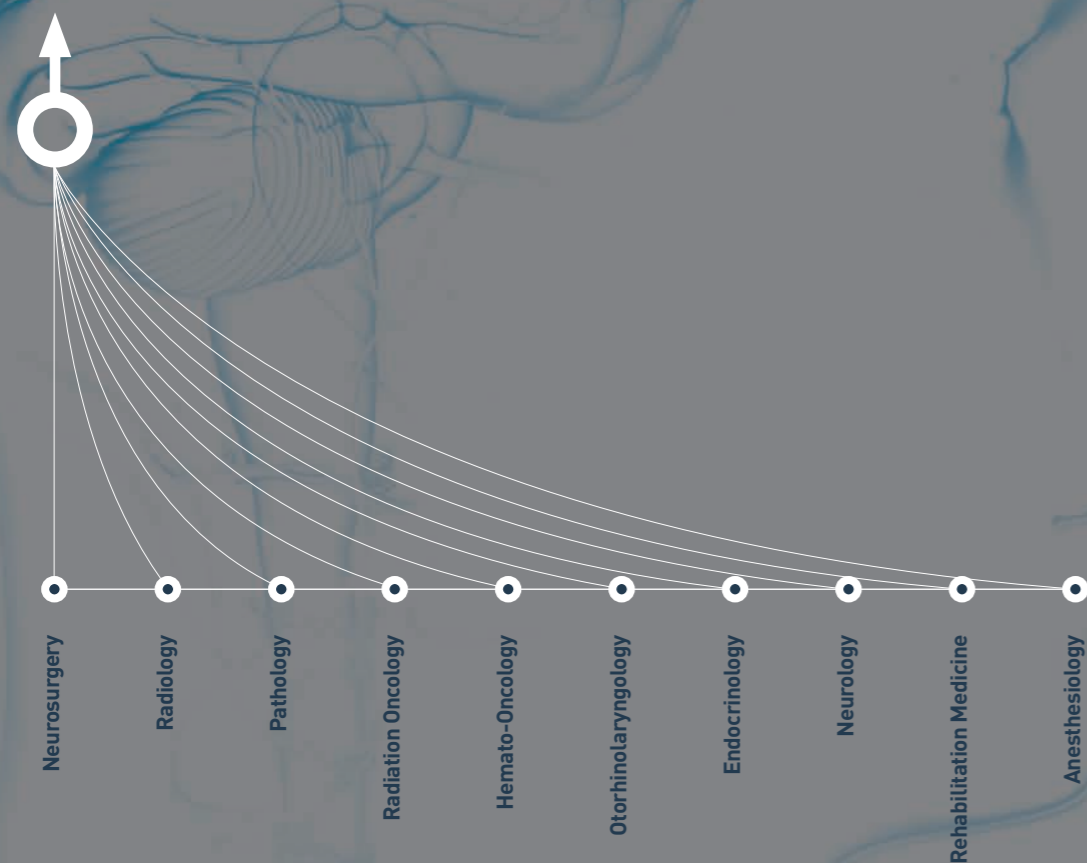


Unplanned readmission rate within 7 days

BRAIN TUMOR CENTER

The Brain Tumor Center leads the comprehensive treatment of brain tumor patients with the most renowned medical faculties in Korea and cutting-edge medical technology.

- We boast the highest number of surgeries and procedures in the country, demonstrating our unparalleled expertise.
- We provide the latest personalized treatments, combining active clinical practice and research.

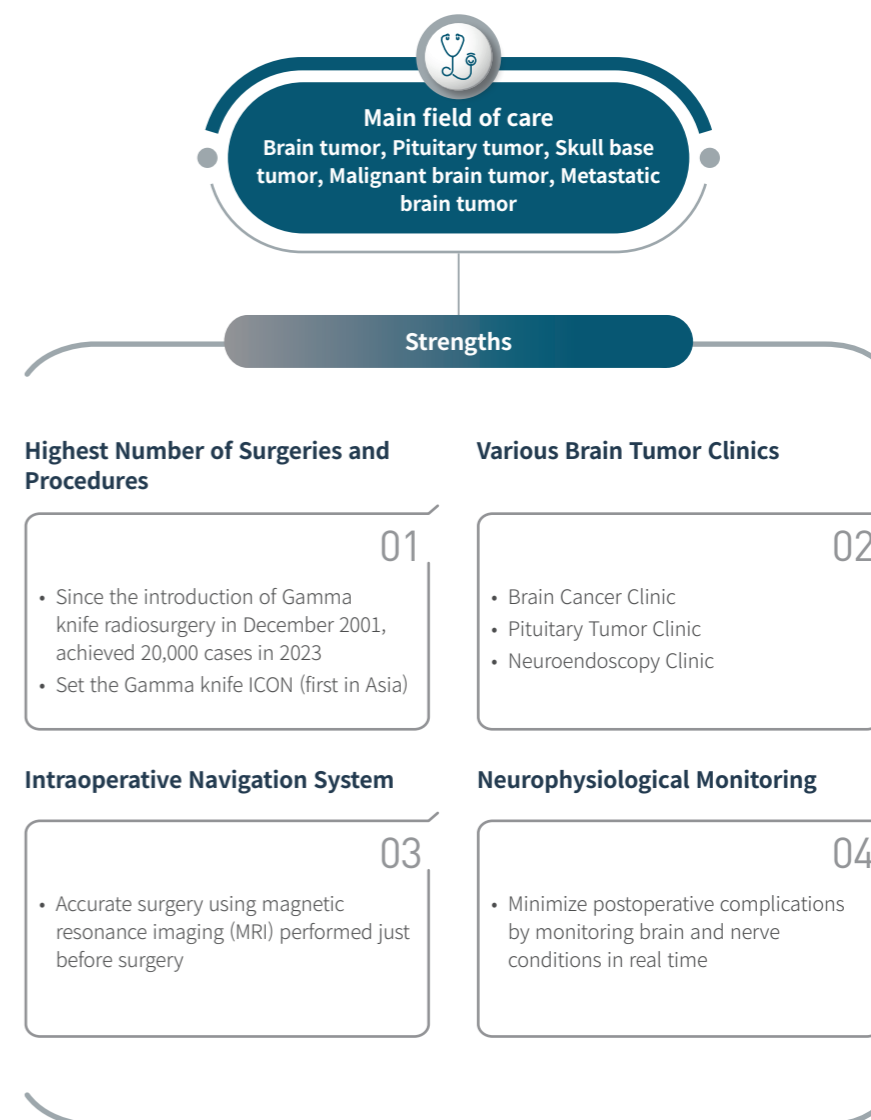


01

Introduction

General Information

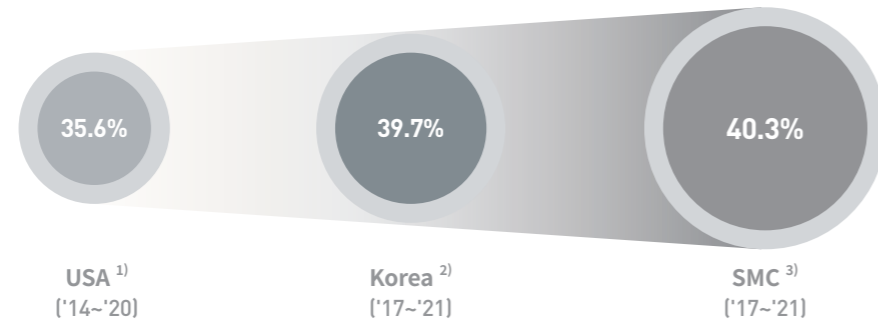
The Brain Tumor Center is attempting personalized treatment by combining clinical application and research for intractable brain tumors. We actively participate in advancing drug development and important clinical trials related to the latest treatment. This provides patients with expanded treatment opportunities, while taking the lead in developing and applying cutting-edge treatments faster.



02 Treatment Result

5-year Survival rate

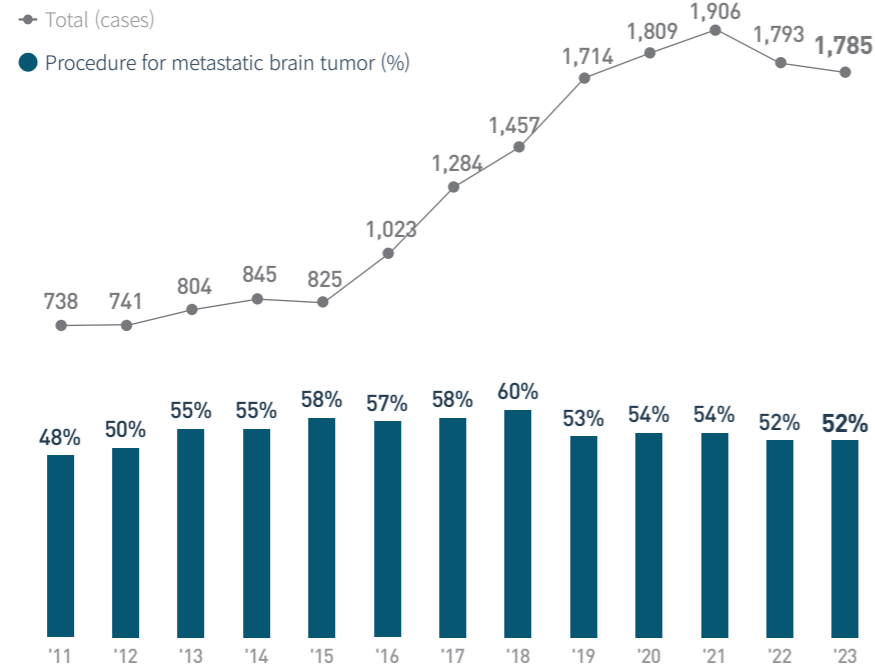
The 5-year relative survival rate of patients treated at the Brain Tumor Center is 40.3%, higher than the global average.



※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

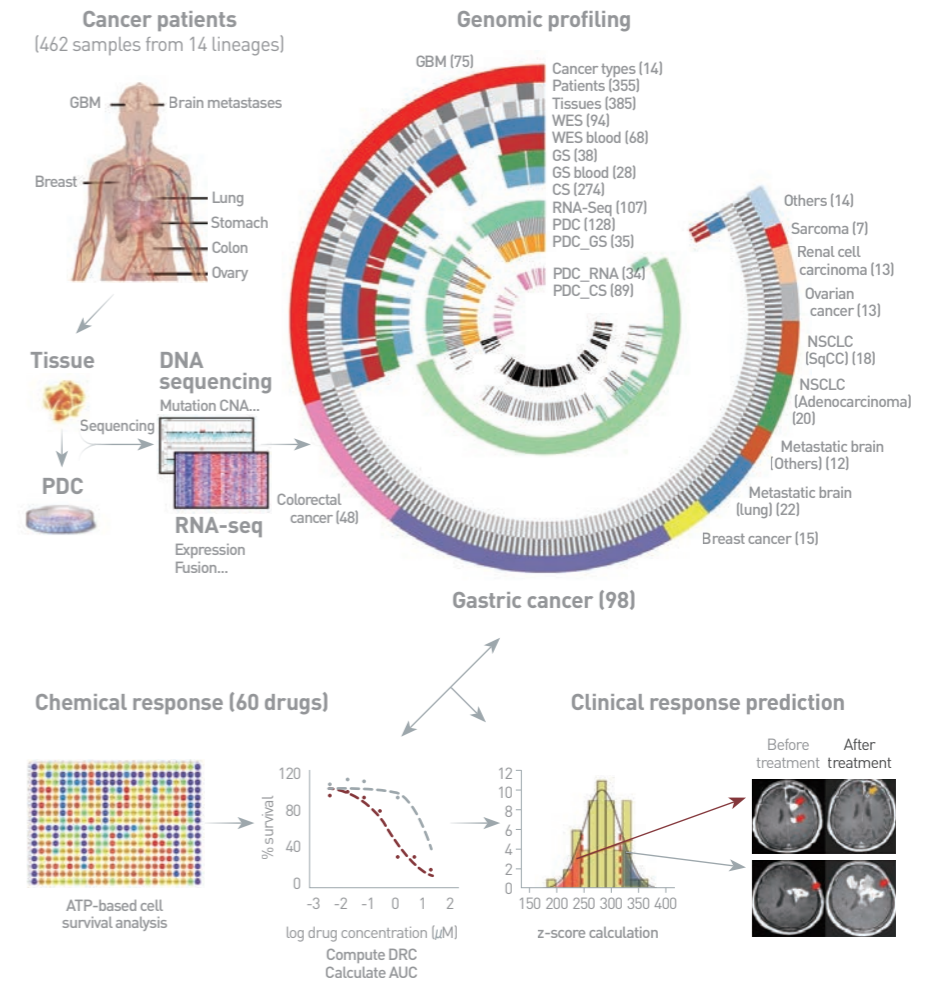
Gamma Knife Surgery (GKS)

Starting with the first patient treatment in 2002, we have achieved 20,000 cumulative cases in 2023. As of 2023, patients with metastatic brain tumor accounted for 52% of treatment cases.



Research

We proposed a personalized and targeted treatment using tumor spheroids for cancer patients. By increasing treatment accuracy through a large-scale genome-drug response analysis of tumor spheroids, it is expected that this will be a significant step in improving the survival period and quality of cancer patients' life.



More Information

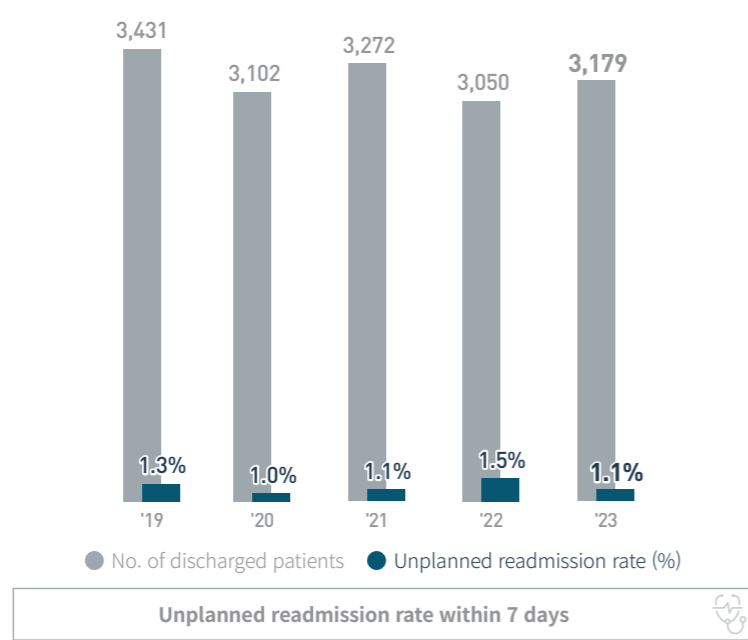
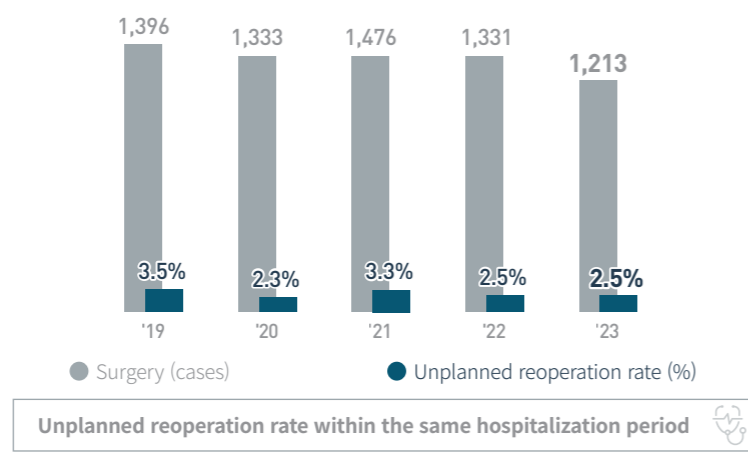
Verification of 2016 WHO classification of central nervous system tumors

The Brain Tumor Center of Samsung Comprehensive Cancer Center reclassified 'intracranial solitary fibrous tumor' and 'hemangiopericytoma' into one disease and reclassified them pathologically. From clinical outcomes, it has been found that the 2016 WHO classification of central nervous system tumors better reflected the prognosis of the two tumors than the previous classification system.

03 Quality Management

Quality Management

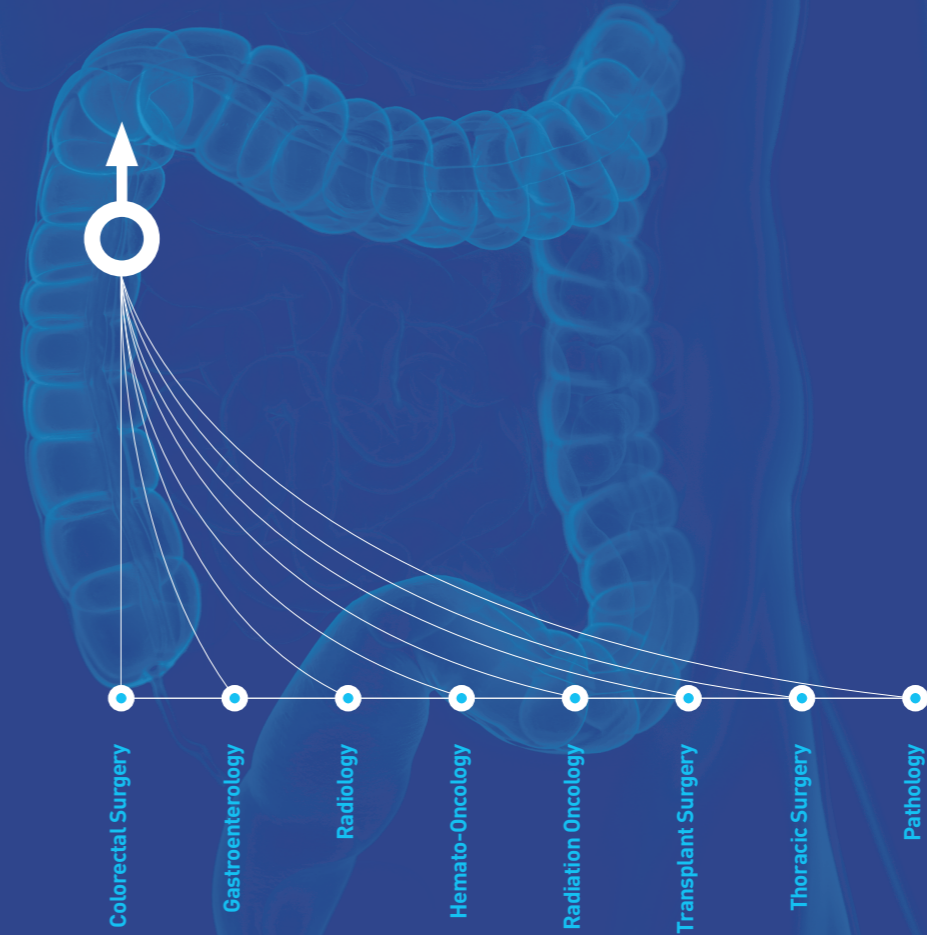
Each year, the Brain Tumor Center evaluates the quality of clinical services to improve quality of care and ensure a safe clinical environment.



COLORECTAL CANCER CENTER

The colorectal cancer center leads the best treatment culture through its cutting-edge technology. We strive to achieve patient happiness with our endeavor for optimal diagnosis and surgery

- We improve the treatment outcome by actively introducing the most advanced treatment.
- We run various therapeutics methods and programs to improve the patients' quality of life.



01 Introduction

General Information

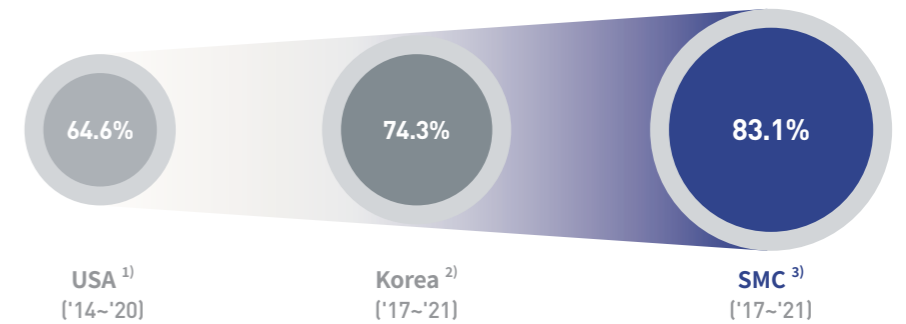
The Colorectal Cancer Center has improved its treatment outcome by actively introducing high-tech treatment modalities such as robotic surgery, targeted therapy, proton therapy, and minimally invasive surgery. All departments use the common protocol based on the international guidelines to provide standardized treatment.



02 Treatment Result

5-year Survival rate

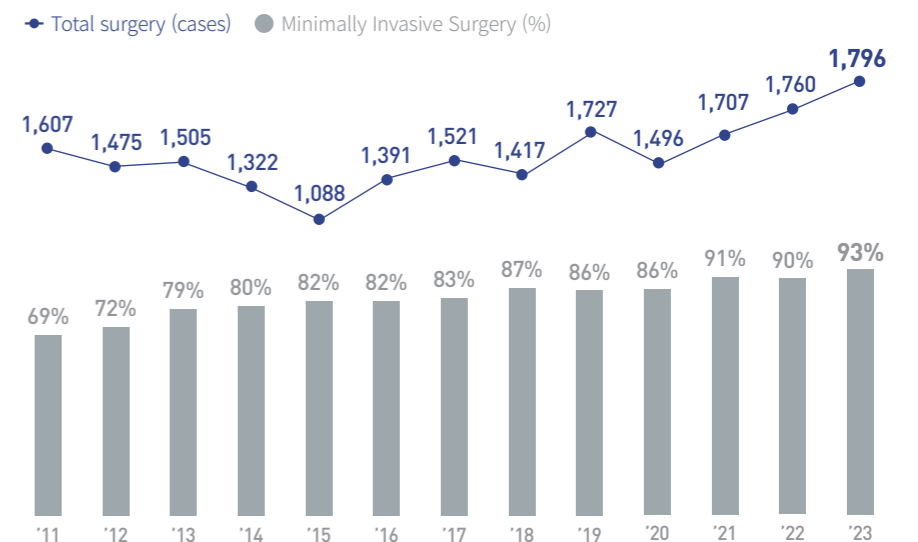
The 5-year relative survival rate of patients treated at the Colorectal Cancer Center is 83.1%, which is a top-notch outcome compared to other cancer hospitals.



※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

Minimally Invasive Surgery

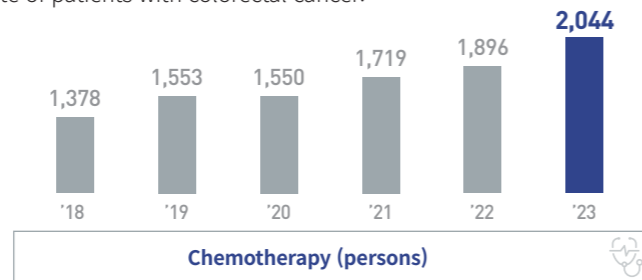
In 2023, we performed a cumulative number of 18,000 minimally invasive surgery cases for colorectal cancer. Among the total number of colon cancer surgery, the minimally invasive surgery consisted of 90% and more. We continue to strive for more sophisticated surgery, minimal incisions, less pain, and rapid recovery.



02 Treatment Result

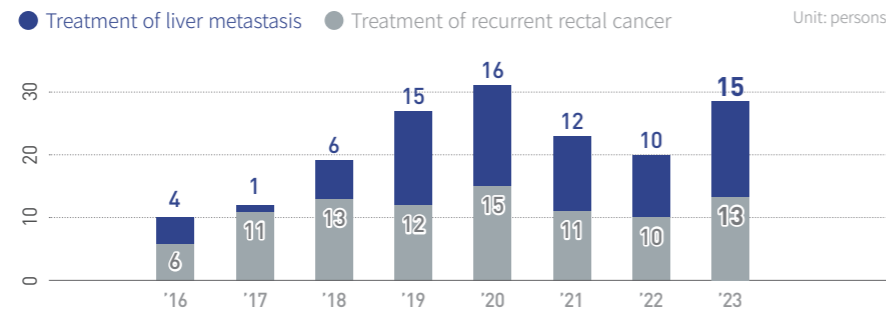
Chemotherapy

Chemotherapy for colon cancer continues to increase and more than 2,000 patients were treated in 2023. We are steadily carrying out clinical trials to apply targeted therapy or immunotherapy to patients with intractable colorectal cancer who have failed in standard treatment. We make steady and persistent effort to improve the survival rate of patients with colorectal cancer.



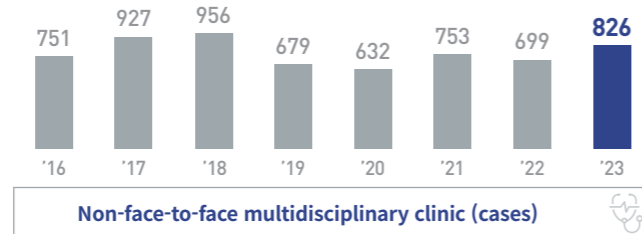
Proton Therapy

Samsung Comprehensive Cancer Center has performed proton therapy since 2016. The goal of Colorectal Cancer Center is to cure patients with unresectable liver metastasis of colorectal cancer previously evaluated as intractable and recurrent rectal cancer in the pelvis, and to improve their quality of life. With this goal, we treat approximately 30 patients with colorectal cancer every year.



Multidisciplinary Treatment

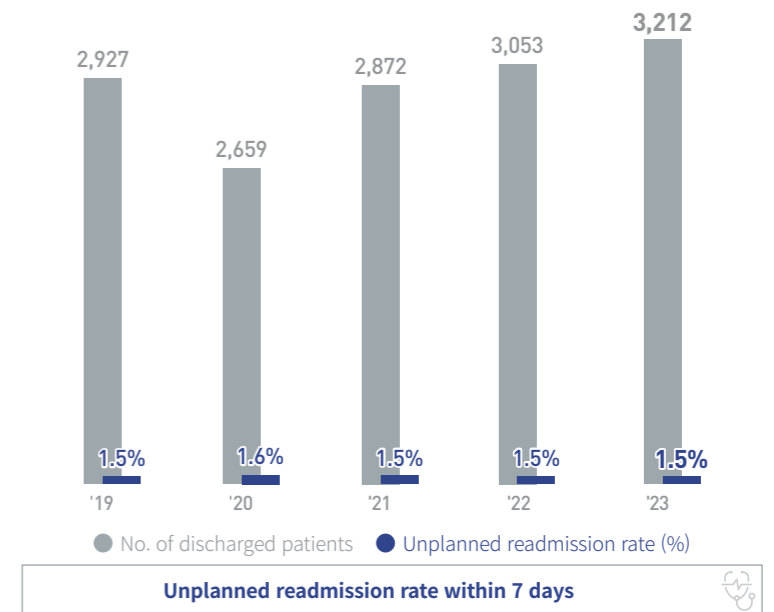
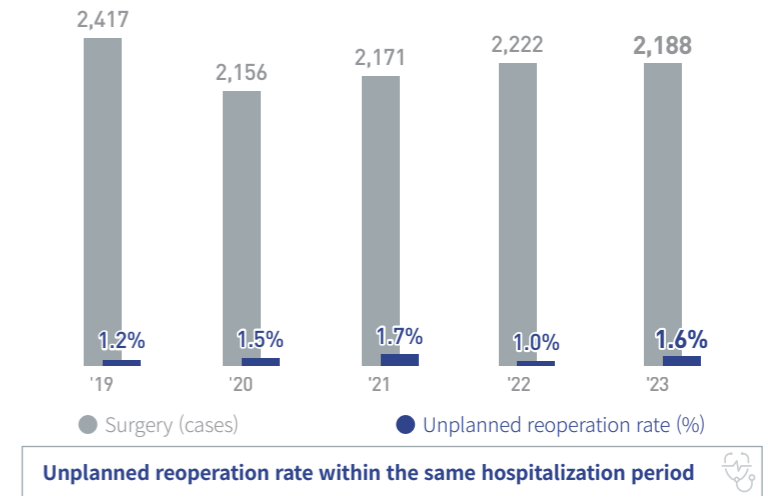
We provide multidisciplinary treatment for patients with refractory/recurrent colorectal cancer who have difficulty in deciding treatment plans. Several specialists from relevant departments gather together to discuss the best treatment options.



