SingHealth DukeNUS ACADEMIC MEDICAL CENTRE

Transplant Centre

SingHealth

TRANSPLANT MATTERS

Issue 19 | April - September 2021

We have moved our office to National Heart Centre Singapore!

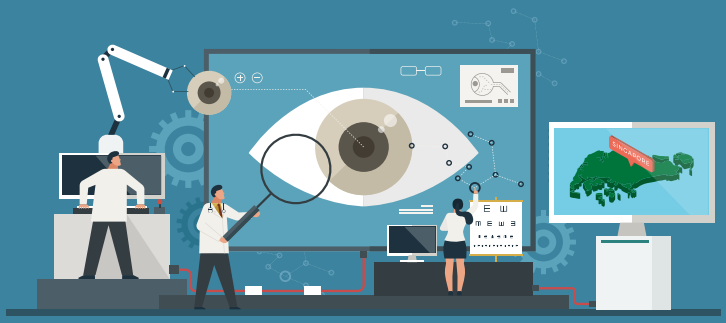
30 October 2021

Be A Part Of Someone's Life! Webinar

Scan to register now!

Evolution of Eye Banking in Singapore

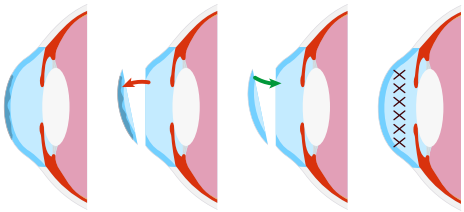
By Singapore Eye Bank, Singapore National Eye Centre



Corneal surgeons and eye banks have a long symbiotic working relationship built on the common commitment to provide the safest and highest quality corneal tissues for the corneal transplants.

Late 1990s

Since the first surgeries in the 1990s, endothelial keratoplasty (EK) procedures have advanced greatly within a span of 12 years. The EK surgery replaces only specific layers of the posterior cornea, as opposed to the traditional full-thickness corneal surgery. In tandem with this evolution, eye banks have stepped up to play a pivotal role in facilitating and performing the tissue processing aspect of these cutting edge surgeries within its own premises.



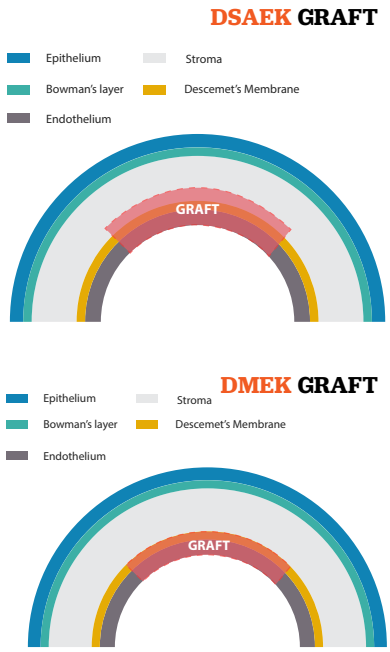
Endothelial Keratoplasty (EK)

2011 - 2016

In 2011, the Singapore Eye Bank (SEB) embarked on its own tissue processing programme for Descemets Stripping Automated Endothelial Keratoplasty (DSAEK). In line with this, SEB Tissue Coordinators received rigorous training to prepare them for the additional responsibility of processing (or pre-cutting) corneas in the laboratory for DSAEK. This was an expansion of their original roles of performing whole globe or cornea recovery from local donors and conducting laboratory assessment of recovered corneal tissue. In the 10 years since commencing the service, SEB has performed over 1,750 pre-cut procedures **for EK** with a 98% successful processing rate and a 94% transplant rate, comparable to international norms. **As the Tissue Coordinators became increasingly adept at using the microkeratome (automated cutting instrument) for DSAEK, corneal surgeons started requesting for pre-cut anterior corneas for Anterior Lamellar Keratoplasty or ALK, where only the front diseased part of the cornea is replaced. Since 2016, the Tissue Coordinators have successfully prepared 30 bespoke anterior lamellar lenticules for ALK.** The availability of high quality pre-cut corneas for both anterior and posterior lamellar corneal grafts from SEB has encouraged a whole new generation of corneal surgeons in Singapore to adopt advanced transplant procedures, greatly benefitting graft patients.

