ECONOMIST IMPACT

Enhancing patient-centred approaches to optimise early-breast cancer care

A review of current practice in South Korea

Sponsored by

MSD
INVENTING FOR LIFE

About Economist Impact

Economist Impact combines the rigour of a think-tank with the creativity of a media brand to engage a globally influential audience. We believe that evidence-based insights can open debate, broaden perspectives and catalyse progress. The services offered by Economist Impact previously existed within The Economist Group as separate entities, including EIU Thought Leadership, EIU Public Policy, EIU Health Policy, Economist Events, EBrandConnect and SignalNoise.

We are building on a 75-year track record of analysis across 205 countries. Along with framework design, benchmarking, economic and social impact analysis, forecasting and scenario modelling, we bring creative storytelling, events expertise, design thinking solutions and market-leading media products, making Economist Impact uniquely positioned to deliver measurable outcomes.

Table of Contents

About this Report

"Enhancing patient-centred approaches to optimise early-breast cancer care: a review of current practice in South Korea" is a research report by Economist Impact and sponsored by MSD, examining the existing breast cancer care pathway in South Korea and the factors that help or hinder the goal of achieving optimal patient-centred care.

The research aims to understand the unmet needs within the health system and opportunities for improvement. We analyse how South Korea can improve patient-centred care by building awareness, promoting screening, early detection, diagnosis and prognosis, and ensuring access to high-quality treatment, including supportive and palliative care.

Our goal is to help develop patient-centred care pathways and improve long-term outcomes for women with breast cancer in South Korea. We hope to do this by identifying unmet needs for early breast cancer care and analysing factors that act as barriers or facilitators to delivering patient-centred early breast cancer care. Our report uses a research method called 'force field analysis', which maps out forces that promote or hinder patient-centred care and highlights opportunities and gaps that drive change.

Economist Impact conducted a primary research programme to raise awareness and stimulate discussion among key stakeholders in South Korea. We conducted an initial evidence review and convened an expert panel to help design the 'force field', which encompasses practices favouring and hindering optimised patient-centred early breast cancer care. Alongside this, Economist Impact engaged key stakeholders in South Korea to understand national-level challenges.

Our thanks go to the South Korea stakeholders who contributed to this research (in alphabetical order):

- **Doo-ri Lee**, Representative, TNBC patient group
- Dr **Keun-Seok Lee**, Medical Oncologist, National Cancer Center Korea
- Dr **Seok-Won Lee**, Surgeon, Pusan National University Hospital
- Dr **Joohyuk Sohn**, Medical oncologist, Yonsei Cancer Center

In addition, we are grateful to the following people who served as our Asia-Pacific regional expert panellists (in alphabetical order):

- **Libby Burgess**, Chair, Breast Cancer Aotearoa Coalition, New Zealand
- Dr **Polly SY Cheung**, Founder, Hong Kong Breast Cancer Foundation, Hong Kong
- Dr **Julia Gandhi**, Executive, Committee member, Breast Cancer Foundation (BCF), Singapore; Chair, Women in Pharma, ISPE, Singapore.
- Prof. **Chisato Hamashima**, Professor, Division of Health Policy, Department of Nursing, Faculty of Medical Technology, Teikyo University, Japan
- Prof. **Mikael Hartman**, Senior Consultant and Head of Breast Services, National University of Singapore, Singapore
- Prof. **Chiun-Sheng Huang**, Professor and Chairman, Director of Breast Care Centre National Taiwan University Hospital, Taiwan
- Prof. **Ava Kwong**, Chief of Breast Surgery Division, The University of Hong Kong, Hong Kong
- Prof. **Bruce Mann**, Director of Breast Tumour Stream, Victorian Comprehensive Cancer Centre, Australia

The research programme was sponsored by MSD. The findings and views expressed do not necessarily reflect the views of the sponsor. Economist Impact bears sole responsibility for the content of this report.

This research programme was conducted by the Economist Impact team. This research team consisted of Gerard Dunleavy, Neeladri Verma, Emily Tiemann, and Yogita Srivastava.

Executive summary

Breast cancer is the most common cancer and the leading cause of cancer death among women in South Korea.[1] Both the number of newly diagnosed patients and the age-standardised rate of breast cancer are increasing every year, with 28,049 newly diagnosed breast cancer patients in 2018, an increase of 6.1% from 2017.[2] It is estimated that there were an additional 28,032 women diagnosed in 2022.[3]

Breast cancer diagnosed at an early stage, when it is not too large and has not spread, is more likely to be treated successfully than breast cancer diagnosed at an advanced stage. In South Korea, the proportion of patients with Stage 0 and Stage I breast cancer has steadily increased since 2002 and accounts for more than half of the total breast cancer cases since 2010.[4] Advanced breast cancer not only creates an urgent health challenge but also impedes the quality of life, and brings significant economic costs for patients, their families and public health systems.

There are significant opportunities to improve breast cancer care in South Korea by understanding the patient-centred care pathway for early breast cancer diagnosis and treatment and investigating the unmet needs in managing breast cancer.

Using an evidence-based approach that incorporates a review of existing data and an expert panel meeting, we designed a force field analysis to assess existing policies and system performance across four domains of the patient journey: population awareness, screening and diagnosis, treatment, and survivorship.

Indicators within each domain were selected based on evidence of their impact on promoting or deterring optimisation of patient-centred care for early breast cancer. We then shared the findings with South Korean stakeholders to gain local perspectives. We drafted scores for indicators within these four domains based on our research and these local insights. This report combines in-depth research and force field analysis of early breast cancer care in South Korea.

Key findings:

- **Population awareness:** Population awareness is crucial for early detection of breast cancer, to encourage screening and better health-seeking behaviour. Patient advocacy groups in South Korea play a big role toward promoting breast cancer awareness, and there are initiatives in place to educate the public, spread knowledge, and encourage research in breast cancer.

However despite these efforts, the lack of knowledge of the risk factors associated with breast cancer including dense breasts is a challenge that must be tackled to optimise patient-centred early breast cancer care.

- **Screening and Diagnosis:** In South Korea, both organised and opportunistic breast cancer screening programmes exist through the National Cancer Screening Programme (NCSP), which recommends breast cancer screening through mammography every two years for women aged 40–69 years old. The screening rate has remained high at above 60% since 2010, and this has led to an increase in early diagnosis and a decrease in mortality rates. Barriers to screening exist however, including mistrust and concern over the efficacy of the NCSP, and fear of diagnosis. To overcome these barriers and enhance patient-centred care, the benefits and preventive nature of screening should be emphasised, and stigma should be addressed.
- **Treatment:** Inclusion of the patient voice in reimbursement decision making, low out of pocket costs for treatment, and an increased focus on shared decision-making between health care professionals and patients have been identified as enablers towards better patient-centred care. However the lack of a multidisciplinary team approach in treating breast cancer patients in local hospitals and adequate psychological support as well as difficulties in accessing new innovative medicines at the local level have been highlighted as barriers where improvements are needed.
- **Survivorship:** The number of survivors among patients with breast cancer in South Korea has been increasing steadily, and follow-up and survivorship care are important considerations for patients. In South Korea efforts are in place to address these long-term needs, however in practice survivors still report difficulties in accessing the information and help they need after completion of their treatment.

Throughout the patient journey for early breast cancer in South Korea, there are many positive steps in place which promote optimisation of patient-centred care, however there are also areas where improvements can be made, and it is here that focus should be given to reach the ultimate goal of better patient-centred early breast cancer care.

Introduction

In South Korea, every year approximately 230,400 people are diagnosed with cancer, and breast cancer accounts for approximately 11.2% of all cancers.[5] Among women, it is the most common cancer accounting for around 23.8% of cases. It is also a common cause of mortality in women, accounting for approximately 3,000 deaths in 2020.[5]

Early detection of breast cancer can lead to an increased proportion of less aggressive types of breast cancer being diagnosed, and along with advanced treatment options, this leads to overall better survival rates.[6] Early and intermediate-stage cancers are confined to the primary or source organ and adjacent areas, such as lymph nodes, while advanced-stage cancers usually spread elsewhere in the body. Early Stage Breast Cancer includes both precancerous stage (ductal carcinoma in situ) and invasive cancer of the breast (adenocarcinoma)—clinical Stages I, II, and IIIA.[7] To reduce the burden of cancers in South Korea and also decrease the nationwide cost, appropriate patient-centered care strategies are being adopted in many primary healthcare settings.[8] The shift from a disease-centered model to a patient-centered care model provides holistic, well-coordinated, optimum care and addresses patient values and preferences with overall improvements in patient and health system outcomes.[8] However, factors like incorrect knowledge about risk and susceptibility, high cost, lack of time, and fear along with lack of information and embarrassment have been shown to influence delays in patients seeking health care and treatment for breast cancer.[9, 10]

This report aims to understand key factors that affect the early breast cancer care pathways in South Korea and gain insight into how patient-centered approaches to early breast cancer care can be enhanced.