03 Quality Management

Quality Management

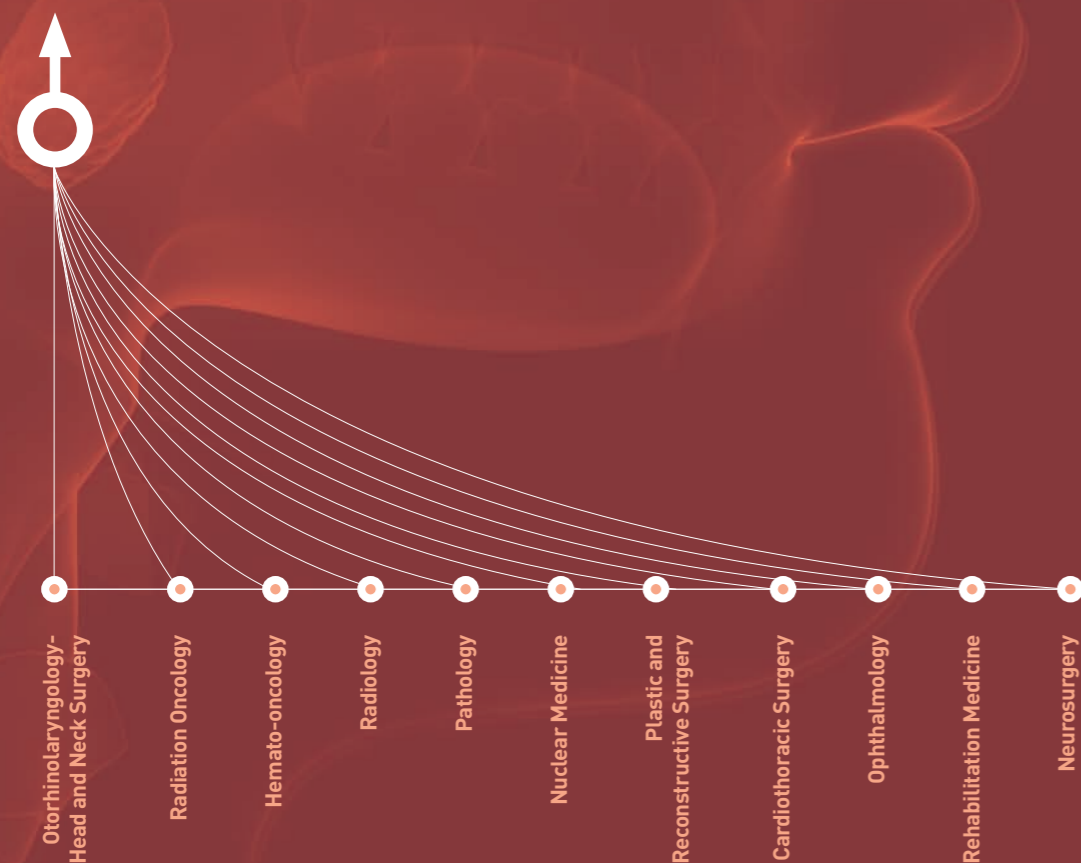
Each year, the Colorectal Cancer Center evaluates and improves the quality of clinical services to ensure a safe clinical environment and provide best treatment.



HEAD AND NECK CANCER CENTER

The Head and Neck Cancer Center provides the best treatment to pursue the highest cure rate and the best quality of patients' life.

- We treat about 14% of newly registered head and neck cancer patients in Korea.
- We provide complementary multimodal treatments for patients with intractable or advanced stage cancer as well as early stage cancer.

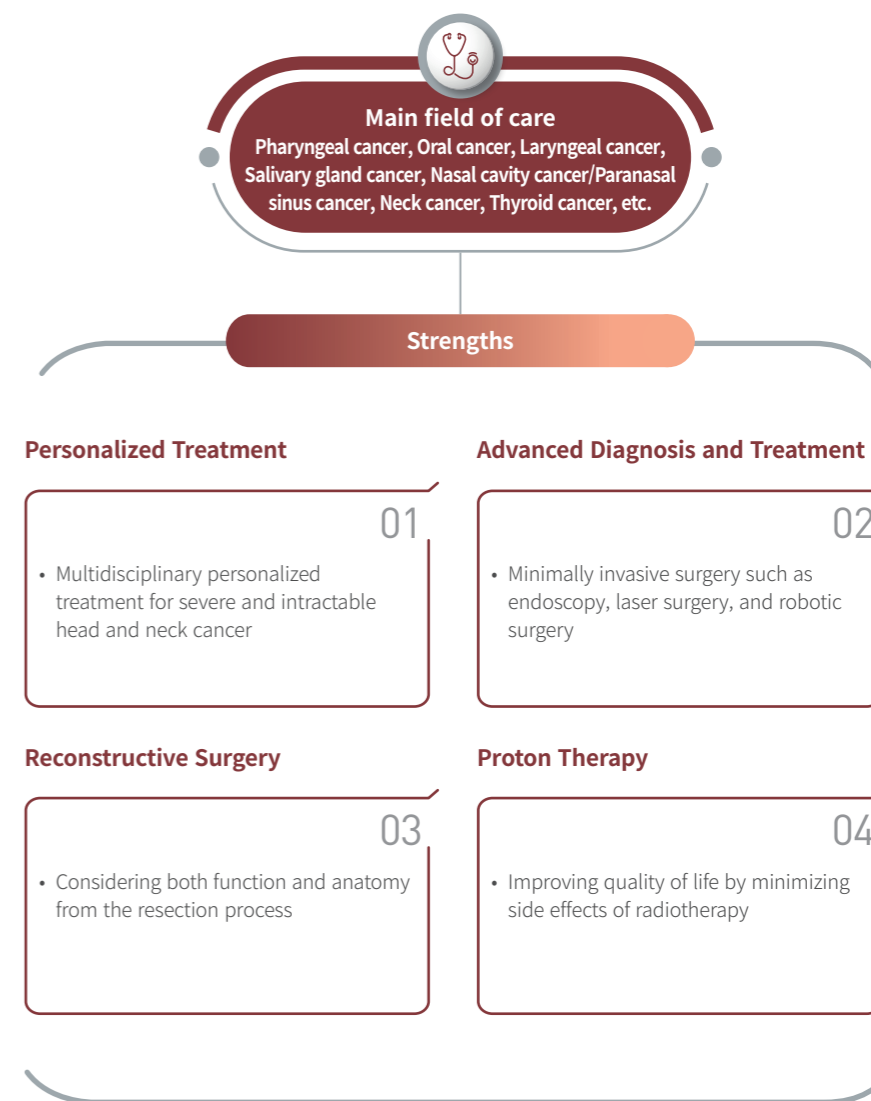


01

Introduction

General Information

The Head and Neck Cancer Center cares about 14% of the newly registered head and neck cancer patients in Korea. As one of the major Korean hospitals, we are leading all aspects of cancer management for head and neck cancer patients in Korea, including diagnosis, treatments, and patient care.

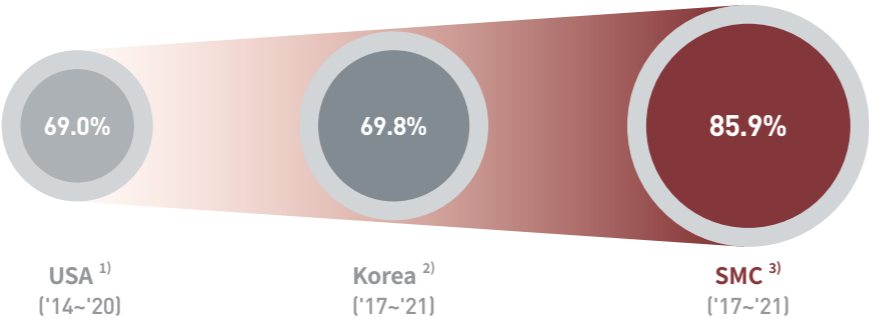


02

Treatment Result

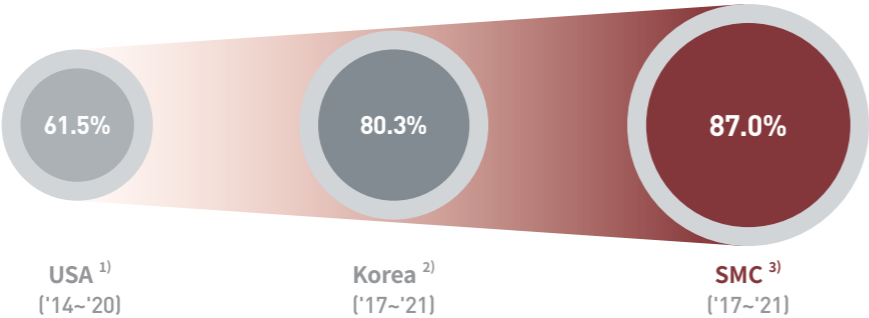
5-year Survival rate, Oral and Pharyngeal Cancer

The 5-year relative survival rate of patients with oral and pharyngeal cancer treated at the Head and Neck Cancer Center is 85.9, which is far higher than the average worldwide.



5-year Survival rate, Laryngeal Cancer

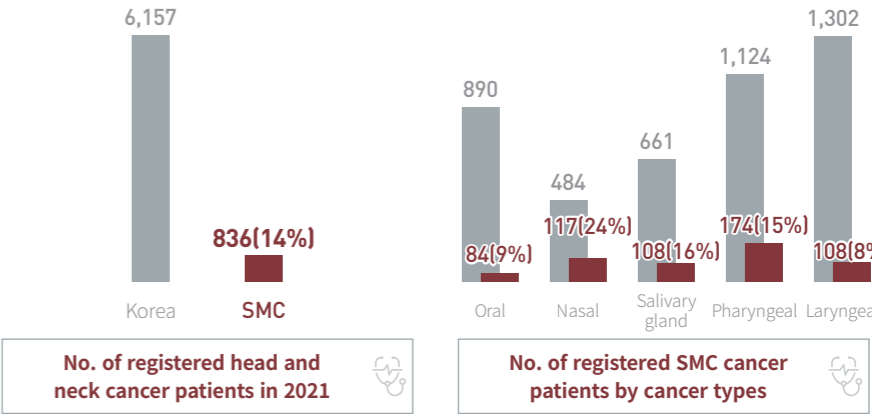
The 5-year relative survival rate of laryngeal cancer patients treated at the Head and Neck Cancer Center is 87.0%, which also outperforms other hospitals.



※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

Cancer types

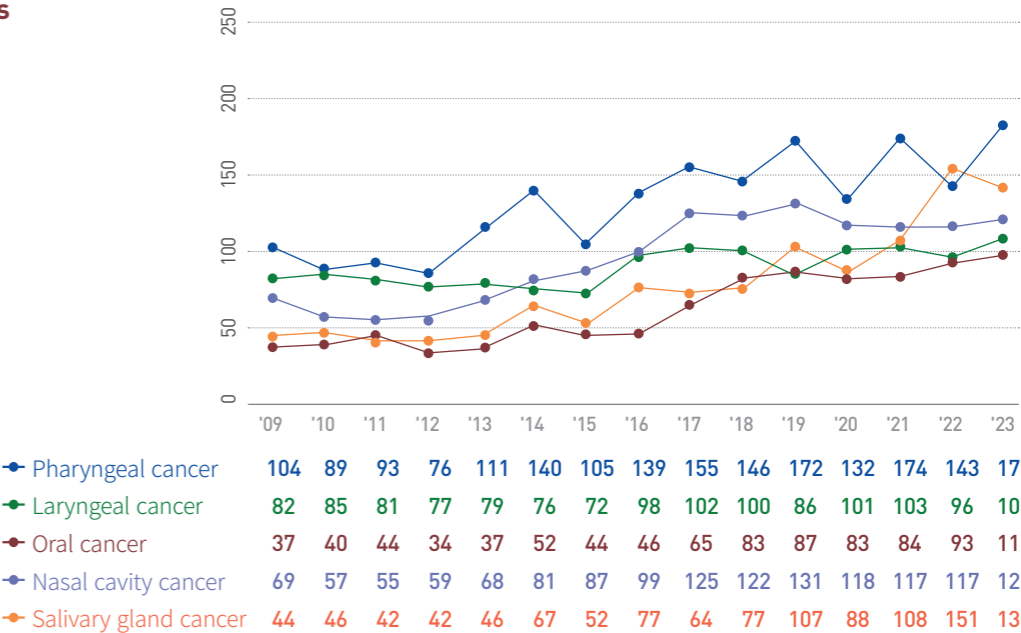
In 2021, 14% of head and neck cancer patients in Korea visited our Head and Neck Cancer Center. Patients who visited Samsung Comprehensive Cancer Center showed the following proportions: 9% oral, 24% nasal cavity, 16% salivary gland, 15% pharyngeal, and 8% laryngeal cancers.



※ Excluding cancer with unknown cause

No. of Registered by Cancer types

As a result of analyzing the number of registered patients by detailed cancer type, the number of patients with pharyngeal, oral and salivary gland cancer is rapidly increasing.

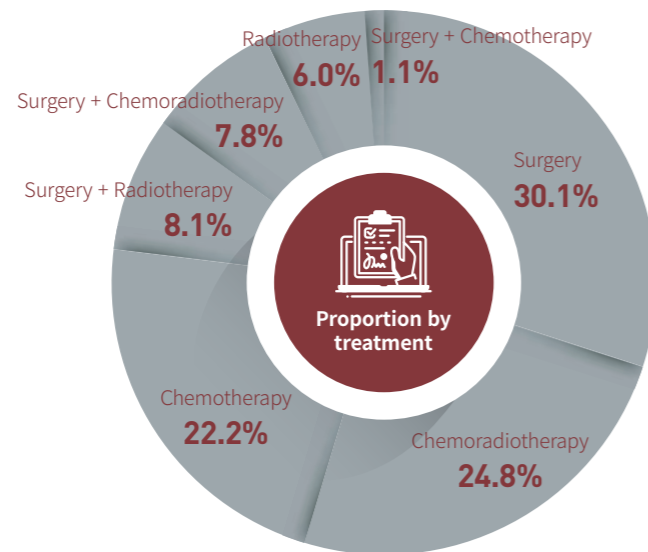


※ Excluding cancer with unknown cause

02 Treatment Result

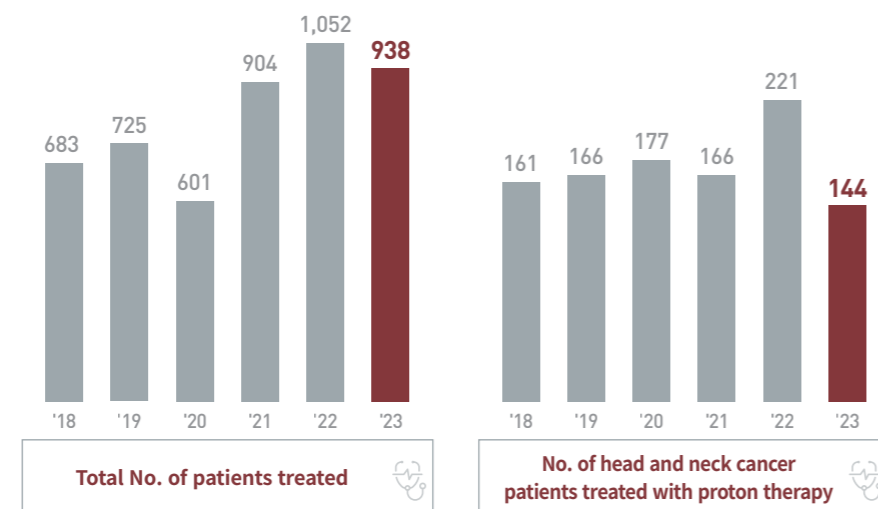
Treatment Method

The Head and Neck Cancer Center offers multimodal treatments to 41.8% of our patients.



No. of Patients Treated

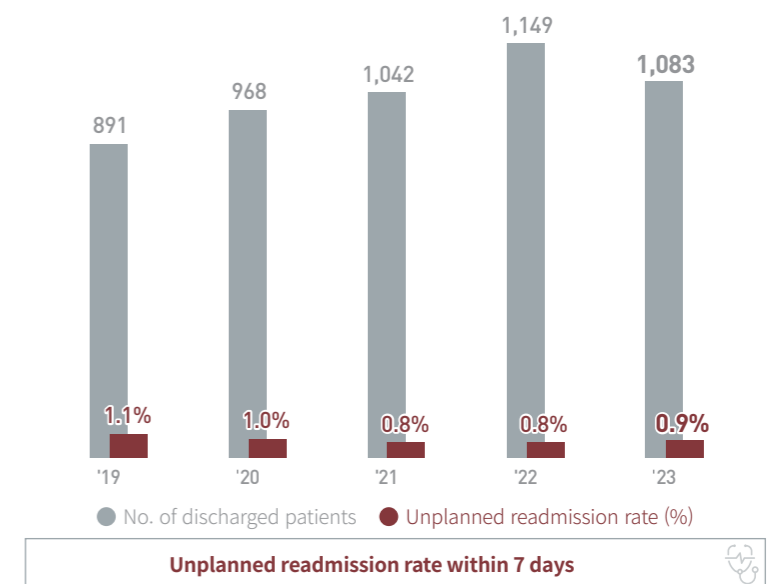
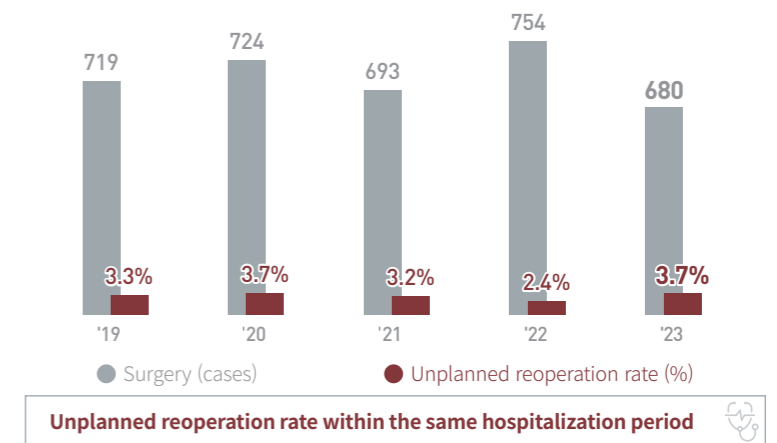
In addition to early-stage disease, the center provides specialized treatment for patients with severe, intractable, and advanced-stage cancers. Since the introduction of proton therapy in 2016, Approximately 140 patients treated per year.



03 Quality Management

Quality Management

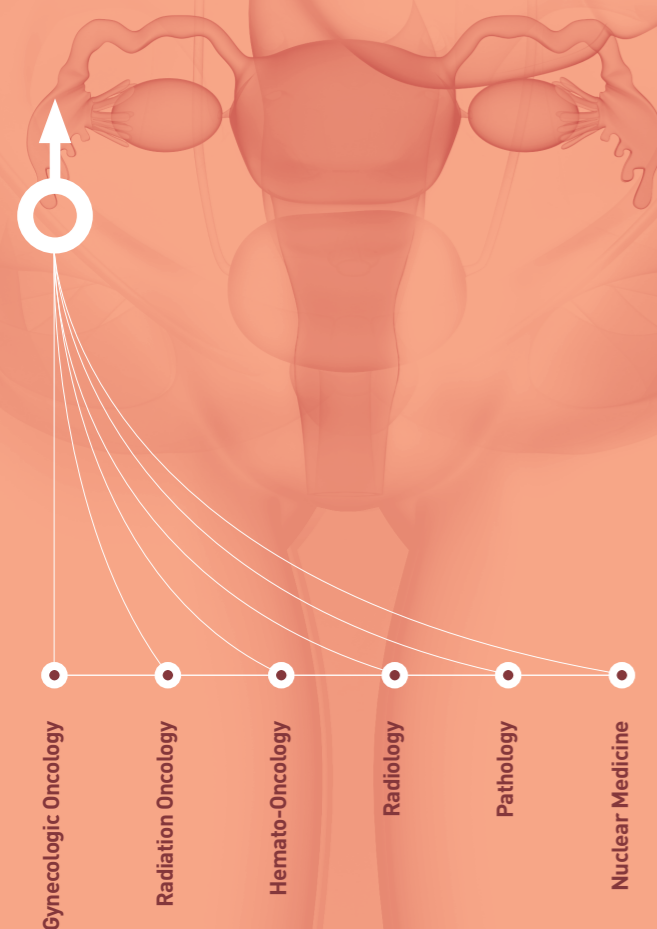
Each year, the Head and Neck Cancer Center evaluates and improves the quality of clinical services to ensure a safe clinical environment and provide best treatment.



GYNECOLOGIC CANCER CENTER

Under the motto of "The First & the Best", the Gynecologic Cancer Center provides optimal treatment with systematic cooperation from all medical faculties, and actively conducts research to realize this motto.

- The Gynecologic Cancer Center has consistently demonstrated the best treatment outcomes in South Korea.
- The faculty members of the Center have abundant clinical experience in the treatment of ovarian cancer and have shown excellent treatment outcomes.

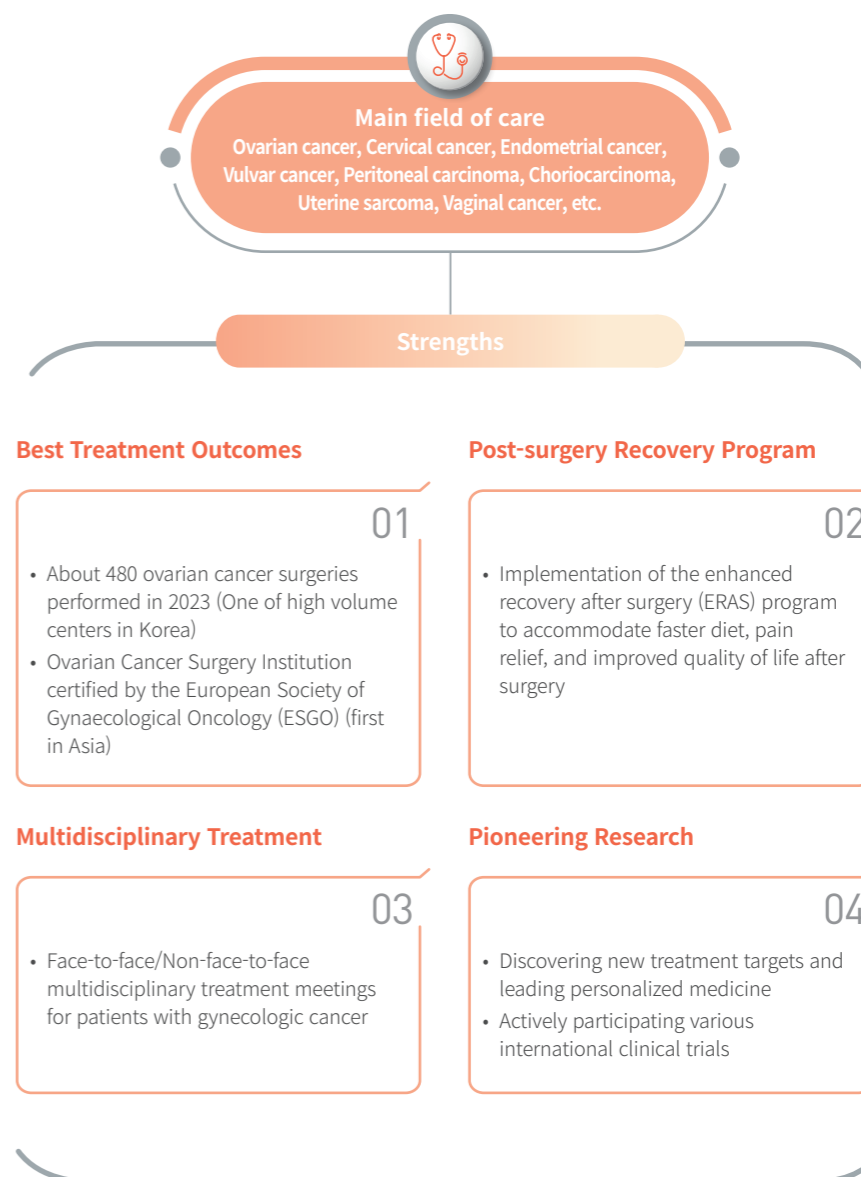


01

Introduction

General Information

The Gynecologic Cancer Center is actively conducting research by participating in numerous multi-national, multi-institutional joint clinical trials, and is among the first to accept and standardize new treatment methods. The Center strives to develop new treatment methods by elucidating the causes of gynecologic cancer and the mechanism of therapeutics drug actions. It is continuing research to discover new targets and analyze the mechanisms and therapeutics effects of molecular target medicine to provide personalized cancer treatment.

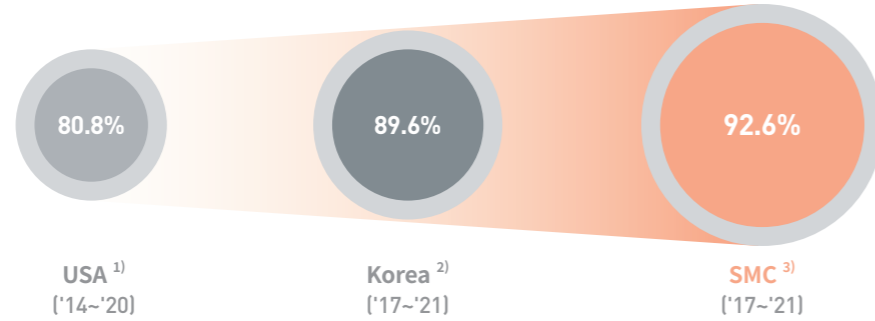


02

Treatment Result

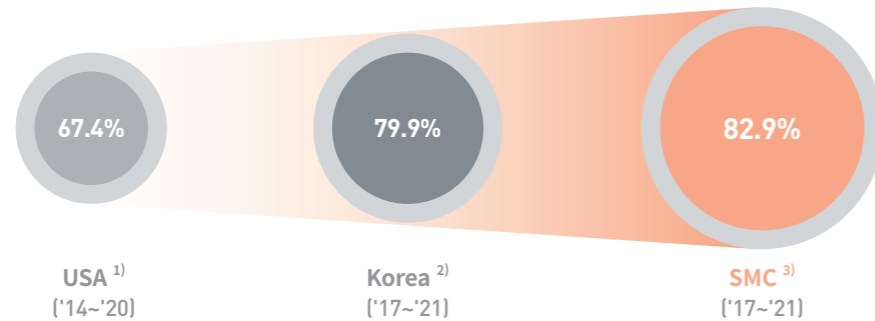
5-year Survival rate, Endometrial Cancer

The 5-year relative survival rate of endometrial cancer patients treated at the Gynecologic Cancer Center is 92.6%, which is superior to that of the USA and South Korea.



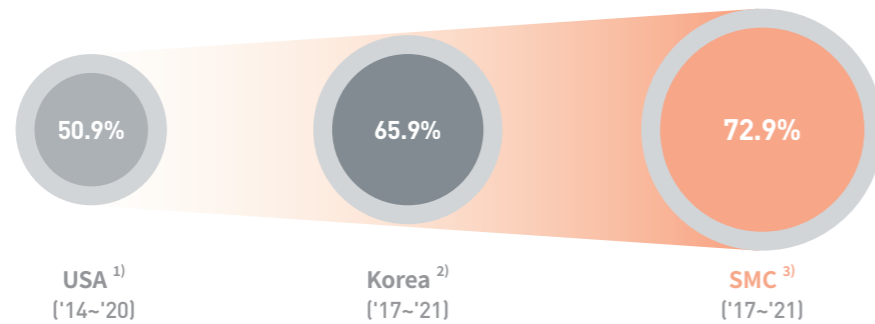
5-year Survival rate, Cervical Cancer

The 5-year relative survival rate of cervical cancer patients treated at the Gynecologic Cancer Center is 82.9%, which is not only the best performance outcome in the nation, but is also one of the best figures in the world.



5-year Survival rate, Ovarian Cancer

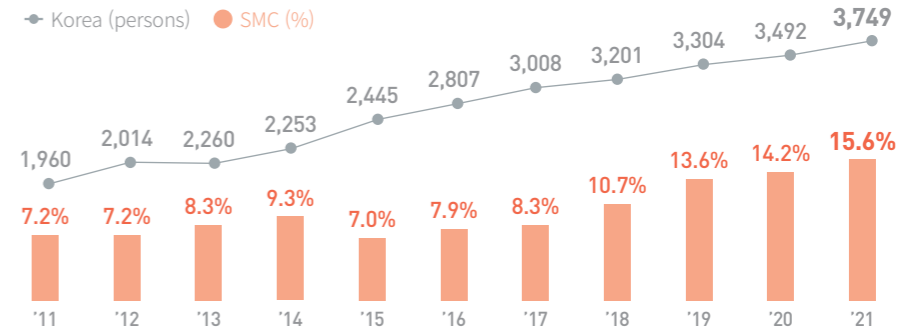
Ovarian cancer is considered difficult to treat because it is often detected at an advanced stage due to the location and characteristic of tumors, thereby generally classified as a cancer with poor prognosis. The 5-year relative survival rate of ovarian cancer patients treated at the Gynecologic Cancer Center is 72.9%, which is also among the top nationally and worldwide.



※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

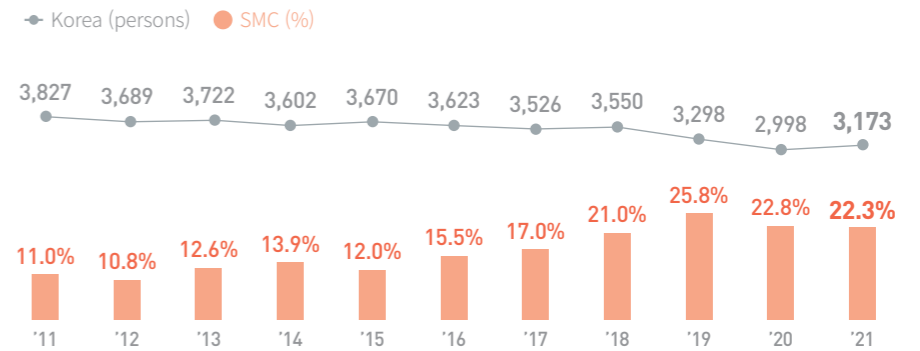
No. of Registered Endometrial Cancer

In 2021, there were 3,749 cases of endometrial cancer patients in Korea, and this number has been on the rise each year. In 2021, the Gynecologic Cancer Center treated 586 patients, accounting for 15.6% of patients in Korea.



