Evaluation of a Keratoconus Nurse-Led Clinic and Cross-Linking (CXL) Service Over a Seven-Year Period

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Introduction

Keratoconus is a progressive corneal disorder marked by corneal thinning and steepening, leading to visual impairment and reduced quality of life, particularly in younger patients. Corneal collagen cross-linking (CXL) is effective in halting disease progression. However, the need for regular monitoring and timely treatment places a significant burden on Hospital Eye Service.

Purpose

- Evaluate an ANP-led keratoconus and CXL service (2017–2024)
- Assess safety, waiting times, service capacity, ad clinical outcomes

Method

- Retrospective audit (2017-2024)
- Procedure: CXL performed using a standardized sterile protocol by a trained AHP, without consultant supervision
- Follow up:

Week 1- Telephone consultation
Week 4- In person consultation
Month 3- Corneal topography

- Clinical outcomes assessed:

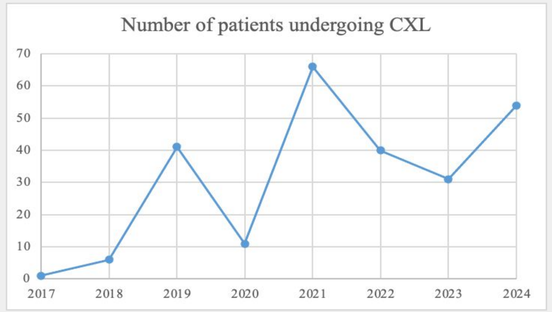
Visual acuity (VA)
Corneal curvature and thickness
Complication rates



Results

CXL Procedures Overview (2017-2024)

- 269 eyes of 250 patients underwent CXL
- Mean age 27 ±7 years (range 16-46).

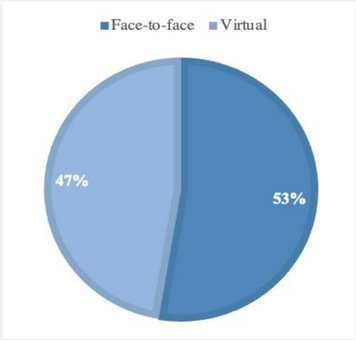


- Mean clinic visits pre-CXL: 2
- Mean Kmax: 61.0 ±9.1D
- Thinnest Corneal Thickness: 472 ±42 µm
- Waiting time (Listing to Procedure): 9 ±6 weeks

Complication Type	Cases
Loss ≥2 lines of VA	0
Topographical progression	0
Microbial keratitis	0
Immune-mediated stromal haze (Reduced with extended topical steroid)	2
Neuropathic analgesia	1

ANP-Led Service Activity (Dec 2023 -Nov 2024)

- 684 appointments over 12 month period



- Mean Age: 32 years (Range: 13–67)
- Gender:

Male: 67% Female: 33%

- At Referral:

Mean BCVA: 0.6 ± 0.27 LogMAR
Mean SE: -1.96D

Conclusion

- The ANP-led approach addresses the growing demand for keratoconus treatment while maintaining patient safety and satisfaction
- ANP-led outpatient collagen cross-linking offers a safe, effective, and timely alternative to theatre-based procedures
- This service has increased departmental capacity, reduced waiting times, and allowed senior clinicians to prioritize complex surgeries and urgent sight-threatening cases
- Further research is recommended to assess long-term outcomes and explore broader implementation of the model