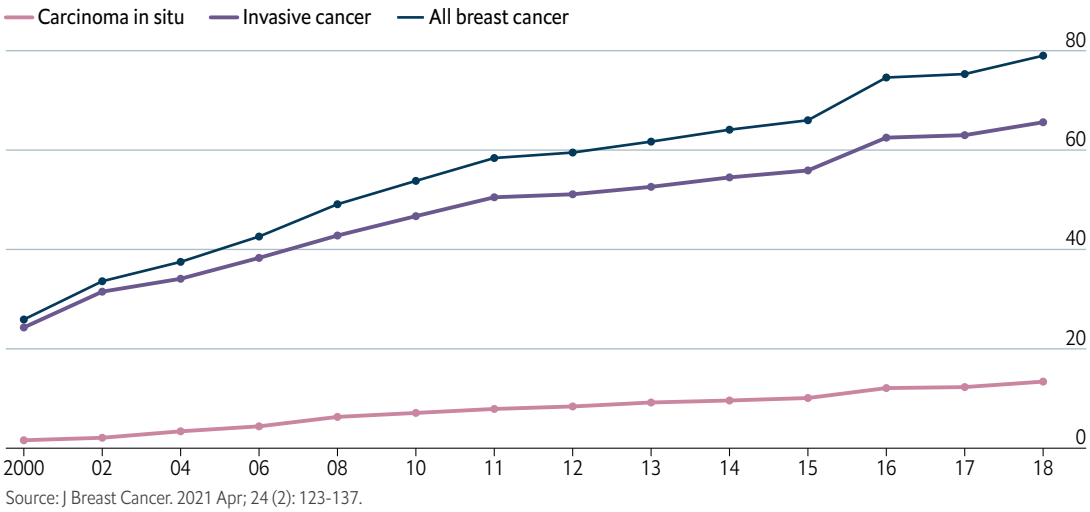
The burden of breast cancer in South Korea

Breast cancer is the most common cancer diagnosed in women in South Korea and there were approximately 26,000 new cases in 2020, with the five-year prevalence rate being around 340 per 100,000 population (all ages).[5] In 2020, breast cancer was the fifth most common cause of death among all cancer types, accounting for 6.9% of all cancer deaths.[11] Additionally, the age-standardised incidence rate for all types of breast cancers has risen dramatically over the past 20 years, from 26 per 100,000 women in 2000 to 79 per 100,000 women in 2018.[2]

Earlier detection of breast cancer has shown a positive trend over time, with the proportion of breast cancer patients diagnosed at Stage 0 and Stage I increasing steadily from 38.1% in 2002 to 62.4% in 2018, and the proportion of patients with Stage II and Stage III breast cancer decreasing from 60.1% in 2002 to 36.6% in 2018.[2]

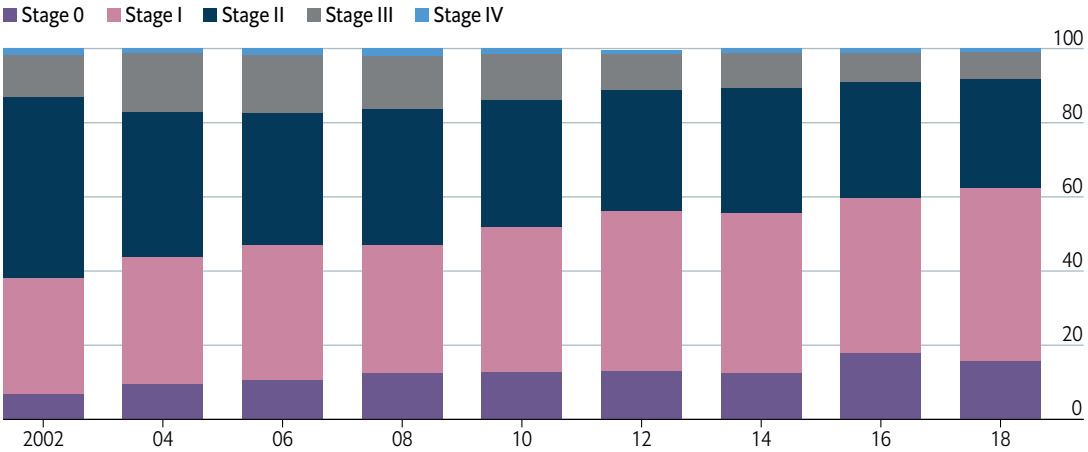
Women diagnosed with breast cancer in South Korea have a good prognosis, and the overall five-year relative survival rate between 2014 and 2018 was 93.3%. This survival rate ranges from 94.2% in patients aged between 45–60-years and 90.9% in patients aged more than 60 years.[12] By stage of diagnosis, the five-year survival rate is dramatically different, being 98.8% when

Figure 1: Age-standardised incidence rate (per 100,000 population), 2000-2018



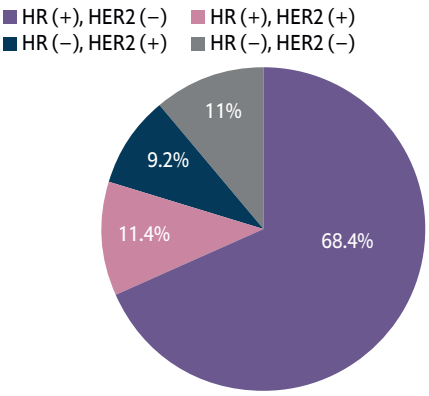
Source: J Breast Cancer. 2021 Apr; 24 (2): 123-137.

Figure 2: Changes in the stage distribution of breast cancer, 2002-2018
(%)



Source: J Breast Cancer. 2021 Apr; 24 (2): 123-137.

Figure 3: Molecular subtypes distribution of patients with newly diagnosed breast cancer in 2018 in South Korea
(%)



Source: J Breast Cancer. 2021 Apr; 24 (2): 123-137.

diagnosed at the localised stage and as low as 40.3% when diagnosed at the distant metastatic stage.[12] This five-year survival rate however has been increasing across all stages over the past 15 years.[2]

Breast cancer management and outcomes depend on the presence or absence of biomarkers. Invasive breast cancers make up over 80% of cancers, and among these special types of invasive breast cancers develop in different ways that influence their treatment. In South Korea, HR(+), HER2(-) (Luminal A) cancer is the most frequently seen subtype occurring in 68% of women.[2] This subtype tends to grow more slowly than other cancers, be lower grade, and have a good prognosis. The other subtypes, which tend to grow faster than luminal A cancer and have a slightly worse prognosis are each seen in 9-12% of women.[2]

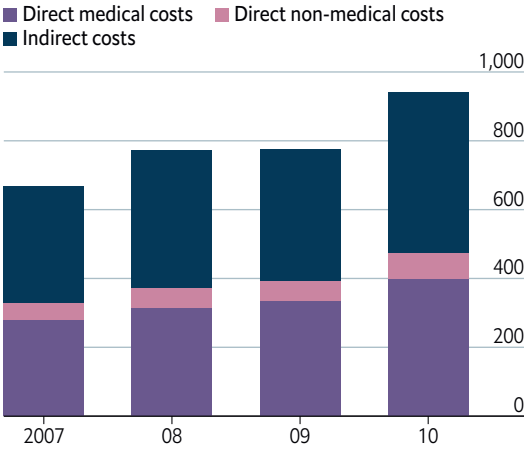
The cost of breast cancer in South Korea

Among women in South Korea, breast cancer causes the highest economic cost to treat of all cancers, and the cost per year increased from approximately US$780m in 2011 to US$1,044.3m in 2015.[13] Breast cancer is also responsible for the greatest loss of productivity among South Korean women especially since they tend to be diagnosed at younger ages, often in their prime. A study estimated that lost productivity from breast cancer cost South Korea's economy US$523m per year, or 0.04% of the GDP in 2014, twice the proportion that it cost in 1999.[14]

