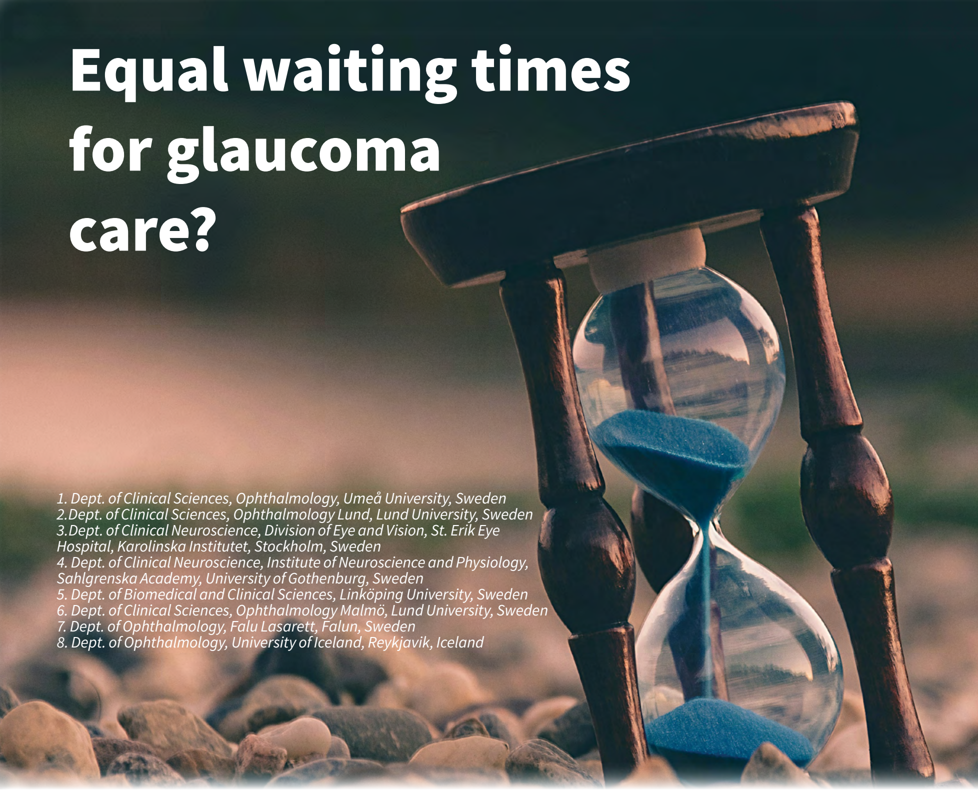

Equal waiting times for glaucoma care?


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Abstract

Glaucoma is a progressive, age-related eye disease. One in six patients progresses to bilateral blindness.[1] There is no curative treatment, but lowering the intraocular pressure can stabilize the disease. Regular monitoring for disease progression is recommended to enable timely evaluation and intervention. To investigate the adherence of eye clinics to the planned control intervals, a nationwide survey was conducted May 6-10, 2019. Of the 167 identified outpatient eye clinics, 120 answered the questionnaire with a total of 6,122 patient visits recorded. More patients were examined with measurements of visual field and imaging of the optic nerve head, compared with a previous survey in 2005.[2] Extension of the planned intervals between visits was often considerable and varied dramatically between clinics, counties, and regions. The waiting times were generally shorter at private clinics. In conclusion, the results show that glaucoma care is not equal in Sweden and can, therefore, create risks for irreversible visual damage to patients.

Introduction

Glaucoma is a chronic eye disease that, in most cases, develops slowly. Nevertheless, it remains a serious condition. According to a previous Swedish study, 42% of treated glaucoma patients become blind in one eye and 16% on both eyes during their lifetime.[1] The typically slow progression of the disease, combined with the fact that affected patients are usually older, poses a significant risk of care displacement effects.[2] Actual waiting times for glaucoma-related visits have been identified as an important health care quality parameter. Since there is no national glaucoma registry in Sweden and information on waiting times can be recorded differently in various regional health care systems, not reported separately, or not recorded at all. Therefore, the information must be obtained in other ways. The National Working Group (NAG) Glaucoma initiated a survey in 2019 directed at all public and private eye clinics in the country. This survey aimed to answer the question of whether access to glaucoma care differs across the country and to check if the goal in the Health and Medical Services Act is achieved: that the entire population receives good health care on equal terms.