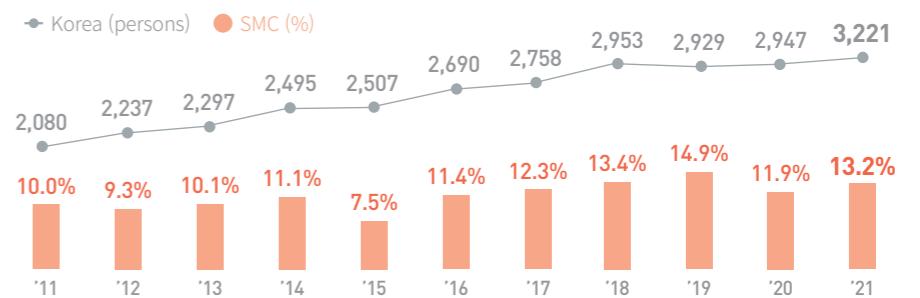
No. of Registered Cervical Cancer

In 2021, there were 3,173 cases of cervical cancer reported in the country. Thanks to early screening and the development of cervical cancer prevention vaccines, the number of cases has been decreasing annually until 2020. However, in 2021, it slightly increased. In 2021, the Gynecologic Cancer Center treated 707 patients, accounting for 22.3% of patients in Korea.



No. of Registered Ovarian Cancer

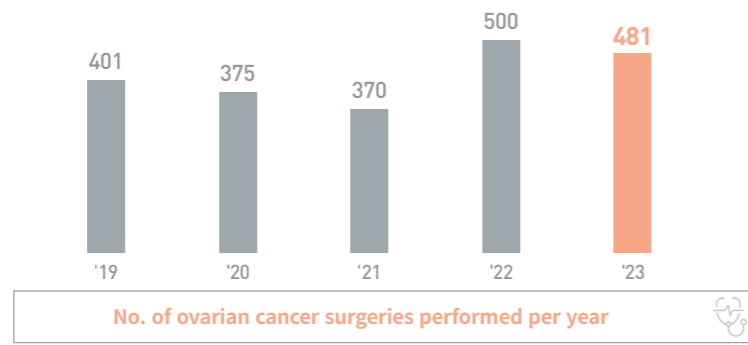
In 2021, the number of ovarian cancer patients in South Korea was 3,221 which is also increasing every year. The Gynecologic Cancer Center treats about 424 ovarian cancer patients annually, accounting for about 13.2% of the total patients.



03 Quality Management

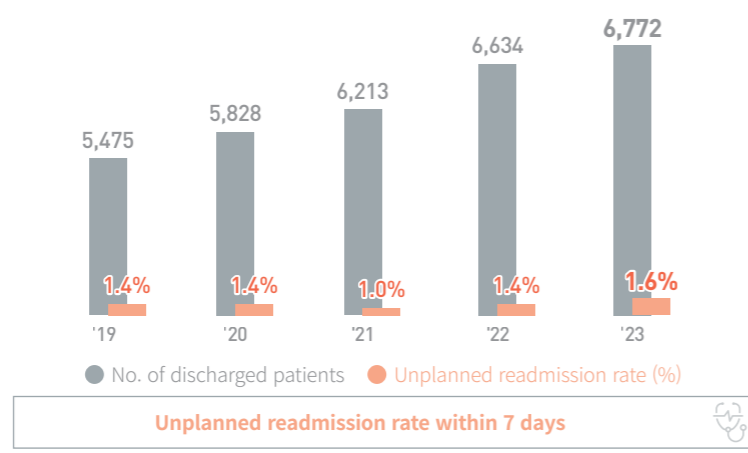
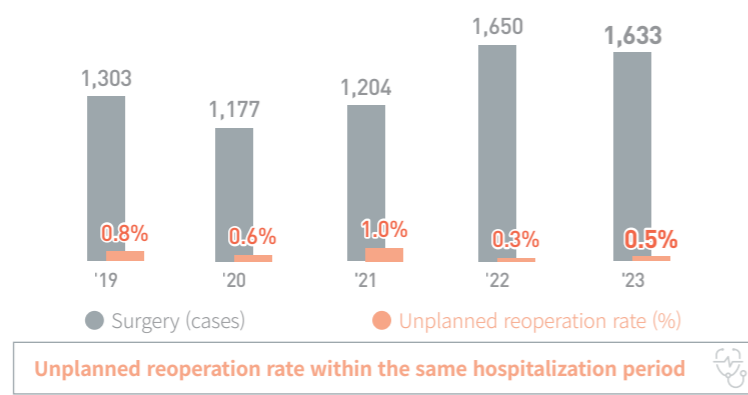
Performance of Ovarian Cancer Surgery

Along with the increase in patients, the number of surgeries is also increasing every year, with approximately 480 surgeries per year.



Quality Management

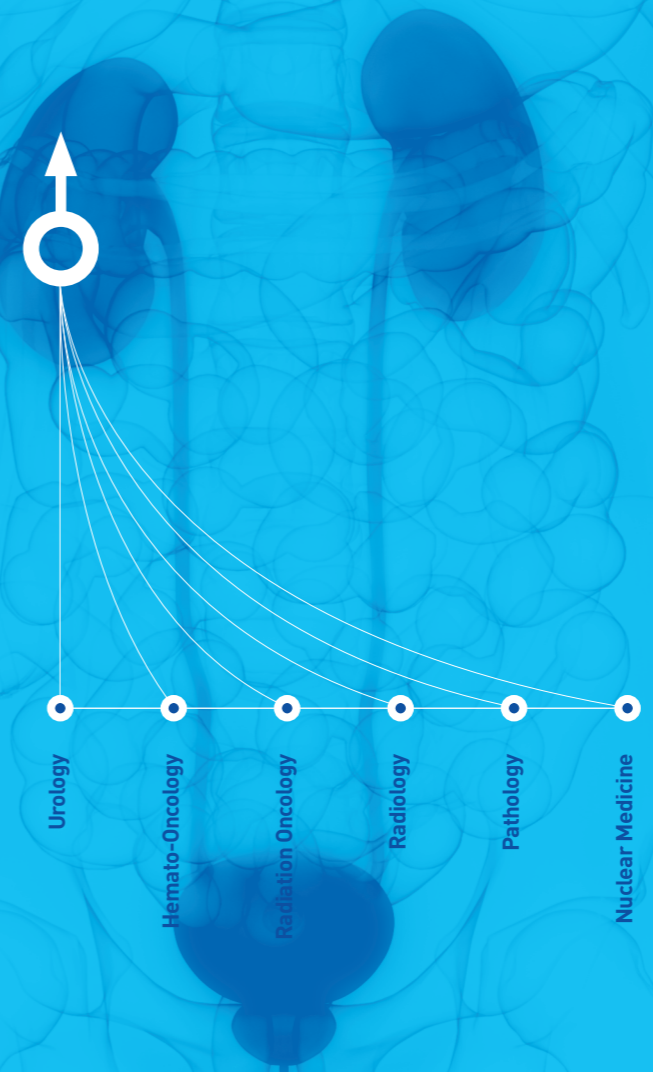
Each year, the Gynecological Cancer Center evaluates the quality of clinical services to maintain the high quality of care and to ensure a safe clinical environment.



UROLOGIC CANCER CENTER

The Urologic Cancer Center will rewrite the history of urologic cancer treatment and shape the future. We provide the best treatment as from A to Z, with optimal treatment protocol for urologic cancer treatment.

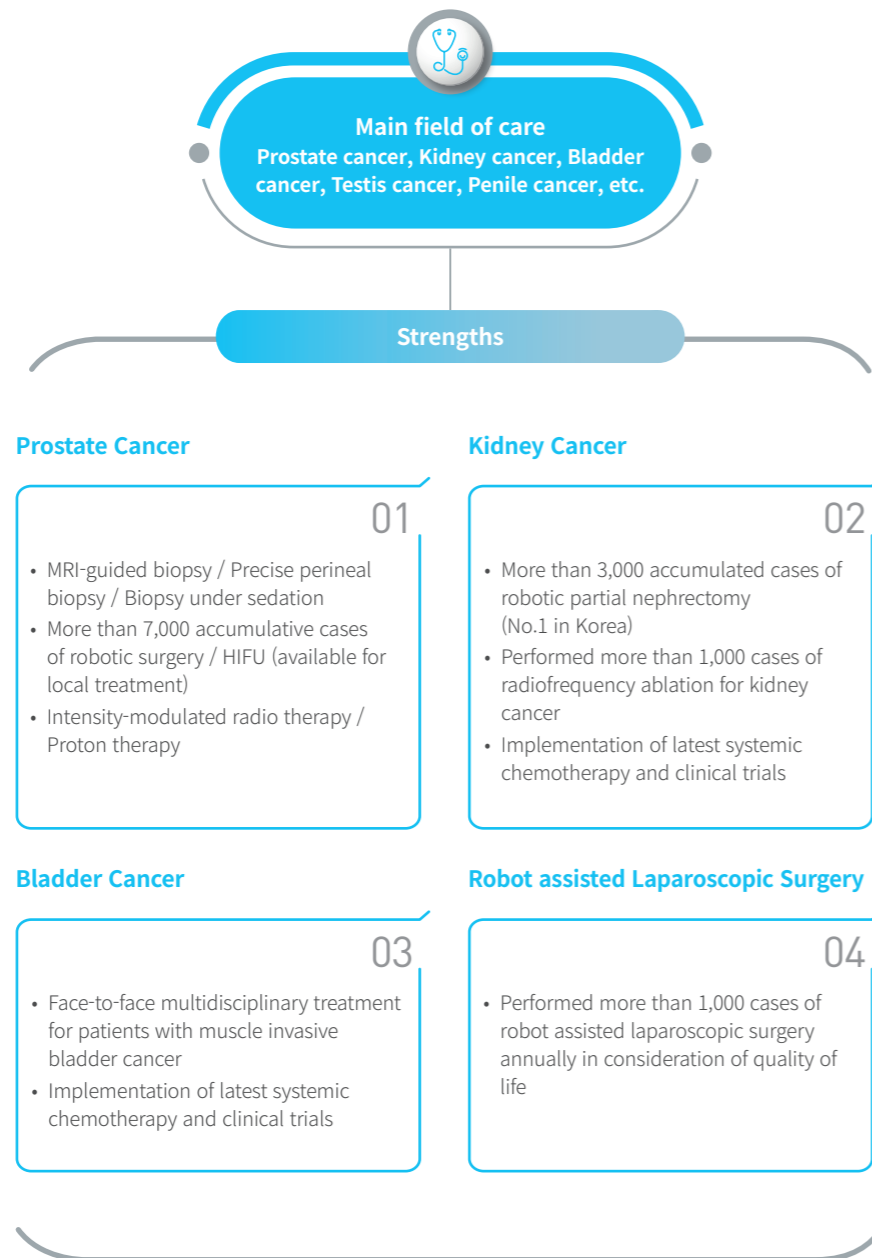
- We pursue minimally invasive treatment, considering the quality of patient's life.
- We provide the best medical care with abundant clinical experience and a multidisciplinary approach.



01 Introduction

General Information

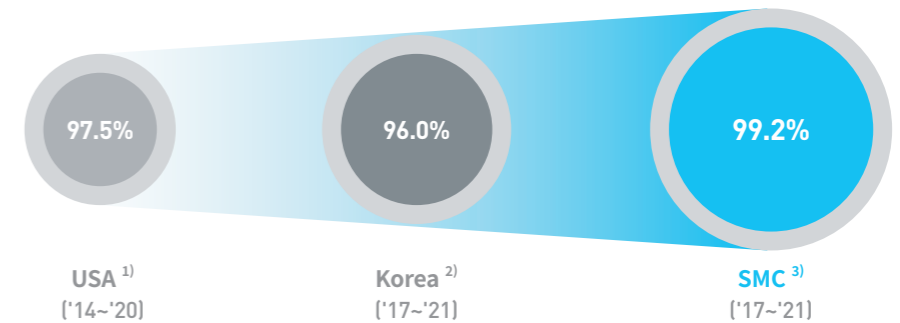
The Urologic Cancer Center provides the best diagnosis and treatment based on the best medical faculties and the most advanced medical technology. We produce the best results through multidisciplinary treatment and actively perform robot assisted laparoscopic surgery, considering the quality of patient's life.



02 Treatment Result

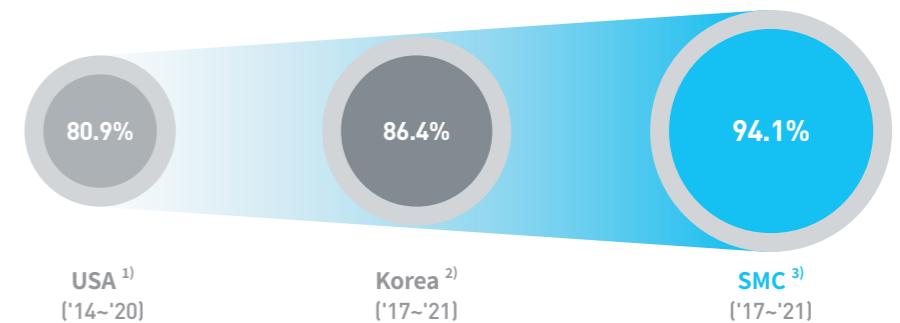
5-year Survival rate, Prostate Cancer

Prostate cancer continues to increase due to a westernized diet and promotion of early screening. The 5-year relative survival rate of prostate cancer patients treated at the Urologic Cancer Center is 99.2%, which is superior to that of the US and Korea.



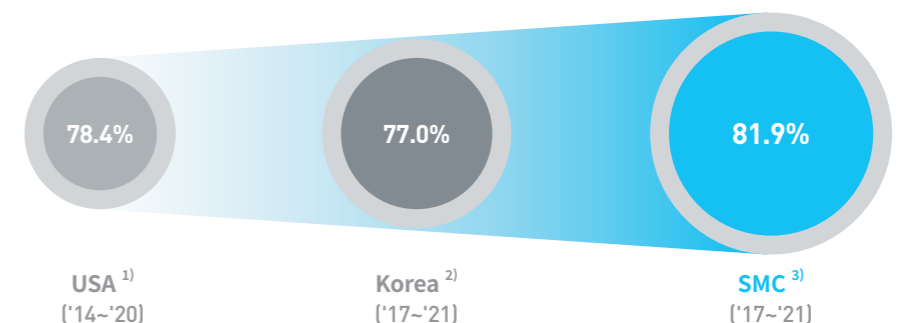
5-year Survival rate, Kidney Cancer

The 5-year relative survival rate of kidney cancer patients is 94.1%, which is superior to that of the US and Korea.



5-year Survival rate, Bladder Cancer

The 5-year relative survival rate of bladder cancer patients is 81.9%, which is higher than that of the USA.

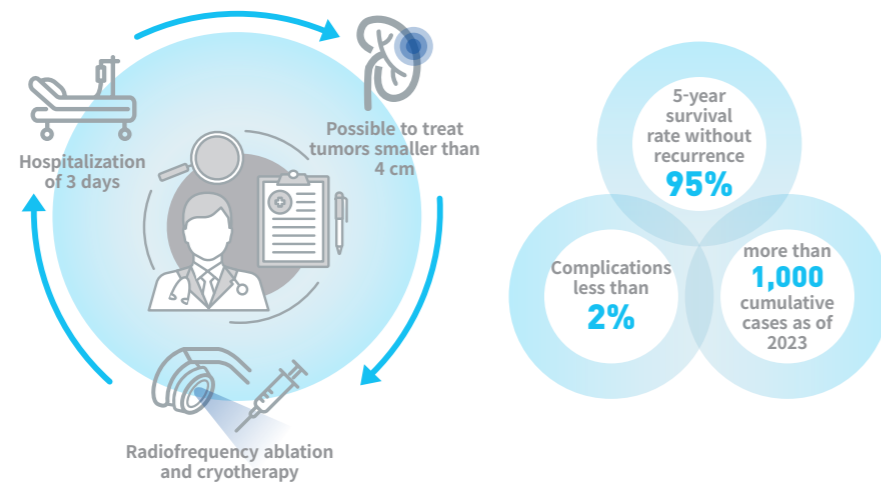


※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

02 Treatment Result

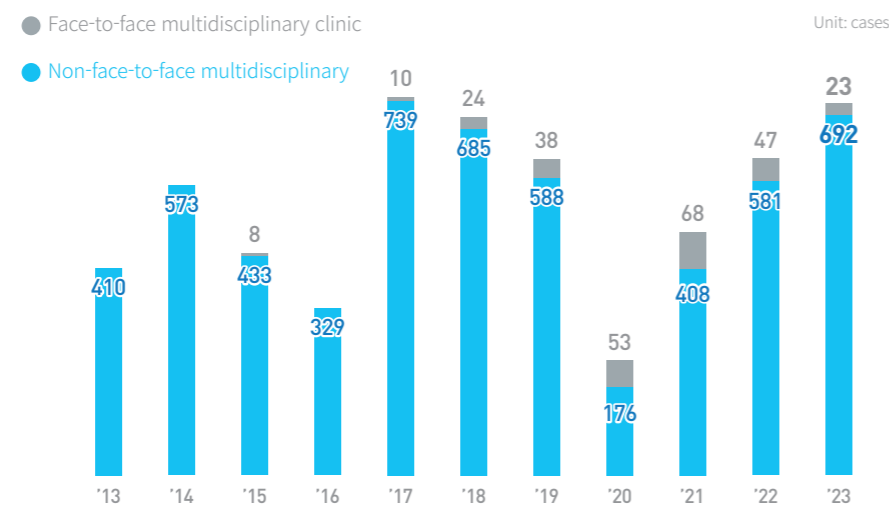
Radio-Frequency Ablation

Radiofrequency ablation for kidney cancer is limited to the patients who are sensitive to surgical therapy, the elderly patients who have difficulties in receiving surgery due to old age, and the cases where the kidney tissue needs to be preserved as much as possible. As of 2023, we have accumulated more than 1,000 clinical cases.



Multidisciplinary Treatment

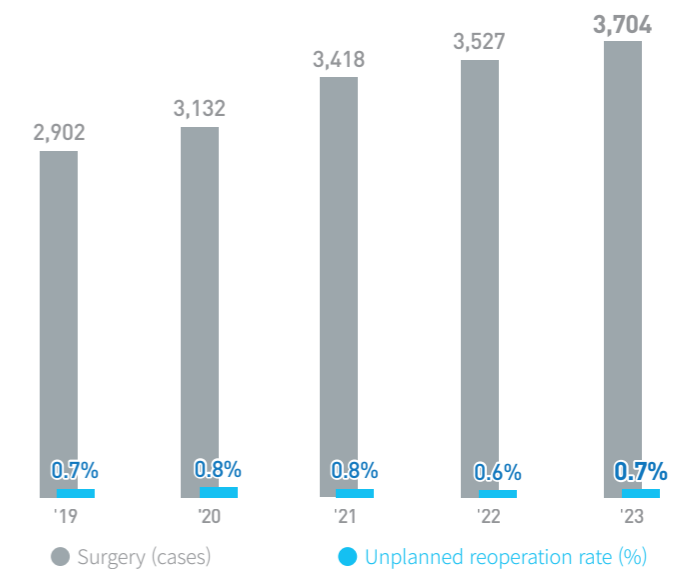
Through non-face-to-face multidisciplinary treatment in which specialists from 6 medical departments participate, we determine the optimal treatment plan and improve treatment outcomes. In cases of muscle-invasive bladder cancer, we run a face-to-face multidisciplinary clinic where specialists from 5 departments gather to treat and decide whether to preserve the bladder.



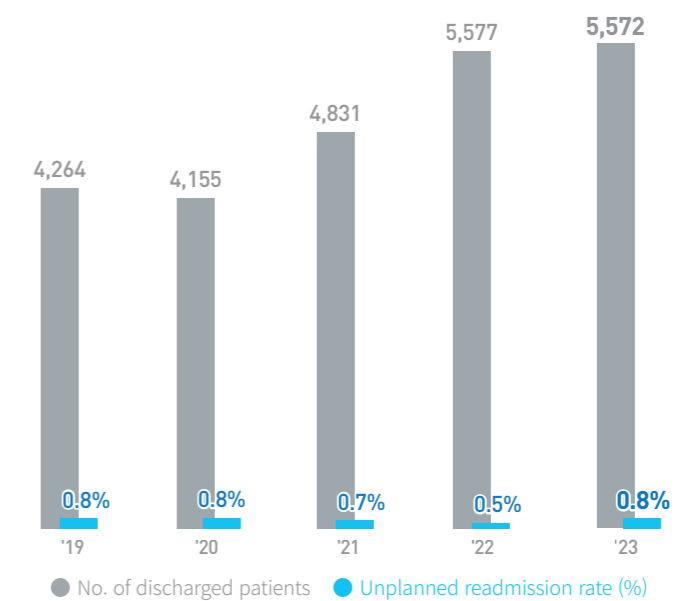
03 Quality Management

Quality Management

Each year, the Urologic Cancer Center evaluates the quality of clinical services to improve quality of care and ensure a safe clinical environment.



Unplanned reoperation rate within the same hospitalization period

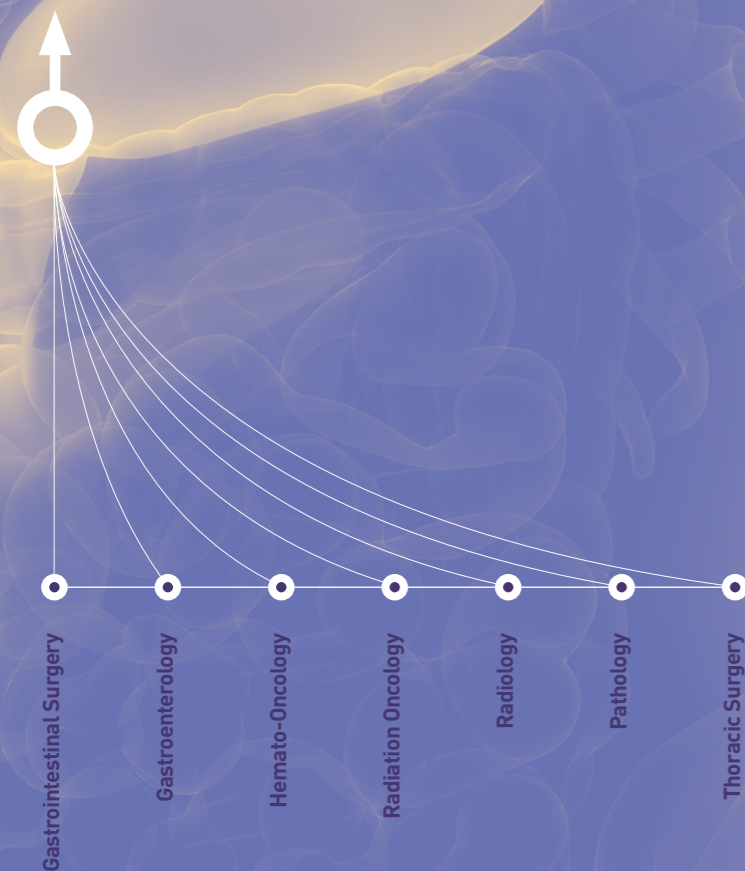


Unplanned readmission rate within 7 days

GASTRIC CANCER CENTER

Gastric Cancer Center will open the new chapter of gastric cancer care with accurate diagnosis and the most optimal treatment. We at Gastric Cancer Center strive to fulfill patient happiness.

- We proudly present the best treatment outcomes.
- We have demonstrated the scientific benefits of 'personalized cancer therapy' for the first time in the world.

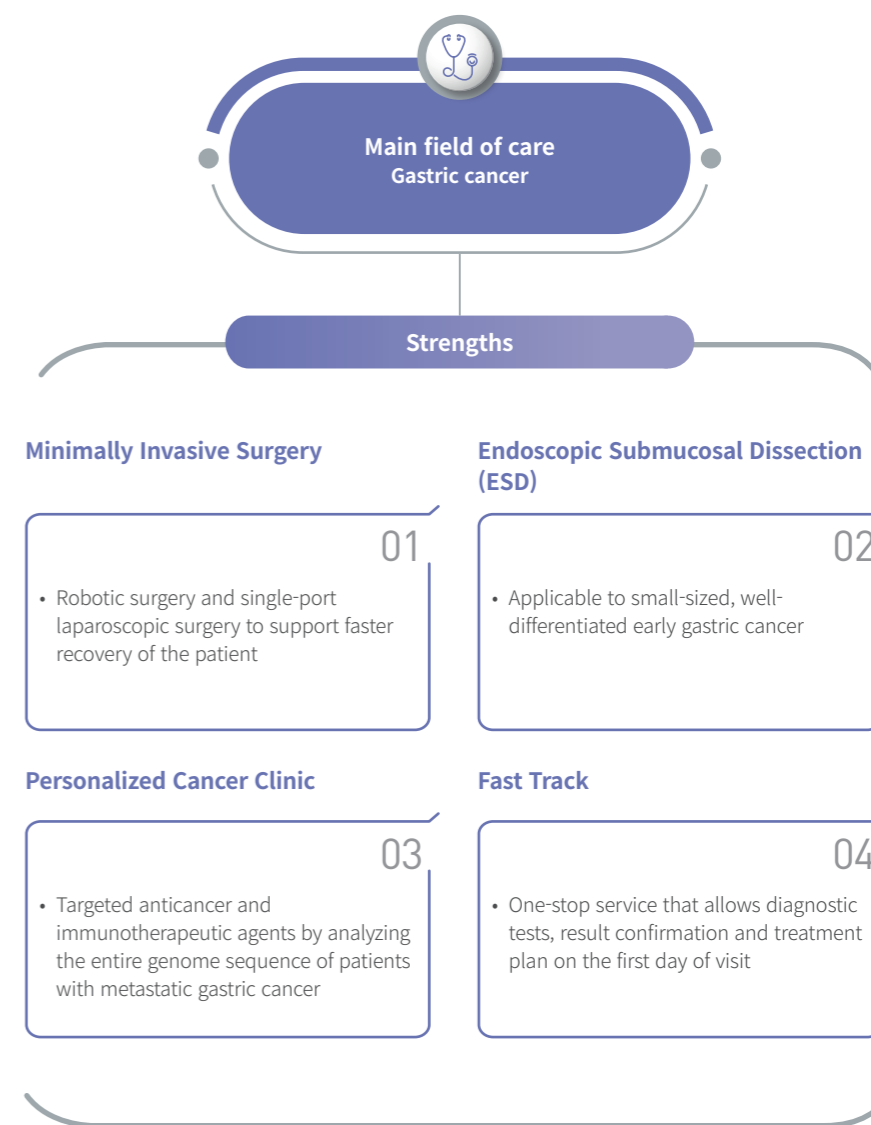


01

Introduction

General Information

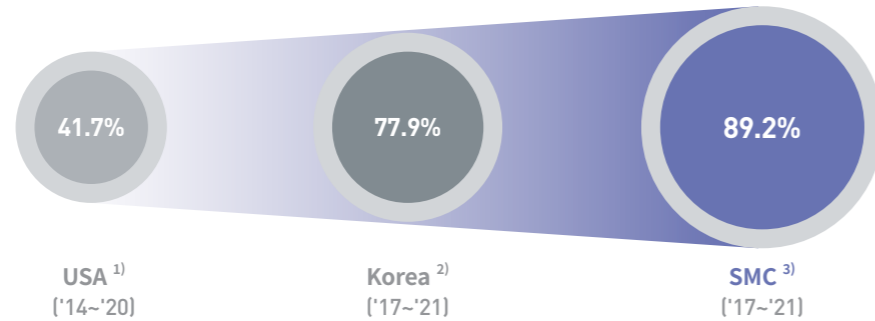
As of 2020, the Gastric Cancer Center has an unprecedented 30-day postoperative mortality of zero. With our Fast Track program which allows one-stop and in-person multidisciplinary treatment, we will provide the most prompt and comprehensive treatment possible.



02 Treatment Result

5-year Survival rate

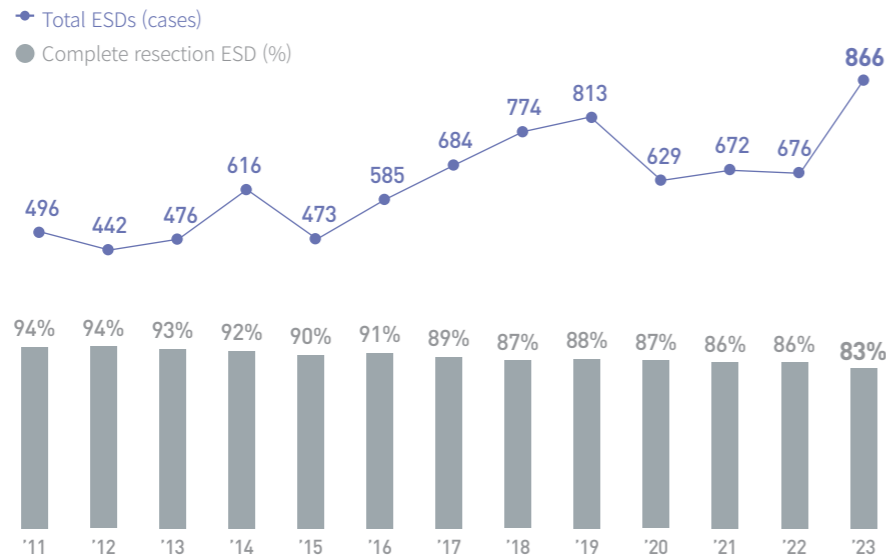
The 5-year relative survival rate of patients treated at the Gastric Cancer Center is 89.2%, a number that is far more superior than other medical institutions around the world.



