



For Immediate Release

## **First Artificial Cornea Transplant (Boston Keratoprosthesis) Success in Hong Kong Private Hospital Brings Hope to Patients with Repeated Corneal Graft Failures**

(13 August 2013 – Hong Kong) Hong Kong Sanatorium & Hospital (HKSH) has become the first private hospital in Hong Kong to have successfully performed artificial cornea implant (Boston Keratoprosthesis) on a patient with previous corneal graft failures. The application of this new technology brings hope of restoring vision to patients suffering from serious corneal injuries or auto-immune and inflammatory diseases such as Stevens-Johnson Syndrome, Pemphigoid and Sjogren's Syndrome.

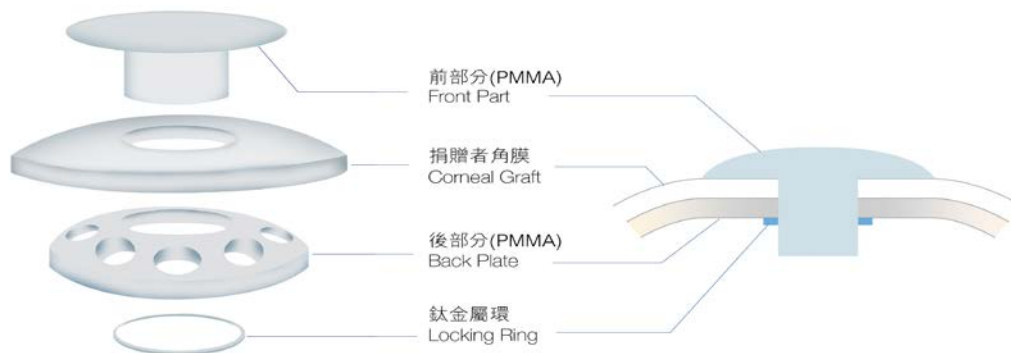
Dr. Walton LI, Medical Superintendent of HKSH and Head of the Department of Ophthalmology, said, "The success of artificial cornea transplant at HKSH is significant as it opens a new frontier in our eye surgery service. We are proud to be the only private hospital in Hong Kong to offer a full range of corneal transplant options in one place which, hopefully, will help more patients to regain their sight."

### **Boston KPro – An Artificial Cornea in Collar Button Design**

Dr. Arthur CHENG Chak Kwan, Specialist in Ophthalmology at HKSH, who conducted the operation on a patient in April 2013, said the artificial cornea, Boston Keratoprosthesis (Boston KPro), is made of clear curved plastic (Polymethylmethacrylate, PMMA) with excellent tissue tolerance and optical properties in a collar button design.

The artificial cornea, Boston KPro is comprised of four components: a front plate with optical stem, donor's corneal graft, a back plate with tiny holes and titanium locking c-ring. It is a thread-less design with front and back plates snapped together, while the corneal graft tissue is sandwiched in-between to help suture the device to the patient's eye.





### Principles of Assembly of the Boston KPro into a Donor Corneal Graft

Dr. CHENG said, “Patients, including those suffering from burns with serious corneal injuries and those with Stevens-Johnson Syndrome, may not be suitable for traditional corneal transplant techniques due to angiogenesis and high risk of rejection. For patients who have a past record of failure in traditional corneal transplant, artificial corneal transplant is the only hope for them.”

The Boston KPro is a device which has two distinctly different and separately located zones. First, a host-tissue friendly outer skirt composed of human cornea which has a high affinity for recipient rim tissue. The skirt is human corneal tissue which encourages host tissue to integrate into it, adhere and anchor. Second, a host-tissue unfriendly central clear optical region made up of a polymer material that has a low affinity for host tissue, thereby discouraging host tissue attachment, adhesion and migration over the central optical region of the prosthesis. The unique design solves the dual requirements of a keratoprosthesis, that is, the need to have opposing tissue affinity, by locating them in different parts of the device.

“Compared with traditional artificial cornea transplant in which the cornea, iris, lens and vitreous body have to be taken out from the patient, the new technique has less ocular structural distortion as only the cornea and lens will be removed. As patients with severe corneal injuries or repeated corneal graft failures will usually have cloudy lens, the natural lens therefore will also be removed and replaced by an artificial intraocular lens (IOL) and thus correcting all residual refractive problems (e.g. myopia and hyperopia),” Dr. CHENG explained.



“High stability, better retention and faster recovery are the benefits that Boston KPro brings. Since the Boston KPro lies within the plane of the original cornea without affecting other parts of the eye, it enables a speedier post-operative visual rehabilitation. The quality of optics almost approximates the normal human cornea. Moreover, the Boston KPro is custom-made, so it can correct the refractive errors including Aphakia, which is very advantageous in paediatric cases.” Dr CHENG added.

