

A close-up photograph of a person's eye being examined with a medical device. The device has a small blue light source. The person's face is partially visible, and they are wearing a white headband.

A VISIONARY APPROACH

Revolutionising Glaucoma Detection
in Rural Australia



Sydney
Local Health District

x



NORTHBRIDGE

A COLLABORATIVE CASE STUDY

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Introduction

Revolutionising Healthcare Access

Bridging the Gap for Regional and Remote Communities

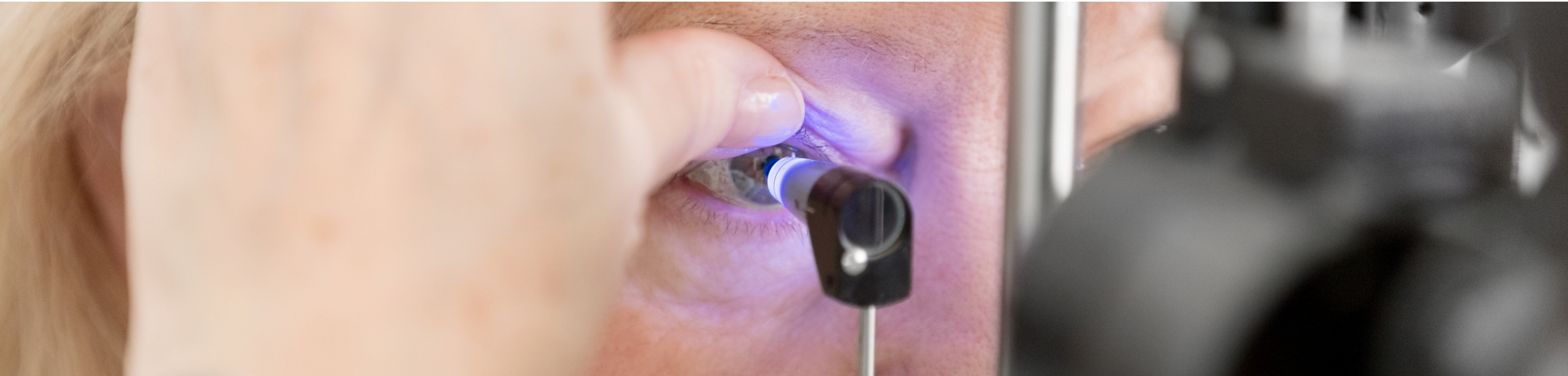
In a groundbreaking collaboration, Northbridge Systems have sponsored a PhD scholarship through Sydney Local Health District to address a critical challenge in glaucoma management.

This initiative led by Dr Jeremy Tan, Consultant Ophthalmologist and Research Fellow, University of Sydney aims to improve the detection and monitoring of glaucoma, a chronic and progressive disease affecting over 70 million people worldwide.

Beyond servicing the aged care community alone, this innovative research is pivotal in addressing the broader challenge of healthcare accessibility. By harnessing, adapting and innovating off-the-shelf technology, this collaborative research initiative intends to make medical testing more affordable and accessible, particularly for those in regional and remote areas.

This approach may reduce the burden on hospital services and also seeks to empower geographically disadvantaged communities to better access ophthalmic care.

THE CHALLENGE



Glaucoma, often called the "silent thief of sight," requires lifelong monitoring for many individuals, with the most important test being the visual field test. However, a significant obstacle in public health systems is the **inability to provide sufficient testing frequency** due to time constraints and resource limitations.

A US study revealed that **more than 75% of patients receive less than one visual field test annually, falling short of the minimum recommended frequency.** This situation is likely similar in Australian public health systems, and may be **particularly pronounced in rural and regional areas** where access to care have shown to be less than in metropolitan areas.

INNOVATIVE SOLUTION

The PhD research focuses on exploring **home-based visual field testing** using a portable device to improve the detection of glaucoma progression. In collaboration with Irida Health Ltd (UK), the PhD scholar, Jeremy, is working on validating **a novel visual field device: augmented reality smart glasses connected to a smartphone.**

HOW IT WORKS

- Patients wear the smart glasses and interact with a smartphone app.
- The test takes approximately 8 minutes to evaluate both eyes.
- Results similar to clinical machine printouts are produced.