※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

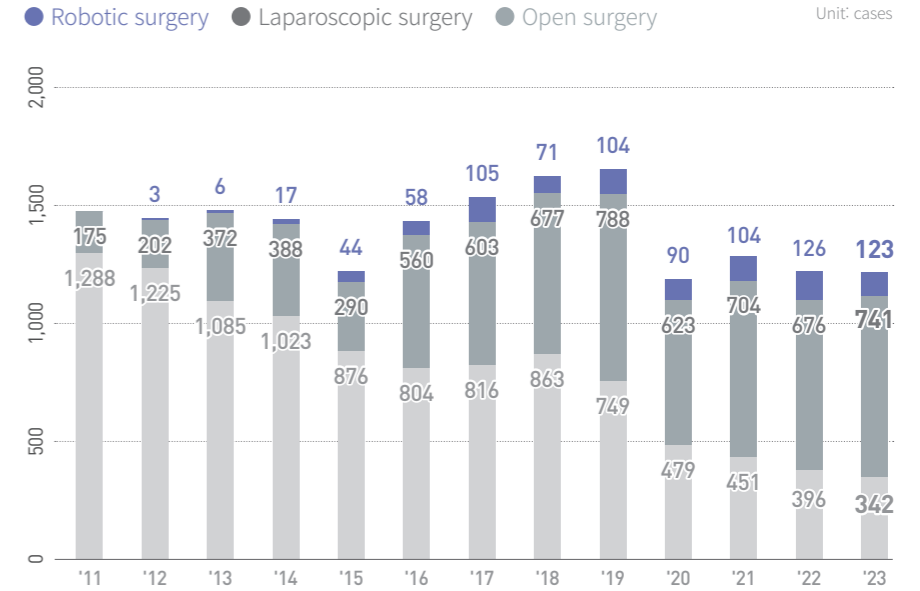
ESD Outcomes

Over the past 15 years, the number of ESD procedures has steadily increased, surpassing 860 cases annually in 2023, demonstrating a clear and remarkable growth trend.



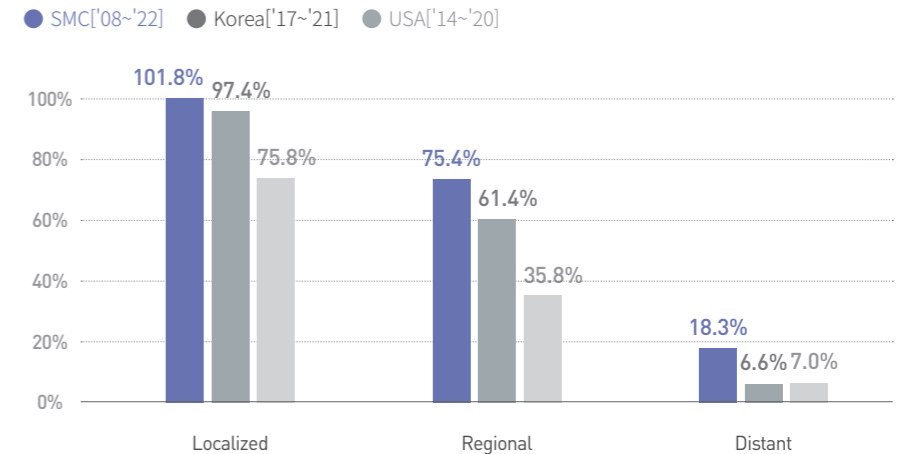
Gastric Cancer Surgery

We perform more than 1,200 cases of gastric cancer surgery per year. The number of minimally invasive surgeries (laparoscopic surgery, robotic surgery) that can minimize the pain, bleeding and scarring is steadily increasing.



5-year Survival rate after Gastric Cancer Surgery

The 5-year relative survival rate of patients who underwent surgery within 4 months after a gastric cancer diagnosis at Samsung Comprehensive Cancer Center is higher compared to both the USA and domestic rate for each SEER summary stage, demonstrating outstanding treatment outcomes.

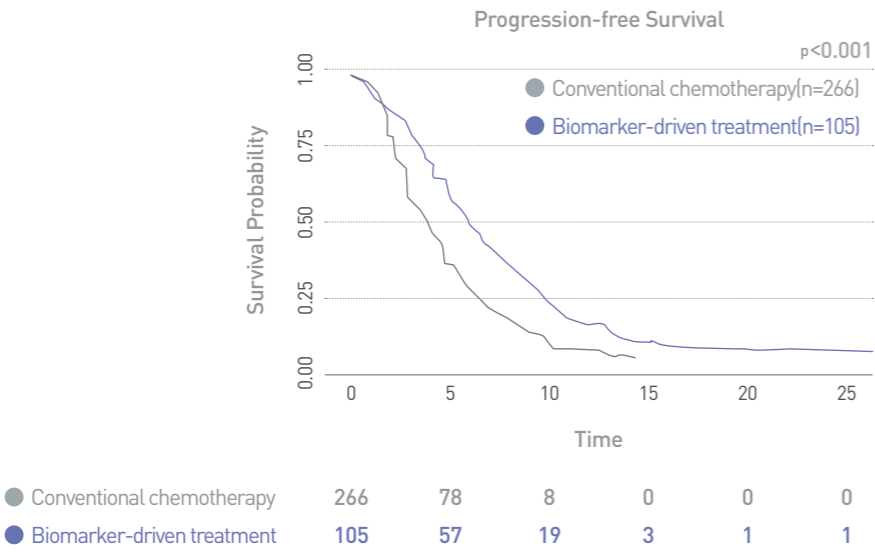
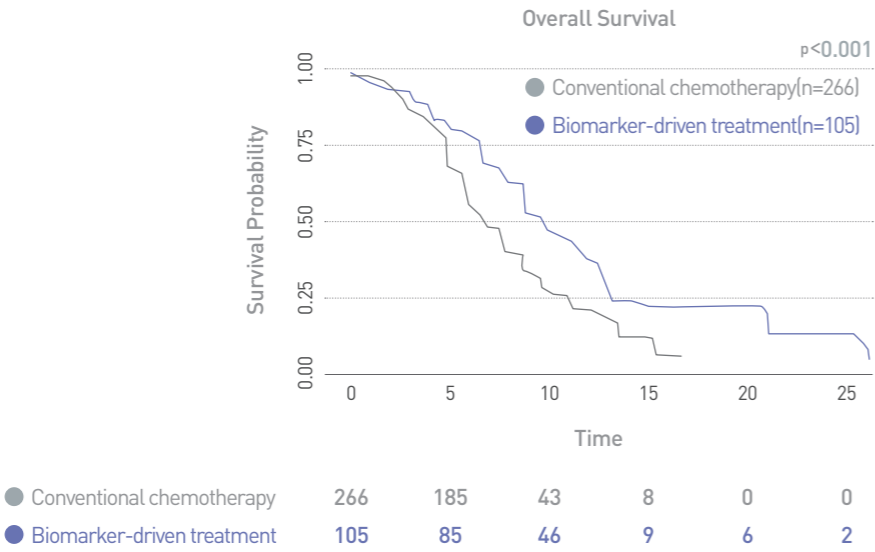


※ Based on SEER summary stage

02 Treatment Result

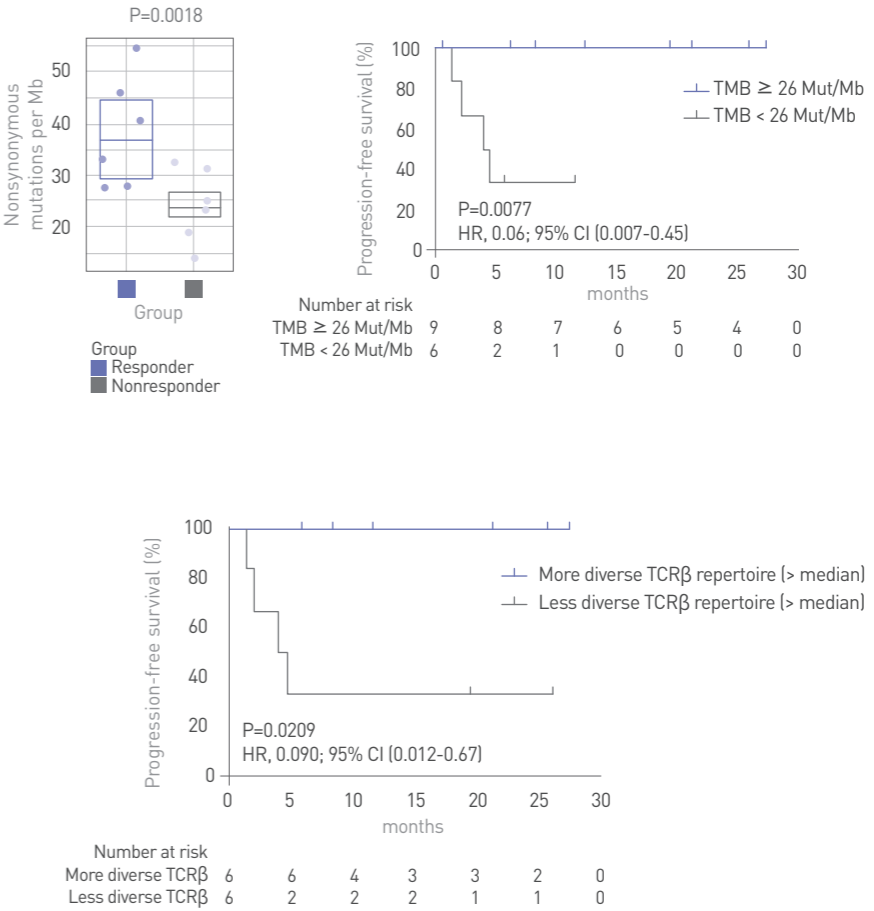
Research

In October 2019, we provided scientific evidence to show clinical efficacy of 'personalized cancer treatment' based on the genome analysis for the first time in the world. Based on genomic and proteomic data, targeted anticancer agent was administered to patients with metastatic gastric cancer. We observed an increase of median survival of 3 months. As immunotherapy has become applicable for some patients, it will be an opportunity to activate personalized cancer treatment.



Personalized Treatment for Cancer Patients

Continuous efforts are being made in 'personalized treatment for cancer patients' through genomic analysis of metastatic gastric cancer. The use of targeted anticancer drugs and immune checkpoint inhibitors is expanding. Research has been conducted to predict the treatment response of immune checkpoint inhibitors in metastatic gastric cancer patients with microsatellite instability. It has been observed that an improved response to immunotherapy occurs with a higher number of tumor genetic mutations and diverse configurations that allow specific antigen recognition by T-cell receptors. As a result, more than 50% of patients have experienced disease stabilization for over 2 years. Through research on the tumor microenvironment and immune response, it is expected that the concurrent use of immunotherapy will enhance the therapeutics effect of metastatic gastric cancer treatment.

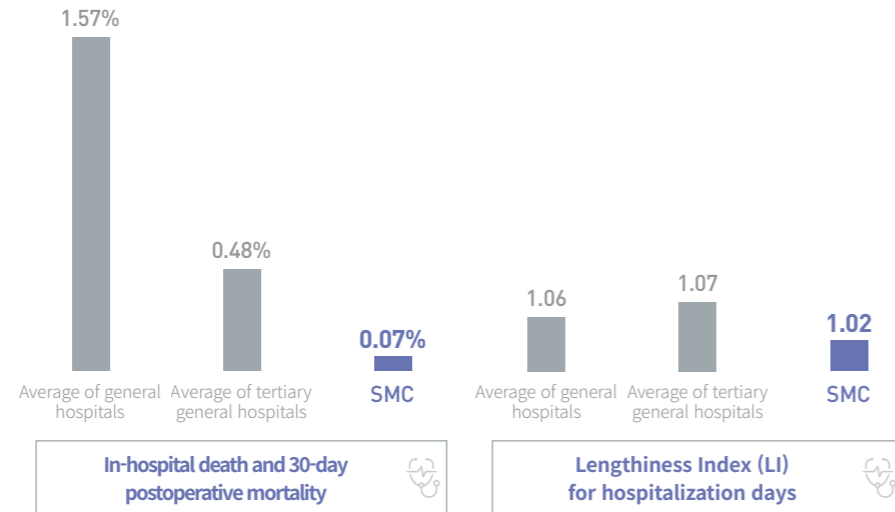


Ref) Cancer Discov. 2021 Sep;11(9):2168-2185

03 Quality Management

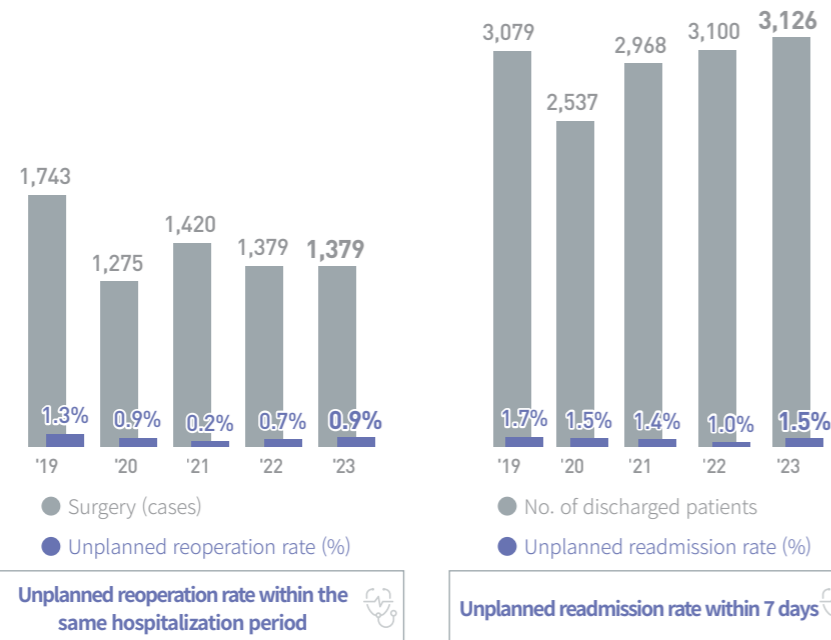
Quality Management

Each year, the Gastric Cancer Center evaluates and improves the quality of clinical services to ensure a safe clinical environment and provide best treatment.



※ LI (Lengthiness Index): An index indicating the duration of actual hospitalization compared to the expected appropriate duration of hospitalization, considering the Diagnosis-Related Group (DRG) of the nursing institution.

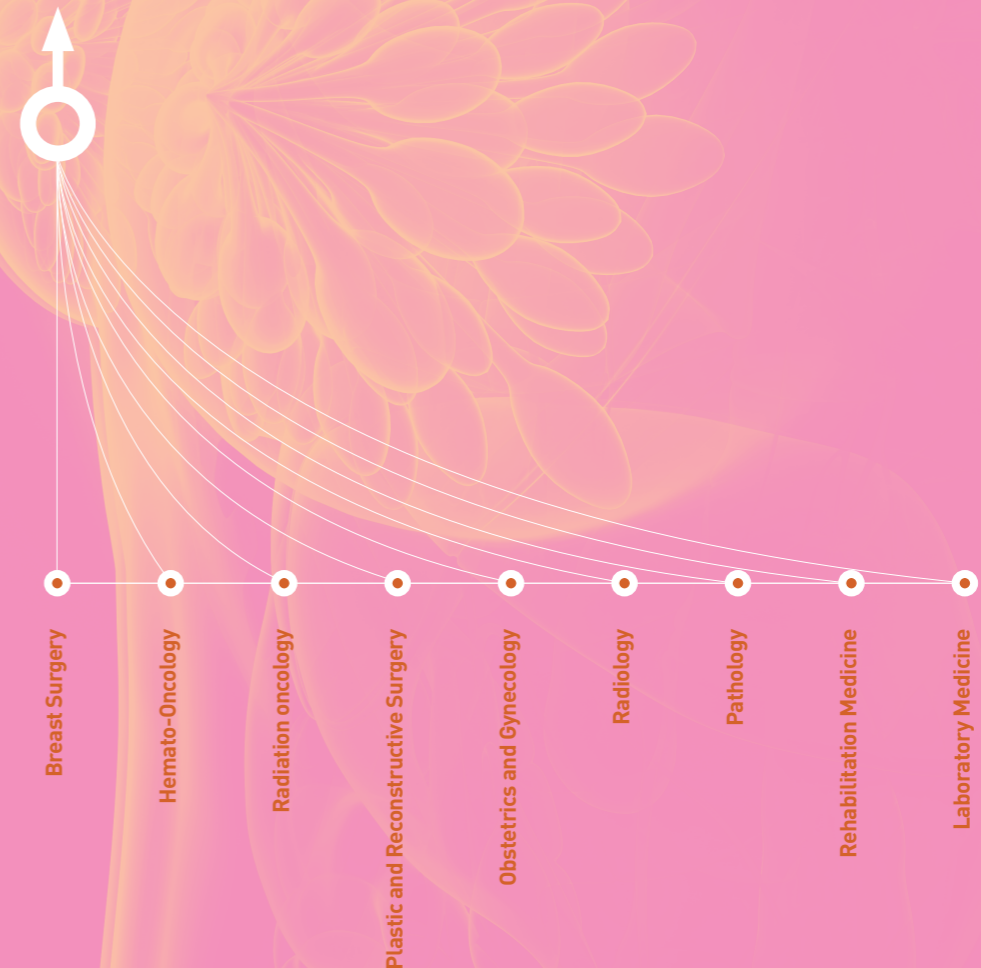
※ 5th Appropriateness Evaluation Report for Gastric Cancer Treatment from Health Insurance Review and Assessment Service (May 2021)



BREAST CANCER CENTER

The Breast Cancer Center leads the paradigm of breast cancer treatment. In addition to providing state-of-the-art diagnosis and treatment, we are committed to supporting mental health of our patients even years after the treatment.

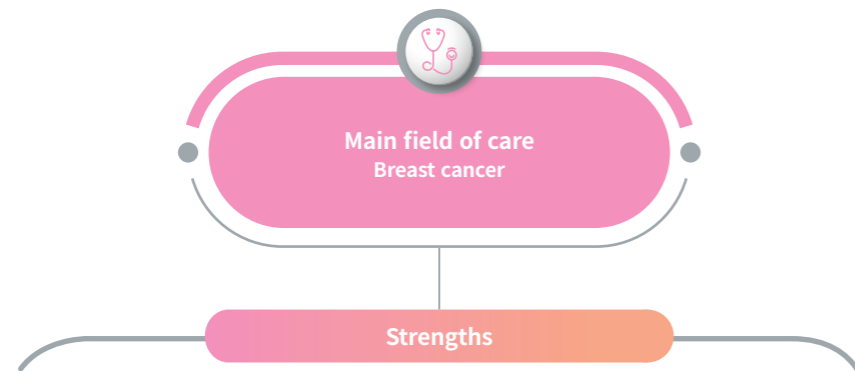
- We are proud of having the best breast cancer treatment result.
- We provide the best care through multidisciplinary treatment.



01 Introduction

General Information

The Breast Cancer Center provides personalized care through patient-centered multidisciplinary approach. With extensive experience in breast cancer, we are at the forefront of treating early and advanced breast cancer, young women's breast cancer, and hereditary breast cancer. With inclusion of male breast cancer patients, we also treat patients with gestational, recurrent, metastatic, and refractory breast cancers.



Optimal Treatment Plan

01

- Personalized care by patient-centered, multidisciplinary approaches

Best Surgical Outcome in Korea

02

- More than 2,700 breast cancer surgeries per year
- The world's highest 5-year relative survival rate of 97.0%

Pioneering Clinical Research

03

- Leading the latest clinical research related to the 4th industrial revolution such as big data and artificial intelligence
- Personalized care delivered through continuous clinical trials

Operation of Various Clinics

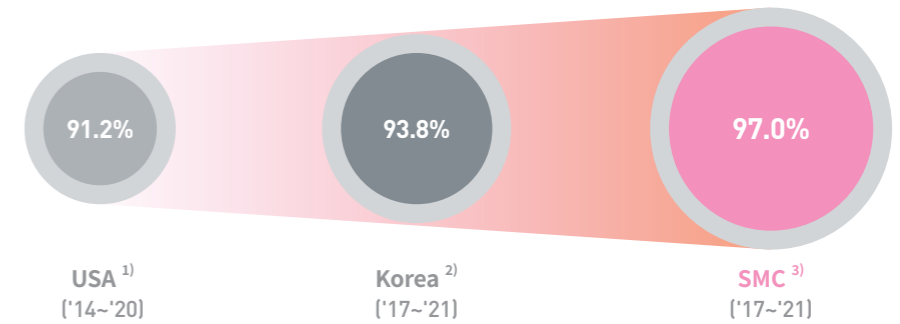
04

- Hereditary Breast Cancer Clinic
- Lifelong Health Clinic
- 'Young Breast cancer Clinic' for younger patients

02 Treatment Result

5-year Survival rate

The 5-year relative survival rate of patients treated at the Breast Cancer Center is 97.0%, which is superior outcomes worldwide.

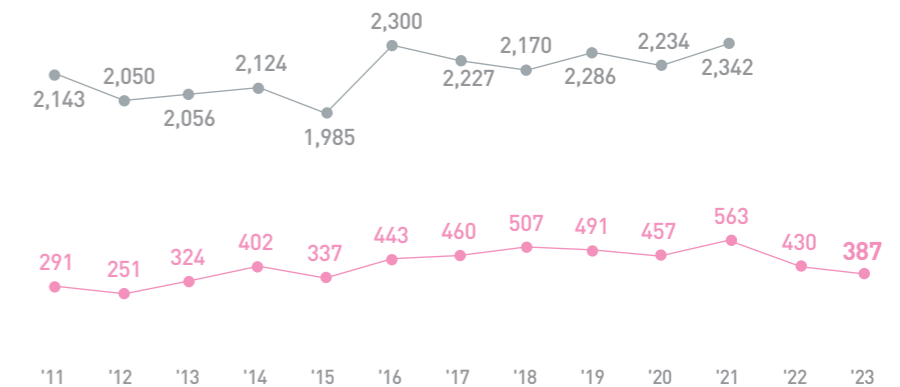


※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

Young Breast cancer Clinic

Young Breast cancer Clinic (YBC for younger patients) offers in-person multidisciplinary treatment in which several specialists from various departments gather together to provide quick diagnosis and optimal treatment plan for high-risk breast cancer patients under the age of 39. In addition to treating breast cancer, we are committed to supporting family planning (pregnancy, delivery) after the completion of treatment.

◆ Breast cancer patients in Korea (39 years old or younger) Unit: Persons
 ◆ New breast cancer patients of SMC (39 years old or younger)

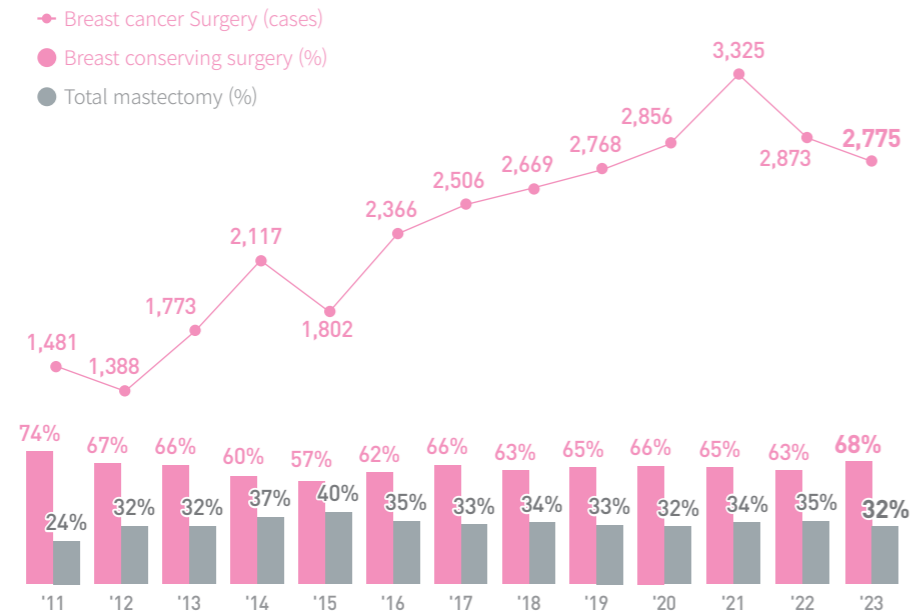


※ Registered SMC breast cancer patients / National Cancer Registry Information

02 Treatment Result

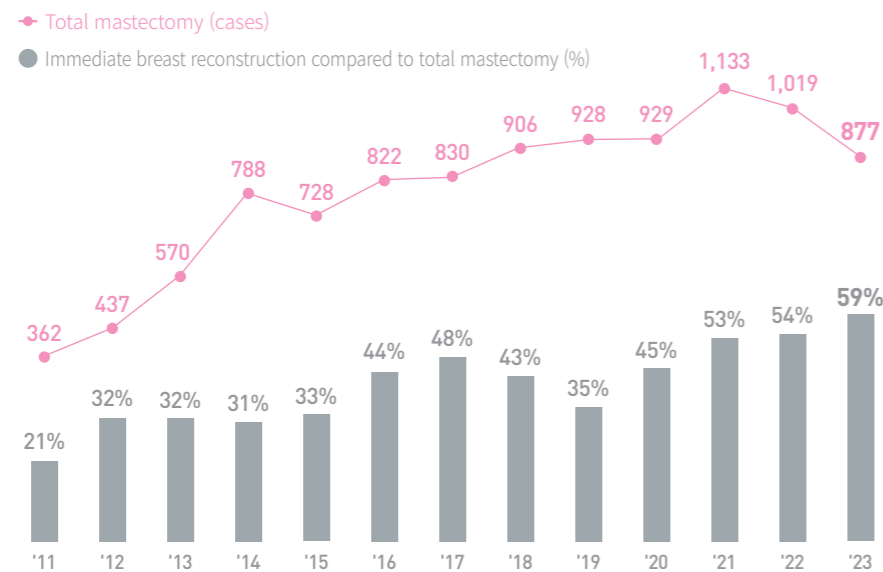
Breast cancer Surgery

The number of breast cancer surgeries continues to increase, and reached 2,775 cases in 2023, of which 68% underwent breast conserving surgery and 32% received total mastectomy. We actively perform oncoplastic surgery not only to remove tumors safely but also to maximize cosmetic benefits.



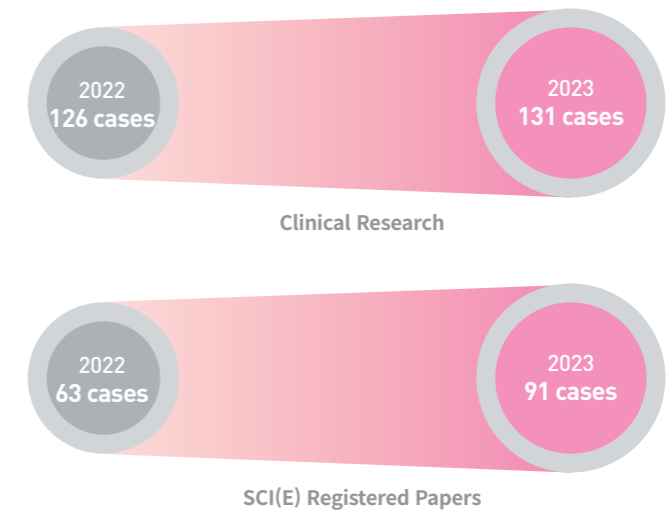
Immediate Breast Reconstruction

The number of patients undergoing total mastectomy and immediate breast reconstruction is on the rise. More than 59% of patients undergoing mastectomy receive immediate breast reconstruction.



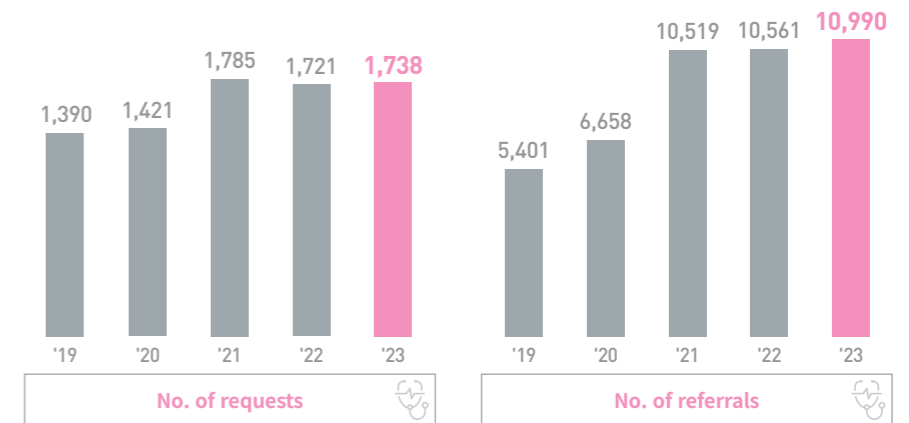
Leading Global Research

We are conducting various clinical trials on new treatments and novel drugs for breast cancer and have published numerous high-impact (SCI/E) papers through active academic research.



Activation of Network with Affiliated Hospitals

We have established a cooperative network system with local medical institutions and are actively interacting with each other. Prompt care and symptom management are achieved through quick but accurate reservation system for the breast cancer patients referred to our hospital from local medical institutions. Patients are referred back to local hospitals for symptom managements, regular examinations, and additional prescriptions. Even the long-term breast cancer survivors who have completed treatment can continue to be managed through our network linkage.

