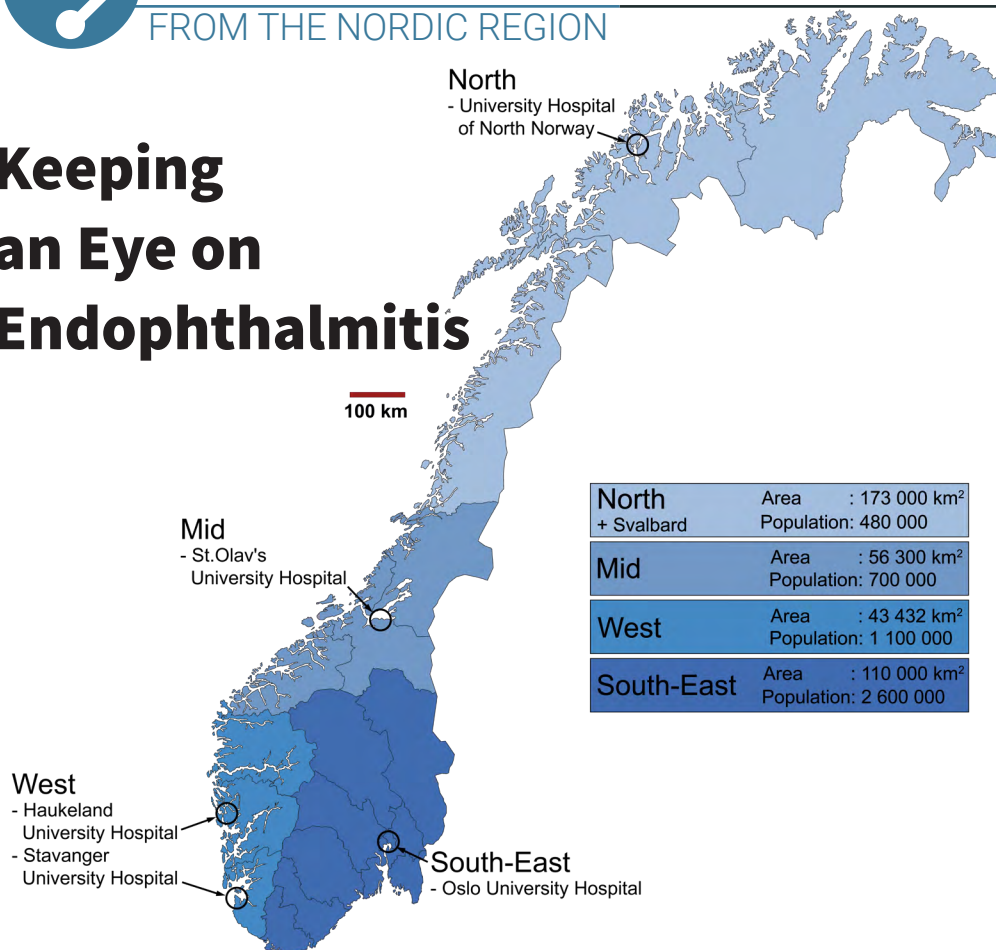


# Keeping an Eye on Endophthalmitis



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### Key points:

- Post-injection endophthalmitis is now the most common cause of endophthalmitis at OUH.
- The risk of post-injection endophthalmitis does not increase from splitting vials into prefilled syringes in the hospital pharmacy.
- By combining culture and PCR in connection with the vitrectomy procedure, intravitreal antibiotics can be injected before microbiological sampling, thereby improving the time to treatment without sacrificing microbial identification.

**Figure 1.** The map shows Norway's four health regions. Vitreoretinal surgery only takes place at the university hospitals in Oslo, Stavanger, Bergen, Trondheim, and Tromsø. (© Geir Aksel Qvale, Department of Ophthalmology,OUH)

On January 26, 2023, Kathrine Blom defended her thesis "Endophthalmitis Epidemiology and Management of Patients at Oslo University Hospital from 2015 to 2021" at the Faculty of Medicine, University of Oslo. The PhD project was conducted at the Department of Ophthalmology, Oslo University Hospital. The main supervisor was Øystein Kalsnes Jørstad, MD, PhD, with Professor Ragnheiður Bragadóttir as co-supervisor.

Endophthalmitis is inflammation of the inside of the eye, usually caused by a pathogen, which can cause blindness. It most often occurs after surgery, when pathogens can enter the eye; therefore, it serves as an important quality indicator for ophthalmic surgery. We aimed to ensure the quality of clinical practice at the Department of Ophthalmology, Oslo University Hospital (OUH) by assessing the risk and management of endophthalmitis.

Our first study presented the epidemiology of the endophthalmitis cases at OUH over time and indicated that our surgical procedures have high standards in terms of endophthalmitis risk. To maintain a focus on quality, the project

led to the formalization of a permanent endophthalmitis registry.

The steady increase in intravitreal injections challenges the capacity of ocular healthcare services. To reduce expenses, the costly medical vials are often split into several syringes. However, contamination from splitting vials can lead to devastating clusters of endophthalmitis. To improve the safety of this practice, OUH transferred the task to the hospital pharmacy, establishing pharmaceutical compounding of prefilled syringes under sterile conditions. In the second study, we found this to be safe in terms of endophthalmitis risk, contributing to the establishment of a national standard for safe and cost-effective handling of drugs

for intravitreal use.

Finally, we showed how treatment of endophthalmitis can be initiated earlier, which is crucial for the prognosis. OUH is the only center performing surgical treatment (vitrectomy) of endophthalmitis in South-Eastern Norway (**Figure 1**). We demonstrate in the final study that antibiotic treatment can be initiated locally when immediate surgical treatment is not achievable. The patients can then be referred for surgical treatment within the day, and vitreous samples for microbiology can be collected in relation to the surgery. Combining culture and PCR analysis improved the diagnostic yield regardless of whether the patient had already received intravitreal antibiotics.

### Future directions:

- Establishment of endophthalmitis registries for all ophthalmological centers performing surgery or intravitreal injections.
- In our modern era of PCR-based diagnostics and improved vitrectomy procedures, there is need for new randomized controlled studies on management of endophthalmitis.

### References

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