BREAKTHROUGH FINDINGS

A validation study comparing **the new device (Eye-catcher)** with the standard Humphrey machine showed promising initial results:

- The **smart glasses test was preferred by a greater proportion** of the study cohort compared to the clinic test
- While the smart glasses were less reliable as expected than the clinic-based device, this can be offset by an **increased frequency of testing.**
- Home testing once per month may therefore achieve **similar results to the gold standard of clinic testing** once every four months.
- The **ability to replicate the diagnostic performance of clinic testing** in the home environment has important implications for access to glaucoma monitoring.

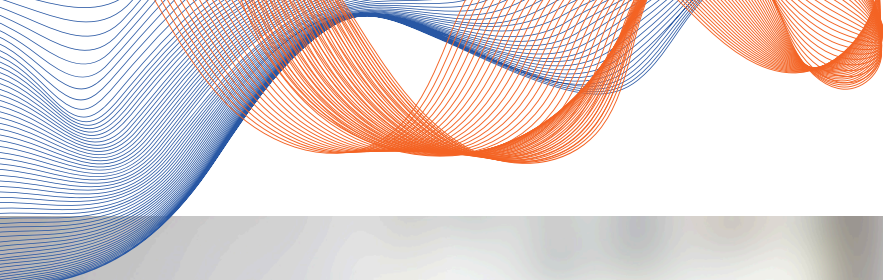
REAL WORLD IMPLICATIONS

The next phase of the PhD research involves implementing this technology in a clinical setting.

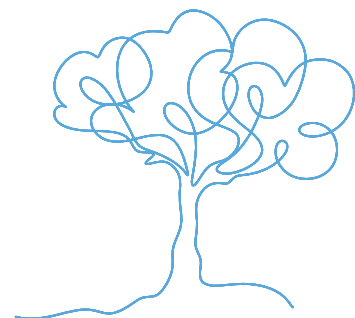
The PhD scholar plans to test the device **in a rural community in Broken Hill**. This initiative aims to improve equity of care in underserved areas, addressing the longstanding challenge of limited access to ophthalmic care in Australia's public health system.

This groundbreaking approach may not only **reduce the burden of hospital visits** but also **empowers remote and regional communities**. This ultimately aims to foster a more inclusive medical landscape.



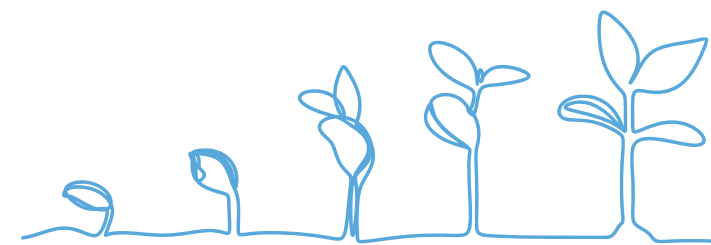


FUTURE IMPLICATIONS



While the optimal deployment strategy is still under consideration, the potential applications are promising:

1. **Targeted use** for patients struggling with traditional clinic-based tests.
2. **Intensive monitoring** for patients suspected to have progression.
3. **Increased frequency** of testing for poor test-takers.
4. **Increased access to clinical trials** in metropolitan and rural populations.



BROADER IMPACT



This research not only addresses the immediate challenge of glaucoma detection but also has far-reaching implications for public health:

- **Early detection of disease progression** could lead to more cost-effective treatment, as the cost of blindness, especially in working-age adults, is significantly higher.
- **The potential for a two-tier system** where healthy individuals can be monitored remotely, freeing up hospital resources for those requiring more intensive care.
- **Improved triage capabilities**, allowing for better resource allocation in treating fast progressors.

CONCLUSION



This innovative approach to glaucoma detection and monitoring represents a significant step forward in ophthalmic care.

By leveraging commercially available off-the-shelf technology to increase testing frequency and accessibility, especially in rural areas, this research has the potential to dramatically improve outcomes for glaucoma patients.

This collaboration with Sydney Local Health District is a fulfilling nod to Northbridge System's commitment to extending our genuine care beyond our client.

By harnessing technology to protect at-risk individuals from preventable blindness, we're mirroring our core business ethos in a broader context.

Together with Sydney Local Health District, this initiative underscores our joint dedication to leveraging innovative solutions that benefit the wider community, demonstrating how collaboration and expertise can create meaningful impact far beyond our traditional scope.

THANK YOU



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