Methods

All private and public healthcare facilities that provided eye care in the six healthcare regions of Sweden were identified through the health care advice system (1177). A letter, developed in consultation with the National Program Area for Eye Diseases (NPO), the Swedish Ophthalmological Society (SÖF), and NAG Glaucoma, together with a two-part questionnaire, was sent to all department heads in April 2019. The first part collected general information about the unit, and the second part gathered information about the patients who came for glaucoma-related visits to the clinic during an upcoming predefined week. Among the requested parameters were (1) diagnosis: manifest glaucoma or suspect glaucoma, including ocular hypertension; (2) date of previous visit; (3) date of planned next visit; (4) whether a visual field test was done; (5) whether optic nerve head imaging with OCT (optical coherence tomography) or optic nerve head photo was performed; and (6) whether the visit was a first visit for assessment of a previously unknown glaucoma-related diagnosis. Several reminders were sent to improve the response rate. Exclusion criteria for calculating waiting time included: (1) missing data or (2) negative difference, i.e. the previous visit was listed later than the planned visit or, (3) other data inconsistency.

To analyze differences in waiting times between different variables, the Kruskal–Wallis test was used. Pairwise differences were analyzed post hoc, where applicable, using the Mann-Whitney U test. Chi-squared tests were used to assess whether significant differences existed between variables comprising categorical data. $P<0.05$ was considered statistically significant. No ethical permission was needed according to the Swedish Ethical Review Authority (dnr. 2024-02532-01).

Results

Across Sweden, 167 healthcare units with glaucoma reception activities were identified, of which 72% responded to the survey. The healthcare units varied extensively in size, from single private practitioners to large university clinics. The response rate in public healthcare was 98% (81/83) and in private healthcare 46% (39/84).

A total of 6,122 outpatient visits were reported during the selected week, of which 1,677 (27%) were in private healthcare. Five percent were new visits. When looking at diagnosis, 63% were due to manifest glaucoma, while 36% were because of suspected glaucoma or ocular hypertension.

A summary of waiting times in the 6 different healthcare regions divided by planned follow-up visit interval is shown in **Figure 1**: 1 month (0–1.5), 3 months (>1.5–4.5), 6 months (>4.5–9), and 12 months (>9–15). The visit interval exceeded 15 months for only 92 visits, and these are not included in the figures. Due to non-interpretable data, a total of 571 visits were excluded. The data demonstrate that all regions adhered well to planned schedules for 1-month visits, whereas for longer follow-up intervals, both delays and variations between the different healthcare regions increased.

For 1-month follow-up visits (n=1,606), the median delay was 1–2 days. For 3-month visits (n=1,532), the median delay varied between 2 days in Stockholm and 19 in the Southeast and West regions. The 75th percentile for the same visit interval varied between 20 days in Stockholm and 91 days in the Southeast region. For 6-month visits (n=1,741), the delay was between 2 days in Stockholm and 69 days in the Southeast region, and the 75th percentiles for the same regions were 30 and 179 days, respectively. The number of 12-month visits (n=580) was significantly fewer compared to the number at shorter follow-up intervals.

Figure 2 shows a corresponding overview of delays for 1, 3, and 6-month visits at the seven university hospitals. Similar analyses have been made at county and clinic levels, but are not included in this paper.

Private vs. Public Healthcare

Figure 3 shows that private healthcare had lower waiting times for all visit intervals compared to public healthcare. The median delay time in private healthcare was 1–2 days regardless of interval, with increasing percentiles at increasing interval lengths. The median waiting time in public healthcare was 2, 15, 45, and 81 days for 1-, 3-, 6-, and 12-month visits, respectively. Here, too, the 25th and 75th percentiles increased with increasing visit intervals.

In private healthcare, the proportion of manifest glaucoma was 55% (895/1,631) of the total number of patients at the glaucoma outpatient clinics, while in public healthcare, it was 67% (2,949/4,431, p<0.001). For 60 visits, the diagnosis was missing due to inadequate reporting.

A total of 2,373 visual field examinations were performed (mean 0.39 per patient, n=6,122); slightly more were performed in private compared to public healthcare: 0.41 and 0.37, respectively (p=0.0039). The difference was somewhat greater in cases of manifest glaucoma, 0.40 and 0.34, respectively (p<0.001). For suspected glaucoma, approximately the same number was performed regardless of healthcare form: 0.43 and 0.44, respectively (not significant).

A total of 1,184 OCT or photo examinations were also performed: 0.19 per patient (n=6,122); again, this was slightly higher in private compared to public healthcare: 0.24 and 0.18, respectively (p<0.001). In cases of suspect glaucoma, 0.28 and 0.33 (p=0.012) OCT/photo per patient were performed, and for manifest glaucoma this was 0.21 and 0.10, respectively (p<0.001).

