

BMJ Open Ophthalmologists' and patients' perspectives on treatments for diabetic retinopathy and maculopathy in Vietnam: a descriptive qualitative study

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ABSTRACT

Introduction Globally, diabetic retinopathy (DR) is the leading cause of blindness in working-aged adults. Early detection and treatment of DR is essential for preventing sight loss. Services must be available, accessible and acceptable to patients if we are to ensure they seek such care.

Objectives To understand patients' knowledge and attitudes towards laser versus anti-vascular endothelial growth factor (VEGF) injections to treat DR in Vietnam, and to identify factors Vietnamese ophthalmologists consider when making treatment decisions.

Methods This is a descriptive qualitative study based on semi-structured interviews with 18 patients (12 from Ho Chi Minh City and 6 from Hanoi) plus individual interviews with 24 ophthalmologists working in eye clinics in these cities. Thematic analysis was used to analyse the data.

Results In total, 10/24 (41.7%) ophthalmologists were female, and their median age was 41 years (range 29–69 years). The median age of patients was 56.5 years (range 28–72 years), and 7/18 (38.9%) were female. Briefly, factors that influence DR treatment decisions for ophthalmologists are medical considerations (ie, severity of disease, benefits and risks), availability (ie, treatment and resources) and patient-related factors (ie, costs and adherence). Patient's perceived barriers and facilitators to treatments were based on patient and family related factors (ie, treatment and transportation costs) and previous treatment experiences (ie, positive and negative). Recommendations by all participants included ensuring that both laser and anti-VEGF injections are widely available across the country and controlling costs for patients and the healthcare system.

Conclusions Reducing DR treatment costs, optimising treatments options, and expanding the network of clinics offering treatment outside metropolitan areas were the main issues raised by participants. These findings can help inform policy changes in Vietnam and may be generalisable to other low-resource settings.

INTRODUCTION

Globally, the number of adults with diabetes mellitus (DM) increased nearly threefold

STRENGTHS AND LIMITATIONS OF THIS STUDY

- ⇒ This descriptive qualitative study considered and integrated both user and provider perspectives.
- ⇒ An experienced qualitative researcher was involved in data collection and analysis.
- ⇒ Data were collected by two different interview teams, increasing the risk of interviewer and response bias.

from 151 million in 2000 to 537 million today, and this figure is predicted to increase to 783 million by 2045.¹ Seventy-five per cent of adults with DM live in low-income and middle-income countries (LMICs).¹ Diabetic retinopathy (DR), including diabetic macular oedema (DMO), is one of the leading causes of blindness among working-age people with DM.² Early detection and timely treatment of DR can reduce vision loss by approximately 95%.^{3,4}

Laser photocoagulation has been considered the mainstream treatment for sight-threatening DR (STDR) over the past few decades because it can reduce the risk of visual loss.^{5,6} However, intravitreal anti-vascular endothelial growth factor (VEGF) treatments plus laser can effectively preserve and restore vision.⁷ Furthermore, anti-VEGF injections can substantially improve visual outcomes for patients with clinically significant macular oedema^{8–10} with repeated injection treatment provided until the macula is dry or until vision can no longer be improved.¹¹ Anti-VEGF injections offer better outcomes for patients with DMO but can be expensive, and their frequent administration can be burdensome for patients who often travel long distances to reach treatment clinics.^{12–14}

Patients in LMICs face difficulties accessing injections largely because of limited access to and higher cost of anti-VEGF medications compared with their availability in industrialised nations.¹⁵ Further obstacles include potential harm to patients and the lack of skilled personnel to deliver the treatment, plus inconsistent follow-up and management of STDR.¹⁵

Advantages of laser treatment in LMICs include the lower cost for patients and greater treatment adherence because of the less demanding follow-up schedules compared with anti-VEGF injections.¹⁶ Lasers have lower running costs so are a more economical option for hospitals and eye clinics; however, the initial high cost of purchasing laser equipment can be prohibitive.¹⁶

Lack of access to eye care services in LMICs is a widespread problem. Factors that commonly affect patients' attendance include socioeconomic status, gender, cultural factors and perceived costs of treatments.⁴ People with pre-existing conditions or disabilities face greater challenges in accessing eye care compared with those without, and patients with lower socioeconomic status or poor eye health literacy are less likely to adhere to eye care services.^{17,18} How countries organise funds and pay for health services affect the availability, accessibility and affordability of different treatments for DR. In particular, ophthalmologists are in short supply in low-resource settings and training facilities are often lacking or suboptimal.^{19,20}

Vietnam is one of the largest countries in Asia that is affected by the significant rises in DM. The prevalence of DM among adults aged 20–79 years is 5.76% and this has almost doubled over the past 10 years.^{21,22} To prevent DM-related complications such as DR, diabetic eye screening programmes are being pilot tested in Vietnam, therefore, access to affordable and safe DR treatments is essential. To date, there is a lack of research on patient and ophthalmologists' attitudes towards laser and anti-VEGF injections for STDR in Vietnam. This study seeks to better understand patients' and ophthalmologists' perspectives in order to improve patient care and service provision in Vietnam.

METHODS

Study design and setting

This is a descriptive qualitative study. Participants were chosen from two major cities in Vietnam to capture variation between the two contexts. All invited ophthalmologists (n=24) working in an eye hospital in Hanoi or Ho Chi Minh City (HCMC) agreed to join the study and were recruited by an invitation letter from their department head. Semi-structured interviews were also conducted with 18 patients requiring treatment for STDR, 12 from HCMC and 6 from Hanoi. Purposeful sampling was used to select patients from relevant lists at two secondary eye care hospitals offering DR treatment services. Sampling stopped once data saturation was reached, and no new themes were identified (see online

supplemental additional file 1 for inclusion criteria of study participants).

Data collection

English language, semi-structured interview guides were developed based on the literature plus clinical experience of the research team members (online supplemental additional files 2 and 3). The guides were back translated by two bilingual team members and pilot tested, resulting in minor changes. Interviews were conducted in Vietnamese from March to July 2018 by a team of public health researchers trained by an experienced qualitative researcher from Queen's University Belfast (QUB) (LL).

Data analysis

Interviews were audio recorded using an MP3 recorder, with participants' permission and transcribed in the original language (Vietnamese). The transcripts were then translated to English by bilingual team members of the Vietnamese office of Orbis International, a non-government organisation dedicated to preserve the sight of people in low-resource settings. All identifying information was removed prior to submitting the transcripts for analysis.