Late 2017 - 2019

A newer, better version of DSAEK called 'Descemets Membrane Endothelial Keratoplasty' (DMEK) becomes mainstream. For DMEK, only a 0.01 mm thick inner cornea is replaced (far thinner than the 0.1 mm in DSAEK), resulting in an almost perfect anatomical match, superior visual results and lower rates of graft rejection. DMEK, however, required a completely new type of tissue processing called pre-stripping and SEB Tissue Coordinators were up for the challenge. In late 2017, work commenced on a ISO Class 7 processing room inside the eye bank laboratory. Once again, the Tissue Coordinators received intensive training from senior Singapore National Eye Centre (SNEC) corneal surgeons and overseas consultants over a course of 12 months. In April 2019, SEB performed its first pre-stripping procedure for a clinical case and has since logged over 150 procedures. An analysis of the eye bank's first 100 cases showed a successful peel rate of 99%, with an average cell loss of 0.5% (lower than other published studies). There were four complicated procedures with one case resulting in graft failure and one instance where the cornea was damaged and not released for surgery. All the other cases were transplanted with good one-year survival rates.

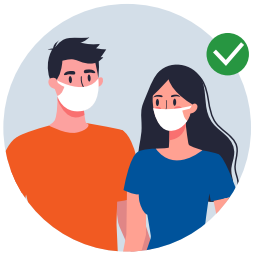


Towards the future

The evolution of SEB bears testimony to its dedication in keeping up with the ever-improving techniques in corneal transplantation and none more so than the Tissue Coordinator, who has to constantly keep abreast of the latest developments, and acquire new knowledge and skills in anticipation of the future.

"COVID-19 Vaccinations in Transplantation – to take or not to take?"

COVID-19 is the infectious disease caused by a strain of coronavirus, SARS-CoV 2. It was declared a pandemic by the World Health Organization (WHO) in March 2020 and has to a significant extent, crippled the world medically, economically, psychologically and socially. COVID-19 has redefined the way we work and interact. To ride out this pandemic, public health measures alone are insufficient. Asymptomatic transmission of COVID-19 is one key driver of this global and insidious spread of the virus. To overcome COVID-19, a multi-pronged approach is required of which public health measures and global vaccination programmes are two key measures.

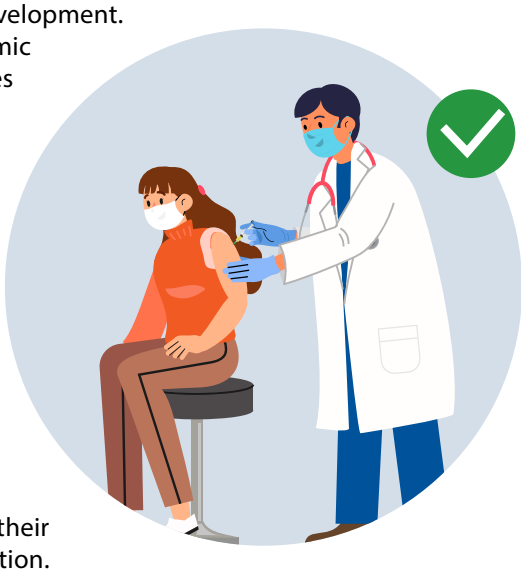


Wear a surgical mask

Practice safe distancing

Clean hands frequently

Scientists around the world have worked tirelessly in COVID-19 vaccine development. Because of the strong partnerships between government agencies, academic institutions and the pharmaceutical industries, safe and efficacious vaccines were developed and distributed in record time. In December 2020, two mRNA vaccines, the Pfizer-BNT162b2 and Moderna's mRNA-1273 vaccines, were approved and distributed for emergency use in the United States. Currently, both mRNA vaccines are approved for use in Singapore. There is now global data to show that vaccination reduces the severity of COVID-19 infections and the risk of hospitalisation. There is also emerging data for the use of mRNA vaccines in transplant recipients, with good safety data. Although vaccine response in immunocompromised patients may be attenuated, there is still a role for COVID-19 vaccination in transplant recipients given the possibility of severe COVID-19 infections in this population, in the absence of effective therapeutics. It is recommended that transplant recipients and their close contacts receive the COVID-19 vaccination that is approved by Singapore's Ministry of Health. Transplant patients are strongly encouraged to consult their transplant physician if they are uncertain about their suitability for vaccination.