Direct medical care costs of breast cancer treatment in 2007 was approximately US$279m, or 42% of total costs, increasing to US$399m in 2010. Direct non-medical care costs (which includes transportation costs and caregiver costs) also increased, as did indirect costs (productivity costs, premature death costs).[15]

Despite the increased proportion of patients being diagnosed in the early stages of breast cancer, a significant number of women are diagnosed at later stages, which poses a high-cost burden on the healthcare systems. The overall costs of screening, diagnosis, and the treatment of breast cancer varies for different stages of the disease and generally the later the stage of cancer at diagnosis, the higher the costs for treatment. With the introduction of new and advanced technologies in the diagnosis and treatment of breast cancer, there has been a rise in medical costs, and these costs are higher when patients are diagnosed in the later stages.[16] At more advanced stages, treatment is likely to be more intensive, and a more aggressive approach is generally needed.[17] A global systematic review found that the mean treatment costs of Stages II, III and IV breast cancer were 32%, 95%, and 109% higher than those of Stage I disease, as

Figure 4: Total treatment cost of breast cancer in South Korea
(US$ m)

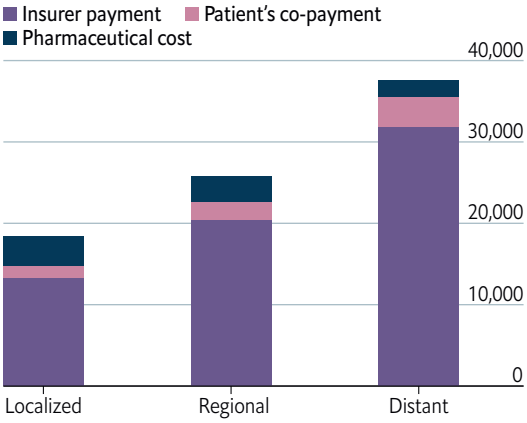


Source: Cancer Res Treat. 2015 Oct; 47(4): 583-90.

patients diagnosed at later stages often receive more treatments than early-stage patients such as chemotherapy and targeted therapy, and more expensive drugs may be needed.[17]

A study which looked at the costs during the first five years following a cancer diagnosis in South Korea showed that the more advanced the stage was at the time of diagnosis of breast cancer, the higher the total cost incurred, supporting the argument that early detection through screening is an important aspect of medical costs. This study however calculated medical costs from health insurance claims data, and excluded non-covered out-of-pocket costs.[16]

Figure 5: Cost Per Patient (2006–2010) by Cancer Stage
(US$)



Source: APJCP. 2012; 13(8): 3767-3772.

The current state of patient-centred care for early breast cancer in South Korea

The breast cancer care continuum spans from population awareness through to referral, screening, diagnosis, treatment, follow-up, rehabilitation and, if applicable, palliative care. The patient's journey outlines steps within defined timescales, and there are clear bright spots (enablers) and some areas of further improvement (resistors) noted in South Korea for optimising patient-centred care for early breast cancer patients.

Table 1: Overview of enablers and resistors for optimising patient-centred early breast cancer care in South Korea

Domains	Enablers	Resistors
Population awareness 	***Patient Advocacy:*** Strong patient advocacy helps to promote knowledge and support research on breast cancer.	***Lack of knowledge:*** The majority of women in Korea are unaware of their breast density. There is also a lack of knowledge that breast density impacts mammographic sensitivity and breast cancer risk.
Screening & Diagnosis 	***Screening:*** Korea's National Cancer Screening Programme offers mammograms to women aged 40 and over every 2 years.	***Mistrust:*** Women expressed concerns over incorrect diagnosis and lack of trust in cancer screening programs in Korea.
	Participation rates: Participation in bi-annual breast cancer screening doubled between 2004 and 2018.	***Fear of diagnosis:*** Some women have a fear of being diagnosed with breast cancer, and therefore avoid screening.
Treatment 	***Patient voice in reimbursement decision-making:*** Representatives from Korean patient groups have seats in the decision making process for new drug reimbursement. They participate in DREC and in NHIPDC.	***Multidisciplinary approach:*** According to a local Korean study, breast cancer is only consulted by a multidisciplinary team (MDT) in less than a quarter of cases, despite a majority of health professionals regarding MDT meetings as an effective method for treatment planning.
	Costs: Out of pocket payments from breast cancer patients have been decreasing due to an increase in coverage from the national health insurance.	***Access to new medicines:*** Patients face difficulties obtaining new and innovative cancer drugs due to high costs.
	Shared decision making: Breast cancer patients feel that their opinions regarding treatment are well respected.	***Psychological support:*** There is a lack of support and early intervention for psychological disorders of both breast cancer patients and their caregivers.
Survivorship 	***Follow-up care:*** The Pan-Asian adapted ESMO guidelines recommend long-term survivorship problems eg. psychological needs, work issues, family and sexuality are addressed. The latest National Cancer Control Plan has also made survivor care and services a priority.	***Unmet needs:*** Breast cancer survivors report unmet needs surrounding information and education provision after the completion of their treatment.

Combining the evidence review findings and Asia-Pacific regional expert panel, the most influential forces affecting optimised patient-centric breast cancer care have been mapped for South Korea (methodology explained in the appendix). Table 1 summarises the various forces that have been identified as either driving (enablers) or hindering (resistors) the optimisation of patient-centric breast cancer care in South Korea, and the following section presents the scores allocated to each factor based on the research and local insights and explores each factor in detail.

Population Awareness

Population awareness is an important step towards achieving patient-centred care for patients with early breast cancer. Being aware of breast cancer risk factors, as well as options for breast cancer screening and other prevention techniques can help promote earlier detection of the disease. Within the domain of population awareness, two key forces were identified which have an impact on the provision of patient-centred early breast cancer care. Of these, active patient advocacy was determined to be a strong enabling force, while lack of knowledge about risk factors including breast density was identified by experts as being a moderate resisting force.

Patient advocacy groups in South Korea such as The Korean Breast Cancer Society (KBSC) and the Korea Breast Cancer Foundation play a big role toward promoting breast cancer awareness among South Koreans through encouraging research in breast cancer, communicating

Table 2: Mapping enabling and resisting forces for population awareness in South Korea

		Strong			Weak		Weak			Strong	
	Enabling Forces	**4**	**3**	**2**	**1**		**1**	**2**	**3**	**4**	**Resistors Forces**
Population awareness	***Patient Advocacy:*** Strong patient advocacy helps to promote knowledge and support research on breast cancer.					***Optimisation of patient-centred early breast cancer care***					***Knowledge of risk factors:*** The majority of women in Korea are unaware of their breast density. There is also a lack of knowledge that breast density impacts mammographic sensitivity and breast cancer risk.

knowledge, facilitating relationships between members and also cooperating with national and international specialists. KBSC conducts annual meetings, conferences and symposiums locally as well as with international organisations,[18] including the Global Breast Cancer Conference which is held annually in South Korea to bring together researchers, healthcare professionals, advocacy groups, and policymakers to increase awareness of breast cancer, promote better understanding of treatments, and improve the quality of life of patients.[19] In a survey conducted in 2021 by KBSC to find out the public awareness of breast cancer and to remind women of the importance of screening, 46% of respondents felt that breast cancer screening was "very necessary" and 37.6% thought it was "somewhat necessary", indicating high awareness of the importance of breast cancer screening.[20] Patient advocacy has therefore been identified as a strong driving force in promoting patient-centred breast cancer care in South Korea.

Though there are efforts in place to educate the public about breast cancer and its risk factors, there is still a lack of knowledge amongst South Koreans, which can act as a barrier to screening. A survey of 1,609 women aged 40-69 years found that 62.0% were unaware of their breast density, and only 29.7% had good breast density knowledge (defined as being aware that high breast density lowers mammographic sensitivity and increases breast cancer risk).[21] KBSC's 2021 survey also found that awareness of breast density is low. To the question "Do you know the difference between dense breasts and non-dense breasts?", only 35% answered "I know", 29% answered "I've only heard the word", and 36% answered "I don't know".[20] There is therefore a need for more knowledge sharing and better health communication around breast density and other breast cancer risk factors.