This study followed the steps proposed by Braun and Clarke for thematic analysis.²³ Initially, three researchers (medical anthropologist (LL), monitoring, evaluation and learning manager (VTN) and research fellow (KC)) read and re-read transcripts in order to familiarise themselves with the data. The second level of analysis involved two authors (KC, LL) generating initial codes. The authors developed and modified the codes as they worked through the coding process. The third stage involved the authors searching for new themes (ie, patterns in the data that are significant and interesting), identifying quotes that were congruent with the overarching themes (inductive analysis). Themes were also created based on the literature and interview guides (deductive analysis). The authors reviewed all themes prior to defining and naming them, and once consensus was reached between authors, the authors (KC, LL) proceeded to write the results. This was all carried out manually using Microsoft Word (Microsoft, Redmond, Washington, USA).

Rigour

Rigour in qualitative terms is a way to establish trust or confidence in data collection, analysis and interpretation of a research study. Steps to increase rigour included developing and following a peer-reviewed research protocol and interview guide, asking participants to verify their answers during interviews, peer examination by qualitative researchers, maintaining an audit trail and researcher triangulation across research team members. The Standards for Reporting Qualitative Research criteria were used to assess rigour and completeness of the study.²⁴

Patient and public involvement

Patients were involved.

Findings

To clearly distinguish between researcher's and participant's views, quotes are in italics and tagged with a unique ID number: MD1-12 are Hanoi-based ophthalmologists; MD13-24 are those based in HCMC; S_PT01-S_PT12 are from HCMC (in the south) and N_PT01-N_PT06 are the patients from Hanoi (in the north). Quotes were lightly edited to increase readability while retaining their original meaning; ellipses (...) show where words were removed and [text] indicates where they were added.

Demographics

In total, 10/24 (41.7%) ophthalmologists were female, half of the sample worked in Hanoi and the other half in HCMC, and their median age was 41 years (range 29–69 years). On average, the ophthalmologists had worked for 17.4 years in ophthalmology (range 5–44 years) and 12.8 years as DR specialists (range 4–32 years). Twelve of the 18 patients were from HCMC and 6 were from Hanoi. Overall, an equal proportion (50%) of patients were compliant to their DR treatment (ie, compliance was defined as failure to miss more than one appointment in the last 12 months and this was obtained from the patient's health records); however, more patients in Hanoi were compliant to treatment (4/6 or 66.7%) compared with those in HCMC (5/12 or 41.7%). The median age of patients was 56.5 years (range 28–72 years), and 7/18 (38.9%) were female.

Two major themes were identified from the ophthalmologists' data including factors that influence ophthalmologists DR treatment decisions and their recommendations for improving DR care in people at risk or with DR. Three major themes related to patient perspectives were developed, including patient knowledge of DR and their preferences in making treatment decisions, perceived barriers and facilities to DR treatments, and recommendations for improving care in people at risk or with DR.

Ophthalmologists' perspectives

Theme 1: factors that influence ophthalmologists' DR treatment decisions

Three common factors that influenced ophthalmologists' choices were: medical considerations (ie, severity of disease, benefits and risks), availability (ie, treatment and resources) and patient-related factors (ie, costs and adherence). Ophthalmologists explained that they try to match each patient's condition to what they consider to be the best treatment option, '*Depending on the disease, we will choose the most appropriate method*' (MD5). For many of them, this meant treating DMO with injections and severe non-proliferative and proliferative DR (PDR) with laser, '*For severe non-proliferative diabetic retinopathy patients, I choose the laser method*' (MD21). Other ophthalmologists reported, '*If the patient presented with macular edema, I would 100% counsel towards injection treatment*' (MD19). In some cases, treatment starts with injections and progresses to using laser, '*In severe cases when the injection does not work, the patient needs to be treated further by laser*' (MD22). According

to ophthalmologists, injections can improve vision for patients with DMO and are generally safe, '*For injections, there are normally no complaints* [from patients]' (MD18). Reported risks and side effects of injection treatment include pain, intraocular inflammation and systemic conditions. The main benefits of laser for PDR as cited by ophthalmologists were the long-term reduction in risk of vision loss ('*Laser has good results; it stops loss of vision*' (MD17)), whereas risks include reduced visual field and pain, '*Laser patients often complain about pain after treatment*' [MD15], '*Laser can damage the visual field*' (MD9) (online supplemental additional file 4).

Patient-related factors such as ability to pay, distance to clinics and lost earnings influence ophthalmologists' decisions because they affect patients' ability to adhere to a complete course of treatments. More visits are required for injections than laser treatment therefore, ophthalmologists often selected laser as the treatment of choice, '*I will choose laser for the patients who live far away* [from the hospital], *or* [those who do] *not have good economic conditions and who cannot come for a* [follow-up appointment]' (MD5). Cost of treatment is also a major consideration for deciding on laser or injection treatment in Vietnam. One ophthalmologist from Hanoi mentioned that there was no huge financial cost of laser treatment to the patient, '*Avastin* [bevacizumab] *injection treatment costs about 1–1.5 million* [Vietnamese dong (£33–47)]; *Lucentis* [ranibizumab] *injection treatment costs about 13 million* [£405] *and laser costs 1–2 million* [£33–66], *depending on the insurance* [coverage]' (MD17) (online supplemental additional file 4).

Availability of drugs or equipment also influences ophthalmologists' decisions. Laser equipment is available in most hospital settings but occasionally this equipment is suboptimal or needs updating. In cases where laser is not available, particularly in rural clinics, patients must be transferred to other departments. More recently, anti-VEGF injections have become available, however, laser is more widely available, '*In my hospital, we do not offer injections because there is no operating room. But we have laser machines, so we can do laser for patients*' (MD11). Avastin is a cheaper alternative to Lucentis injections but remains an off-label drug, '*I want to use Avastin, but it is an off-label drug*' (MD09). This restricts injection use in Vietnam, especially for patients who cannot afford them (online supplemental additional file 4).

Theme 2: recommendations for improving care for people at risk or with DR

The main recommendations included expanding treatment options and controlling treatment costs. Investing in new generation lasers and providing multiple Food and Drug Administration-approved anti-VEGF therapies, ensuring they were cost-effective for patients was highlighted as a key recommendation. Officially endorsing Avastin for ophthalmic use in Vietnam so costs could be partially covered under the national insurance scheme as is done in other LMICs was recommended, '*In Thailand, a*



country with a similar economic status to Vietnam, the Ministry of Public Health has accepted Avastin as an official drug for DMO treatment, [paving the way for insurance coverage]. This is also a step to reduce the economic burden for blindness prevention' (MD01). Several ophthalmologists also suggested supporting education and training, particularly for doctors in provincial-level facilities. Some also recommended training nurses to give ocular injections to patients who have STDR, 'The burden of treatment should be shared with nurses... [which means we must provide] better education for them' (MD13). Furthermore, improving screening could help to detect the disease early and provide patients with better visual prognosis; 'If we detect early, we can control it easily with low-cost, highly efficient treatment and maintain long-term vision' (MD3) (online supplemental additional file 4).