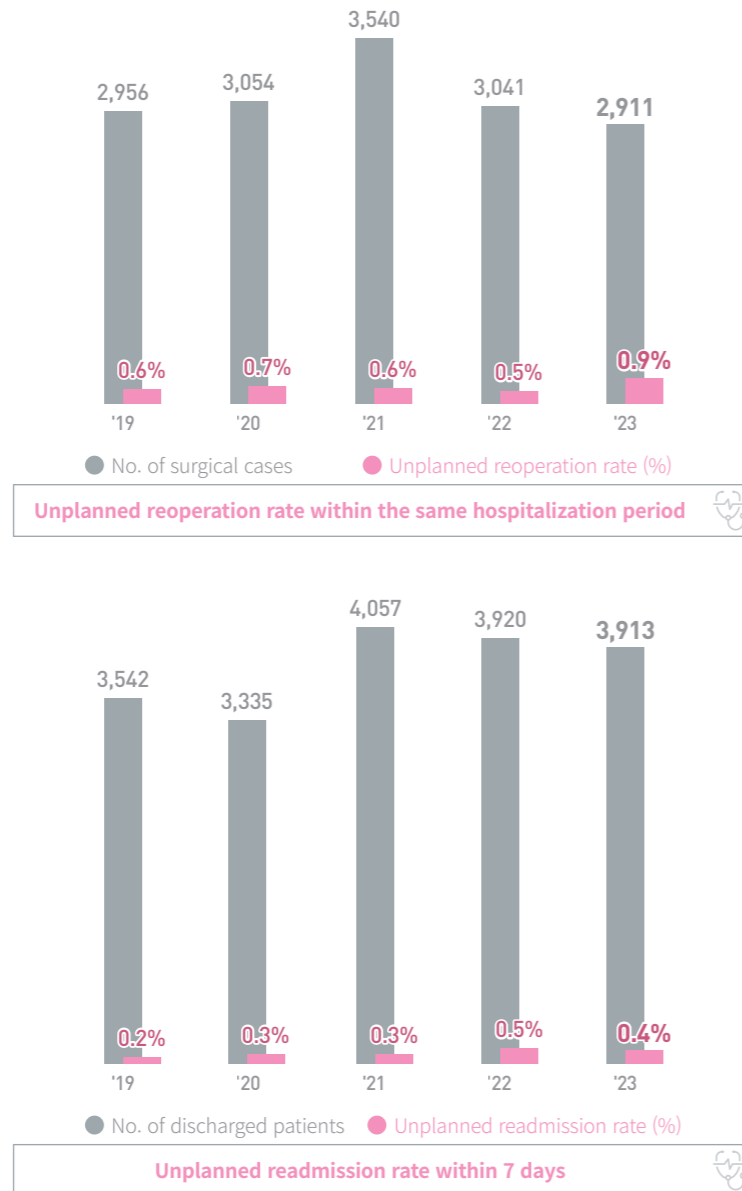


※ The number of cases requested and referred through SMC Partners Centers due to breast cancer disease (C50, D05 (including subordinates))

03 Quality Management

Quality Management

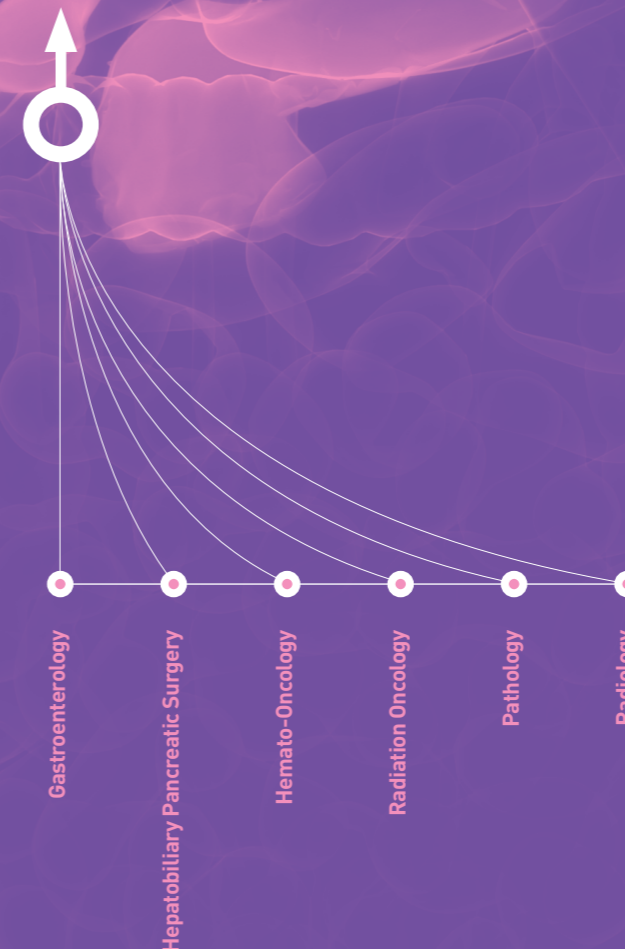
Each year, the Breast Cancer Center evaluates and improves the quality of clinical services to ensure a safe clinical environment and to provide the best treatment.



PANCREATOBILIARY CANCER CENTER

The Pancreatobiliary Cancer Center has been taking the pioneering role in treatment of pancreatic and biliary tract cancer. With endless research endeavors, we develop the best diagnostic and therapeutics methods.

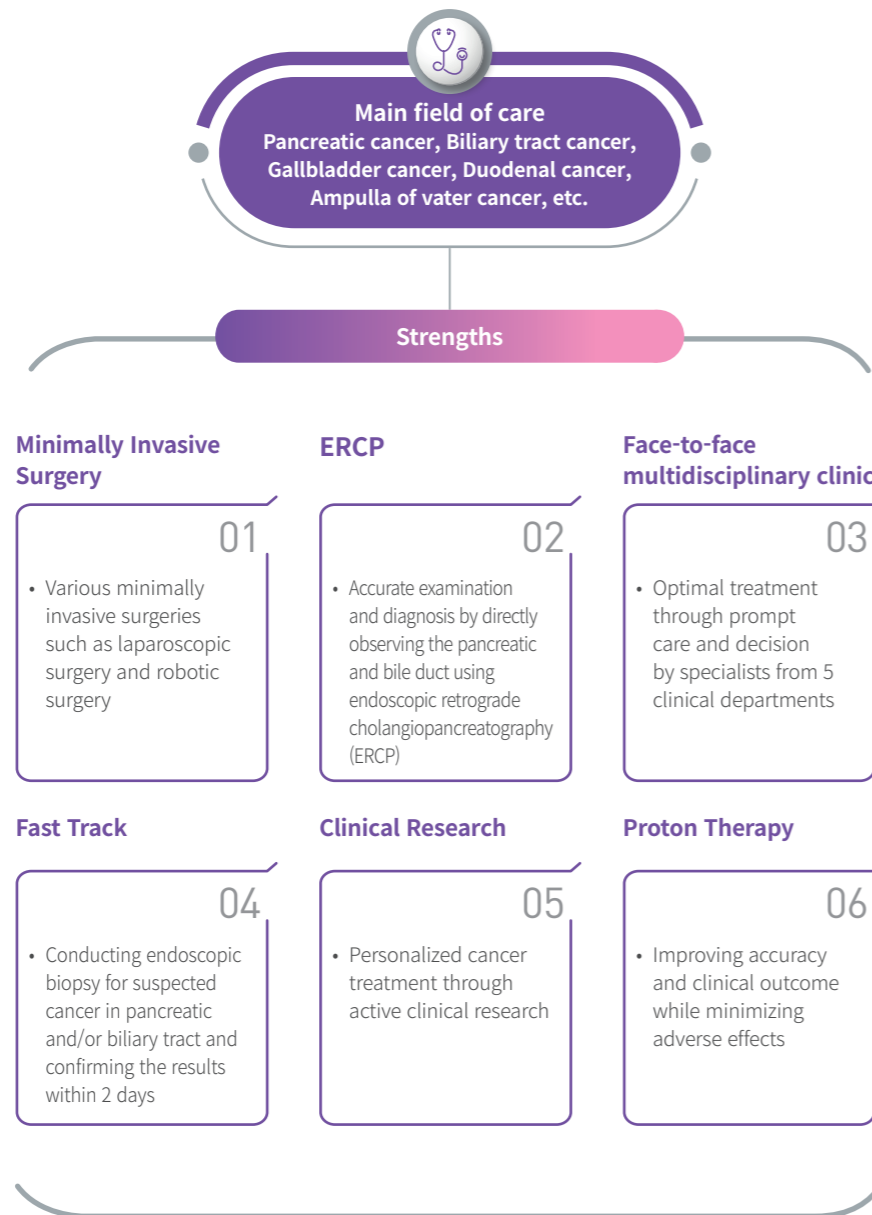
- We are proud to present the world-class treatment outcomes with the best diagnosis and best care.



01 Introduction

General Information

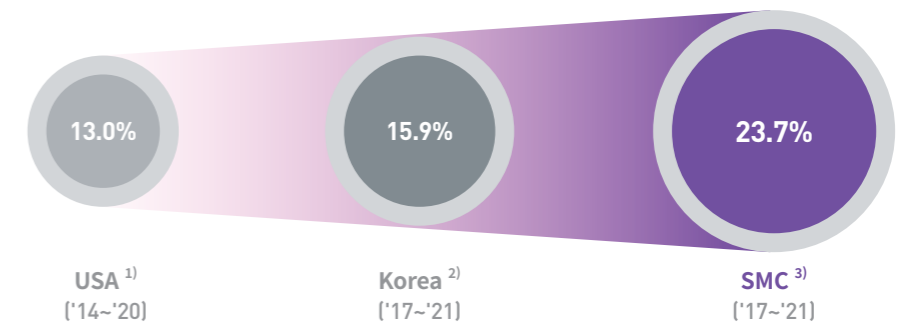
The Pancreatobiliary Cancer Center established a patient-centered care system from diagnosis to treatment through collaborative treatment by specialists with abundant clinical experience and knowledge. Through endoscopic treatment of early stage disease, wide resection for advanced disease, and diagnosis and treatment based on a multidisciplinary approach, we put forward our best effort for early diagnosis and best treatment.



02 Treatment Result

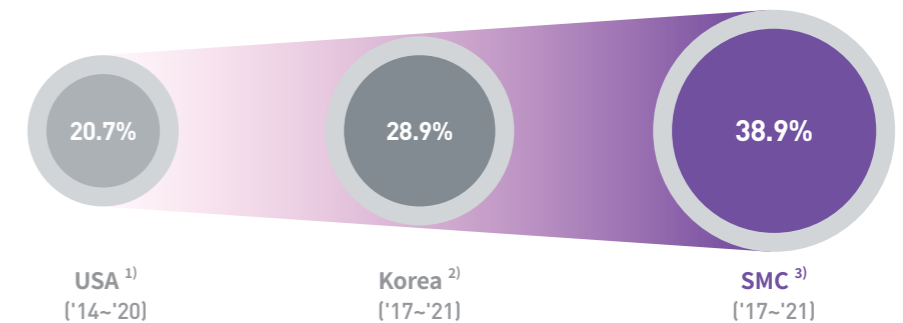
5-year Survival rate, Pancreatic Cancer

Pancreatic cancer is considered as the most tenacious form of malignancy, because it is often discovered at advanced stage. The 5-year relative survival rate of pancreatic cancer patients treated in the Pancreatobiliary Cancer Center is 23.7%, which is an excellent outcome worldwide. Based on the high success rate of surgery, we strive to improve the survival rate by actively combining surgical intervention with chemoradiotherapy.



5-year Survival rate, Gallbladder and Biliary Tract Cancer

The 5-year relative survival rate of gallbladder and biliary tract cancer patients treated in the Pancreatobiliary Cancer Center is 38.9%, which far outperforms the national average.

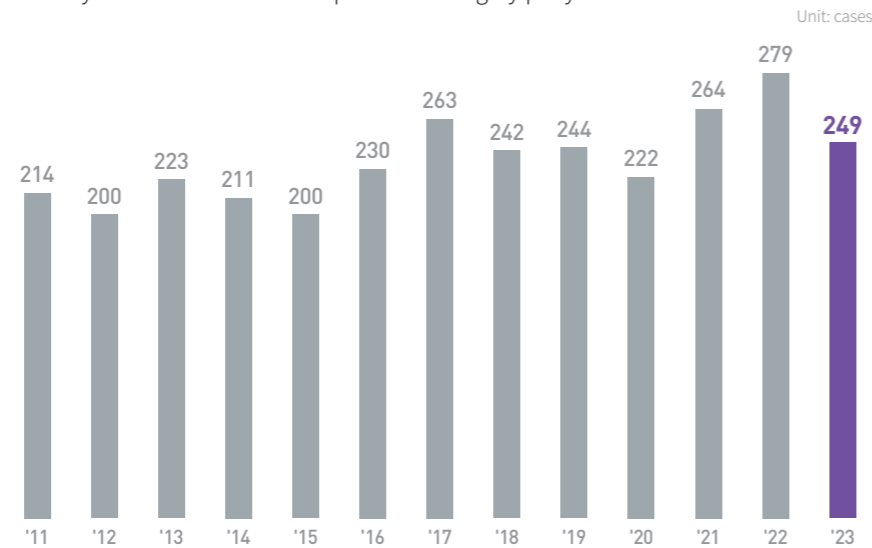


※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

02 Treatment Result

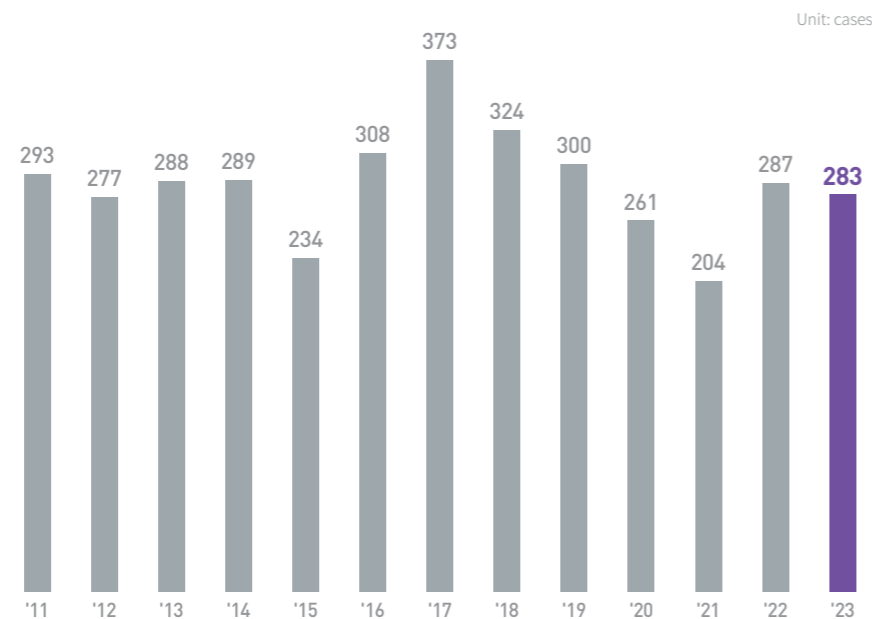
Pancreatic Cancer Surgery

Pancreatic cancer surgery has a large surgical scope and requires extensive operation time. Because the organ produces digestive juice, surgery is rather difficult to perform. We carry out about 250 cases of pancreatic surgery per year.



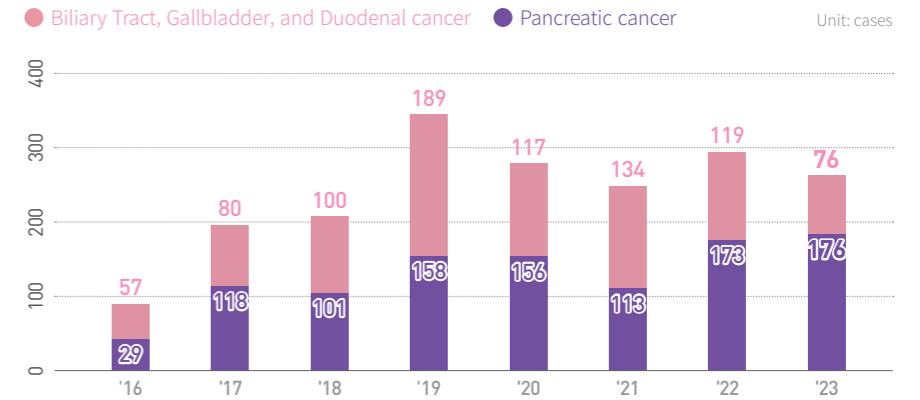
Biliary Tract, Gallbladder, and Duodenum Surgery (including benign)

We perform about 280 cases of gallbladder and biliary tract cancer surgery per year.



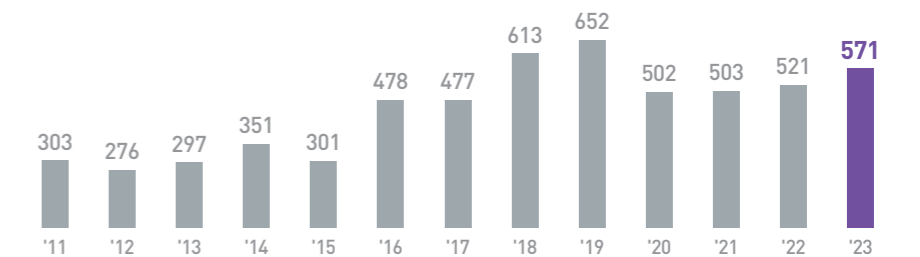
Proton Therapy

Proton therapy started in 2016, and the number of proton therapy patients is increasing every year.



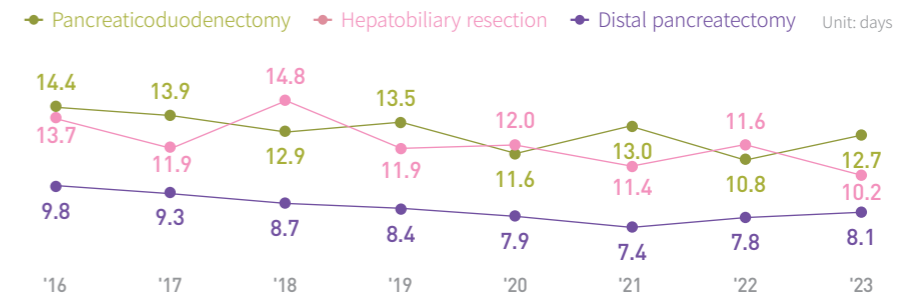
Ultrasound Endoscopic Guided Fine Needle Aspiration (EUS-FNA)

More than 570 EUS-FNA procedures are performed annually, showing a steady increase.



Hospitalization Days after Complicated Surgery

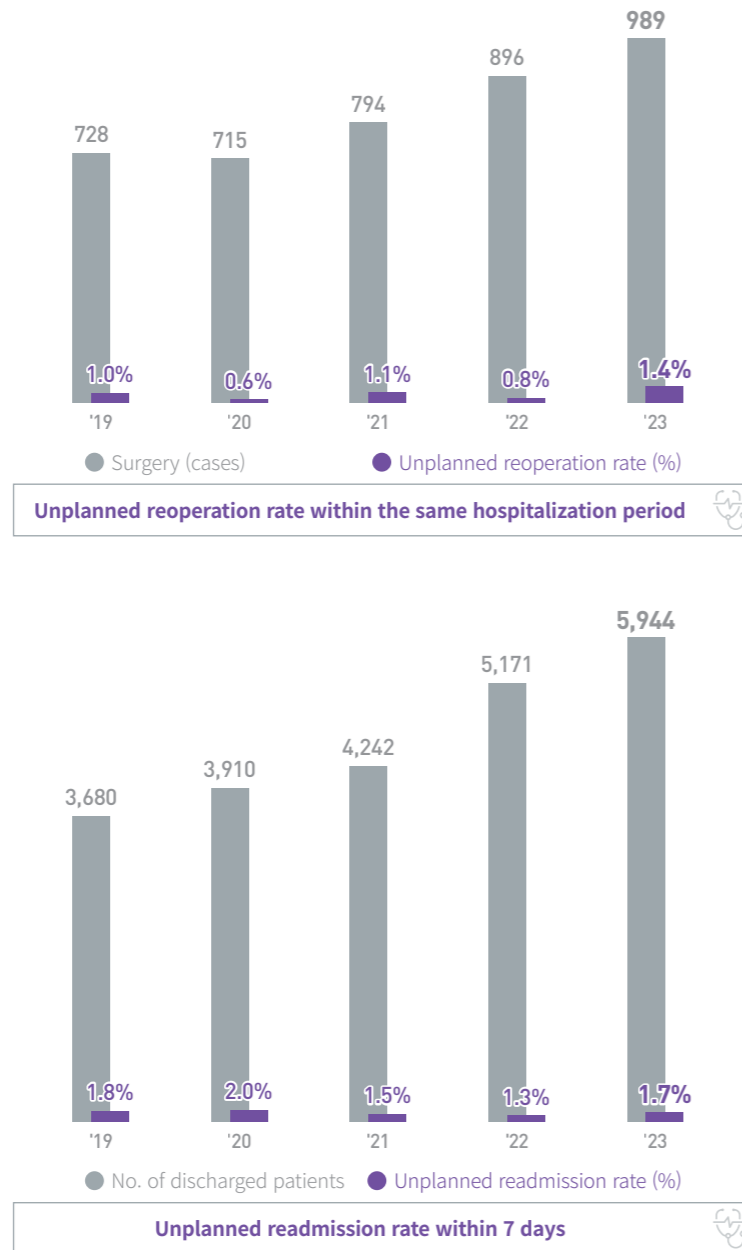
Although pancreatobiliary cancer surgery is complicated, the hospitalization days post-surgery are gradually decreasing due to development of surgical technique, increase in minimally invasive surgery, and complication management. It helps patients return to their daily lives quickly.



03 Quality Management

Quality Management

Each year, the Pancreatobiliary Cancer Center evaluates and improves the quality of clinical services to ensure a safe clinical environment and provide best treatment.



LUNG AND ESOPHAGEAL CANCER CENTER

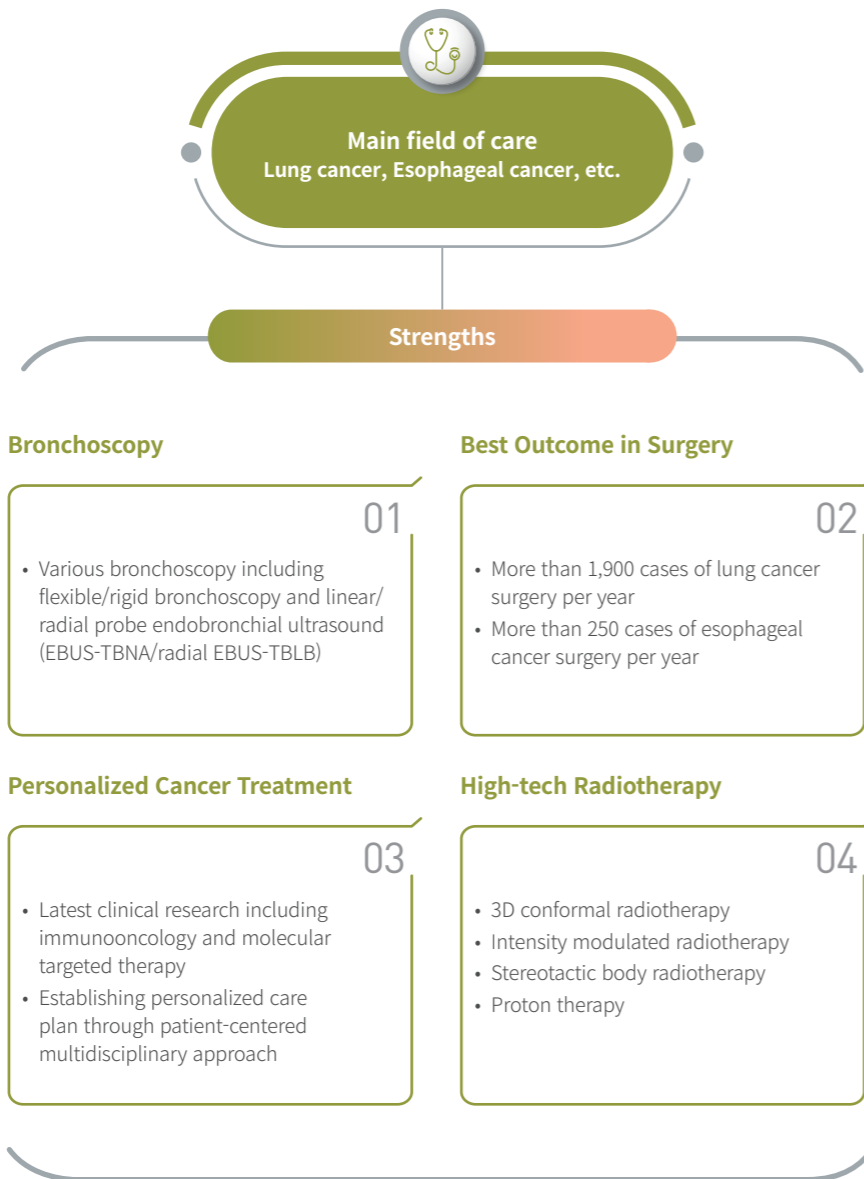
The Lung and Esophageal Cancer Center provides a new paradigm for lung and esophageal cancer management to lead the accurate diagnosis and optimal treatment. We boast the best surgery results in all areas of thoracic surgery, including high-level wide resection of locally advanced tumor and minimally invasive surgery using a thoracoscopy or robotic thoracoscopy.



01 Introduction

General Information

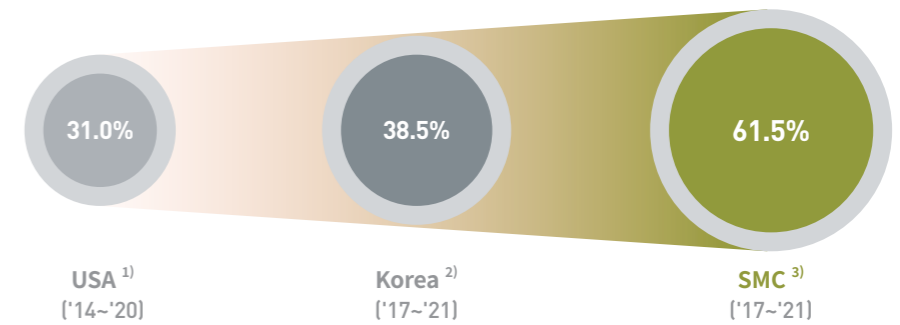
The Lung and Esophageal Cancer Center performs various and comprehensive surgery, including a high-level wide resection of the locally advanced tumor and minimally invasive surgery using a thoracoscopy or robotic thoracoscopy. Recently, “molecular targeted therapy” and “immunotherapy” that manifest pharmacological effects by blocking certain molecular pathways and unleashing the immune system against cancer, respectively, have been developed and their applications are being expanded. We lead the latest research and application in this area.



02 Treatment Result

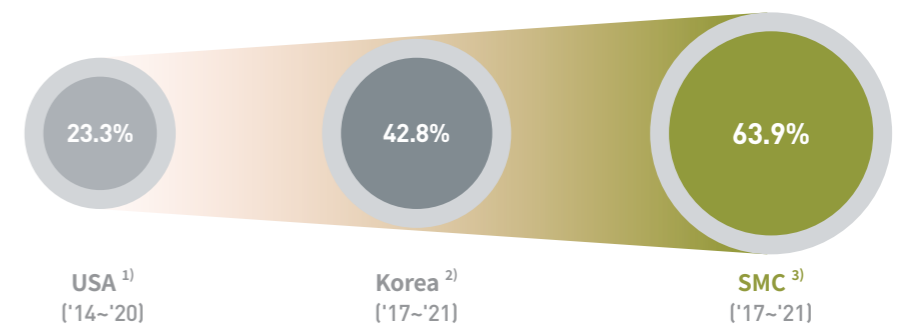
5-year Survival rate, Lung Cancer

The 5-year relative survival rate of patients with lung cancer in SMC is 61.5%, which is the best outcome in the world. We maintain our top position in various metrics such as low post-surgery morbidity and mortality rates, short hospitalization periods, and reduced surgical costs.



5-year Survival rate, Esophageal Cancer

The 5-year relative survival rate of patients with esophageal cancer in SMC is 63.9%, which is superior than other cancer hospital.