For post-operative care, as the artificial cornea is made of PMMA and has no sensation, special contact lens have to be put on for protection and monthly follow-up consultation required. The patient will be prescribed with antibiotics eye-drops and reminded of the need for consistent eye care to avoid the risk of infection, extrusion and even glaucoma.

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### **Additional Information:**

#### **Assist Patients to Apply for Corneas from the Eye Bank of the United States**

Patients suffering from corneal scarring, corneal swelling, degeneration or deformation require cornea transplant. Unlike other organ transplants, corneal replacements do not require tissue typing or blood matching. However, due to the shortage of supply, patients in Hong Kong need to wait for an average of 2-3 years for cornea transplant. In addition to applying for corneas from Lions Eye Bank of Hong Kong, HKSH has also been helping patients to apply for corneas from the Eye Bank of United States since August 2012, in order to ease the shortage of corneas, minimise the waiting time for cornea transplants and reduce the impact of disease deterioration.

#### **About the Department of Ophthalmology**

The Department of Ophthalmology was established in 1980 and is fully equipped with the most advanced technology, aiming to offer comprehensive and first-rate services to our patients. Our services include general eye check-ups as well as expert eye care for patients suffering from eye diseases including cataracts, glaucoma, corneal diseases, eyelid diseases, orbital diseases, vitreo-retinal diseases, paediatric eye diseases and others.





### **About Eye Surgery Centre**

Established in 2003, the Eye Surgery Centre is equipped with the most advanced facilities and technologies. Wide-ranging eye-related surgeries including cataract surgery are performed by Ophthalmologists of the Department of Ophthalmology.

### **About Hong Kong Sanatorium & Hospital**

Hong Kong Sanatorium & Hospital is one of the leading private hospitals in Hong Kong. With the motto “Quality in Service Excellence in Care”, the Hospital is committed to serving the public as well as promoting medical education and research.

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**Photos:**

1. Dr. Arthur CHENG Chak Kwan, Specialist in Ophthalmology of HKSH said Boston KPro is suitable for patient with previous corneal graft failures, serious corneal injuries or auto-immune and inflammatory diseases.



2. In addition to applying for corneas from Lions Eye Bank of Hong Kong, HKSH has also been helping patients to apply for corneas from the Eye Bank of United States since August 2012, in order to ease the shortage of corneas, minimise the waiting time for cornea transplants and reduce the impact of disease deterioration.



3. Mr. ZHOU, a patient with Stevens-Johnson Syndrome, had Boston KPro implanted into his left eye in April 2013.

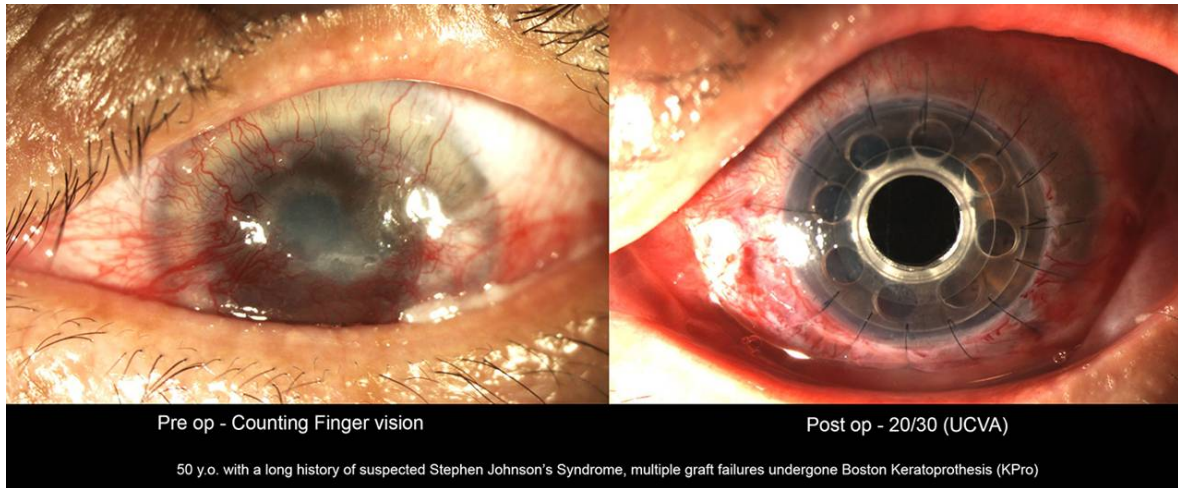


4. (From right) Dr. CHENG and Mr. ZHOU, the patient, whose left eye is implanted with Boston KPro.





5. Before and after the implantation of Boston KPro



Before

After

6. The additions of holes are in the back plate. The device currently has multiple holes which provide sufficient surface area for diffusion of nutritious aqueous to support the donor graft stroma and keratocytes.