Patients' perspectives

Theme 1: patient knowledge of DR and factors that influence their treatment decisions

Most patients were aware of their diabetes diagnosis, however, had limited knowledge of diabetes complications such as DR and the associated treatments. Patients sometimes became aware of DR and treatments during consultations with their doctors, while a few learnt from information resources such as newspapers and the internet. It was clear from interviews that patients rely heavily on ophthalmologists' treatment decisions to optimise their care, rather than selecting the best treatment option for themselves, 'I must follow the doctor's advice' (S_PT10), '[The doctor] said go for laser treatment so I went for laser' (S_PT04) (online supplemental additional file 5).

Theme 2: perceived barriers and facilitators to DR treatments

Patient-related factors such as treatment and transportation costs can influence adherence to treatments. One patient reported, 'the doctor said to take the injection, but I can't because the price is too high, so after the check-up that day I did not come back to see the doctor' (S_PT03). Another reported, 'the cost of transportation is expensive, so I did not go [back for treatment]' (S_PT06). Family related factors such as ability to bring patients to healthcare appointments can also influence treatment adherence, 'the travelling distance is far, and no one is going to take me there' (S_PT08) (online supplemental additional file 5).

Another aspect of theme 2 was patients' positive and negative experiences with previous treatment. Several patients reported positive interactions with doctors during previous appointments for treatment, which encouraged them to attend follow-up appointments, 'The doctor is very dedicated' (N_PT04). 'The doctor is also very enthusiastic' (N_PT02). Alternatively, negative experiences with doctors ('During the injection process, the doctor is quite hot-tempered' (S_PT04)) and side effects of treatment ('At the beginning of the injection, it is not painful, but after that, the pain is not imaginable' (N_PT04)) discouraged patients from completing recommended series of treatments.

Theme 3: recommendations for improving care for people at risk or with DR

The main recommendations were control treatment costs, diagnose and treat early and expand treatment options. We recognise there is considerable overlap between the patients' and ophthalmologists' perspectives with regard to future recommendations. Reducing treatment costs was the main recommendation made by patients, ('I hope that the cost of treatment will become cheaper so that more people can afford to have their disease cured' (S_PT02)). Other suggestions were to reduce travel costs by offering treatment in smaller clinics located outside central areas, 'I told the doctor that if he can cure me, I would not have to [travel] to Hanoi' (N_PT05)). Some patients hope for more modern technologies ('I just want the hospital to have more modern technologies so that we would get the best treatment for our eyes' (N_PT06)), while others advised seeking doctors' advice early, taking all the prescribed medications and accepting DR treatments to prevent visual impairment and blindness, 'People who have diabetes should go to the doctor early and get timely treatment' (S_PT09) (online supplemental additional file 5).

DISCUSSION

The current study identified patients' and ophthalmologists' views on laser and anti-VEGF injections for STDR in Vietnam, including major barriers to completing DR treatments in both Hanoi and HCMC. Documenting how ophthalmologists in LMICs make treatment decisions about DR is also vital to improving patient outcomes. The ophthalmologist's primary concern is to improve visual outcomes and prevent sight loss for people with STDR in Vietnam; however, treatment adherence is often based on a patient's ability to pay for a full course of treatment.

Comparably, patients in Vietnam frequently reported that high costs of treatment, transportation costs and distance to clinics were their main barriers to accepting treatment. This is consistent with findings from the 'World Report on Vision', where direct and indirect costs, income levels and health insurance status influence affordability to eye care services.⁴ Transport costs (indirect out-of-pocket costs) have been reported as a key barrier to accessing eye care services, particularly in LMICs. Approximately half of all people in LMICs live >1 hour away from the closest eye clinic offering treatment, making it more challenging for them to attend their appointments.¹⁴ Other indirect costs include the loss of productivity and earnings are also problematic for patients with eye conditions, particularly working-aged adults affected by DR.^{25 26}

Strengths

This study successfully identified patients' and ophthalmologists' perspectives towards DR treatment decisions and provided recommendations on how to improve patient outcomes and strengthen DR

treatment services for the future. The study followed a peer-reviewed protocol and interviewers were trained to ensure high-quality data were collected. To date, there is limited research available on patient and provider views regarding laser and anti-VEGF injections for STDR, particularly in low-resource settings. To our knowledge, this is the first such study to be conducted in Vietnam and the findings will be informative for the Vietnamese government and other LMICs, helping to inform policy changes for the future.

Limitations

Although the QUB research team was involved in the study design and data analysis, specially trained Vietnamese researchers conducted interviews to avoid language barriers and develop a clear understanding of patients' and ophthalmologists' views on DR treatments in Vietnam. Data were collected by two different interview teams, increasing the risk of interviewer and response bias. However, no marked differences were identified in terms of response patterns from participants in the north and the south. Transcripts were translated and cleaned (checked against audio files) by the Vietnamese team members, with no additional checks made on the accuracy of transcripts prior to their being analysed.

Recommendations for Vietnam

The main recommendation made by study participants (both ophthalmologists and patients) was to reduce treatment costs to ensure high-quality care can be delivered to more patients with STDR. In Vietnam, DR treatment is provided in major central hospitals in Hanoi and HCMC rather than in provincial and district hospitals. Offering services in these regions would increase treatment coverage and lower out-of-pocket cost for patients with STDR. However, additional skilled human resources are needed to treat these patients. Building capacity for human resources and facilities is recommended to expand DR treatment services. In the UK and other industrialised nations, specially trained ophthalmic nurses provide intravitreal injections for patients.^{27 28} Such task-shifting/sharing responsibilities are increasingly common across the globe for many aspects of healthcare, and could work well in Vietnam for treating STDR.²⁹

Conclusions

Anti-VEGF injections and laser are the DR treatments of choice in Vietnam. Ophthalmologists in Vietnam often choose laser as an alternative to injections due to availability, lower costs and better patient adherence stemming from needing fewer follow-up treatment appointments. Anti-VEGF treatments are preferred because of their ability to improve vision, particularly with DMO; however, are not as widely available as laser in Vietnam. Monitoring the impact of anti-VEGF injections can be difficult without the use of highly specialised equipment such as optical coherence tomography. Such technology is expensive; therefore, balancing sustainability and scalability is

crucial to the delivery of eye care at an international level. It is also important to understand the rate of infection of anti-VEGF injections after multiple treatments in low-resource areas. Furthermore, understanding the relative cost-effectiveness of such treatments in LMICs is essential, where assumptions on the cost of physician time and levels of patient compliance, crucial for modelling, may differ from what has been observed in high-income countries.