Studies on self-perception have also shown that women in South Korea tend to think that their chance of having breast cancer is lower than other women in their age group. A survey of 222 women in their 30s and 40s from Seoul found that 54.5% of them thought that while others had a high or very high chance of developing breast cancer, only 16.2% thought they themselves had a high or very high chance.[22] Another survey of 1000 South Korean women found that about 70% of them thought their risk of getting breast cancer was lower than other women in their age group.[23] The unrealistic optimism regarding susceptibility to breast cancer could lead women to underestimate their risk, which could hold them back from taking appropriate action such as screening.

Screening and Diagnosis

Screening for breast cancer is key for earlier diagnosis. Early-stage cancers are easier to treat than later-stage cancers, and the chance of survival is higher. Within the domain of screening and diagnosis, four key forces were identified which have an impact on the provision of patient-centred early breast cancer care. Of these, the robustness of the screening programme was determined to be the strongest enabling force, while the high participation rates in screening also scored highly. Mistrust in diagnosis and screening programmes, was identified by experts as being moderate a resisting force, while fear of diagnosis was a stronger resistor.

In South Korea, universal health coverage is provided to all citizens through the National Health Insurance and Medical Aid regardless of income level or health risk. Both organised and opportunistic breast cancer screening programmes exist, and since 1999 the National Cancer Screening Programme (NCSP) has been

Table 3: Mapping enabling and resisting forces for screening and diagnosis in South Korea

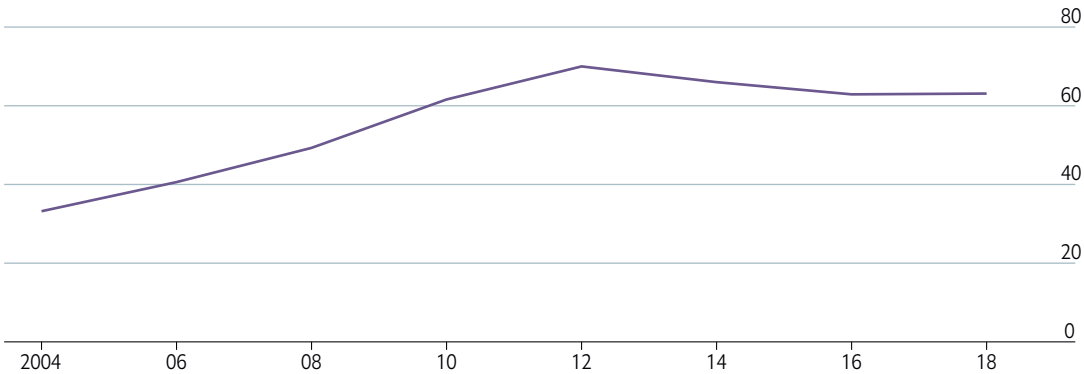
		Strong ← Weak					Weak → Strong				
	Enabling Forces	**4**	**3**	**2**	**1**		**1**	**2**	**3**	**4**	**Resistors Forces**
Screening and Diagnosis	***Screening:*** Korea's National Cancer Screening Programme offers mammograms to women aged 40 and over every 2 years.					***Optimisation of patient-centred early breast cancer care***					***Mistrust:*** Women expressed concerns over incorrect diagnosis and lack of trust in cancer screening programs in Korea.
	Participation rates: Participation in bi-annual breast cancer screening doubled between 2004 and 2018.										***Fear of diagnosis:*** Some women have a fear of being diagnosed with breast cancer, and therefore avoid screening.

providing free mammograms to low-income women aged 40 and over every two years, and there is a co-payment of 10% for those who are not low-income.[24, 25] The programme recommends breast cancer screening through mammography every two years for women aged 40–69 years old and according to individual risk and preference for women over 70 years old. The improvement in the five-year survival rates for female breast cancer over the past 20 years may be partially due to earlier detection and these screening options,[26] and a study measuring the effectiveness of the NCSP in reducing breast cancer mortality found that mortality rates for screened and non-screened women was 5.81 and 13.43 per 100,000 women, with the greatest reduction seen for women aged 45–54 years.[27] This significant reduction in mortality rates shows the effectiveness of the organised breast cancer screening programme, which is a strong enabler to patient-centred early breast cancer care.

The Korean National Cancer Screening Survey, an annual cross-sectional nationwide survey, has been collecting data since 2004. The breast cancer screening rate has remained high at above 60% since 2010, partly due to the increase in screening facilities made possible due to the introduction of digital mammography in 2000 and the lowering of the requirement for the designation of screening facilities in 2008.[28] In 2020 the screening rate was 63.5%, of which 58.3% of the women had undergone organised screening and 5.2% underwent opportunistic screening.[29] There was an annual increase of 7.72% between 2005 and 2012 (after which trends were non-significant) and an increase was seen in all subgroups except in the 70-74 age group and in the rural population.[29]

Cancer screening rates in South Korea are similar to rates in Europe and in the United States, and are considerably higher than in other Asian countries such as Singapore and Japan.[30] However in recent years the numbers have begun to plateau, showing that efforts should continue to be made to further improve the screening rates by identifying why certain groups may not participate, and finding appropriate solutions to incentivise them to undergo screening. This could include for instance improving the distribution of mammography facilities across South Korea, as currently equipment is concentrated in large cities and access is harder in rural areas.[31]

Figure 6: Trends in cancer screening rates, 2004-2018
(%)



Source: Hong S Trends in Cancer Screening Rates among Korean Men and Women: Results of the Korean National Cancer Screening Survey, 2004-2018. Cancer Res Treat. 2021. *Respondents who have last undergone screening with mammography within 2 years, among women aged ≥ 40 years.

Despite the increase in the participation rate of women in the NCSP, socioeconomic disparities within this programme exist and the participation rate of women who are a part of the Medical Aid Programme (MAP) (which provides free-of-charge breast cancer screening) is lower than those receiving National Health Insurance (NHI).[32] A focus group of MAP recipients found that the main barriers to screening included lack of trust in the NCSP, fear of cancer diagnosis, discomfort or pain from the screening procedure, lack of time, knowledge and awareness, physical disability, and logistical barriers. The most common reason for non-attendance to screening programmes in South Korea however was concern over the efficacy of the NCSP, and the belief that the screening methods available were not good enough to detect cancer; several women shared stories of incorrect diagnosis of family and friends with breast cancer.[32] Some studies have found the NCSP to be poorly-designed, with concerns over its effectiveness or cost-effectiveness.[33] There is therefore room to improve the perception of the screening programme, perhaps through improved customised cancer communication.

Fear of being diagnosed with cancer was also reported as one of the main reasons why some South Korean women do not get screened, partly due to the economic burden that comes with cancer treatments,[32] and also because there is a strong belief that a cancer diagnosis inevitably leads to death.[34] In the KBSC's 2021 survey, 30.4% of respondents listed fear of the test as the primary reason for not getting screened for breast cancer, and 21.7% listed price as the primary reason.[20] This fear can be due to false or inaccurate information, sometimes through the media,[35] which can result in stigma. A survey looking at attitudes of South Koreans toward cancer overall found that 59% of participants thought that "It is impossible to treat cancer regardless of highly developed medical science" and 72% believed that "Cancer patients would not be able to make contributions to society."[36] To overcome the fear of a possible breast cancer diagnosis, as well as the discomfort or pain that may result from the screening procedures, it is crucial to emphasise the preventive nature of screening and the high survival rate for breast cancer if diagnosed early; this will go a long way towards enhancing patient-centred care for early breast cancer.

Treatment

Within the domain of treatment, six key forces were identified which have an impact on the provision of patient-centred early breast cancer care. Of these, the inclusion of the patient voice in reimbursement decision-making and the low costs of treatment were determined to be the strongest enabling forces, while shared decision-making scored weaker. The lack of a multidisciplinary approach in the treatment of breast cancer was identified by experts as the strongest resisting force, while lack of access to innovative medicines and lack of psychological support scored weaker.

Recently there has been an increasing level of interest in the importance of patient engagement and their involvement in healthcare decisions, including in medicine regulation and reimbursement decisions. In South Korea, patient group representatives are invited to participate in health and medical policy related committees. They participate in DREC (Drug Reimbursement Review Committee) which is the committee which assesses the adequacy of reimbursement for new drugs, and in NHIPDC (National Health Insurance Policy Deliberation Committee).[37, 38] However, discussions are often conducted at the final stages of approval, making it difficult to directly reflect patients' voices in the drug approval process as a whole. Despite this, patient voice in reimbursement decisions-making has been identified as a strong force in helping to promote patient-centred early breast cancer care.