"This is what Hope looks like"

Renal Transplant 50 Years Commemorative Book

The kidney transplant programme at the Singapore General Hospital (SGH) is the first transplant service introduced to Singapore in 1970. It is now a world-class programme with over 1,500 kidney transplants performed and outcomes comparable to well-known centres in the world. Sharing the programme's progress and celebrating its achievements over the years, the programme produced a set of two books. It also honoured the rich heritage of dialysis and general nephrology, which were part of the key pillars of renal transplantation.

The two volumes took over two years of research, interviews with pioneers as well as references with an exhaustive collation of articles and photographs to ensure its historical authenticity. The books will serve to document the history of transplantation and renal medicine for decades to come. Titled **"This is what Hope looks like"**, the book recognises the passion, courage and true grit of the pioneers and staff whom have dedicated their lives to give hope to others. The books were officially launched on 9th April 2021 in the presence of pioneers and senior management of SGH, along with several keynote lectures by the renal and urology faculty as well as a presentation of a video choral song titled "I Lived" performed by patients and staff from the kidney transplant programme.

Heart & Lung Patient Support Group – Connecting with patients

The Heart & Lung Transplant Patient Support Group (PSG) was formed in 2000 to provide emotional support and facilitate information exchange on pre and post-transplant care for patients and their families. Educational talks by National Heart Centre Singapore (NHCS) were *de rigueur* at the regular group meetings.

With a growing number of its members having Left Ventricular Assist Device (LVAD) implantations, a LVAD PSG comprising more than 30 patients was officially formed in 2013. The LVAD PSG provided emotional support and health awareness for not only the patients with a LVAD but also their families so as to help them to cope with post-discharge lifestyle and care management. These are mainly done through patients and family members' sharing of personal experiences.

Since then, the LVAD PSG has been running independently and successfully by patients, and with the facilitation support from transplant coordinators. It is heartening to see some of the patients who had successfully bridged to heart transplant continue to show their support for the PSG. A closed group Facebook page was also created and maintained by patients to share information and experiences. Prior to the COVID-19 pandemic, the LVAD PSG committee would regularly visit inpatients in the hospital to provide emotional support to them and their family members.

Besides educational talks, the LVAD PSG organises recreational activities such as group exercises, social get-togethers and excursions. The PSG also actively participate in charity walks, organ donation and transplant campaigns and roadshows as well as volunteer in community work.

LVAD PSG was awarded the SingHealth Inspirational Patient Support Group in 2018, in recognition of their valuable support to our patients and caregivers. In 2019, Heart & Lung Transplant PSG and LVAD PSG were officially merged to allow better resource sharing and to extend to a wider group of patients.

This peer support initiative not only allows interaction and connection between patients, family members and the healthcare team but creates a supportive environment for patients as they walk the health journey together.

A webinar on "Transplant Infections"

by Dr Jasmine Chung, on 10 July 2021

Dr Jasmine Chung, Consultant at the Department of Infectious Diseases, Singapore General Hospital

Transplantation restores organ function, and gives our patients a new lease of life. After the transplant, recipients are often prescribed drugs (immunosuppressants) to maintain graft function. However, these drugs also affect their immune system, in a way that makes them more prone to infections. To help recipients understand how infections develop, and equip them with knowledge to care for themselves better, the SingHealth Duke-NUS Transplant Centre (SDTC) organised a webinar to address this.