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Patient consent for publication Not applicable.

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Supplementary Material

Additional file 1: Inclusion criteria for study participants

| Inclusion criteria for patients | Inclusion criteria for ophthalmologists |
|---|--|
| 1) Male or female, aged 18 years or older | 1) Male or female, aged 18 years or older |
| 2) Formal diagnosis of diabetic retinopathy | 2) Those providing treatment for patients with sight-threatening DR in Vietnam |
| 3) Received two or more rounds of treatment with either laser or injection therapy within the last 12 months, or refused either therapy at least once within the same time period | 3) Able to communicate effectively in Vietnamese |
| 4) Able to communicate effectively in Vietnamese | 4) Able to give informed consent to participate in a one-time individual interview |
| 5) Able to give informed consent to participate in a one-time individual interview. | |

Additional file 2: Interview guide ophthalmologists**INTERVIEW GUIDE FOR PRACTITIONERS ON VIEWS ABOUT
LASER THERAPY vs INJECTION TREATMENT FOR DIABETIC RETINOPATHY****NOTE TO INTERVIEWER:**

- **DO NOT READ OUT LOUD ANYTHING IN BOLD PRINT.**
- **USE THIS GUIDE TO CREATE A CONVERSATION THAT WILL ALLOW THE PERSON TO TELL HIS/HER STORY, NOT AS A QUESTION-AND-ANSWER ORAL SURVEY.**
- **IF THE PARTICIPANT SPONTANEOUSLY ANSWERS A LATER QUESTION, ALLOW THAT BUT BE SURE TO GO BACK AND ASK ABOUT QUESTIONS THAT APPEAR EARLIER ON THE INTERVIEW GUIDE.**

1. INTRODUCTION AND OBTAINING CONSENT

- Hello. My name is [xxx] and my colleague is [xxx]. We are helping a research team at [Named Affiliations] gather information from eye care specialists about laser versus intravitreal injection to treat diabetic retinopathy.
 - In today's discussion we'll ask you questions about your views on the relative clinical efficacy, safety, cost, convenience and availability of laser versus intravitreal injection to treat diabetic retinopathy.
- Before we begin, I'd like to review the information that everyone who joins our study must know before they decide to be interviewed. **[REVIEW INFORMATION SHEET]** Do you have any questions about this? **[ANSWER ANY QUESTIONS THE ELIGIBLE CANDIDATE HAS]**
- Would you like to join the study? **[IF YES, REVIEW CONSENT FORM AND GET SIGNATURE OR 'X' FOR EACH QUESTION; HAVE PERSON SIGN/PUT AN 'X' AT THE BOTTOM AND PUT YOUR OWN SIGNATURE ON BOTH COPIES OF THE CONSENT FORM; GIVE ONE SIGNED COPY TO THE PARTICIPANT AND RETAIN THE OTHER COPY]**

2. QUESTIONS ON EVALUATION OF LASER vs INTRA-VITREAL INJECTION

- 2a Thinking about patients with diabetic retinopathy who come to you for treatment, generally speaking which patients would you recommend receive laser treatment versus intra-vitreous injections? Why?
- **PROBE:** Ask for details about answer(s) given, such as examples or exceptions to these guidelines/principles.
 - **PROBE:** Which option do you wish patients would choose? Why? (**probe about convenience for clinician, scheduling for eye hospital, number of trips patients have to make, reducing loss-to-follow-up of patients, clinical outcomes, cost, etc.**)
- 2b Do you more often tell patients which treatments they should have, or do you offer them a choice between laser therapy and intra-vitreous injections? Why?

- 2c How do you explain laser treatment to patients? And how do you explain intra-vitreous injections to them?
- **SUMMARISE INFORMATION FROM Q2a TO Q2c FOR THE PARTICIPANT. THEN ASK, “DID I UNDERSTAND YOU CORRECTLY?” WAIT FOR ANY CHANGES OR CORRECTIONS. THEN ASK, “WOULD YOU LIKE TO ADD ANYTHING TO THIS?” WAIT FOR ANY ADDITIONS. THEN CONTINUE WITH NEXT SET OF QUESTIONS.**

Now I'd like you to think about laser treatment compared to intra-vitreous injections not in terms of any specific patient but in general as treatment options.

- 2d. If given the choice, under what conditions would you prefer to offer laser treatment rather than intra-vitreous injections to patients with diabetic retinopathy?
- 2e. And now, the reverse: under what conditions would you prefer to offer intra-vitreous injections rather than laser treatment?
- 2f. Which of these two treatment modalities – laser or intra-vitreous injections – do you use more frequently overall?
- **SUMMARISE INFORMATION FROM Q2e TO Q2f (AS ABOVE).**
- 2g. How effective do you think laser is compared to intra-vitreous injections for treating diabetic retinopathy?
- 2h. And how safe is laser compared to intra-vitreous injections? (When might each of them be unsafe? For which patients might safety be an issue?)
- 2i. How available do you think laser treatment is for patients in your catchment area? And what about intra-vitreous injections; how available is this option for patients in your catchment area?
- **PROBE:** If possible, ask for thoughts on how available each of the two treatments is at the different levels of health care facilities.
 - **SUMMARISE INFORMATION FROM Q2g TO Q2i (AS ABOVE).**
- 2j. What can you tell me about the cost of laser versus intra-vitreous injections? (Which is more cost-effective?)
- **PROBE:** What are the costs for each treatment option for an eye hospital?
 - **PROBE:** What about costs to Vietnam's health care system?
 - **PROBE:** And finally, what about associated costs for patients and their families? (Can probe, if needed, about travel, time, out-of-pocket costs).
- 2k. Now I'd like to ask about how convenient you think laser is compared to intra-vitreous injections? I'm talking about a full course of treatments.
- **SUMMARISE INFORMATION FROM Q2g AND Q2k (AS ABOVE).**

3. WRAP UP

- 3a We're nearing the end of our conversation. I'd like you to think back to everything we talked about today. Is there anything you'd like to add to what you told [me/us] today? **WAIT FOR ANY ADDITIONAL INFORMATION.**

- 3b Is there anything you think we didn't discuss that you'd like to talk about related to your eye problem and the treatment you received? **WAIT FOR ANY ADDITIONAL INFORMATION.**
- 3c Is there anything else you'd like [me/us] to know about you and your eye health? **WAIT FOR ANY ADDITIONAL INFORMATION.**
- 3d Thinking back to everything you told me/us, what is the one key message or piece of information you'd like me to bring from you to the rest of the research team?

