



The Asan Medical Center Bio-Cluster, including the Asan Institute for Life Sciences.

## PRECISION MEDICINE AND CANCER CARE PIONEERS IN SOUTH KOREA

By harnessing genomic data and a multidisciplinary approach to cancer care, **ASAN MEDICAL CENTER** is forging ahead with individually tailored treatments, and it's attracting international patients.

**Precision medicine tailors treatments based on genetic and clinical information, and a patient's specific cancer, environment and lifestyle.** South Korea's largest cancer treatment centre, the Seoul-based Asan Medical Center (AMC) Cancer Institute, works closely with international partners to advance the nation's precision cancer care position.

In 2011, the institute signed an agreement with Harvard Medical School's Dana-Farber Cancer Institute to establish the ASAN Center for Cancer Genome Discovery (ASAN-CCGD) to optimize genome sequencing for South Koreans. "We are sequencing the DNA of about 3,000 patients a year

and using this data to help match people to the most appropriate clinical trials," explains Tae Won Kim, president of the AMC Cancer Institute.

**BY 2018, AMC WAS DOING HALF OF SOUTH KOREA'S NEXT-GEN SEQUENCING FOR CANCER PATIENTS**

Using the specialised skills of the AMC Center for Personalized Cancer Medicine, Asan Medical Center – one of South Korea's premier hospitals, headed by President Sang-do Lee – has developed a number

of cutting-edge sequencing techniques, such as OncoPanel and OncoMap. By 2018, AMC was performing half of South Korea's next-generation sequencing for cancer patients.

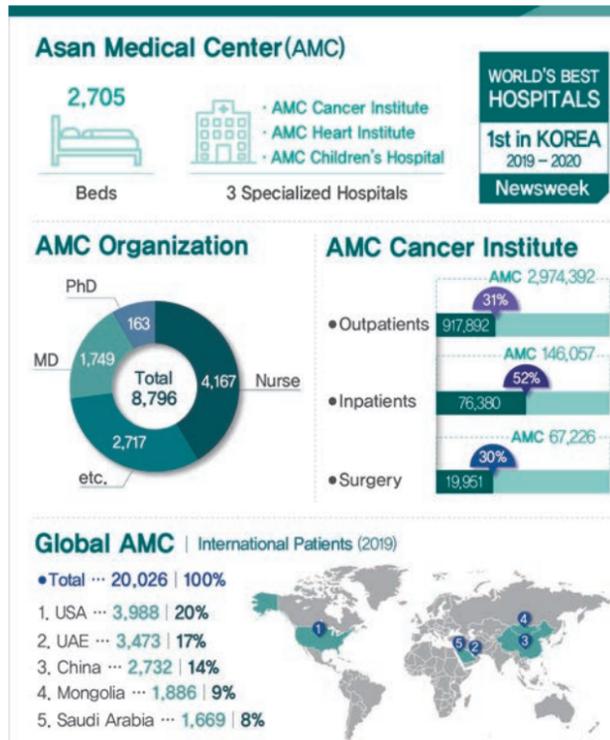
The AMC Cancer Institute also spearheads projects such as the Bio-Resource Center, a biobank of human samples for basic, translational, and clinical research that stores more than half a million high-quality samples from roughly 100,000 patients.

Another initiative, the Center for Cancer Data Management, collects and analyses data from 14 cancer subcentres and is establishing guidelines for big data-based diagnosis and treatment.

The Cancer Institute also draws on the AMC hospital's Integrated Platform for Precision Medicine, which uses genetic and clinical information from cancer patients to optimize treatment and inform them of new drug development projects.

With the Asan Institute for Life Sciences, the Cancer Institute collaborates with a number of international pharmaceutical companies to perform over 300 clinical trials annually, 20% of which are phase 1 trials of early stage drugs.

While AMC works with a number of international cancer centres to analyze the collected data, it is interested in forming new



Professor Chang Sik Yu (centre) performing colorectal surgery.



A patient and a donor from Israel who underwent living donor liver transplantation at Asan Medical Center, a leader in this type of surgery.

collaborations with research organizations and industry to translate cancer data into outcomes.

**Global reputation for care**  
The AMC Cancer Institute pioneers multidisciplinary cancer-care alongside AMC.

"Since 2006, we have been offering patients a multidisciplinary cancer-care system, under which cancer patients see five or six specialists in fields such as internal medicine, surgery, radiology, radiation oncology and pathology at the same time," says Tae Won Kim. "These multidisciplinary teams discuss each case in detail and arrange a treatment schedule with the patient." Nearly 5,000 patients went through this process in 2019.

Set up by the late Chung Ju-yung, honorary chairman of the Hyundai Group, the Asan Foundation (South Korea's largest social welfare organization) has established eight hospitals across the

country, including AMC. In 2019 and 2020, AMC was ranked the country's top hospital in the World's Best Hospitals list, which is put together by the US-based magazine Newsweek.

In 2019, AMC's international reputation attracted more than 20,000 international patients, including approximately 4,000 from the United States.

The Cancer Institute is also visited by about 14% of the country's cancer patients annually. More than 20,000 cancer surgeries are performed at AMC every year.

Additionally, AMC has opened the world's first emergency room specifically for cancer patients. It's staffed by a 24-hour emergency care team able to access and adjust a patient's treatment regimen. Dealing with cancer patient emergencies in a separate space allows the hospital to provide fast and optimal care.

**Always on the cutting-edge**  
AMC is internationally recognized for leadership in

organ transplantation and cardiovascular treatment.

Living-donor liver transplantation techniques from AMC's Department of Liver Transplantation and Hepatobiliary Surgery have become international standard protocol, reaching Japan, the United States and Europe. This follows a series of firsts by AMC teams, led by Professor Sung-Gyu Lee, who were the first to successfully surgically modify the right lobe in a living-donor liver transplantation in 1999; perform a dual liver transplantation in 2000; and perform a donor-exchange liver transplantation in 2003.

By the end of 2019, AMC's Organ Transplantation Center had performed roughly 6,700 liver transplantations, 5,700 kidney transplantations and 750 heart transplantations.

The AMC Heart Institute's eight centres also provide a multidisciplinary care regime. Here, the Department of Thoracic and Cardiovascular

Surgery performs more than 2,000 surgeries annually, while the Department of Cardiology performs more than 2,600 coronary stents every year, and had performed 700 transcatheter aortic valve implantations between 2010 and 2019.

As well as patients flying in from abroad, more than 500 medical professionals from roughly 60 countries come to AMC for training every year. For example, the four-day AMC Cardiology Training Programme, led by Professor Seung-Jung Park, a pioneer in stenting, cardiovascular function tests and cardiac rehabilitation, has attracted more than 1,000 medical professionals from more than 30 countries since 2009. ■



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