Infection can occur to anyone at anytime and anywhere. A person gets infected when he/she is exposed to pathogens (e.g. bacteria, fungus, virus, or parasites). Transmission can occur through direct contact, consumption of contaminated food/water, droplet transmission or airborne transmission. Thereafter, there is an incubation period where the pathogens replicate and disseminate in the body, causing clinical infection. Following the exposure, a few possible scenarios may occur.

a. The person may not develop an infection (due to a strong and robust immune system, OR having existing immunity primed through natural infection or vaccination)

b. One may have an asympatomatic infection (i.e. the person may not feel it and does not seek medical attention), OR

c. One may develop symptoms and suffer from the clinical infection

In the scenario of a post-transplant, infections can occur from:

a. Donor-derived infections (uncommon)

b. *De-novo* infections (new infections which arise due to new exposures), OR

c. Reactivation of latent infections (e.g. tuberculosis, cytomegalovirus infection, herpes virus infection)

There are some common prevention strategies that recipients can adopt to help reduce the incidence and adverse outcomes of post-transplant infections. This include:

Use of prophylaxis medications

Practise good personal and hand hygiene

Wearing of face masks in public areas

Avoid consumption of unfiltered water, unclean water, raw food

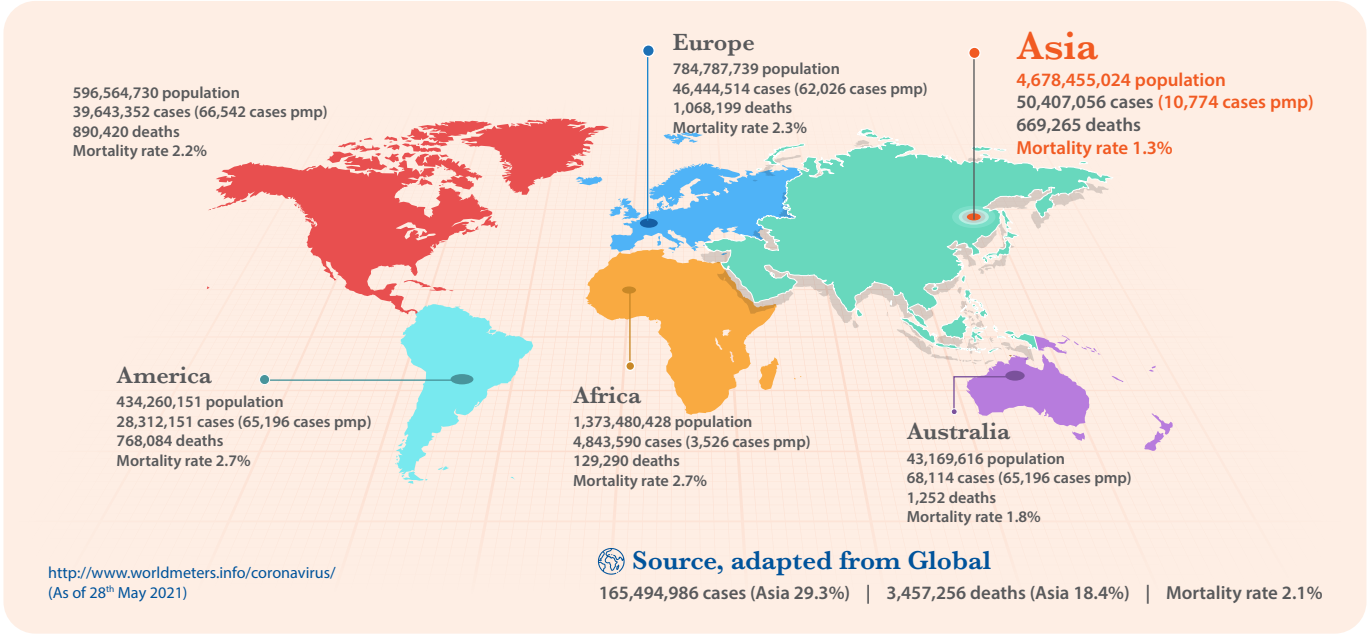
Avoiding contact with decaying material

Avoid walking bare-feet on exposed soil

Management of the COVID-19 Pandemic from the Perspectives of Transplant Healthcare Systems from Asia

Pearls from collaborations within the Asian Transplant Registry (ASTREG)