Table 4: Mapping enabling and resisting forces for treatment in South Korea

	Enabling Forces	Strong 4	3	2	1		Weak 1	2	3	4	Resistors Forces
Treatment	***Patient voice in reimbursement decision-making:*** Representatives from Korean patient groups have seats in the decision making process for new drug reimbursement. They participate in DREC and in NHIPDC.		→	→	→	***Optimisation of patient-centred early breast cancer care***	←	←	←	←	***Multidisciplinary approach:*** According to a local Korean study, breast cancer is only consulted by a multidisciplinary team (MDT) in less than a quarter of cases, despite a majority of health professionals regarding MDT meetings as an effective method for treatment planning.
	Costs: Out of pocket payments from breast cancer patients have been decreasing due to an increase in coverage from the national health insurance.		→	→	→		←	←	←		***Access to new medicines:*** Patients face difficulties obtaining new and innovative cancer drugs due to high costs.
	Shared decision making: Breast cancer patients feel that their opinions regarding treatment are well respected.			→	→		←	←			***Psychological support:*** There is a lack of support and early intervention for psychological disorders of both breast cancer patients and their caregivers.

Cost of breast cancer treatment is often a worry for women who receive a diagnosis. In South Korea, out of pocket costs have been decreasing for breast cancer patients, with one study about the economic burden of breast cancer patients finding that the amount of the patient's out-of-pocket (OOP) expenditure decreased by 12.0%, from $5,268 for patients who had surgery in 2003 to $4,637 for patients who had surgery in 2007 (increasing to $5,344 in 2008).[39] This can be explained by the introduction of the OOP payment cap system by national health insurance (NHI) in 2004 to lessen the burden of medical expenses on patients, and the lowering of the statutory co-payment ratio from 20% to 10% in 2005, and to 5% in 2009.[39] There is also evidence of continuous efforts from the NHI to extend the range of insured items, and in 2013 enhanced coverage for cancer was introduced, as well as increased reimbursement for new medicines and drugs.[40] Since April 2015, the South Korean NHI has also reimbursed breast cancer patients approximately 50% of the cost of the breast reconstruction procedure, which as well as having cosmetic benefits, has also been shown to improve quality of life for breast cancer patients.[41]

While the NHI's policies to reduce the financial burden on cancer patients has been lowering patient expenses, items not covered by the NHI continue to cause a financial burden for patients, particularly in the initial phases of treatment, around the time of operations.[39] An individual and flexible approach could therefore be a better alternative for patients. Despite this, the lowering of medical costs for breast cancer patients is a strong enabler to better care.

In South Korea, relationships between health care professionals and patients have been improving. Shared decision-making (SDM), where a clinician and a patient make a health decision together after discussing options, has been increasing in popularity as there is evidence that patients who actively participate in decisions and in managing their health have better outcomes than patients who do not.[42] In 2015, Seoul National University Hospital implemented a 15-minute, in-depth consultation system for first-time patients. These consultations used SDM to choose treatment actions, and patients reported better patient-centred care, had higher perceptions of their medical professionals, and there was overall better patient satisfaction.[43] In a South Korean study on SDM in breast cancer care, most patients reported that their opinions were respected in surgical treatment decisions (88.5%), that their doctor had informed them of surgical treatment options (89.1%), radiotherapy (84.2%), chemotherapy (78.5%), and hormonal therapy (66.2%).[44] However there can still be a strong reliance on healthcare professionals to make decisions, sometimes due to the complex, technical medical language used around breast cancer and the complex biology of cancer, which can be confusing even for well-informed patients.[45] Overall, breast cancer patients in South Korea have a say in their treatment options and are often closely involved in the decision making process, resulting in shared decision-making being a relatively strong enabling force for patient-centred care.

Decision making by multidisciplinary teams (MDT) for cancer patients in South Korea has been officially introduced and encouraged by the National Health Insurance Service (NHIS) since August 2014.[46] This approach in the treatment of breast cancer is well known, and there is evidence that patients cared for by teams rather than by individual doctors have better 10-year survival rates. However, according to a South Korean study, breast cancer is only consulted by an MDT in 23.8% of cases[46], despite a majority of health professionals (97.4%) regarding MDT meetings as an effective method for treatment planning.[47] Another survey with medical oncologists concluded that MDTs were involved in less than 10% of cancer cases, and even among the four most common cancers (lung, breast, stomach, and colorectal), MDTs were involved only in 20% to 30% of cases.[48] Dissatisfaction regarding current MDTs was also high at over 50%.[48] MDT approaches tend to be better established in larger referral cancer centers, but are not as prevalent in local hospitals. These results tell us that the current system of MDTs may need to be revised, and this is a strong resisting force towards better patient-centred care.

In South Korea, new drugs including cancer drugs are becoming increasingly more expensive.[49] In the current South Korea drug listing system, even drugs that are essential for patients may become non-reimbursable if they fail to demonstrate their cost effectiveness and it can be difficult, especially for new anticancer drugs, to demonstrate cost-effectiveness due to their high costs.[50] It is also difficult for cancer patients to receive treatments with new drugs that are not listed on the national positive listing formulary as patients need to pay out-of-pocket for the high costs. There is therefore room to improve access to new drugs in South Korea, and this has been identified as a resisting force towards patient-centred care.

While physical treatment is crucial for early breast cancer patients, psychosocial supportive care is also important, especially since breast cancer survivors have an increased risk of depression and anxiety.[51] In South Korea, a high rate of mental disorders has been reported in breast cancer patients shortly after their diagnosis.[52] This may be a consequence of psychological reactions to the cancer diagnosis, and family members of breast cancer patients also experienced distress. Hence, there is a need for supportive care for both the patient and their

caregivers. A study on unmet needs of South Korean breast cancer survivors found that they were lacking in psychological support and social support.[53] The mental health of cancer patients should be monitored in clinical practice and early intervention by screening should be done to help ensure that any support which may be needed is provided.

Survivorship

Within the domain of survivorship, two key forces were identified which have an impact on the provision of patient-centred early breast cancer care. Of these, follow-up care was determined to be a moderate enabling force, while unmet needs of breast cancer survivors was identified by experts as being a moderate resisting force.

The number of survivors among patients with breast cancer in South Korea has been increasing steadily, and the overall five-year relative survival rate between 2014 and 2018 was 93.3%.[12] Follow-up care and survivorship care is therefore key, especially since these patients often continue to experience health issues, whether related directly to the cancer or due to pre-existing comorbidities.[54] The Korean Society of Medical Oncology (KSMO) has endorsed the Pan-Asian adapted ESMO Clinical Practice Guidelines for the management of patients with early breast cancer.[55] These guidelines recommend that long-term survivorship problems including psychological needs and issues related to work, family and sexuality should be addressed. Health authorities in South Korea are also increasingly engaging with survivor issues, and in 2010 the National Cancer Centre began efforts to create integrated supportive care for survivors, although progress has been slow.[56] More recently, the latest National Cancer Control Plan (NCCP) has said they are making survivor care and services a priority.[57]

Table 5: Mapping enabling and resisting forces for survivorship in South Korea

		Strong ← Weak					Weak → Strong				
	Enabling Forces	**4**	**3**	**2**	**1**		**1**	**2**	**3**	**4**	**Resisting Forces**
Survivorship	***Follow-up care:*** The Pan-Asian adapted ESMO guidelines recommend long-term survivorship problems eg. psychological needs, work issues, family and sexuality are addressed. The latest National Cancer Control Plan has also made survivor care and services a priority.					***Optimisation of patient-centred early breast cancer care***					***Unmet needs:*** Breast cancer survivors report unmet needs surrounding information and education provision after the completion of their treatment.

According to a South Korean study on unmet needs of breast cancer survivors, informational and educational needs were found to be the highest domain of unmet needs among eight domains.[53] This included patients citing that there was a lack of "help in coping with fear of recurrence", and a lack of "information about current status of my illness and its future courses". Another study which seeked to identify South Korean cancer survivors' unmet needs found that these patients often had difficulties in psychosocial adjustment even after the completion of treatments, and there were several other unmet needs among cancer survivors.[58] In order to develop a better cancer survivorship programme in South Korea which is patient-centred, the voices and experiences of survivors need to be incorporated.