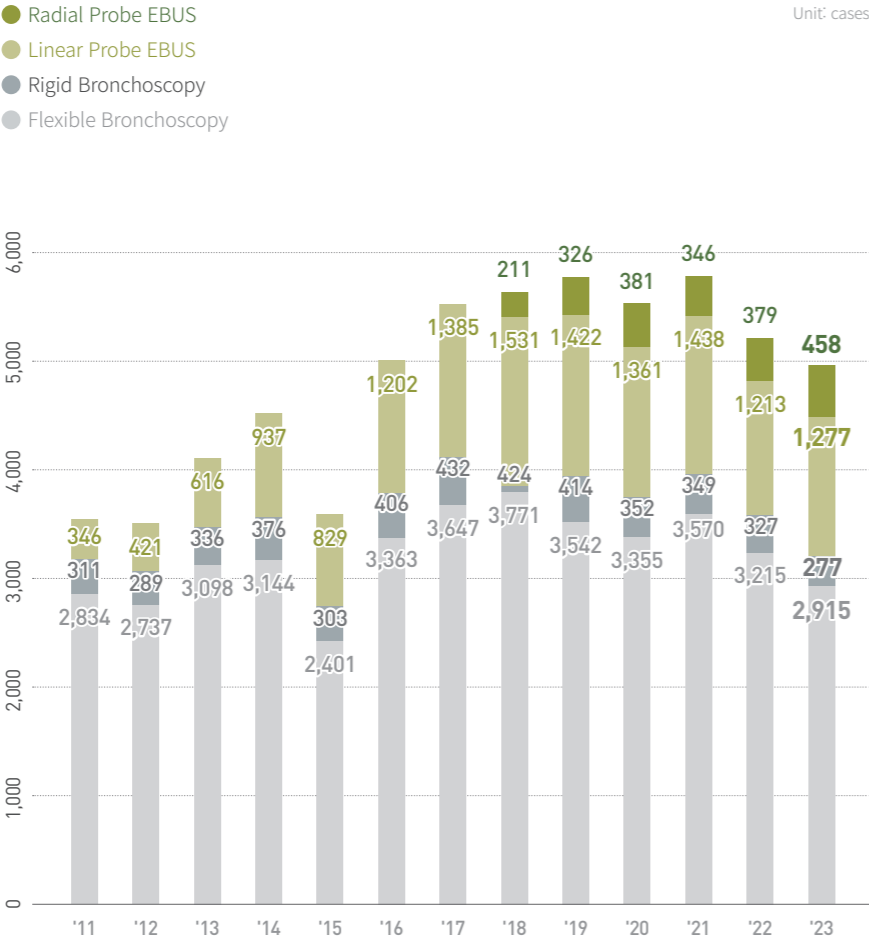
※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

02

Treatment Result

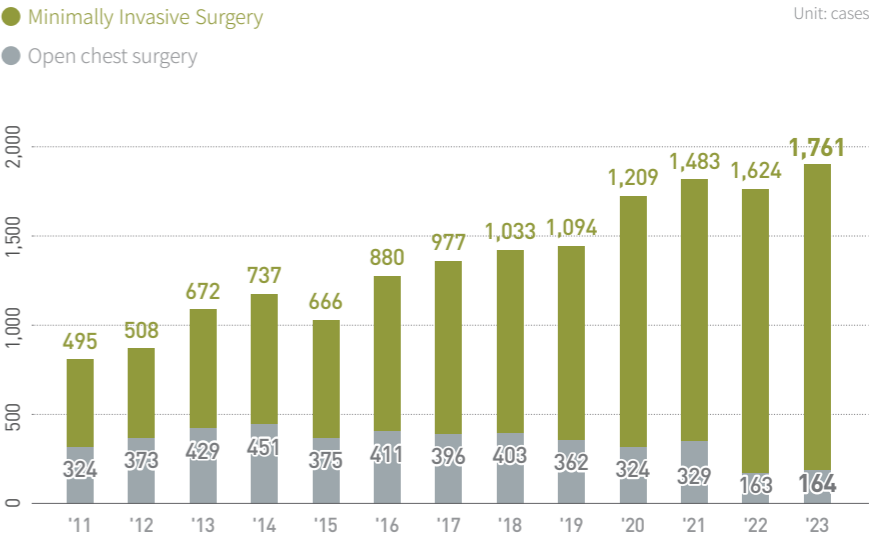
No. of Bronchoscopic Procedures

More than 2,900 cases of flexible bronchoscopy and about 280 cases of rigid bronchoscopy are performed annually. Over 1,700 cases of endobronchial ultrasound are performed every year.



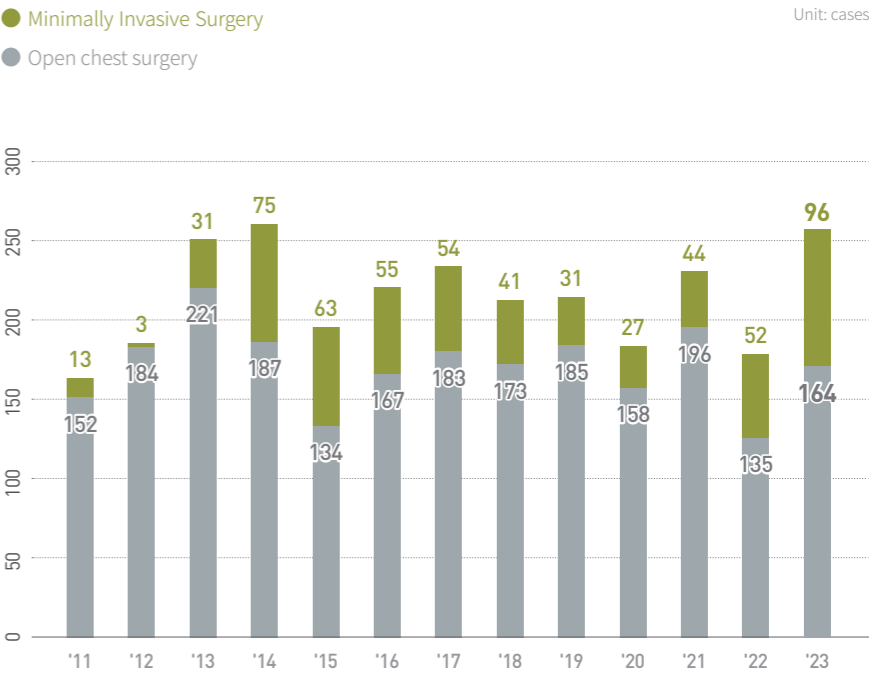
No. of Radical Surgery for Lung cancer

The Lung and Esophageal Cancer Center performs approximately 1,900 cases of radical surgery per year. The proportion of minimally invasive surgery (video-assisted thoracic surgery) is greater than 90%.



No. of Radical Surgery for Esophageal cancer

We perform more than 250 cases of radical resection and reconstruction per year.

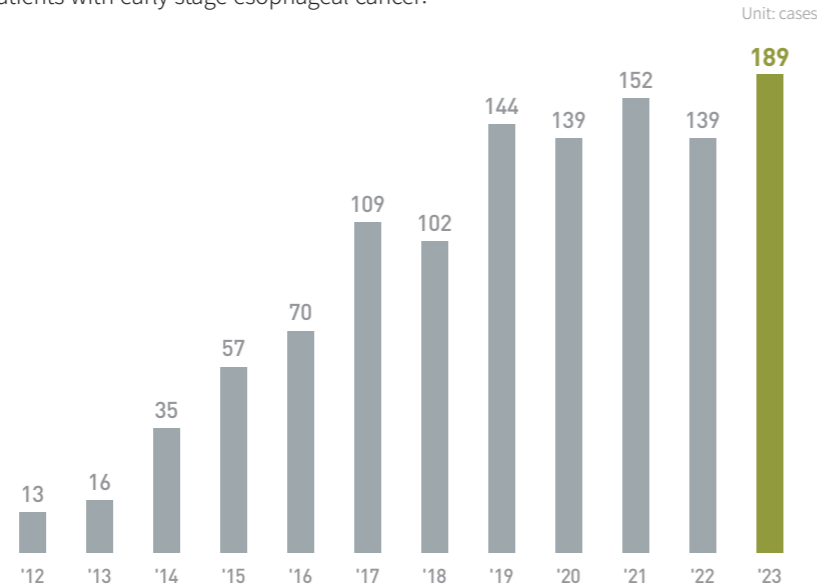


02

Treatment Result

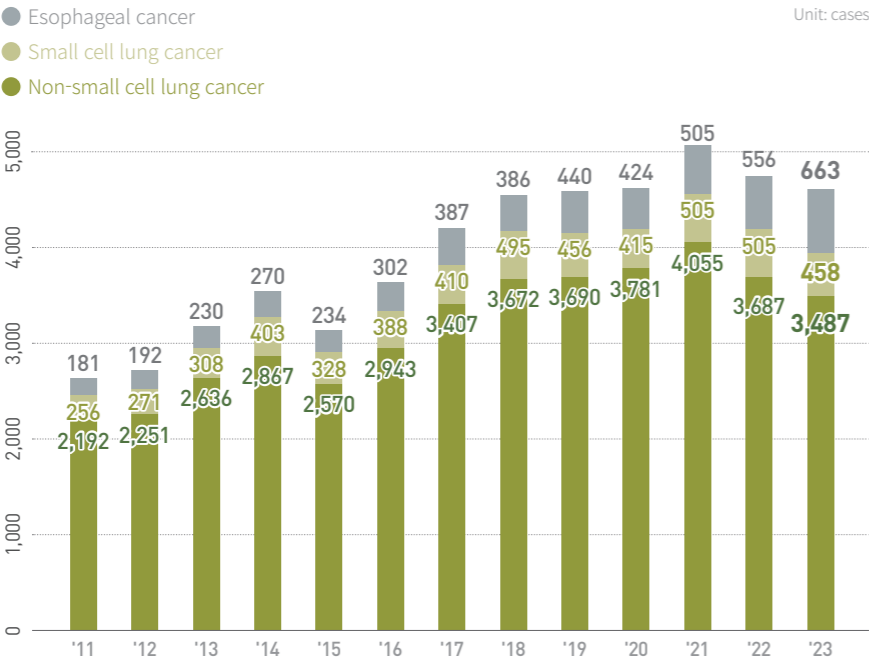
No. of Endoscopic Dissection for Early Esophageal cancer

About 190 cases of endoscopic submucosal dissection (ESD) are performed annually for patients with early stage esophageal cancer.



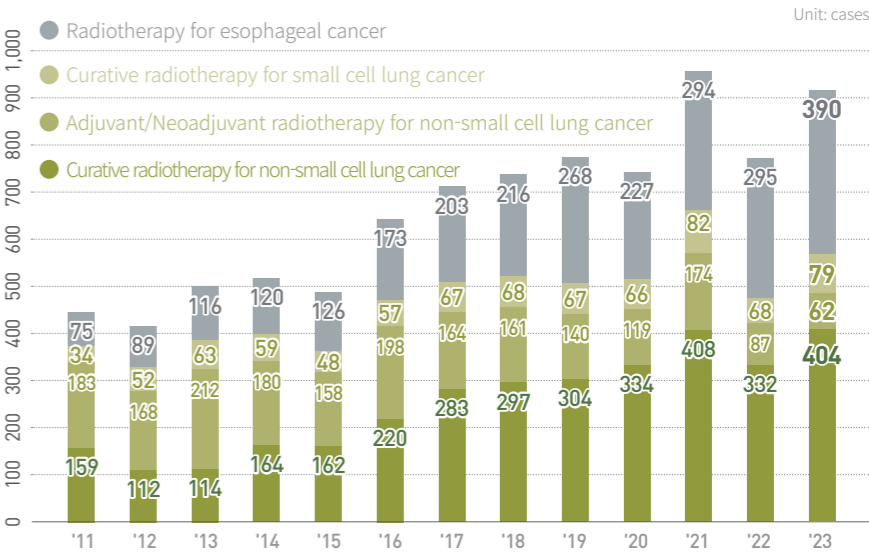
No. of Chemotherapy

About 3,500 cases for non-small cell lung cancer, more than 450 cases for small cell lung cancer, and more than 660 cases for esophageal cancer are being treated annually.



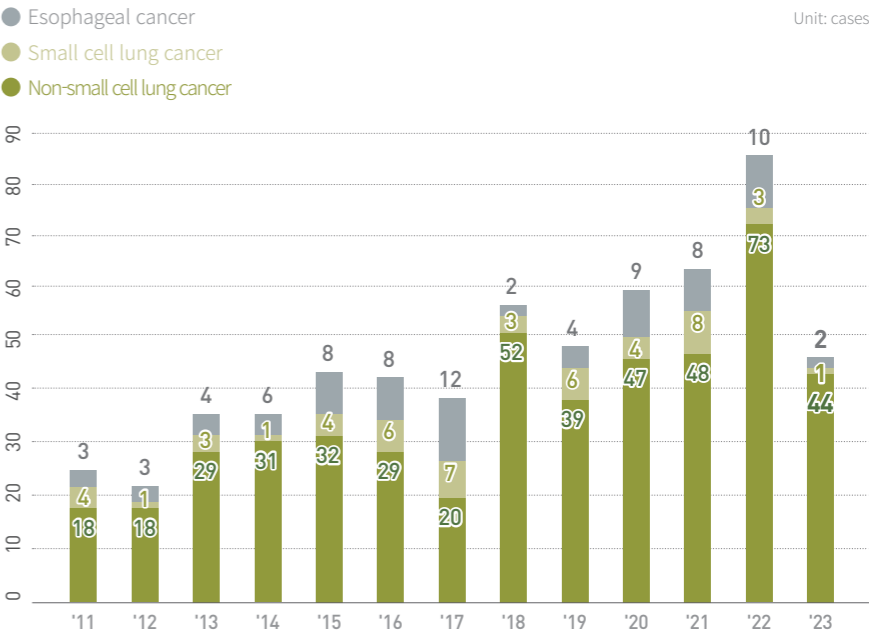
No. of Radiotherapy

About 400 cases of non-small cell lung cancer and about 80 cases of small cell lung cancer are being treated with radical radiotherapy annually. For esophageal cancer, 390 cases of radiotherapy are performed annually.



No. of Clinical Research

The Lung and Esophageal Cancer Center is actively conducting various research that can help patient treatment.



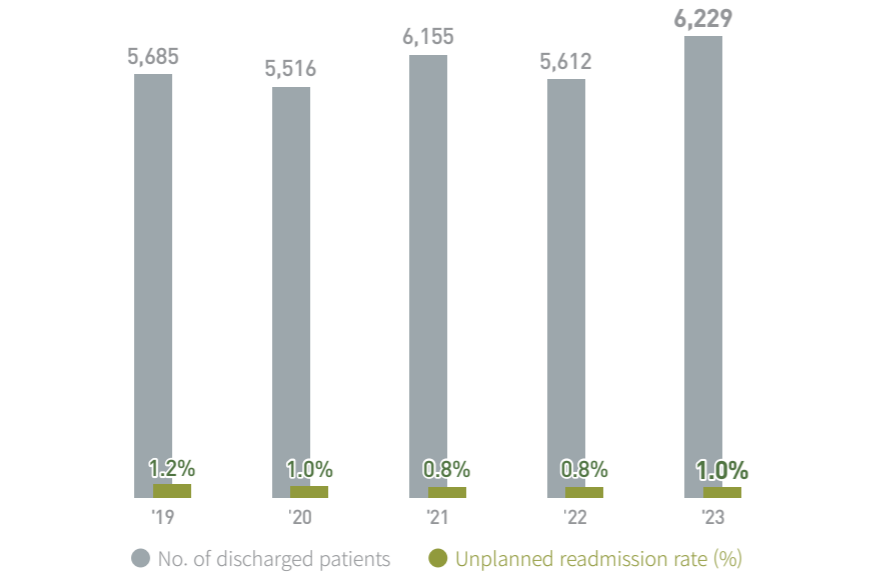
03 Quality Management

Quality Management

Each year, the Lung and Esophageal Cancer Center evaluates and improves the quality of clinical services to ensure a safe clinical environment and provide best treatment.

'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	'19	'20	'21	'22	'23
Mortality within 30 days after radical primary lung cancer surgery (2009-2023)														
1.2%	0.4%	0.7%	0.3%	0.5%	0.4%	0.6%	0.3%	0.7%	0.0%	0.3%	0.2%	0.1%	0.0%	0.2%
Mortality within 30 days after radical primary esophageal cancer surgery (2009-2023)														
0.0%	0.5%	0.0%	0.5%	0.0%	0.8%	1.0%	0.5%	0.4%	0.0%	0.0%	0.5%	0.4%	0.0%	0.8%

Mortality within 30 days after surgery

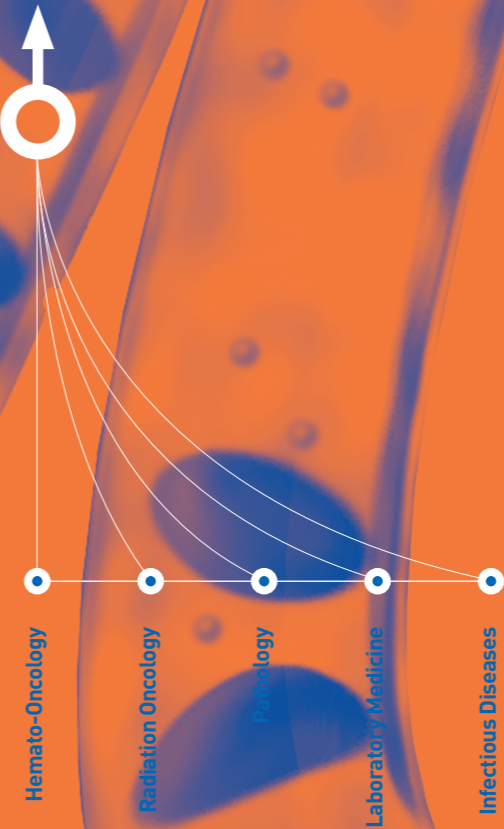


Unplanned readmission rate within 7 days

HEMATOLOGIC MALIGNANCY CENTER

The Hematologic Malignancy Center aims to maintain its position as the best in Asia by providing the best treatment.

- We deliver the best treatment outcome using our extensive experience in hematopoietic stem cell transplantation.
- We are proud of sustaining the best treatment outcome for lymphoma in Korea.

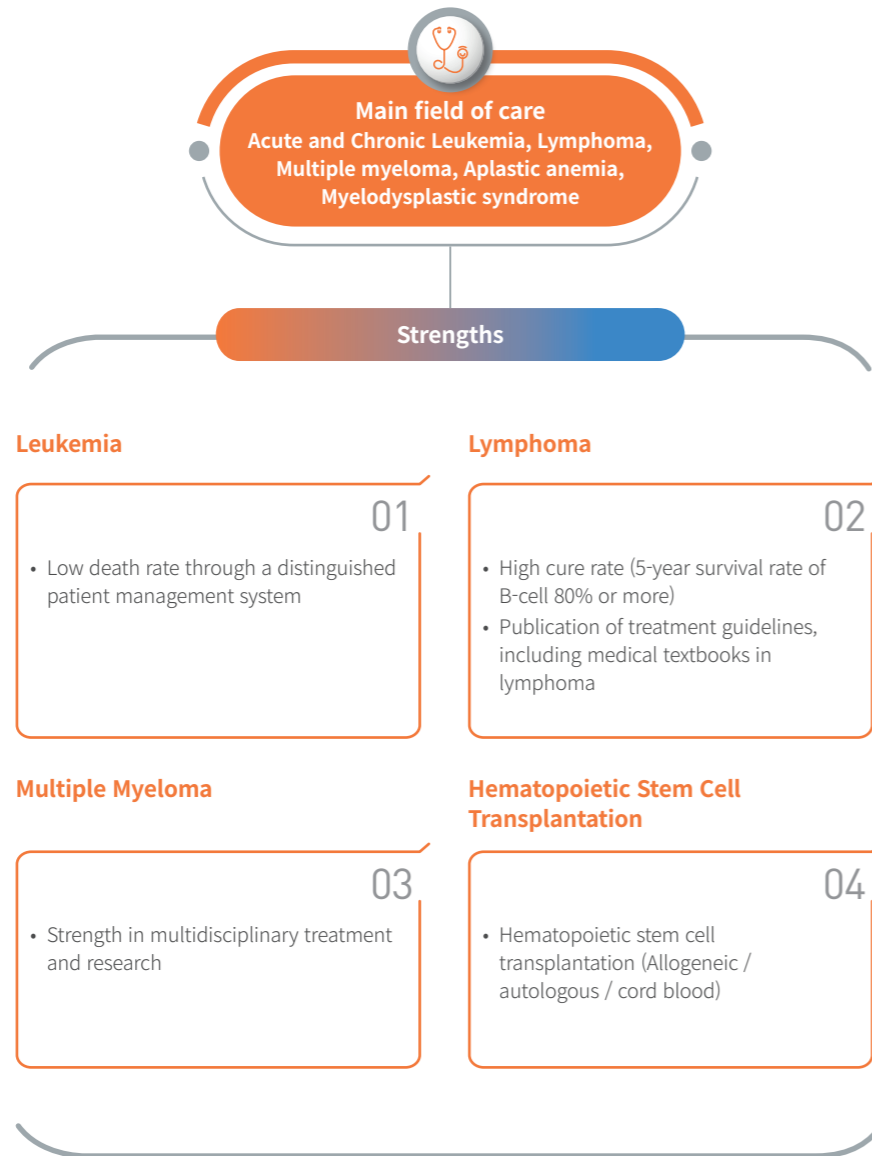


01

Introduction

General Information

Hematologic Malignancy Center provides patients with the highest-level care through multidisciplinary collaboration. In particular, we are actively participating in international clinical researches including early clinical researches, to introduce the latest drugs that are not available yet in Korea.

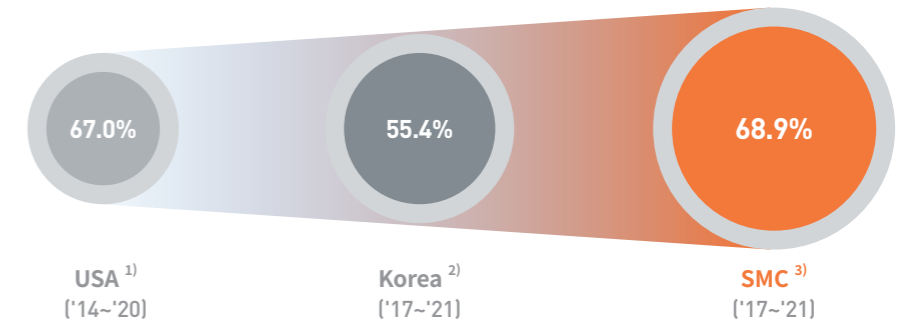


02

Treatment Result

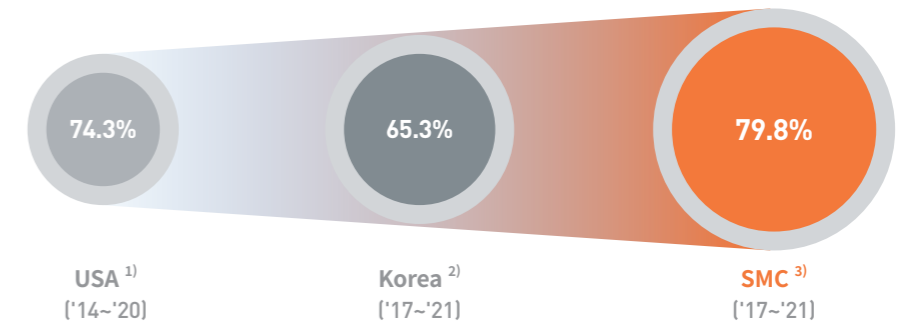
5-year Survival rate, Leukemia

The 5-year relative survival rate of leukemia patients treated at the Hematologic Malignancy Center is 68.9%, which is an excellent outcome.



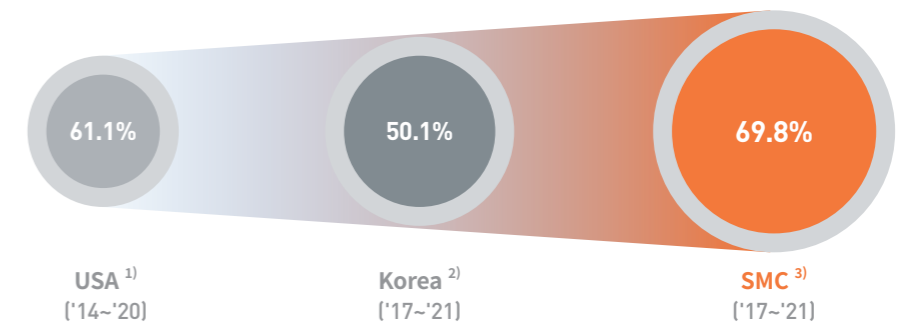
5-year Survival rate, Non-Hodgkin Lymphoma

The 5-year relative survival rate of non-Hodgkin lymphoma is 79.8%, which is comparable to the world standards.



5-year Survival rate, Multiple Myeloma

The 5-year relative survival rate of multiple myeloma patients is 69.8%.

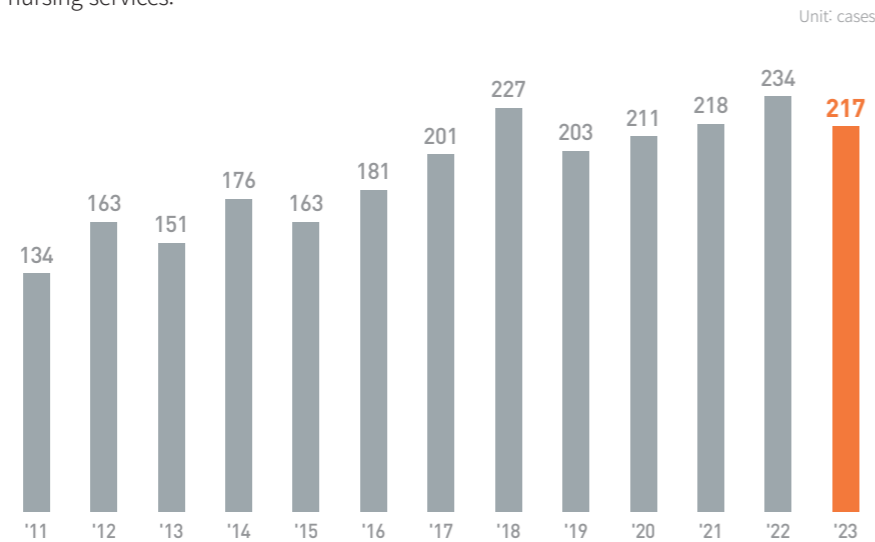


※ ¹⁾ Surveillance Epidemiology and End Results (SEER) (2023),
²⁾ Annual report of cancer statistics in Korea(2024),
³⁾ Samsung Medical Center cancer statistics(2024)

02 Treatment Result

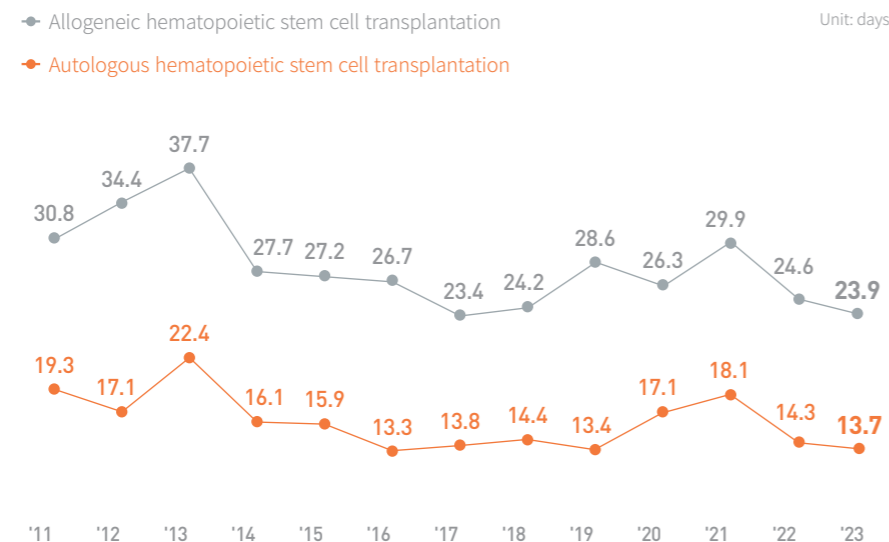
Hematopoietic Stem Cell Transplantation (HSCT)

We have rich experience in HSCT, performing about 220 cases per year. Our nurses who specialized in oncology and who trained as transplantation coordinators, inpatient and outpatient nurses, and research nurses provide the highest level of nursing services.



Hospitalization Days of HSCT Patients

We provide high quality medical care based on the standard guideline. The duration of hospitalization is about 24 days for allogeneic hematopoietic stem cell transplantation, and about 14 days for autologous hematopoietic stem cell transplantation.



PROTON THERAPY CENTER

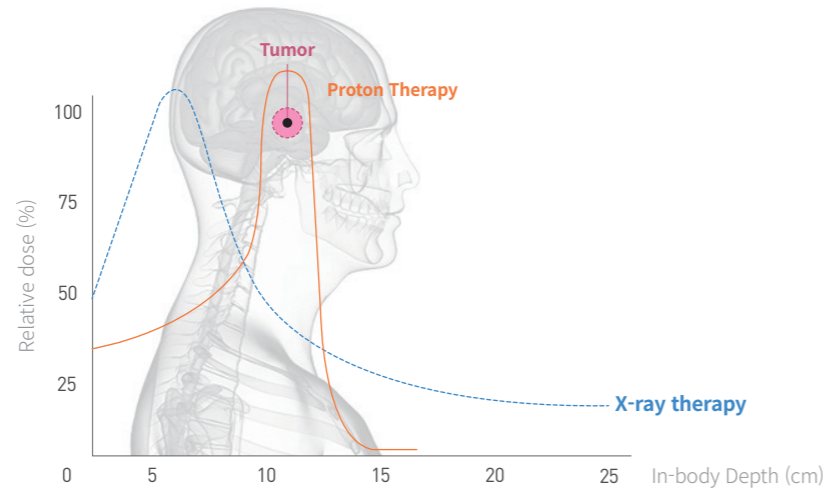
The Proton Therapy Center opens a new horizon for cancer treatment through next-generation radiotherapy that goes beyond the limits of conventional radiotherapy.

- We deliver new hopes with most advanced proton therapy.

01 Introduction

Features of Proton Therapy

The Proton Therapy Center provides the most advanced, next-generation radiotherapy. By utilizing the unique characteristic of the proton beam, the Bragg peak (a phenomenon that occurs when a proton beam penetrates the human body and reaches the cancer tissues; it deposits the most energy in the target location and immediately stops propagation), we can improve the accuracy and effectiveness of treatments and minimize adverse effects.



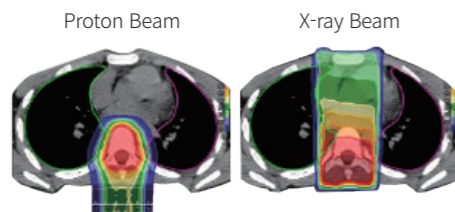
Strengths of Proton Therapy

Higher accuracy and effectiveness with lower side effects.