Thank you. One important part of today's conversation is to ask you for some details about yourself. What you tell us will be anonymous; we won't use your name. We need this information, such as your age and education, so that we can describe who we speak to in this study for the people reading reports and papers we write, or hearing presentations we make about what we learned. For instance, we may say, "We spoke to 30 people who received treatment for their eye problems; 20 of them were women; half of the participants were between age 50 and 60 years old, and a quarter of them were between 61 and 70 years old."

TEAM: SELECT THE DEMOGRAPHIC INFORMATION YOU WANT TO COLLECT, eg.

- Sex
- Age
- Birthplace
- Highest level of completed education
- Occupation
- Various roles filled within Vietnam's eye care system
- Length of time worked in each role

Additional file 3: Interview guide ophthalmologists

INTERVIEW GUIDE FOR PATIENTS & FAMILY MEMBERS ON VIEWS ABOUT LASER THERAPY vs INJECTION TREATMENT FOR DIABETIC RETINOPATHY

NOTE TO INTERVIEWER:

- **DO NOT READ OUT LOUD ANYTHING IN BOLD PRINT.**
- **USE THIS GUIDE TO CREATE A CONVERSATION THAT WILL ALLOW THE PERSON TO TELL HIS/HER STORY, NOT AS A QUESTION-AND-ANSWER ORAL SURVEY.**
- **IF THE PARTICIPANT SPONTANEOUSLY ANSWERS A LATER QUESTION, ALLOW THAT BUT BE SURE TO GO BACK AND ASK ABOUT QUESTIONS THAT APPEAR EARLIER ON THE INTERVIEW GUIDE.**

4. INTRODUCTION AND OBTAINING CONSENT

- Hello. My name is [xxx] and my colleague is [xxx]. We are helping a research team at [Named Affiliations] gather information about eye care from people like you who have chosen to have [laser therapy] [injections] to treat your sight loss.
- In today's discussion we'll ask you questions about what you learned or were told about treatment options for you before you decided on [laser therapy] [injections], and where you got that information; what you knew about the pro's and con's of various treatment options before making the decision to have [laser therapy] [injections]; the main reasons for choosing [laser therapy] [injections]; who helped you make that decision, including both your health care professionals and family members, kin or friends and workmates; and any information you wish you had known earlier that would have helped you make a good decision about your eye treatment.
- Before we begin, I'd like to review the information that everyone who joins our study must know before they decide to be interviewed. **[REVIEW INFORMATION SHEET]** Do you have any questions about this? **[ANSWER ANY QUESTIONS THE ELIGIBLE CANDIDATE HAS]**
- Would you like to join the study? **[IF YES, REVIEW CONSENT FORM AND GET SIGNATURE OR 'X' FOR EACH QUESTION; HAVE PERSON SIGN/PUT AN 'X' AT THE BOTTOM AND PUT YOUR OWN SIGNATURE ON BOTH COPIES OF THE CONSENT FORM; GIVE ONE SIGNED COPY TO THE PARTICIPANT AND RETAIN THE OTHER COPY]**

5. QUESTIONS ABOUT KNOWLEDGE OF DIABETIC MACULAR OEDEMA, ITS DETECTION, PREVENTION AND TREATMENT

- 2a What is the eye problem you have that was treated by [laser therapy] [injections]?
 - **PROBE:** Ask where person heard the name for his/her eye disease.
- 2b What causes this problem?
 - **PROBE:** Ask "Anything else?" until you have a full list of perceived causes.
- 2c Who is at risk for this problem?
 - **PROBE:** Obtain full list of people at risk.

- 2d What can happen to the vision of people with this eye problem?
- **PROBE:** Ask for details about permanent vision loss/blindness, and where person got this information
 - **SUMMARISE INFORMATION FROM Q2a TO Q2d FOR THE PARTICIPANT. THEN ASK, “DID I UNDERSTAND YOU CORRECTLY?” WAIT FOR ANY CHANGES OR CORRECTIONS. THEN ASK, “WOULD YOU LIKE TO ADD ANYTHING TO THIS?” WAIT FOR ANY ADDITIONS. THEN CONTINUE WITH NEXT SET OF QUESTIONS.**
- 2e How was this eye problem detected in you?
- **PROBE:** Ask when it was diagnosed, reason for first visit (**self-referral, family member suggested person be seen, etc.**), number of visits made, including number made before receiving diagnosis and treatment plan.
 - **PROBE:** How else could this problem have been detected?
- 2f Is there any way that you know of to prevent this kind of eye problem?
- **PROBE:** Ask for full list of ideas on how to prevent the eye problem.
- 2g What treatment options were you told about by your doctor?
- **PROBE:** Have you heard about other treatment options? [**If yes, get description of what it is, how it works, who offers it.**]
 - **SUMMARISE INFORMATION FROM Q2e TO Q2g (AS IN EARLIER SUMMARY).**
- 6. QUESTIONS ABOUT TREATMENT CHOICE BY PARTICIPANTS WHO RECEIVED LASER OR INTRA-VITREAL INJECTIONS. NOTE: USE QUESTIONS IN SECTION 4 FOR THOSE PATIENTS WHO REFUSED ANY TREATMENT (HAD NEITHER LASER NOR INJECTIONS)**
- 3a Tell me about what you heard or learned about [laser therapy] [injections] before you had this treatment to help your eye(s).
- **PROBE:** ask for detailed information, source of information, any conflicting information; if multiple sources of information, ask which seemed to be the most useful and the most reliable, and then the most accurate.
 - **PROBE:** What are the reasons why [laser therapy] [injections] is a good treatment for your kind of eye problem? Where did you learn or hear about that?
 - **PROBE:** All treatments have some problems or the risk of problems that can occur. What did you hear or learn about that are problems with [laser therapy] [injections]? Where did you learn or hear about that?
- 3b What is the main reason you agreed to have [laser therapy] [injections] to treat your eye problem?
- **PROBE:** Ask for all reasons (“Any other reasons?”). For each one ask, “Where did you learn or hear about that?”
 - **SUMMARISE INFORMATION FROM Q3a AND Q3b.**

3c Thank you. Can you now tell me about what you heard or learned about [non-selected treatment option, either laser therapy or injections] before you made your decision about your eye treatment.

- **PROBE:** ask for detailed information, source of information, any conflicting information; if multiple sources of information, ask which seemed to be the most useful and the most reliable, and then the most accurate.
- **NOTE: If participant is not knowledgeable about laser therapy, read this statement out loud:** Just to let you know; laser treatment for your eye problem involves carefully placing small laser burns in areas where the inside of the eye. This will help to stop the growth of new blood vessels, slow the leaks and reduce fluid in the eye, which can reduce further vision loss.
- **NOTE: If participant is not knowledgeable about injections, read this statement out loud:** Some patients have a series of injections in the back of the eye that is losing sight in order to stop blood vessels growing, bleeding or fluid leaking into the eye and loss of vision.