The inaugural Transplantation Society MasterClass Series convened international and regional experts who spoke on topics of geographical interest in transplantation. In the Asia series, Dr Terence Kee, Programme Director, Renal Transplant, SingHealth, presented a lecture on how transplant healthcare systems from Asia have responded to the COVID-19 Pandemic. He spoke in his capacity as co-chair of the Asian Society of Transplantation Registry Steering Committee and as a Council Member of the Asian Society of Transplantation. As part of his involvement in these groups, Dr Kee set up a multinational collaborative workgroup that has published and presented various topics of interest of how COVID-19 infections has affected transplant programmes and kidney transplant recipients.



In the masterclass, he covered reasons why COVID-19 is less lethal in Asia as compared to western countries, citing factors such as Asian countries having a younger average population who are less likely to suffer from severe COVID-19 complications in contrast to the western countries. Furthermore, despite being the first to be infected with COVID-19, Asia has not witnessed high mortality rates. For many countries within Asia, had lower mortality rates due to their ability to flatten the COVID-19 curve through effective system and community countermeasures such as early border closures, contact tracing and the high acceptance and cooperation of mask-wearing. Despite the COVID-19 outbreak, the need for quality healthcare continues and Asian countries have come up with unique experiences and innovations to adapt to the pandemic. For instance, though there were varied levels of suspension of transplant services around the region, transplant programmes from various Asian countries shared similar COVID-19 related countermeasures such as routine screening of patients, downsizing non-urgent clinical care and implementing tele-medicine. In Singapore, the healthcare system has also adopted the additional approach of routine surveillance screening of staff and improving ventilation in inpatient units.

Dr Kee also shared the various publications by the SingHealth Duke-NUS Transplant Centre (SDTC) and the renal transplant programme, sharing how the transplant centre has responded effectively against COVID-19. In particular, he emphasised on patient's perspectives and shared how patients from the heart/lung, liver, kidney and haematopoietic stem cell transplant programmes still desired to be transplanted despite the pandemic from a survey published by Dr Tan Eik Koon and colleagues from the SDTC.

During his talk, Dr Kee also shared data that will be presented at the upcoming Congress of Asian Society of Transplantation on clinical characteristics and management of COVID-19 infections in kidney transplant recipients. Data was contributed by seven countries from Asia and revealed that compared to similar reports from the United States and Europe, patient age and comorbidities were lower and thence may have contributed to the lower mortality of COVID-19 infections in Asian kidney transplant recipients. He also highlighted particular differences in the management of COVID-19 infection such as the higher frequency of use of antiviral drugs and corticosteroids compared to cohorts from the United States and Europe.

Congratulations

Prof Tan Been Keem has been promoted to Clinical Professor and Assoc Prof Alvin Chua has been promoted to Clinical Associate Professor by Duke-NUS Medical School under the SingHealth Duke-NUS Musculoskeletal Sciences Academic Clinical Programme from 1 July 2021.

UPCOMING EVENTS

Transplant Awareness Month

30 October 2021

Be A Part Of Someone's Life!

Scan to register now!

Produced by

SingHealth DukeNUS ACADEMIC MEDICAL CENTRE

Transplant Centre

Advisor

A/Prof Prema Raj, SingHealth Duke-NUS Transplant Centre (SDTC)

Members

Our Transplant Programmes - Heart, Liver, Lung, Pancreas-Kidney, Renal, Corneal, Haematopoietic Stem Cells (Adult and Paediatric), Ovarian Tissue, Singapore Cord Blood Bank and the Transplant Tissue Centre For Skin And Cardiovascular Homograft
Department of Infectious Diseases

Ms Mable Yap May Po, SDTC
Ms Soh Chun Hui, SDTC
Mr Tng Wee Hong, SDTC

Special Thanks

Group Communications, SingHealth
Our Patients

Contact us

SingHealth Duke-NUS Transplant Centre
National Heart Centre Singapore, Level 7,
5 Hospital Drive, Singapore 169609

Tel: 63122720
Email: sd.transplant.centre@singhealth.com.sg
Facebook.com/SDTransplantCentre