Table 6: Summarised force-field analysis

	Enabling Forces	Strong 4	3	2	Weak 1		Weak 1	2	3	Strong 4	Resistors Forces
Population awareness	***Patient Advocacy:*** Strong patient advocacy helps to promote knowledge and support research on breast cancer.			→				←			***Knowledge of risk factors:*** The majority of women in Korea are unaware of their breast density. There is also a lack of knowledge that breast density impacts mammographic sensitivity and breast cancer risk.
Screening and Diagnosis	***Screening:*** Korea's National Cancer Screening Programme offers mammograms to women aged 40 and over every 2 years.		→	→				←			***Mistrust:*** Women expressed concerns over incorrect diagnosis and lack of trust in cancer screening programs in Korea.
	Participation rates: Participation in bi-annual breast cancer screening doubled between 2004 and 2018.			→				←	←		***Fear of diagnosis:*** Some women have a fear of being diagnosed with breast cancer, and therefore avoid screening.
Treatment	***Patient voice in reimbursement decision-making:*** Representatives from Korean patient groups have seats in the decision making process for new drug reimbursement. They participate in DREC and in NHIPDC.			→		***Optimisation of patient-centred early breast cancer care***		←	←	←	***Multidisciplinary approach:*** According to a local Korean study, breast cancer is only consulted by a multidisciplinary team (MDT) in less than a quarter of cases, despite a majority of health professionals regarding MDT meetings as an effective method for treatment planning.
	Costs: Out of pocket payments from breast cancer patients have been decreasing due to an increase in coverage from the national health insurance.			→				←	←		***Access to new medicines:*** Patients face difficulties obtaining new and innovative cancer drugs due to high costs.
	Shared decision making: Breast cancer patients feel that their opinions regarding treatment are well respected.			→				←			***Psychological support:*** There is a lack of support and early intervention for psychological disorders of both breast cancer patients and their caregivers.
Survivorship	***Follow-up care:*** The Pan-Asian adapted ESMO guidelines recommend long-term survivorship problems eg. psychological needs, work issues, family and sexuality are addressed. The latest National Cancer Control Plan has also made survivor care and services a priority.			→				←			***Unmet needs:*** Breast cancer survivors report unmet needs surrounding information and education provision after the completion of their treatment.

Throughout the patient journey for early breast cancer in South Korea, there are many bright spots which promote optimisation of patient-centred care, however there are also areas where improvements can be made. The drivers of early patient-centred early breast cancer care include the success of the national screening programme, which has one of the highest participation rates in the Asia Pacific region. The inclusion of the patient voice in reimbursement decisions and low out-of-pocket payments are also key enablers, as is the strong patient advocacy, which is important throughout the patient journey. The lack of multidisciplinary teams in breast cancer care and the cost difficulties patients face in accessing innovative drugs remain the most significant barriers, and policymakers should focus on these areas of improvement to further enhance patient-centred care.

Appendix

Overall Methodology

Our primary aim of this research programme was to understand the patient-centred approaches to early breast cancer in South Korea and the ways in which care can be enhanced.

Economist Impact's approach to achieve this aim is comprised of the following components:

1. Literature review: to understand the various data available on patient-centred early breast cancer care in South Korea and identify the factors that either strengthen or hinder patient care.
2. Meeting of experts across the Asia-Pacific region: to incorporate the expertise of those working directly on patient-centred care for early breast cancer patients in the region, to refine the focus of the research programme, and capture key aspects and best sources of information to help develop the South Korea-specific force-field.
3. In-country South Korean insights: to incorporate views of experts working in South Korea. The experts were asked to rate the various forces based on the level of impact that they have in either enabling or hindering patient-centred care.

The review started with a broad view of the issues related to breast cancer care in the Asia Pacific Region including the epidemiology of breast cancer subtypes, current prevalence rates, outcomes, early identification and diagnostic models, clinical pathways and delivery modes within early-stage breast cancer with a focus on patient-centred care.

Scoring criteria for force-field analysis

To ensure a more nuanced view of early breast cancer care and treatment, we identified four domains of patient-centred care – Population Awareness, Screening and Diagnosis, Treatment, and Survivorship. For each of these areas, we triangulated primary (expert engagement) and secondary (desk research) data to identify enablers and resistors for optimising patient-centred cancer care specific to South Korea. We then developed a scale to assess the impact of each force, supported by judgements found in the research phase of this study.

Scoring criteria for force-field analysis

Scoring		Enablers	Resistors
1	**Weak Impact**	Force has little impact on optimal patient-centred care	Force exists but has little impact on optimal patient-centred care or can be easily addressed
2	**Some Impact**	Force has some impact, but is still developing, is not widely utilised or implemented, or only certain groups may take it into consideration	Force poses some resistance to optimal patient-centred care but can be addressed with planning and resources
3	**Considerable Impact**	Evidence of the presence of the force, but not being followed or utilised sufficiently to deliver optimal patient-centred care	Force poses considerable resistance to optimal patient-centred care, but the impact can be minimised with extensive planning and resources.
4	**Strong Impact**	Force is a high-quality, generally accepted standard of practice and/or provides optimal patient-centred care	Force poses strong resistance to optimising patient-centred early breast cancer care

To tailor the force field to South Korea, it was felt that the perspective of the key experts should be used to elicit the scores. This was carried out through an interview and through completion of a google form. Each indicator was scored by the participants from 1 – 4 depending on the level of perceived impact that it has in enabling or hindering patient-centred care as shown in the table above. The participant scores were then averaged. We analysed the results from desk research and expert engagement and followed a consensus-based process to arrive at final scores for the force field analysis. This analysis helped in the identification of priority areas and issues at the country level and where focus should be given in order to tackle the greatest unmet needs in early breast cancer care.

References

1. Kim DY, Park HL. Breast Cancer Risk Prediction in Korean Women: Review and Perspectives on Personalized Breast Cancer Screening. J Breast Cancer. 2020 Jul 6;23(4):331-342. doi: 10.4048/jbc.2020.23.e40. PMID: 32908785; PMCID: PMC7462811.

2. Kang SY, Lee SB, Kim YS, Kim Z, Kim HY, Kim HJ, Park S, Bae SY, Yoon K, Lee SK, Jung KW, Han J, Youn HJ; Korean Breast Cancer Society. Breast Cancer Statistics in Korea, 2018. J Breast Cancer. 2021 Apr;24(2):123-137. doi: 10.4048/jbc.2021.24.e22. PMID: 33913273; PMCID: PMC8090800.

3. Jung KW, Won YJ, Kang MJ, Kong HJ, Im JS, Seo HG. Prediction of Cancer Incidence and Mortality in Korea, 2022. Cancer Res Treat. 2022 Apr;54(2):345-351. doi: 10.4143/crt.2022.179. Epub 2022 Mar 21. PMID: 35313101; PMCID: PMC9016306.

4. Park EH, Min SY, Kim Z, Yoon CS, Jung KW, Nam SJ, Oh SJ, Lee S, Park BW, Lim W, Hur MH; Korean Breast Cancer Society. Basic Facts of Breast Cancer in Korea in 2014: The 10-Year Overall Survival Progress. J Breast Cancer. 2017 Mar;20(1):1-11. doi: 10.4048/jbc.2017.20.1.1. Epub 2017 Mar 24. PMID: 28382089; PMCID: PMC5378568.

5. International Agency for Research on Cancer, World Health Organisation. The Global Cancer Observatory – Republic of Korea Cancer Profile 2020 [Available from: https://gco.iarc.fr/today/data/factsheets/populations/410-korea-republic-of-fact-sheets.pdf

6. Kim H, Lee SB, Kim J, Chung IY, Kim HJ, Ko BS, Lee JW, Son BH, Ahn SH. Improvement of survival in Korean breast cancer patients over a 14-year period: A large-scale single-center study; 2012. PLoS One. 2022 Mar 16;17(3):e0265533. doi: 10.1371/journal.pone.0265533. PMID: 35294484; PMCID: PMC8926243.

7. National Cancer Institute. The definition of early-stage breast cancer. Available from: https://www.cancer.gov/publications/dictionaries/cancer-terms/def/early-stage-breast-cancer

8. Bae JM. Strategies for Appropriate Patient-centered Care to Decrease the Nationwide Cost of Cancers in Korea. J Prev Med Public Health. 2017 Jul;50(4):217-227. doi: 10.3961/jpmph.17.069. Epub 2017 Jun 16. PMID: 28768400; PMCID: PMC5541273.