3d FOR PARTICIPANTS WHO KNEW ABOUT BOTH OPTIONS: What made you decide to have [laser therapy] [injections] rather than [laser therapy] [injections]? **PROBE FOR DETAILS.**

- **SUMMARISE INFORMATION FROM Q3c AND Q3d.**

3e Who or what was the most influential in helping you decide on the treatment you wanted for your eye problem?

- **PROBE FOR OTHER INFLUENTIAL PEOPLE OR SOURCES OF INFORMATION UNTIL ALL SOURCES ARE MENTIONED.**

3f Thinking back to the time you decided to have [laser therapy] [injections] for your eye problem, what information would have been helpful in making your decision?

- **PROBE:** Ask probes to ensure all information that would have been helpful is mentioned, along with the source of information.
- **SUMMARISE INFORMATION FROM Q3e AND Q3f.**

7. QUESTIONS FOR PATIENTS WHO REFUSED BOTH LASER AND INJECTION TREATMENT

4a We understand that you have chosen to receive no treatment for your eyes. Can you tell us why?

- **NOTE:** Do not say anything or show any facial expression that indicates this was a bad decision. Be neutral when asking for details. Do not correct any misinformation. (You can provide a pamphlet with information about both treatment modalities at the end of the interview, letting the participant know that s/he and/or a family member or friend might want to have information about diabetic retinopathy, laser therapy and injections for themselves or others in the future.)
- **PROBE:** So what was the main reason for deciding to not have either laser or injection treatments for your vision problem?
- **PROBE:** Who was involved in your making this decision? (ask about family members and other influential people in the patient's life)

- **SUMMARISE INFORMATION FROM Q4a (AS ABOVE).**
- 4b Sometimes people's treatment decisions are based on what they've heard or learned about their various options. Tell me about what you heard or learned about [laser therapy] [injections] before you had this treatment to help your eye(s).
 - **PROBE:** Tell us what you knew about laser therapy before you decided not to have this treatment done.
 - **PROBE:** Now tell us what you knew about eye injections before you decided not to have this treatment done.
- 4c Thinking back to the time you decided to have [laser therapy] [injections] for your eye problem, what information would have been helpful in making your decision?
 - **PROBE:** Ask probes to ensure all information that would have been helpful is mentioned, along with the source of information.
 - **SUMMARISE INFORMATION FROM Q4b AND 4c (AS ABOVE).**

8. WRAP UP

- 5a We're nearing the end of our conversation. I'd like you to think back to everything we talked about today. Is there anything you'd like to add to what you told [me/us] today? **WAIT FOR ANY ADDITIONAL INFORMATION.**
- 5b Is there anything you think we didn't discuss that you'd like to talk about related to your eye problem and the treatment you received? **WAIT FOR ANY ADDITIONAL INFORMATION.**
- 5c Is there anything else you'd like [me/us] to know about you and your eye health? **WAIT FOR ANY ADDITIONAL INFORMATION.**
- 5d Thinking back to everything you told me/us, what is the one key message or piece of information you'd like me to bring from you to the rest of the research team?

Thank you. One important part of today's conversation is to ask you for some details about yourself. What you tell us will be anonymous; we won't use your name. We need this information, such as your age and education, so that we can describe who we speak to in this study for the people reading reports and papers we write, or hearing presentations we make about what we learned. For instance, we may say, "We spoke to 30 people who received treatment for their eye problems; 20 of them were women; half of the participants were between age 50 and 60 years old, and a quarter of them were between 61 and 70 years old."

TEAM: SELECT THE DEMOGRAPHIC INFORMATION YOU WANT TO COLLECT, eg.

- Sex
- Age
- Birthplace
- Current residence (to calculate distance to eye clinic)
- Highest level of completed education
- Occupation
- Members of household (co-residing)
- Household durable goods (if want as indication of socioeconomic status)

- NOTE: WILL NEED TO REVIEW PATIENT'S CHART TO OBTAIN THE FOLLOWING DATA:
 - Visual acuity in each eye at diagnosis and at time of interview
 - Stage of diabetic retinopathy in each eye
 - Treatments offered (and when)
 - Which treatment was accepted (laser, injections, none)
 - Date treatment began (if any)
 - Date of last treatment

Additional file 4: Ophthalmologist's perspectives (themes and examples of supportive quotes)

| Themes | Supporting quotes |
|--|---|
| <p>Factors that influence ophthalmologist's DR treatment decisions: medical considerations (i.e., severity of disease, benefits, and risks), availability of treatment and resources, and patient-related factors (i.e., ability to pay for treatment) influence ophthalmologist's treatment decisions.</p> | <ul style="list-style-type: none"> • <i>Depending on the disease, we will choose the most appropriate method.</i> [MD5] • <i>I explain the relationship between the eyes and whole body, so that they are more aware of the importance of regular medical checkups and eye care.</i> [MD10] • <i>In severe cases when the injection does not work, the patient needs to be treated further by laser.</i> [MD22] • <i>If the patient presented with macular edema, then I would 100% counsel towards injection treatment.</i> [MD19] • <i>For pre-proliferation diabetic retinopathy patients, I choose the laser method.</i> [MD21] • <i>Laser has good results; it stops the loss of vision.</i> [MD17] • <i>The laser method only preserves vision while intravenous [injections] can improve vision in diabetic macular edema.</i> [MD1] • <i>Laser retinal photocoagulation reduces the risk of severe complication in treatment of diabetic retinopathy.</i> [MD13] • <i>Laser can damage the visual field.</i> [MD9] • <i>A side effect from injections can be mild glaucoma.</i> [MD3] • <i>Laser patients often complain about pain after treatment.</i> [MD15] • <i>For injections, there are normally no complaints [from patients]...</i> [MD18] • <i>Patients who have had injections must be monitored for intraocular inflammation.</i> [MD3] • <i>The injection method is invasive ... and for some people who have cardiovascular disease, there may be complications of embolism.</i> [MD22] • <i>At my hospital, the intraocular injection method is relatively safe, no complications.</i> [MD21] |