Reducing adverse effects and risks of secondary cancer

01

- Reducing adverse effects and risks of secondary cancer by minimizing radiation exposure to the surrounding normal tissues

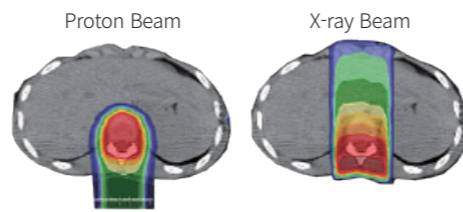


Cardioprotective effects of proton therapy

Safe Re-irradiation

02

- Compared to the conventional X-ray therapy, proton therapy enables relatively safe re-irradiation.



Abdominal organ protective effect of proton therapy

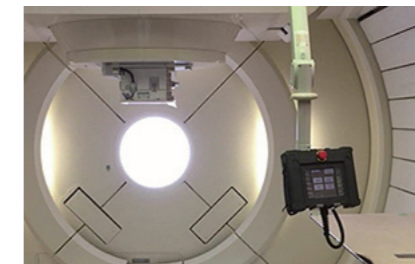
Differentiated Treatment

We provide accurate treatment through innovative technology, and personalized treatment based on the patient's characteristics

- 1) We provide the optimal proton beam module based on the patient's condition.

Wobbling	Scanning
Suitable for treatment of organs that move a lot due to respiration or treatment of large area	Suitable for cases which require precise treatment due to the complexity of tumor shape and close proximity to critical normal organs

- 2) By using a 360-degree rotating gantry equipped with a cone-beam CT for the first time in Korea, the accuracy of dose delivery has been further improved.

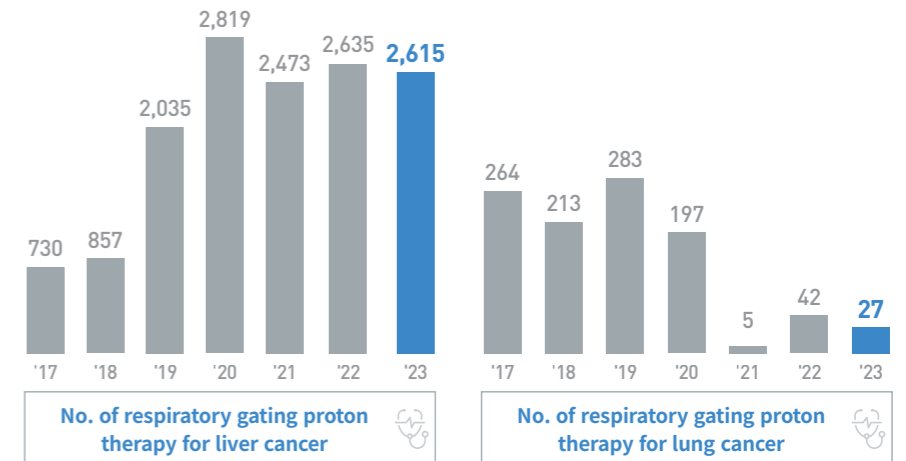


Proton therapy room



Proton therapy system with 360 degree rotating gantry

- 3) The respiratory gating technique can minimize damage to surrounding tissues during proton therapy of tumors that move during respiration, such as liver cancer and lung cancer. Many patients with liver cancer or lung cancer are receiving precise proton therapy through respiratory gating proton therapy.

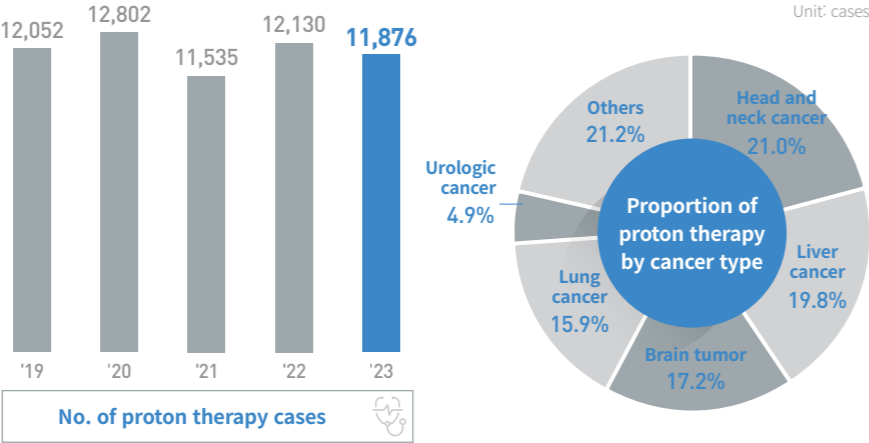


02

Treatment Result

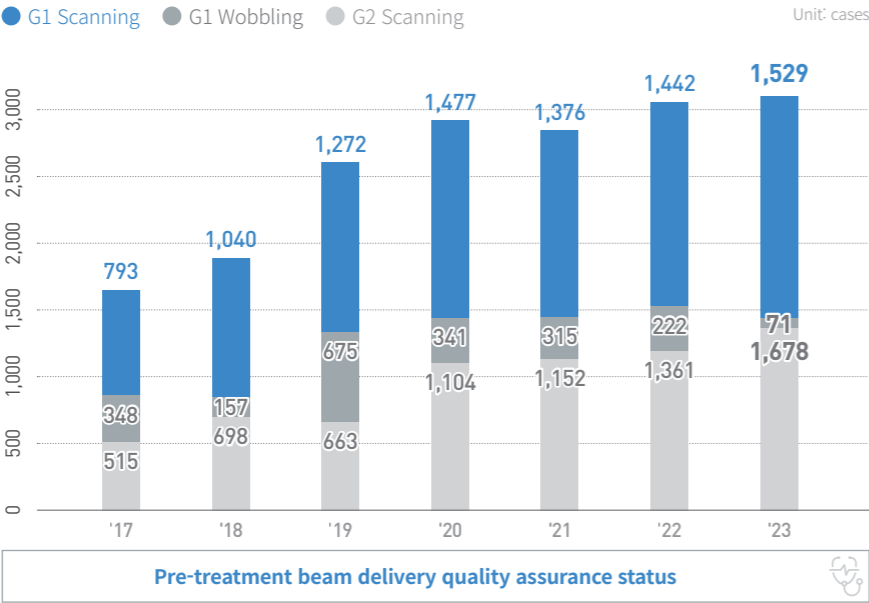
Patients Treated by Cancer type

The number of patients treated with proton therapy is steadily increasing, with nearly 50 cases of proton therapy being performed everyday. By cancer type, head and neck cancer (21.0%), liver cancer (19.8%), brain tumor (17.2%), and lung cancer (15.9%).



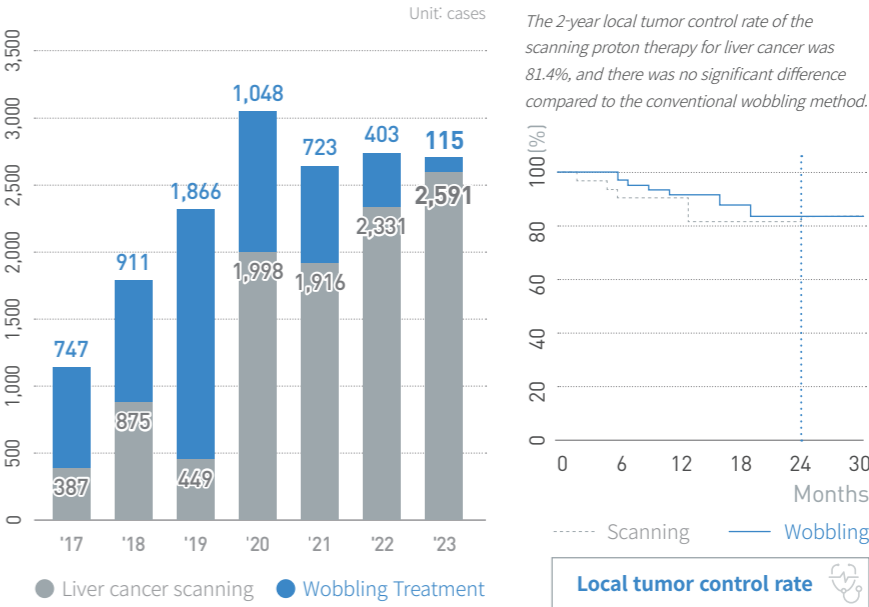
Proton Therapy Quality Assurance status

Prior to starting proton therapy, pre-treatment beam delivery quality assurance is conducted for each patient, ensuring device quality by measuring the error between the calculated and measured doses.



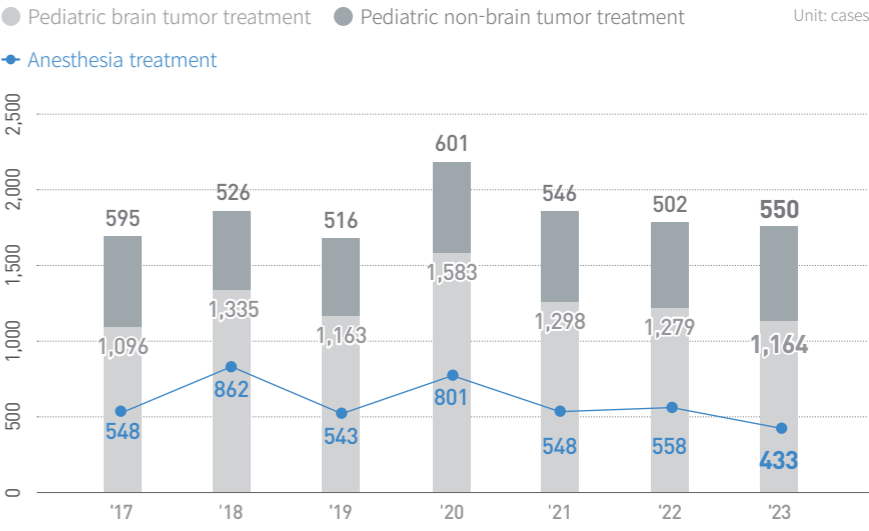
Proton Therapy for Liver cancer

We are the world's first institution to have achieved excellent treatment outcomes for scanning proton therapy in moving liver cancer. Currently, we have expanded and widely applied the respiratory gating proton therapy with scanning modules to treat liver cancer with complex shapes.



Proton Therapy for Pediatric Cancer

The application of proton therapy for pediatric cancer patients is increasing steadily. In addition, annually, more than 500-800 cases of children who have difficulty cooperating during the procedure receive proton therapy under anesthesia.

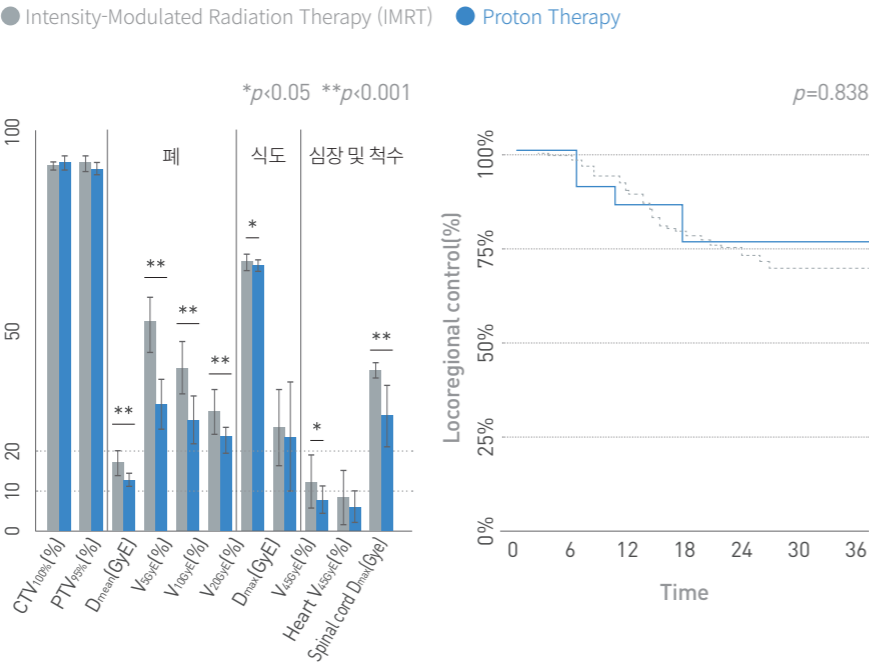


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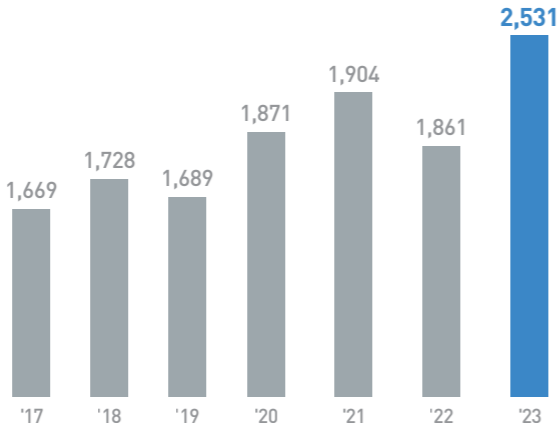
Treatment Result

Proton Therapy for Lung Cancer

Proton therapy in advanced lung cancer results in similar local control rates to intensity-modulated radiation therapy and a significant reduction in radiation dose to the lungs.



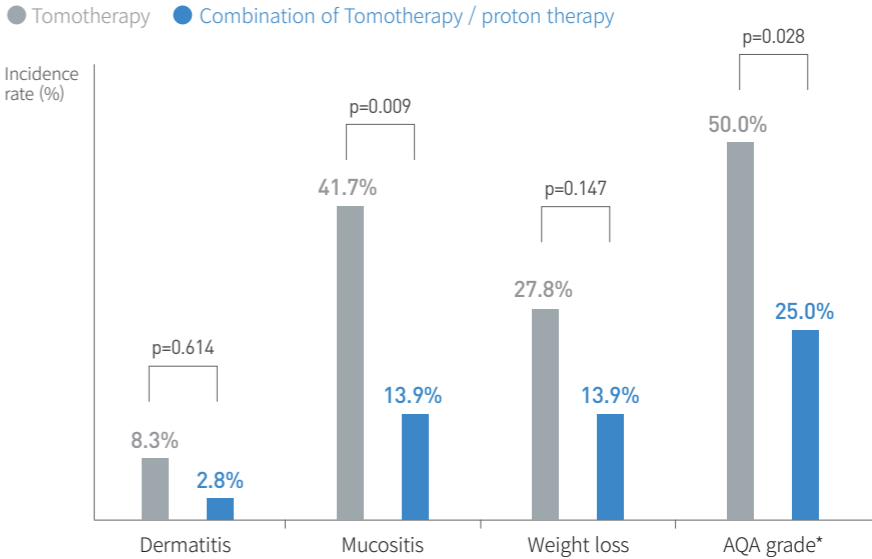
Comparison of radiation doses to the lungs and spinal cord in the planning of IMRT and proton therapy



No. of cases for lung cancer treatment

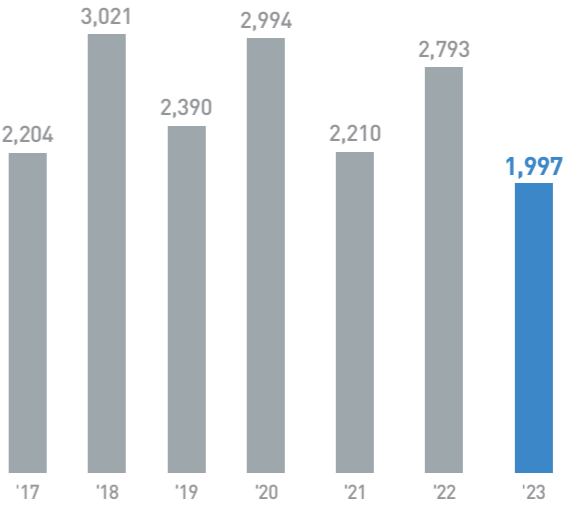
Proton Therapy for Head and Neck Cancer

In oropharyngeal cancer, the rate of adverse events for Tomotherapy combined with proton therapy was significantly reduced compared to that for Tomotherapy alone.



* Indicator reflecting the degree of narcotic painkiller use
Kim et al. Cancers 2021

Comparison of treatment side effects between Tomotherapy alone and Tomotherapy combined with proton therapy



No. of cases for head and neck cancer treatment

RARE CANCER CENTER

The Rare Cancer Center leads the integrated solution for rare cancer treatment. We will continue to provide our best research and treatment at the forefront of rare cancer care in Korea.

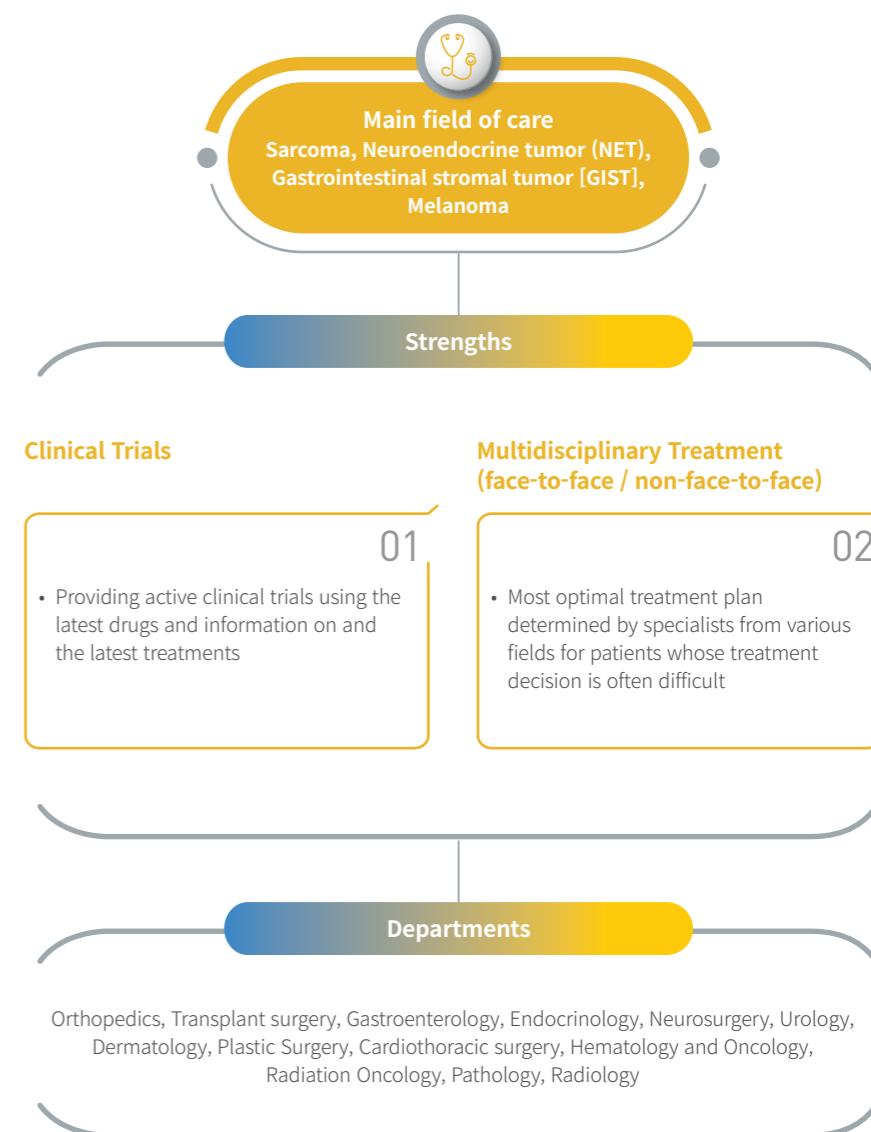
- We treat various types of cancer.
- We provide optimal care to patients through a multidisciplinary approach.

01

Introduction

General Information

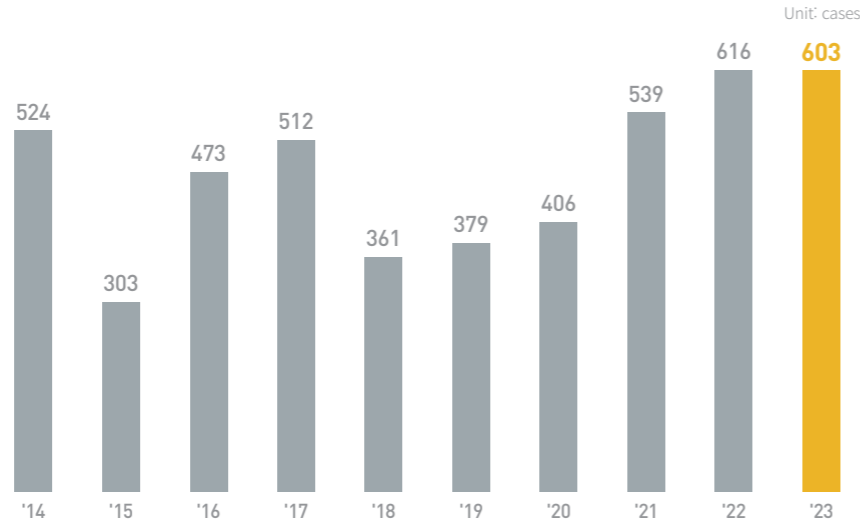
The Rare Cancer Center is dedicated to treat rare cancers, which are mostly intractable, characterized by low incidence, but a high diversity of types and complex nature, making accurate diagnosis challenging. We are committed to providing optimize rare cancer treatment through the systematic multidisciplinary care by expert medical faculties and the leading care through clinical trials.



01 Introduction

Multidisciplinary Treatment

The Rare Cancer Center takes the lead in accurate diagnosis and prompt, systematic treatment through multidisciplinary treatment by experts from various departments.



Clinics



Sarcoma Clinic

Target	Confirmed or suspicious sarcoma patients
Schedule	Monday
Treatment type	Outpatients/multidisciplinary treatment
Features	Discussing diagnosis, treatment plan, and prognosis of disease through weekly multidisciplinary discussions for patients whose treatment decision is clinically difficult



Neuroendocrine Tumor Clinic

Target	Confirmed neuroendocrine tumor patients
Schedule	Frequently
Treatment type	Outpatient treatment
Features	Managing the quality of life by combining accurate and prompt diagnosis and treatment, and management of diet, stress, and pain for symptom relief



Melanoma Clinic

Target	Suspected/confirmed melanoma patient
Schedule	Wednesday
Treatment type	Outpatient treatment
Features	Simultaneous opening of outpatient treatment for melanoma diagnosis. A same-day consultation system between departments is in place.



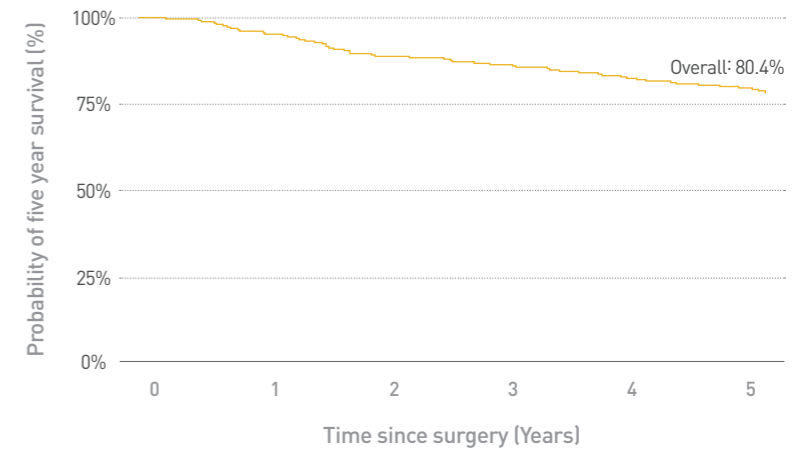
Gastrointestinal Stromal Tumor Clinic

Target	Gastrointestinal stromal tumor patient who requires multilateral treatment based on lesion location and its progress status
Schedule	Whenever necessary
Treatment type	Outpatients / Multidisciplinary treatment
Features	Reduced number of patient visits. Accurate diagnosis and timely treatment

02 Treatment Result

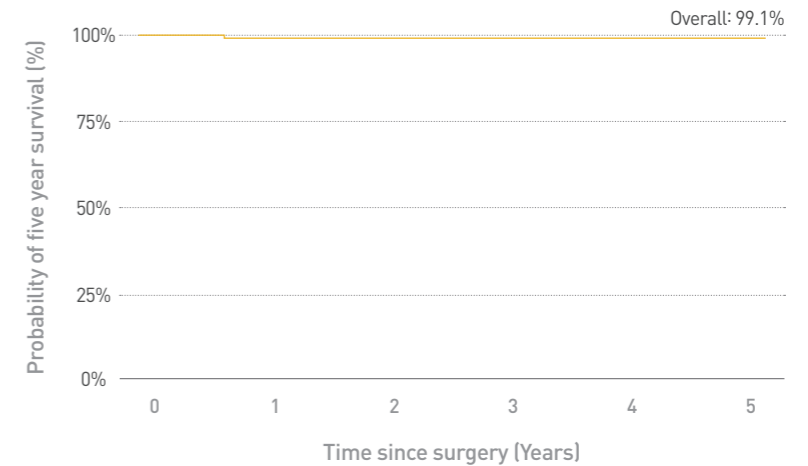
5-Year *Observed Survival Rate for Bone and Soft Tissue Sarcoma

The 5-year observed survival rate for bone and soft tissue sarcoma from 2008 to 2022, among patients who underwent surgery for bone and soft tissue sarcoma at the Rare Cancer Center, is 80.4%.



5-Year *Observed Survival Rate for Borderline Tumors

The 5-year observed survival rate for borderline tumors from 2008 to 2022, among patients who underwent surgery for borderline tumors at the Rare Cancer Center, is 99.1%.



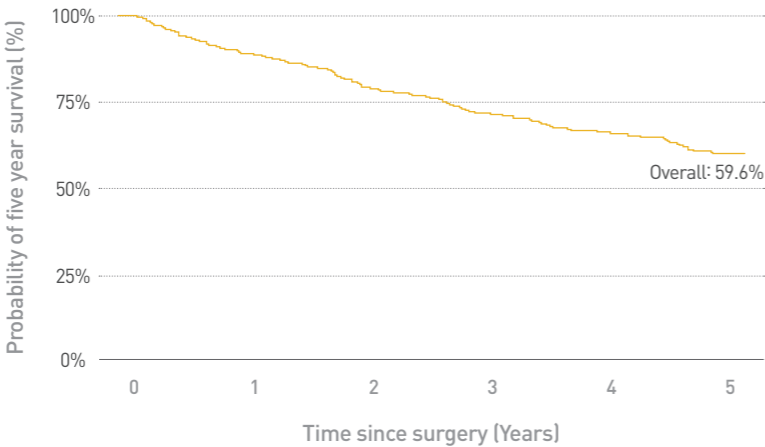
* Observed survival rate is the calculated value representing the probability of a patient's survival when tracked for up to 5 years after diagnosis using the Kaplan-Meier method in survival analysis

02

Treatment Result

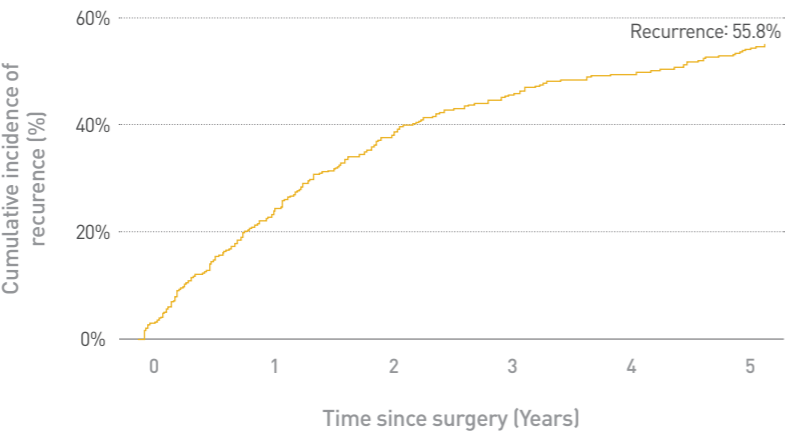
5-Year
Observed
Survival
Rate for
Retroperitoneal
Sarcoma

The 5-year observed survival rate for retroperitoneal sarcoma from 2008 to 2022, among patients who underwent surgery for retroperitoneal sarcoma at the Rare Cancer Center, is 59.6%.



5-Year
Recurrence
Rate for
Retroperitoneal
Sarcoma

The 5-year recurrence rate for retroperitoneal sarcoma from 2008 to 2022, among patients who underwent surgery for retroperitoneal sarcoma at the Rare Cancer Center, is 55.8%.



CAR T-CELL
THERAPY CENTER

As the first personalized treatment in Korea, Samsung Comprehensive Cancer Center's CAR T-Cell Therapy proposes a new treatment paradigm for patients with relapsed or refractory hematologic malignancies.