9. Lee SY, Lee EE. Cancer screening in Koreans: a focus group approach. BMC Public Health. 2018 Feb 14;18(1):254. doi: 10.1186/s12889-018-5147-9. PMID: 29444640; PMCID: PMC5813376.

10. Kang HS, Thomas E, Kwon BE, Hyun MS, Jun EM. Stages of change: Korean women's attitudes and barriers toward mammography screening. Health Care Women Int. 2008 Feb;29(2):151-64. doi: 10.1080/07399330701738176. PMID: 18350421.

11. Cancer today: data visualization tools for exploring the global cancer burden in 2020. International Agency for Research on Cancer. Available from: http://gco.iarc.fr/today/home

12. Hong S, Won YJ, Lee JJ, Jung KW, Kong HJ, Im JS, Seo HG. Community of Population-Based Regional Cancer Registries. Cancer Statistics in Korea: Incidence, Mortality, Survival, and Prevalence in 2018. Cancer Res Treat. 2021 Apr;53(2):301-315. doi: 10.4143/crt.2021.291. Epub 2021 Mar 17. PMID: 33735559; PMCID: PMC8053867.

13. Kim YA, Lee YR, Park J, Oh IH, Kim H, Yoon SJ, Park K. Socioeconomic Burden of Cancer in Korea from 2011 to 2015. Cancer Res Treat. 2020 Jul;52(3):896-906. doi: 10.4143/crt.2019.398. Epub 2020 Mar 18. PMID: 32192276; PMCID: PMC7373867.

14. Park JH, Lee SK, Lee JE, Kim SW, Nam SJ, Kim JY, Ahn JS, Park W, Yu J, Park YH. Breast Cancer Epidemiology of the Working-Age Female Population Reveals Significant Implications for the South Korean Economy. J Breast Cancer. 2018 Mar;21(1):91-95. doi: 10.4048/jbc.2018.21.1.91. Epub 2018 Mar 23. PMID: 29628989; PMCID: PMC5880971.

15. Kim YA, Oh IH, Yoon SJ, Kim HJ, Seo HY, Kim EJ, Lee YH, Jung JH. The Economic Burden of Breast Cancer in Korea from 2007-2010. Cancer Res Treat. 2015 Oct;47(4):583-90. doi: 10.4143/crt.2014.143. Epub 2015 Feb 13. PMID: 25687860; PMCID: PMC4614197.

16. Shin JY, Kim SY, Lee KS, Lee SI, Ko Y, Choi YS, Seo HG, Lee JH, Park JH. Costs during the first five years following cancer diagnosis in Korea. Asian Pac J Cancer Prev. 2012;13(8):3767-72. doi: 10.7314/apjcp.2012.13.8.3767. PMID: 23098469.

17. Sun L, Legood R, Dos-Santos-Silva I, Gaiha SM, Sadique Z. Global treatment costs of breast cancer by stage: A systematic review. PLoS One. 2018 Nov 26;13(11):e0207993. doi: 10.1371/journal.pone.0207993. PMID: 30475890; PMCID: PMC6258130.

18. Korean Breast Cancer Society. About KBCS. Available from: https://www.kbcs.or.kr/eng/about/congress.html

[19.] The Global Breast Cancer Conference. Available from: https://gbcc.kr/Contents.asp?LoadPage=GBCCInformation

[20.] Public Relations Committee of the Korean Breast Cancer Society. October Pink Ribbon Campaign Public Survey Result. Available from: http://webzine.kbcs.or.kr/rang_board/list.html?num=145&code=news

[21.] Tran ATN, Hwang JH, Choi E, Lee YY, Suh M, Lee CW, Kim Y, Choi KS. Impact of Awareness of Breast Density on Perceived Risk, Worry, and Intentions for Future Breast Cancer Screening among Korean Women. Cancer Res Treat. 2021 Jan;53(1):55-64. doi: 10.4143/crt.2020.495. Epub 2020 Aug 18 PMID: 32810929; PMCID: PMC7812003.

[22.] Chung C, Lee SJ. Estimated risks and optimistic self-perception of breast cancer risk in Korean women. Appl Nurs Res. 2013 Nov;26(4):180-5. doi: 10.1016/j.apnr.2013.06.001. Epub 2013 Jul 27. PMID: 23895792.

[23.] Park K, Chang SJ, Kim HC, Park EC, Lee ES, Nam CM. Big gap between risk perception for breast cancer and risk factors: nationwide survey in Korea. Patient Educ Couns. 2009 Jul;76(1):113-9. doi: 10.1016/j.pec.2008.12.015. Epub` 2009 Jan 20. PMID: 19157765.

[24.] National Cancer Center. National Cancer Screening Program. Available from: https://ncc.re.kr/main.ncc?uri=english/sub04_ControlPrograms03

[25.] National Health Insurance Service. NHI Program. 2010. Available from: https://www.nhis.or.kr/static/html/wbd/g/a/wbdga0405.html

[26.] Park SK, Kim Y, Kang D, Jung EJ, Yoo KY. Risk factors and control strategies for the rapidly rising rate of breast cancer in Korea. J Breast Cancer. 2011 Jun;14(2):79-87. doi: 10.4048/jbc.2011.14.2.79. Epub 2011 Jun 18. PMID: 21847401; PMCID: PMC3148542.

[27.] Choi E, Jun JK, Suh M. et al. Effectiveness of the Korean National Cancer Screening Program in reducing breast cancer mortality. npj Breast Cancer 7, 83 (2021). https://doi.org/10.1038/s41523-021-00295-9

[28.] Song SY, Hong S, Jun JK. Digital Mammography as a Screening Tool in Korea. Taehan Yongsang Uihakhoe Chi. 2021 Jan;82(1):2-11. Korean. doi: 10.3348/jksr.2021.0004. Epub 2021 Jan 31. PMID: 36237465; PMCID: PMC9432404.

[29.] Song SY, Lee YY, Shin HY, Park B, Suh M, Choi KS, Jun JK. Trends in breast cancer screening rates among Korean women: results from the Korean National Cancer Screening Survey (KNCSS), 2005-2020. Epidemiol Health. 2022 Nov 24:e2022111. doi: 10.4178/epih.e2022111. Epub ahead of print. PMID: 36470263.

[30.] Hong S, Lee YY, Lee J, Kim Y, Choi KS, Jun JK, Suh M. Trends in Cancer Screening Rates among Korean Men and Women: Results of the Korean National Cancer Screening Survey, 2004-2018. Cancer Res Treat. 2021 Apr;53(2):330-338. doi: 10.4143/crt.2020.263. Epub 2020 Oct 20. PMID: 33091969; PMCID: PMC8053859.

[31.] Hong S, Song SY, Park B, Suh M, Choi KS, Jung SE, et al. Effect of digital mammography for breast cancer screening: a comparative study of more than 8 million Korean women. Radiology 2019 Dec 3;294:247-255. doi.org/10.1148/radiol.2019190951

[32.] Lee YY, Jun JK, Suh M, Park BY, Kim Y, Choi KS. Barriers to cancer screening among medical aid program recipients in the Republic of Korea: a qualitative study. Asian Pac J Cancer Prev. 2014;15(2):589-94. doi: 10.7314/apjcp.2014.15.2.589. PMID: 24568462.

[33.] Jung M. National Cancer Screening Programs and evidence-based healthcare policy in South Korea. Health Policy. 2015 Jan;119(1):26-32. doi: 10.1016/j.healthpol.2014.08.012. Epub 2014 Sep 3. PMID: 25220569.

[34.] Choi E, Lee YY, Yoon HJ, Lee S, Suh M, et al. (2015) Relationship between Cancer Worry and Stages of Adoption for Breast Cancer Screening among Korean Women. PLOS ONE 10(7): e0132351. https://doi.org/10.1371/journal.pone.0132351

[35.] Kopans, D.B. Misinformation and Facts about Breast Cancer Screening. Curr. Oncol. 2022, 29, 5644-5654. https://doi.org/10.3390/curroncol29080445

[36.] Cho J, Smith K, Choi EK, Kim IR, Chang YJ, Park HY, Guallar E, Shim YM. Public attitudes toward cancer and cancer patients: a national survey in Korea. Psychooncology. 2013 Mar;22(3):605-13. doi: 10.1002/pon.3041

[37.] DREC members. Available from: https://www.hira.or.kr/dummy.do?pgmid=HIRAA030051000006

[38.] HIPDC members. Available from: https://www.mohw.go.kr/react/policy/index.jsp?PAR_MENU_ID=06&MENU_ID=06320106&PAGE=6&topTitle=

[39.] You CH, Kang S, Kwon YD. The Economic Burden of Breast Cancer Survivors in Korea: A Descriptive Study Using a 26-Month Micro-Costing Cohort Approach. Asian Pac J Cancer Prev. 2019 Jul 1;20(7):2131-2137. doi: 10.31557/APJCP.2019.20.7.2131. PMID: 31350976; PMCID: PMC6745209.