- *For persistent macular edema, if injections aren't effective, the focal laser will be used and focused on aneurysm nodes as supplementary treatment. (MD2)*
- *I usually advise patients to select the injection method because I found the injection is more effective than laser. [MD21]*
- *We have to maintain two treatment types, laser for proliferative diabetic retinopathy, and intravenous injection for diabetic macular edema to prevent the reduction of vision loss. [MD01].*
- *Another thing is laser treatment depending on the pain threshold of each patient. In the previous time, I did laser diode 810 nm, the patients were very painful. That must be explained carefully to the patient. Now, laser 532 nm is less painful, but it is also not comfortable for sensitive patients. So, it would be better if I explained that it would be painful, and you need to prepare mentally. [MD5].*
- *If patients cannot transfer their insurance [to cover the cost of Lucentis] or don't meet the conditions for Lucentis injection, I will transfer them to the National Hospital of Ophthalmology. There they use Avastin, which costs less so the patients can pay for it. [MD11]*
- *Currently, we mainly use Avastin. Last year, we used [only] six bottles of Lucentis for two patients. The general problem is the cost: Lucentis is not covered by health insurance. [MD8]*
- *I will choose laser for the patients who live far away [from the hospital], or [those who do] not have good economic conditions and they cannot come for a [follow-up appointment]. [MD5]*
- *In general, if patients are covered 100% by the social health insurance, I will obviously choose Lucentis without detailed explanations to the patient because if is fully covered by insurance, it will be cheaper than Avastin. [MD14]*
- *Laser is less expensive for patients because there's less travel for patients [MD22]*

- *Adherence is good if they are injected only a few times, but if several injections are required, many patients drop out of treatment. [MD13]*
- *After having the intravenous anti-VEGF, patients have to be followed-up for years to have a good effect. It is a waste of time and efforts of doctors if patients cannot complete the follow-up. They also will not have a good result of the treatment. [MD14]*
- *Avastin [bevacizumab] injection treatment costs about 1-1.5 million [Vietnamese dong (£33-47)]; Lucentis [Ranibizumab] injection treatment costs about 13 million [£405]; and laser costs 1-2 million [£33-66], depending on the insurance [coverage]” [(MD17).*
- *If patients cannot regularly return to the hospital for injections, laser will be given priority because patients must strictly adhere to the treatment regimen”, [MD3]*
- *Most of the patients in Vietnam are poor so I mainly use Avastin for intraocular injection, [MD16].*
- *If a patient has proliferative diabetic retinopathy, he will be asked about his ability to pay for follow up exams. If there’s little possibility [of that], we will choose laser photocoagulation. [MD13]*
- *I do feel that the patient adheres to the Lucentis treatment. [MD07]*
- *For the intraocular injection, if the patient has macular edema, then we use Lucentis. If the patient does not have money, we will introduce Avastin. [MD07]*
- *Avastin is currently used as an off-label product, and there is no indication for intravenous injection in the manual. Therefore, there are legal issues if complications occur. [MD11]*
- *“Injections are only available in central level hospitals and some private hospitals in Hanoi or HCMC, but not in most provincial hospitals. In my hospital, we do not offer injections because*

| | |
|---|---|
| | <p><i>there is no operating room, but we have laser machines, so we can do laser for patients as indicated. [MD11]</i></p> <ul style="list-style-type: none"> • <i>I often do intraocular injection. With laser photocoagulation cases, I transfer to other doctors in the department. [MD09]</i> • <i>I do want the patient to use Avastin, but it is an off-label drug, it was not recommended by the FDA and the Ministry of Health, therefore we could not use this drug. [MD09]</i> • <i>Previously we only had laser surgery, but since the availability of anti-VEGF, I often use injection, the laser is only the second option, used for intensive treatment. [MD10]</i> • <i>Currently, new laser method like micro pulse is still effective but it is not available yet. [MD02].</i> • <i>The laser machine in the hospital is not very good [MD08]</i> |
| <p>Recommendations for improving care for people at risk or with DR: Expand treatment options; control treatment costs, support education and training for healthcare staff including nurses, and improve screening.</p> | <ul style="list-style-type: none"> • <i>If I only can choose one treatment, that is not good... there are some cases where laser should be used, while injection is more effective in some other cases. Therefore, the government should invest in both methods; they can support each other. That will produce more benefits for patients. [MD3]</i> • <i>According to epidemiological studies in developing and developed countries, diabetic macular edema is one of the major causes of blindness in the working aged adult ... investing in treatments for this disease is urgent due to the sudden increase in the number as well as their complexity on a national scale. [MD1]</i> • <i>We should have a standardised treatment regime for diabetic retinopathy. [MD19]</i> • <i>We should invest in a new generation laser to help patients feel no pain. [MD5]</i> • <i>I think it is very important to maintain many types of anti-VEGF [drugs] to meet the needs of many patients. [MD1]</i> |

- *I think training should be provided to doctors at the provincial level on vitreoretinopathy, laser retinal photocoagulation and intravenous anti-VEGF... [so they have] not only skills of using laser retinal photocoagulation and intravenous anti-VEGF. The key is for doctors to make the correct decisions, and knowledge is more important than skills for vitreoretinopathy. [MD14]*
- *Intra-vitreous anti-VEGF injections are very good, but [ophthalmologists are] overloaded... Since it is only a [minor] technique, a nurse can do it. The burden of treatment should be shared with nurses... [which means we must provide] better education for them. [MD13].*
- *It may be better to subsidize injections to reduce the cost that patient must pay... patients must be injected many times and diabetes is a lifelong chronic disease. Although we can inject only one or two shots at the beginning of treatment, if the patient has edema again they might need to be injected again many times during the rest of their life. [MD13]*
- *There should be policies or solutions to reduce the cost [of treatment] for patients since they have to be injected many times. [MD07]*
- *If a patient has diabetic for 5 years, he should be screened for retinopathy or endocrinologist sends his patient to an ophthalmologist to screen for diabetic retinopathy, there is not such link in this country. [MD16]*
- *We must have a screening strategy to detect diabetes early. If we detect early, we can control it easily with low-cost, highly efficient treatment and maintain long-term vision. If [we wait until] the disease is at the pre-proliferative or proliferative stages, it will be very difficult for patients and doctors. [MD3]*
- *I just want to promote early detection of diabetic retinopathy. [MD18]*

Additional file 5: Patient perspectives (themes and examples of supportive quotes)

| Themes | Supporting quotes |
|---|---|
| <p>Patient knowledge of DR and factors that influence their treatment decisions: Overall, patients have limited knowledge of DR and the associated treatments. Patients typically rely on doctor's advice for selecting their treatment.</p> | <ul style="list-style-type: none"> • <i>I learnt about [diabetes] from the newspaper and the internet. (S_PT01)</i> • <i>I bought a book about diabetes. [N_PT03]</i> • <i>I already knew diabetes caused complications in [the] retina, but I just recently found out that I got retinal diabetes. [S_PT01]</i> • <i>I think diabetes does harm to the eyes. [S_PT07]</i> • <i>I think people who are obese have a high chance of [developing] diabetes. [S_PT01]</i> • <i>I only know that the doctor had stated that if the amount of sugar in my blood is high, then I might have [eye] complications. [S_PT02]</i> • <i>The high blood glucose levels cause complications in the eyes (N_PT03)</i> • <i>If you do not treat DR it will cause blindness [S_PT04]</i> • <i>I only know the complications of diabetes, but I did not think [diabetes would cause] haemorrhage in the eye. [N_PT06]</i> • <i>I do have diabetes; the doctor explained to me the [relationship] between [diabetes] and retinal haemorrhage. [S_PT01]</i> • <i>If the disease is not treated correctly, then there is a chance of becoming blind or the vision becomes blurry. [S_PT02]</i> • <i>I only know that the injection would make eye vision better. Other than that, I do not know how. [N_PT05]</i> • <i>I did not know about this laser shot, because I do not know how to access the internet to find out about this. [S_PT11]</i> |