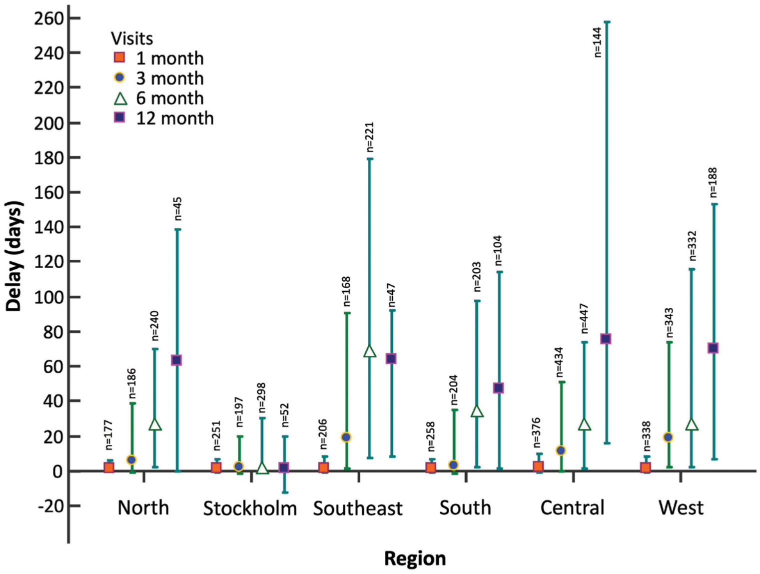

Figure 1. Overview of delay in different regions in Sweden at different follow-up intervals. The bars show the median and 25–75% percentiles. Number of visits (n) indicated under the bars. The y-axis shows the delay in days.

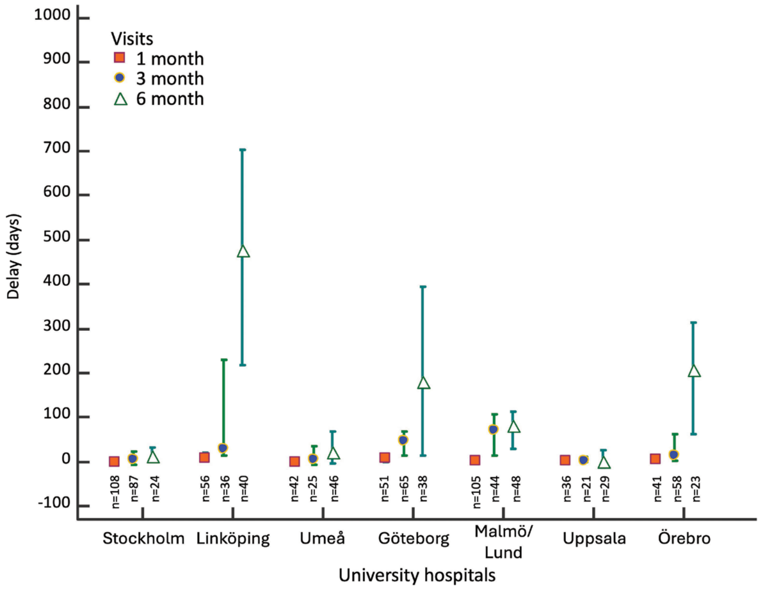

Figure 2. Overview of delay at the seven Swedish university hospitals at different visit intervals. The bars show the median and 25–75% percentiles. The y-axis shows the delay in days.

Discussion

To our knowledge, this is the first study that to uniformly examine actual waiting times in relation to planned control intervals for individuals with glaucoma-related disease. The study demonstrated that waiting times varied greatly throughout the country, both within and between different healthcare regions, counties, and clinics. It also varied between private and public healthcare. The study was conducted in 2019, before the COVID-19 pandemic, and thus, the survey results can be assumed to be valid even today.

For 1-month follow-ups, the planned visit was performed on time nationwide, while both the waiting time and the variation between the different regions increased at longer visit intervals. The median delay for 1-month visits was only 1–2 days in all regions, and in the region with the longest waiting time, 75% of patients received their visit with a maximum delay of 10 days.

At 3- and 6-month visits, the differences had increased significantly both in size and between regions. The Stockholm region had the shortest waiting time with a median delay of 2 days, both at 3- and 6-month visits, and 75% of patients were controlled with a maximum delay of 20 and 30 days, respectively. In the Southeast healthcare region, which had the longest waiting times in the country, the median delay was 19 and 69 days for 3- and 6-month checks, respectively. When patients had waited twice as long for their visit as originally intended, 25% of patients had still not been taken care of. Such delays may prevent achievement of treatment goals and pose significant risks to patients' visual function.

At the seven university hospitals, which should theoretically have similar conditions and thus be more comparable, even greater variation was observed. The median delay varied from -1 and 8 days for 1-month- and between 1 and 72 days for 3-month visits. For a 6-month check, the median delay varied between 2 days for the university hospital with the least delay to 478 days for the one with the longest. These differences are unacceptable and indicate that a patient's place of residence substantially compromises their right to equitable care. Just under a third, 27%, of all outpatient visits in this study were conducted with private healthcare providers. Private actors had significantly better waiting times compared to public ones.