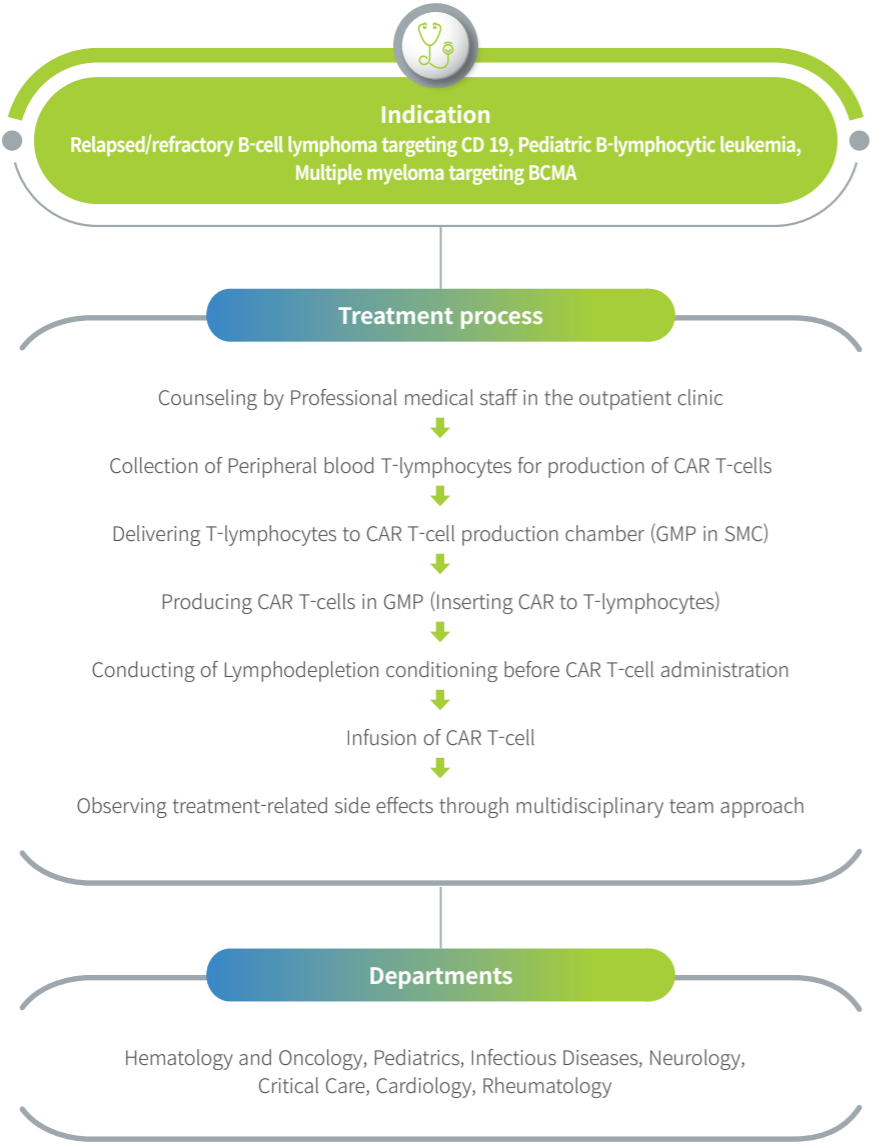


01

Introduction

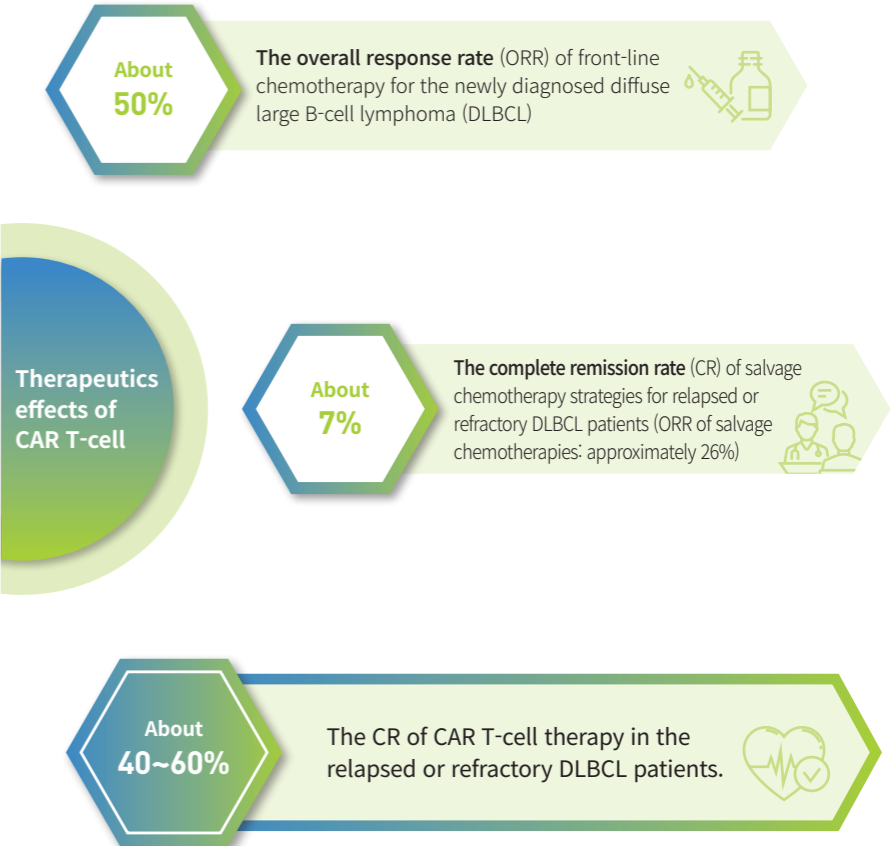
Features of CAR T-Cell Therapy

CAR T-cell therapy is frontier immunotherapy. However, before developing and introducing CAR T-cell therapy, cytotoxic chemotherapy or target agents was the prominent backbone treatment for patients with relapsed or refractory hematologic malignancies. Immunotherapy, an entirely different treatment from the previous treatment strategies, encourages activating the patient’s immune system and helps fight cancer cells. Among immunotherapies, CAR T-cell therapy has been getting attention through superior efficacies and low toxicities. CAR T-cell manufacturing process generally consists of 5 steps: extracting T-lymphocytes from the patient’s blood, inserting Chimeric antigen receptor (CAR) into the T-lymphocytes, and amplifying processed lymphocytes (CAR T-cells), selecting final CAR T-cell products, and administrating these cells into the patient’s body.



Therapeutics Effects of CAR T-cell Therapy

CAR T-cell therapy has proven excellent therapeutics efficacy and extended survival outcome in patients with relapsed and refractory hematologic malignancies who have painful experiences with the previous multiple treatments. Thus, all CAR T-Cell Therapy Center team members promise to do our best to manage the patient’s disease and continue to deliver hope to patients and their families.

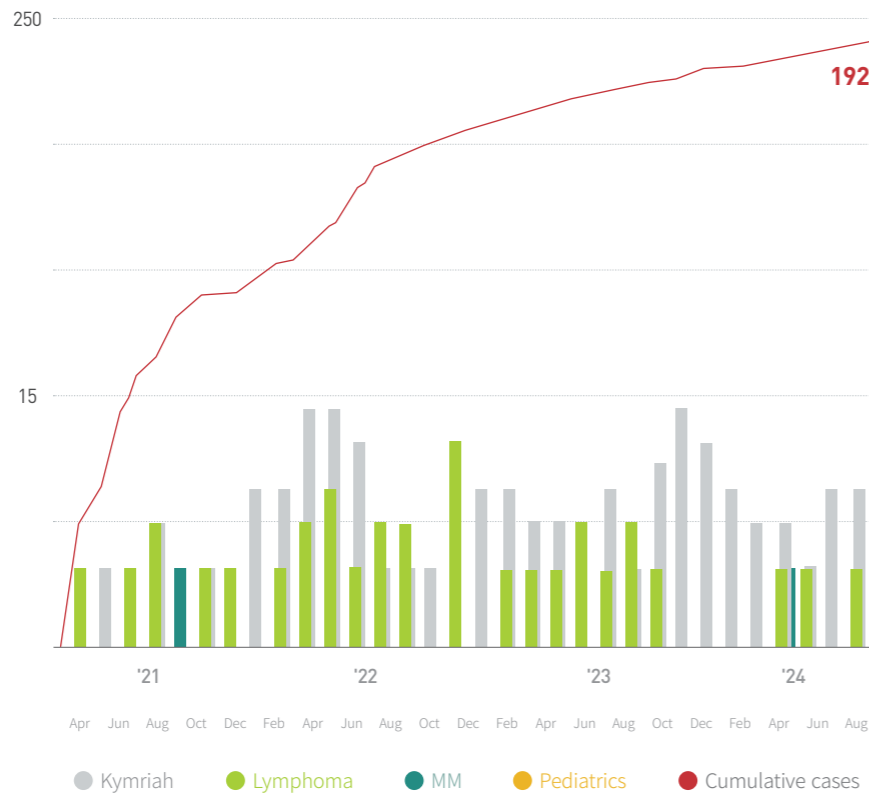


02

Treatment Result

CAR T-Cell Therapy Results

In the field of CAR T-cell therapy, we have treated about 200 patients since 2021. Efforts to improve the survival rate of patients with relapsed, refractory, or non-responsive large B-cell lymphoma continue.



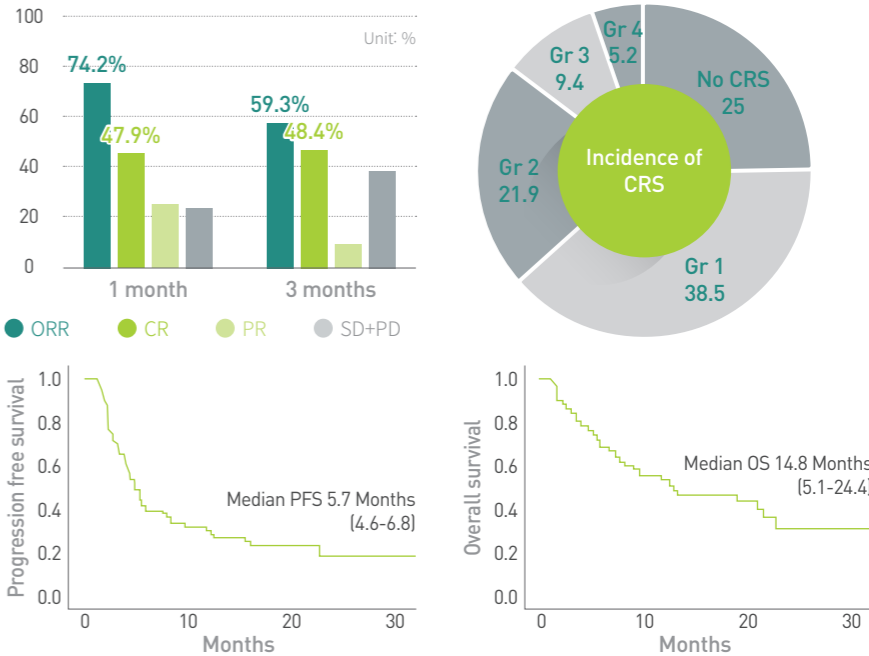
CAR T-cell Therapy Cases at Samsung Comprehensive Cancer Center (including clinical trials, from 2021 to August 2024)



The CAR-T Cell Therapy Center provides safe and effective treatment for patients with relapsed and refractory lymphoma, supported by a skilled medical team and robust infrastructure.

Blood. 2017, OCT 19;130(16):1800-1808 | Blood Adv(2020) 4(19): 4669-4678. N Engl J Mes 2019;380:45-56. | Lancet Oncol. 2021 Oct;22(10):1403-1415.

	Complete Response Rate (CR, %)	Overall Response Rate (ORR, %)	Progression-Free survival rate	Overall survival rate	CRS ALL grade/GR>3
Salvage chemotherapy	7%	26%	2.3 months	6.3 months	
Phase II JULIET(Kymriah)	40%	52%	2.9 months	11.1 months	58%, 22%
SMC(Kymriah 3M)	48.4%	59.3%	5.7 months	14.8 months	75%, 14.4%



CAR T-cell Therapy results at Samsung Comprehensive Cancer Center (including clinical trials, from 2021 to August 2024)



CAR T-Cell Therapy Contributions

- 2022.04.28 Benchmarking of CAR T-Cell Therapy Center with Asan Medical Center in Seoul
- 2022.09.27 Benchmarking of CAR T-Cell Therapy Center with Korea University Anam Hospital
- 2022.09.22 Visit by the Uzbekistan Ambassador (Benchmarking for CAR T-Cell Therapy System Establishment)
- 2023.05.24 Benchmarking of CAR T-Cell Therapy Center with Chungbuk National University Hospital
- 2023.08.03 Benchmarking of CAR T-Cell Therapy Center with Gachon University Gil Hospital
- 2024.06.24-25 Benchmarking of CAR-T Cell Therapy Center with National Taiwan University Hospital

Precision Cancer Therapeutics Center

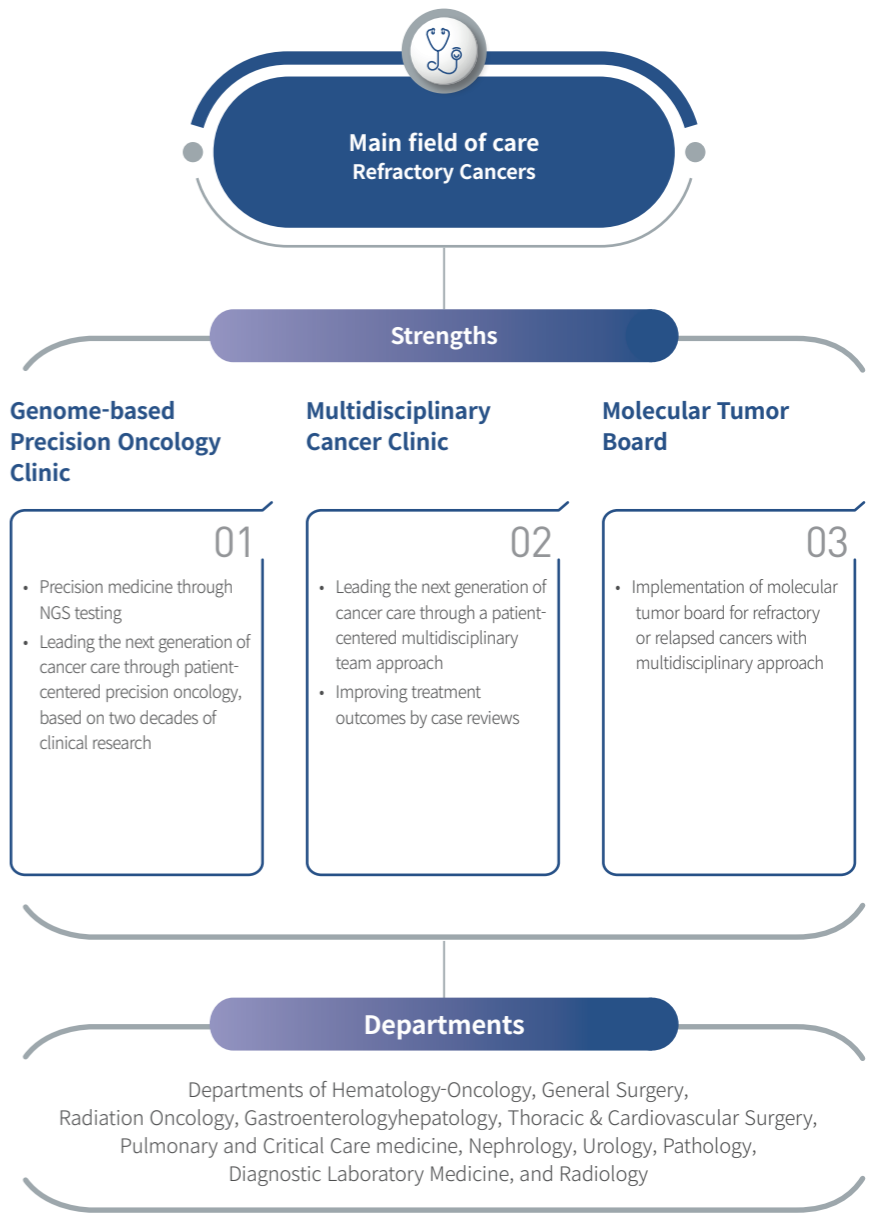
The Precision Cancer Therapeutics Center at the SMC provides the best treatment for patients with difficult-to-treat cancers by analyzing each patient's characteristics from multiple angles and discussing the direction of treatment through multidisciplinary care.

01

Introduction

Precision Cancer Therapeutics Center

In March 2022, the treatment-oriented Precision Cancer Therapeutics Center was established; it applies genomic analysis, biomarker analysis, and immunotherapy to cancer research and clinical trials to increase the survival rate of patients with incurable cancer and provides differentiated cancer treatment. Through personalized genomic analysis (NGS, next-generation sequencing), we are ensuring that the most appropriate treatment is delivered to the individual, ultimately contributing to improved patient outcomes.

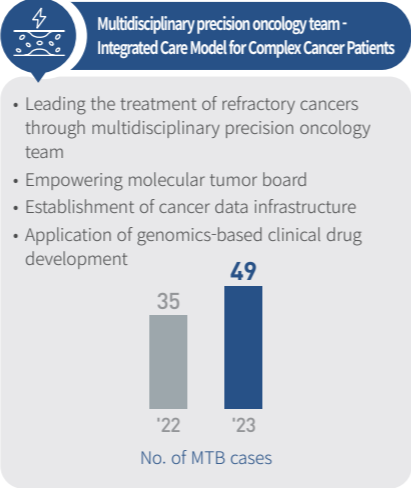
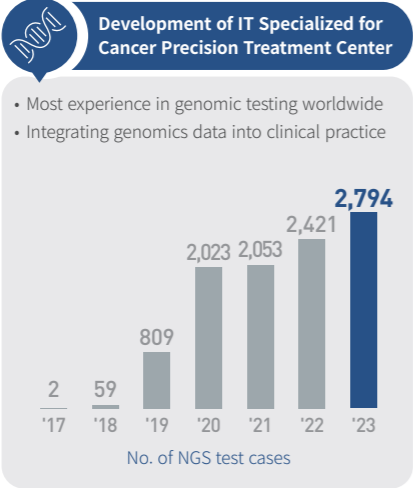


02 Treatment Result

Establishment of clinics at the Precision Cancer Therapeutics Center

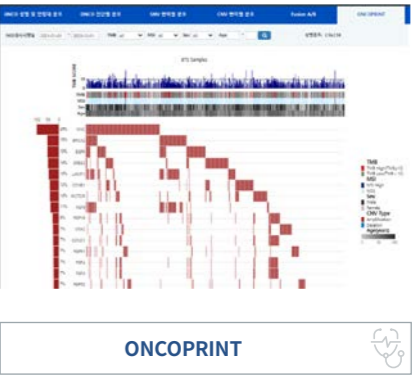
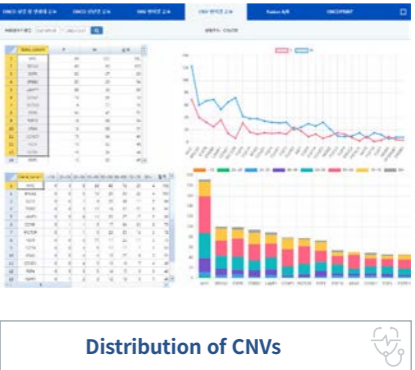
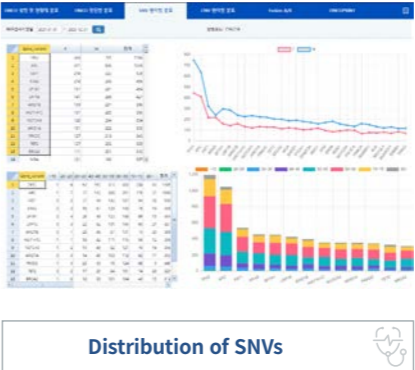
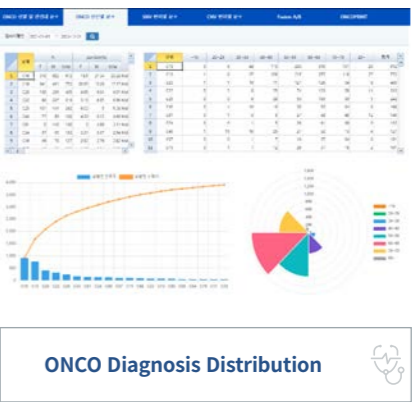
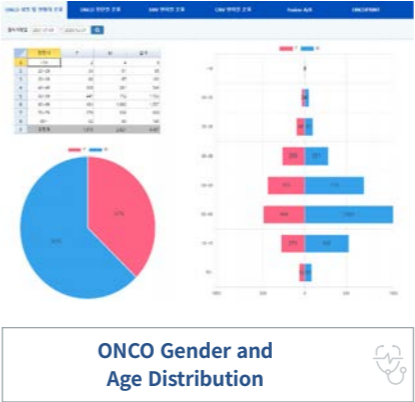
- 1. Genome-based precision oncology clinic
 - 2. Periodic molecular tumor board
 - 3. Developing innovative technology for cancer patients through multidisciplinary program
 - 4. Delivering new immunotherapy including T cell therapy to the patients
- 1. Comprehensive cancer immune mapping
 - 2. Early cancer detection program
 - 3. Translating the imaging endpoint into clinic
 - 4. Application of artificial intelligence for prediction of cancer treatment outcomes in clinics
 - 5. Immunogenomic mapping to predict specific complications
 - 6. Bringing proton-immunotherapy to the point of care

Running the SMC CureCancer Program



03 Quality management

Visualization of NGS Genomic database



SUPPORTIVE CARE CENTER

The Supportive Care Center provides comprehensive care to improve cancer patients' quality of life.

- We cover the whole cancer journey from cancer Prevention to treatment and rehabilitation.
- We help patients and family members to overcome cancer and to improve quality of life.



01

Introduction

General Information

The Supportive Care Center strives to assist cancer patients and their family overcome cancer and improve their quality of life. We provide personalized care to prevent and relieve the physical and psychological symptoms and adverse effects of the patients and family members during cancer treatment journey. We will lead the innovation of medical services and the implementation of comprehensive cancer treatment.

Strengths

Smart Alert Alarm by Automatic Screening System

01

- Personalized supportive care by managing early symptoms via automatic alarm system to allow for multidisciplinary action according to the care process and symptoms

QOL Improvement Program

02

- Rehabilitation program for patients with LARS* after rectal cancer surgery
- Pulmonary rehabilitation program of lung surgery patients
- Pre & postoperative rehabilitation program for Pancreaticoduodenectomy patients

*LARS: low anterior resection syndrome

Integrated Pain Management

03

- Best pain management service through multidisciplinary approach with the departments of Family medicine, Anesthesiology, Rehabilitation medicine and Psychiatry

Professional Counseling

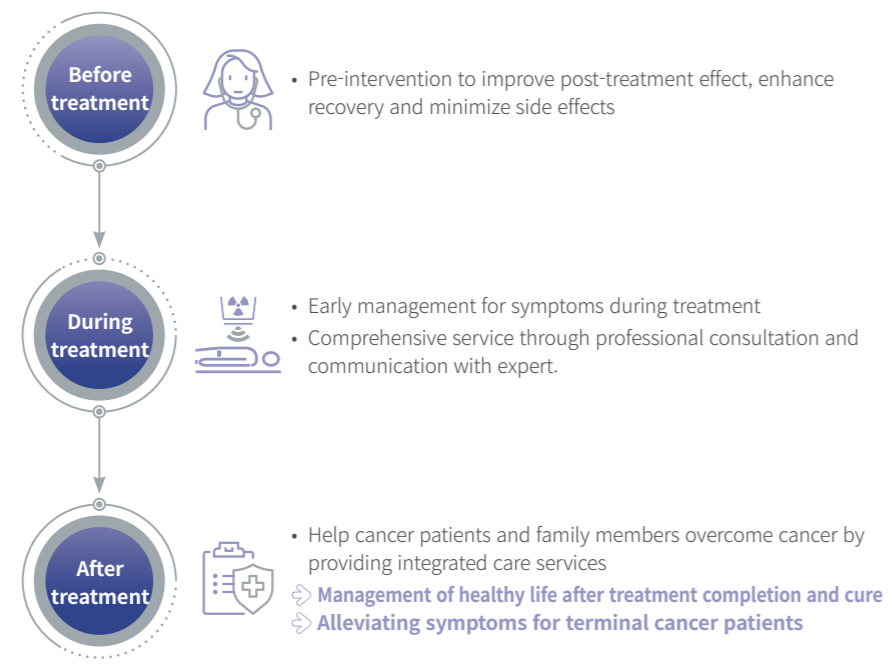
04

- Counseling on pain management, hospice/palliative care, mental health, genetics, and nutrition

01 Introduction

Clinics

The Supportive Care Center provides what patients need through seamless cooperation among various clinics throughout the entire treatment journey.

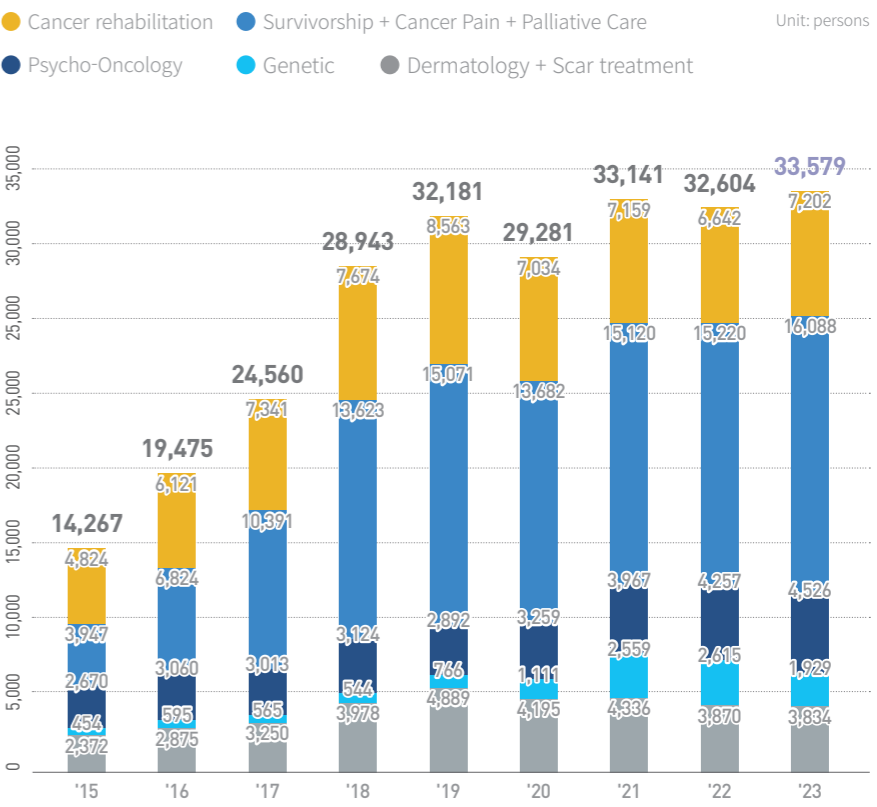


Clinic	Treatment details
Cancer Rehabilitation Clinic	Prehabilitation, diagnosis and treatment of physical symptoms and dysfunction
Cancer Survivorship Clinic	Secondary cancer screening, and regular follow-ups, vaccination, smoking cessation, chronic disease management, treatment of long-term complications
Cancer Pain Clinic	Management of cancer pain and cancer treatment-related pain
Palliative Care Clinic	Relief of the physical symptoms and psychological/social pain for terminal cancer patients
Psycho-oncology Clinic	Alleviation of psychological symptoms such as insomnia, stress, anxiety, and depression
Genetic Clinic	Genetic counseling and diagnosis, including family members
Dermatology Clinic	Management of cancer treatment-related skin problems
Scar Clinic	Prevention and treatment of scars after cancer surgery

02 Treatment Result

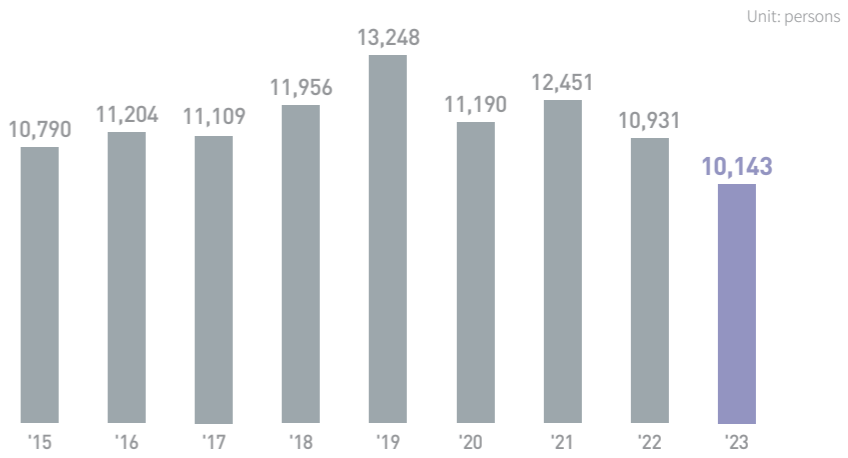
No. of Outpatients

Approximately 33,000 patients visit supportive care center annually.



No. of Patients Counseled

The Supportive Care Center provides specialized counseling on nutrition, hospice, pain management, symptom relief and improving quality of life.



Publisher	General Director of Samsung Comprehensive Cancer Center		Woo-Yong Lee		
Co-author	Liver Cancer Center	Yong-Han Paik	Jung-Yong Hong	Ha-Rim Jung	
	Brain Tumor Center	Ho-Jun Seol	Kyu-Ha Chong	Jeong-A Lee	
	Colorectal Cancer Center	Yong-Beom Cho	Jung-Kyung Shin	Young-Eun Choi	
	Head and Neck Cancer Center	Man-Ki Chung	Na-Yeon Choi	Eun-Hye Kim	
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	Urologic Cancer Center	Byong-Chang Jeong	Hyun-Hwan Sung	Sun Lee	
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	Breast Cancer Center	Seok-Won Kim	Byung-Joon Jeon	Mi-Na Kim	
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	CAR-T Cell Therapy Center	Won-Seog Kim	Song-Mi Lee		
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