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| | <ul style="list-style-type: none"> • <i>I did not know about this injection, nor did I [have] the time to read or learn about it. [S_PT08]</i> • <i>[The doctor] suggested having the injection first, after that, take some medicine and then take the laser treatment. For now, it is injecting first. [S_PT01]</i> • <i>The doctor explained that the eye has haemorrhages and told me to sign the injection commitment paper. A bottle of drug costs 9 million, so I could not afford it, then I had to wait for 1 month. The doctor will gather people and then split a bottle for those people. [S_PT03]</i> • <i>[The doctor] said go for laser treatment so I went for laser [S_PT04].</i> • <i>I did not know anything about this injection, nor did I have time to read or learn, because I was farming. The doctors told me to have the injection, so I followed. [S_PT09]</i> • <i>I have to follow the doctor's advice. One must follow the doctor's advice; how can one not follow it? [S_PT10]</i> • <i>The doctor said that I have one laser treatment and after 3 months, I will go to the hospital for check-ups [to see if eyes are getting better], and then plan what to do next. The treatment fees for that time was about 500.000 VNĐ; I remember that. It is a private clinic; thus, I do not use health insurance. [S_PT12]</i> • <i>If you do not treat DR it will cause blindness [S_PT04]</i> |
| <p>Perceived barriers and facilitators to DR treatments: Patient and family-related factors such as treatment and transportation costs and families ability to bring patients to appointments can influence treatment adherence. Positive and negative treatment experiences with doctors also influence adherence.</p> | <ul style="list-style-type: none"> • <i>I have to bear the cost despite of how much it is. When I do not have money, I have to sell my possessions. I'm still young; I cannot let my eyes... I'm only more than fifty; I cannot let my eye... For example, [if] good drugs are expensive, then I have to accept it. [S_PT4]</i> • <i>In fact, my family told me to follow the treatment. However, as I was also having other diseases and had come to many clinics without any improvement, so I stopped myself, and my family did not intervene in this matter. My family advised me to go to see the doctor, but the treatment did not work, so I stopped. [S_PT6]</i> |

- *Actually, before [laser], the doctor did inform me that it might not work... I also asked other people and some said that the shot had not improved their vision very much. My house is also far away... the cost of transportation is also expensive, so I did not go there anymore. [S_PT6]*
- *One more thing is that every time I go to the doctor, I have to take a whole day off. I have to go to work, and it is hard to have to leave. [S_PT11]*
- *I came to the hospital, just begging. The doctor was busy and made me wait until the afternoon for having injection treatment. [N_PT03]*
- *Upon going into the operation room, I was nervous because I did not know how the injection was going to play out, but other patients said it was okay. I lay on the operating table, and the assistant dripped about two or three drops [into my eyes]. After that [I had] the injection. I did not even know when the drug was injected. [S_PT01]*
- *The doctor is very dedicated. [N_PT04]*
- *During the injection process, the doctor is quite hot-tempered. Asking might cause doctor [to be] angry and shout. The doctor just did the injection without saying anything. [S_PT04]*
- *The doctor is also very enthusiastic. [N_PT02]*
- *Actually, before [laser], the doctor did inform me that it may not work... I also asked other people and some said that the laser had not improved their vision very much. My house is also far away... the cost of transportation is also expensive, so I did not go there anymore. [S_PT06]*
- *The doctor did say that it is possible to bleed a bit after the treatment ... the vision will be a bit blurry, but after that, it will be fine. He also said [there is a risk] of retinal detachment or something, that I do not understand much. [S_PT06]*

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| | <ul style="list-style-type: none"> • <i>The doctor explained that the eye has haemorrhages and told me to sign the injection commitment paper. A bottle of drug costs 9 million, so I could not afford it, then I had to wait for 1 month. The doctor will gather people and then split a bottle for those people. [S_PT03]</i> • <i>Because I felt those laser shots did not improve my blurry vision. [S_PT05]</i> • <i>At the beginning of the injection, it is not painful, but after that, the pain is not imaginable. [N_PT04]</i> • <i>I had to sit still for laser with my eyes wide open, so it ached a bit. [S_PT06]</i> • <i>The travelling distance is also far, and no one is going to take me there” [S_PT08]);</i> • <i>The cost of transportation is expensive so I did not go [back for treatment]” [S_PT06]</i> • <i>The hospital is very crowded. The examination took two days”, [N_PT05]</i> • <i>Each time going to Hanoi costs a day. There are some ladies said that it is fine to treat at home. My husband and my children told me that it is closer to go to the doctor at Tram Troi clinic. I told the doctor that if he can cure me, I would not have to go to Hanoi. Many other people are also being treated there. [N_PT05]</i> |
| <p>Recommendations for improving for people at risk or with DR: Control treatment costs, diagnose and treat early and expand treatment options were the main recommendations suggested by patients.</p> | <ul style="list-style-type: none"> • <i>I hope that the cost of treatment will become cheaper so that more people can afford to have their disease cured. [S_PT02]</i> • <i>I hope more charitable organisations stand up to help patients who are in need. With the costly fee for the treatment, for us patients who live far away, it is indeed a heavy burden. Because of our age, we became dependent on our children for transportation; sometimes the cost of transport even outweigh the cost for treatment, and I do not believe in nearby hospitals. [S_PT03]</i> • <i>In general, I do not know much. I want to have more thorough counselling from the doctor, and also want to ask whether there is any better method given that laser method does not work for me? Because I saw hardly any improvements after the two shots. [S_PT06]</i> |

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| | <ul style="list-style-type: none">• <i>I want to say that people with diabetes should go to the doctor early, in order to have the disease cured early. [S_PT07]</i>• <i>I want to tell that those who have diabetes should go to the doctor early and get timely treatment. [S_PT09]</i>• <i>For instance, I wish that scientists [would] invent more advanced drugs for the treatment of diabetes and retina... [S_PT10]</i>• <i>I just want the hospital to have more modern technologies so that we would get the best treatment for our eyes. It is good now but I wish [it could be] even better. [N_PT06]</i> |
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