



## EYE BANK MANAGEMENT SYSTEM

## Ophthalmology

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## ABSTRACT

The aim of this project was to develop a software for an eye bank within a hospital, to maintain the documentation of eye donations. Computer technology has become popular in eye banks, and helps them to work in an efficient manner, as well as to improve the service quality. But, in the face of the explosive data, the task of promoting the donor details is one of the challenges in eye bank management systems. In this paper, we desire to explore the mechanisms of storing data and to promote the donor details in the eye bank. Firstly, the data in an eye bank is examined carefully; then, the data is computerized with special attention to eye donation, tissue collection and transport service. Finally, a case study is presented to quantify our understanding of the information in the eye bank.

## KEYWORDS

## Introduction:

Eye bank is an institution responsible for collecting and processing the donated human eyes, and distributing the tissue for transplantation.<sup>[1]</sup> Eye bank delivers the donated eye for corneal transplantation and research and training purposes.

In India donated eyes are used for corneal transplantation mostly in the age group between 18 to 60 yrs. People who are using spectacles, suffering from diabetes and patients with high blood pressure, asthma and those who are not affected by communicable diseases are able to donate their eyes. Persons who are affected by AIDS, Hepatitis B and C, Rabies, Septicaemia, Acute leukemia (Blood cancer), Tetanus, Cholera, and infectious diseases like Meningitis and Encephalitis are not able to donate their eyes.

Eyes can be donated only after death. Eye bank team will visit the home of the deceased or the hospital to remove the eyes by a registered medical practitioner only, within 4 - 6 hours after death. Only 20-30 minutes of time is taken for removing the eyes. A small quantity of blood will be taken for identifying communicable diseases. Both the donor and the recipient identities are kept confidential. After donating the eyes, the donor's family receives a certificate of appreciation from the eye bank. The eyes are taken to the eye bank. Tests are carried out by trained eye bank staff and the tissue is preserved and sent to the corneal surgeon.

The waiting list of patients in need of eye donors is referred first and the recipient is called for corneal transplant. Corneal transplant is performed.

Eyes can be stored in the eye bank for up to 14 days, for transplantation after its arrival. Preservation of the endothelium is the primary aim for storing the cornea. Eye banks in the USA typically set an age limit of up to 65 years. European eye banks set an age limit up to 75 years.<sup>[2]</sup>

Developing countries like India have developed a system which is effective and efficient. A 3-tier system is followed by most of the eye banks in India. 3-tiers systems have eye donation centre, eye bank and eye bank training centre. One eye bank is linked with 40 Eye Donation Centre and for every 20 million people. India needs 1000 trained specialists for transplantation.<sup>[3]</sup>

Eye bank personnel, cannot easily find the people who are willing to donate their eyes. It would be difficult for them to approach the general public directly. Public awareness programmes play a vital role for creating the desire in each person to donate their eyes after their demise. Family members must also give their permission for pledging,

and they must also allow the team to remove the eyes after the death of their beloved ones. There are rules and regulations for removing and corneal transplantation process followed by all the eye banks.<sup>[4]</sup>

## LITERATURE SURVEY:

Eye bank management system software has been implemented to streamline our corneal graft processing. Software feature a high degree of automation and support the linkage of clinics and the eye bank. Paper based and hand-written documentation will be automated. Automation process eliminates error in documentation. The new system will provide the correct information.<sup>[5]</sup>

Cornea information such as donor age, sex, time of death, collection time and donor usage were recorded. Specular microscopy is used to analyse the effects of donor age, sex and time from death to cornea harvesting. Data was tested with Kolmogorov-Smirnov test.<sup>[6]</sup>

Increase in the awareness and knowledge of community on eye donation and more education about eye diseases and corneal transplantation is needed. Only 12 % cornea transplantations were performed within Malaysia.<sup>[7]</sup> After the analysis of the NZNEB database, it provides valuable information about the donors and the cornea transplantation in New Zealand.<sup>[8]</sup> Lack of awareness was the most reason for not pledging their eyes.<sup>[9]</sup> We need to have knowledge and encourage the students to pledge their eyes. This will bridge the gap between the eye bank and donors.<sup>[10]</sup>

## Proposed System:

Documentation that was stored in paper based and hand written documents was computerized. For storing the donor details, they required two forms such as donor-call information sheet, and donor medical particulars. These two forms collected and stored all the essential details.

This system provides an easy way for viewing the donor details and the details will be filtered by date and the age of the donor. Donated eyes will be preserved in which media, the blood report is available or not available and the final grade details will be computerized. They can easily create a report on eye donor details. Transport details are noted within the software. There is an easy way to promote the eye donor details. News Letter about eye bank will be forwarded to all the registered users.

## Future Enhancement:

Eye bank management system is computerized with better facilities. Development of application for eye pledging and to also create awareness for donating eyes.

**CONCLUSION:**

Finally the system is developed to replace the manual system effectively and efficiently. The Eye Bank Management System provides great flexibility for the eye bank, to store the donor details and to view the reports. This system provides detailed information to the users.

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