The Health and Medical Services Act in Sweden states that, "the goal of health and medical care is good health and care on equal terms for the entire population."[3] The Patient Act also states that "health and medical care shall be easily accessible" and that patients shall be offered a care guarantee, meaning healthcare contact within a certain time. However, the care guarantee does not apply to follow-up visits. For patients with chronic diseases, such as glaucoma, follow-up, i.e., getting a follow-up visit at a reasonable time, is an at least as important quality parameter as the first contact to healthcare.

The response rate in public healthcare was 98%. Only two units in Sweden chose not to respond. In private healthcare, the response rate was significantly lower, 46%, which must be kept in mind when interpreting the results. Within the private sector, there are a number of units with probably very few glaucoma patients, but there are also a number of large actors who did not respond to the survey despite repeated reminders. The difference between public and private healthcare was notable in this regard. Increased time pressure in healthcare, as well as a low willingness to respond to surveys, could contribute to a lower response rate, but should be roughly the same regardless of provider. The lack of financial incentives to participate in this type of survey could be another possible explanation. In the conditions for the Health Care contract (Vårdval) in Stockholm, i.e. the region where the dropout was largest, it is stated that care providers should participate in quality work if the purchaser so requests.[4] We note that there are deficiencies regarding compliance with these rules among certain private healthcare providers.

The proportion of patients with manifest glaucoma was 67% in public healthcare, which was somewhat higher compared to 55% in private healthcare. A possible reason why private actors maintained better control intervals may be that patients with manifest glaucoma are usually older with more comorbidity, and may therefore likely require more resources compared to those who do not yet have a diagnosed disease.

Visual field examination is the most important examination performed in glaucoma care as it estimates the patient's visual function and thus associated quality of life.[2] A total of 2,373 visual field examinations (0.39 per visit) were performed during the studied week, compared to 0.23 visual field examinations per visit during the 2005 survey.[5] According to the new Swedish "Guidelines for the management of open-angle glaucoma,"[6] patients with newly diagnosed glaucoma should undergo even more visual field examinations, 5–6 times during the first two years. More visual field tests enable faster detection of disease progression.[7] On the other hand, those with ocular hypertension or stable glaucoma can be followed less frequently. It is unknown

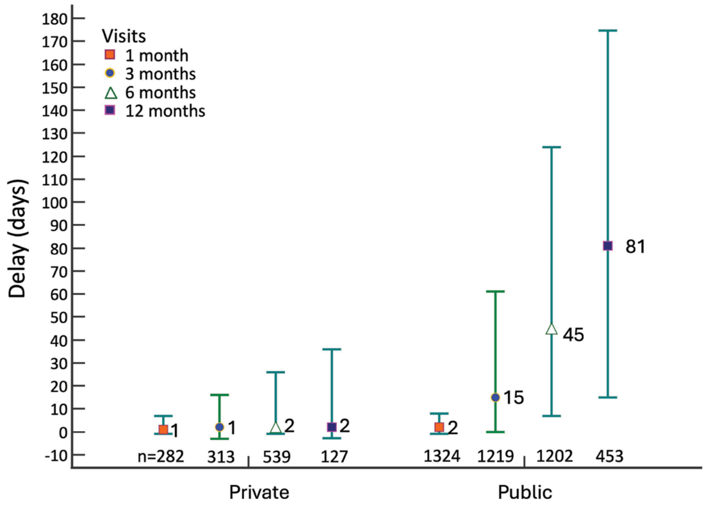

Figure 3. Overview of waiting time for 1, 3, 6, and 12-month visits in private versus public healthcare in Sweden. The bars show the median and 25–75% percentiles.

in which disease stages the studied patients were as the survey did not collect such data, but likely the number of visual field examinations performed is still insufficient. The frequency of visual field examinations in private healthcare was somewhat higher compared to public. We had expected the opposite, as a larger proportion of patients with manifest glaucoma were controlled in public healthcare.

The number of optic nerve head images with OCT or camera was 1,184 during the week, (0.19 per visit). In 2005,[5] the same examination was performed at every eighth visit. This means that the number of optic nerve head images has also increased. We assume that this increase can be attributed to the introduction of OCT in glaucoma care.

A weakness of the study was that we did not have the ability to assess whether control intervals and examinations were relevant based on the patient's disease and current guidelines,[6, 8-10] i.e., whether there has been "over-consumption" of care or whether certain patient groups have been excluded from examination. A national quality register for glaucoma does not exist today but could help answer such questions.

In summary, the current survey showed that waiting times within glaucoma care in Sweden varied significantly, both between different regions and between private and public healthcare. Private healthcare providers had shorter waiting times. However, the lower response rate among private clinics and differences in patient case mix limit the generalizability of this comparison. In addition to revealing unacceptable inequalities in access to care, the survey indicated that patient safety may have been compromised at several healthcare providers, while for patients who have access to care, the quality of care may have improved.

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