

## **Evolving Indications for the Boston Keratoprosthesis**

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**Purpose:** The Boston keratoprosthesis was implanted in almost 1000 patients in 2008, and its use by corneal surgeons is increasing world wide. This paper will review the evolving indications for implantation of the device and examine reasons for its increased utilization.

**Methods:** Evidence-based review of the published literature.

**Results:** The Boston keratoprosthesis device has undergone repeated improvements and innovations since US FDA approval for marketing in 1992, as has the perioperative care of keratoprosthesis patients. Increasing recognition of the poor prognosis for repeated corneal transplantation in the setting of a densely vascularized cornea or already failed corneal allograft, the expense and comorbidity associated with immune suppression used with limbal allograft in patients with bilateral limbal stem cell failure, and increased retention and visual restoration rates for the Boston keratoprosthesis appear to be responsible for changing practice patterns by corneal surgeons.

**Conclusions:** Efforts to develop a viable keratoprosthesis with high retention rates initially focused on the previously hopeless corneal blind. Incremental improvements in the Boston keratoprosthesis device and perioperative care, and a maturing literature on the relative outcomes of alternative surgical procedures for corneal blindness has led to a surge in use of the Boston keratoprosthesis. Glaucoma and auto-immune diseases remain significant challenges to Boston keratoprosthesis use in affected patients.