40. Cho DY, Park J, Kim DS. The impact of expanding health insurance coverage for anti-cancer drugs on cancer survival in Korea. Cancer Med. 2021 Jul;10(13):4555-4563. doi: 10.1002/cam4.3979. Epub 2021 Jun 18. PMID: 34145980; PMCID: PMC8267115.

41. Rayzah M, Ryu JM, Lee JH, Nam SJ, Kim SW, Lee SK, Yu J, Lee KT, Bang SI, Mun GH, Pyon JK, Jeon BJ, Lee JE. Changes in Korean National Healthcare Insurance Policy and Breast Cancer Surgery Trend in Korea. J Korean Med Sci. 2021 Jul 26;36(29):e194. doi: 10.3346/jkms.2021.36.e194. PMID: 34313035; PMCID: PMC8313396.

42. Coulter A, Collins A. Making shared decision-making a reality: no decision about me, without me. London: King's Fund; 2011

43. Sohn KH, Nam S, Joo J, Kwon YJ, Yim JJ. Patient-Centeredness during In-Depth Consultation in the Outpatient Clinic of a Tertiary Hospital in Korea: Paradigm Shift from Disease to Patient. J Korean Med Sci. 2019 Apr 22;34(15):e119. doi: 10.3346/jkms.2019.34.e119. PMID: 31001936; PMCID: PMC6473096.

44. Lee MK, Noh DY, Nam SJ, Ahn SH, Park BW, Lee ES, Yun YH. Association of shared decision-making with type of breast cancer surgery: a cross-sectional study. BMC Health Serv Res. 2010 Feb 23;10:48. doi: 10.1186/1472-6963-10-48. PMID: 20175937

45. Martinez KA, Kurian AW, Hawley ST, Jagsi R. How can we best respect patient autonomy in breast cancer treatment decisions? Breast Cancer Manag. 2015;4(1):53-64. doi: 10.2217/bmt.14.47. PMID: 25733982; PMCID: PMC4342843.

46. Maeng CH, Ahn HK, Oh SY, Lim S, Kim BS, Kim DY. Practice patterns of multidisciplinary team meetings in Korean cancer care and patient satisfaction with this approach. Korean J Intern Med. 2020 Jan;35(1):205-214. doi: 10.3904/kjim.2019.189. Epub 2019 Dec 6. PMID: 31795023; PMCID: PMC6960038.

47. Chae BJ, Bae JS, Song BJ, Jung SS. Multidisciplinary team approach in breast cancer: a nationwide survey in Korea. J Korean Surg Soc. 2012 Jun;82(6):340-6. doi: 10.4174/jkss.2012.82.6.340. Epub 2012 May 29. PMID: 22708095; PMCID: PMC3373983.

48. Lee YG, Oh S, Kimm H, Koo DH, Kim DY, Kim BS, Lee SS. Practice Patterns Regarding Multidisciplinary Cancer Management and Suggestions for Further Refinement: Results from a National Survey in Korea. Cancer Res Treat. 2017 Oct;49(4):1164-1169. doi: 10.4143/crt.2016.517. Epub 2017 Feb 22. PMID: 28231425; PMCID: PMC5654152.

49. Lee B, Bae EY, Bae S, et al. How can we improve patients' access to new drugs under uncertainties? : South Korea's experience with risk sharing arrangements. BMC Health Serv Res 21, 967 (2021). https://doi.org/10.1186/s12913-021- 06919-x

50. Yoo SL, Kim DJ, Lee SM, Kang WG, Kim SY, Lee JH, Suh DC. Improving Patient Access to New Drugs in South Korea: Evaluation of the National Drug Formulary System. Int J Environ Res Public Health. 2019 Jan 21;16(2):288. doi: 10.3390/ijerph16020288. PMID: 30669602; PMCID: PMC6352121.

51. Mehnert A, Brähler E, Faller H, Härter M, Keller M, Schulz H, Wegscheider K, Weis J, Boehncke A, Hund B, Reuter K, Richard M, Sehner S, Sommerfeldt S, Szalai C, Wittchen HU, Koch U. Four-week prevalence of mental disorders in patients with cancer across major tumor entities. J Clin Oncol. 2014 Nov 1;32(31):3540-6. doi: 10.1200/JCO.2014.56.0086. Epub 2014 Oct 6. PMID: 25287821.

52. Heo J, Chun M, Oh YT, Noh OK, Kim L. Psychiatric comorbidities among breast cancer survivors in South Korea: a nationwide population-based study. Breast Cancer Res Treat. 2017 Feb;162(1):151-158. doi: 10.1007/s10549-016-4097-0. Epub 2017 Jan 7. PMID: 28062982.

53. Chae BJ, Lee J, Lee SK, et al. Unmet needs and related factors of Korean breast cancer survivors: a multicenter, cross-sectional study. BMC Cancer 2019;19, 839. https://doi.org/10.1186/s12885-019-6064-8

54. PSCCR group, Heins MJ, de Ligt KM, Verloop J, Siesling S, & Korevaar JC. Adverse health effects after breast cancer up to 14 years after diagnosis. Breast. 2022; 61, 22-28. https://doi.org/10.1016/j.breast.2021.12.001

55. Park YH, Senkus-Konefka E, Im SA, Pentheroudakis G, Saji S, Gupta S, Iwata H, Mastura MY, Dent R, Lu YS, Yin Y, Smruti BK, Toyama T, Malwinder S, Lee SC, Tseng LM, Kim JH, Kim TY, Suh KJ, Cardoso F, Yoshino T, Douillard JY. Pan-Asian adapted ESMO Clinical Practice Guidelines for the management of patients with early breast cancer: a KSMO-ESMO initiative endorsed by CSCO, ISMPO, JSMO, MOS, SSO and TOS. Ann Oncol. 2020 Apr;31(4):451-469. doi: 10.1016/j.annonc.2020.01.008. Epub 2020 Jan 16. PMID: 32081575.

56. Lim JW, Shon EJ, Yang EJ. A qualitative study of healthcare providers' perceptions and suggestions for developing cancer survivorship care models in South Korea. Eur J Cancer Care (Engl). 2018 Jan;27(1). doi: 10.1111/ecc.12613. Epub 2016 Dec 7. PMID: 27925414.

57. Ministry of Health, 제3차 국가암관리종합계획 (2016-2020), 2016

58. Kim JY, Chun M, Kim SW, Song J. Identification of Korean cancer survivors' unmet needs and desired psychosocial assistance: A focus group study. PLoS One. 2020 Jan 16;15(1):e0228054. doi: 10.1371/journal.pone.0228054.

ECONOMIST IMPACT

LONDON

The Adelphi, 1-11 John Adam Street, London, WC2N 6HT
United Kingdom
Tel: (44.20) 7576 8000
Fax: (44.20) 7576 8500
Email: london@eiu.com

GENEVA

Rue de l'Athénée 32
1206 Geneva
Switzerland
Tel: (41) 22 566 2470
Fax: (41) 22 346 93 47
Email: geneva@eiu.com

NEW YORK

750 Third Avenue
5th Floor
New York, NY 10017
United States
Tel: (1.212) 554 0600
Fax: (1.212) 586 1181/2
Email: americas@eiu.com

DUBAI

Office 1301a
Aurora Tower
Dubai Media City
Dubai
Tel: (971) 4 433 4202
Fax: (971) 4 438 0224
Email: dubai@eiu.com

HONG KONG

1301
12 Taikoo Wan Road
Taikoo Shing
Hong Kong
Tel: (852) 2585 3888
Fax: (852) 2802 7638
Email: asia@eiu.com

SINGAPORE

8 Cross Street
#23-01 Manulife Tower
Singapore
048424
Tel: (65) 6534 5177
Fax: (65) 6534 5077
Email: asia@eiu.com