ORIGINAL ARTICLE

Assessment of Fellowship Programs in the Department of Ophthalmology and Visual Sciences, Philippine General Hospital

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ABSTRACT

Objective. The purpose of this study was to describe the perceptions and satisfaction of the graduates and trainees of the fellowship programs of the Philippine General Hospital - Department of Ophthalmology and Visual Sciences (PGH DOVS).

Methods. A uniform survey was conducted among all graduates and ongoing trainees of the External Disease and Cornea, Medical and Surgical Vitreo-Retina, Glaucoma, Orbit and Oculoplastics, and Pediatric Ophthalmology and Strabismus fellowship programs. The survey link was emailed to all the participants.

Results. Response rate was 74%. Majority of graduates were clustered in the National Capital Region (NCR) (56.4%), and Luzon excluding NCR (46.4%). Majority of the graduates perceived that the objectives of their fellowship program were met (60%). Overall, 65.4% of the fellows assessed their training as *completely adequate*. Strengths identified were volume of patients, level of independence, and consultant supervision. Weaknesses identified were the lack of specialized instruments, lack of inter-department exposures, and difficulties in the conduct of research.

Conclusion. Majority were satisfied with their training and would recommend their training program to others despite the difficulties and deficiencies identified. Some of the perceived weaknesses observed by the graduates have been addressed since their graduation from their program. This is the first attempt to assess post-residency fellowship programs in ophthalmology in the Philippines.

Keywords: fellowship, training, ophthalmology, post-residency fellowship, evaluation, assessment

INTRODUCTION

The Philippine General Hospital Department of Ophthalmology and Visual Sciences (PGH DOVS) was established in 1961. The first fellowship program offered by the PGH DOVS was a 1-year External Disease and Cornea (ED Cornea) program in 1994. The following programs were subsequently offered: a 2-year Vitreo-Retina (VR) program, a 1-year Glaucoma program in 2000, a 1-year Pediatric Ophthalmology and Strabismus (POS) program in 2006, a 2-year Orbit and Oculoplastics (PLO) program in 2007, and a 1-year Neuro-Ophthalmology (N-O) program in 2018.[1] A 1-year Uveitis program was started in 2022.

Each fellowship program has its own program descriptions, objectives, admission requirements, criteria for evaluation of the trainee, and requirements for completion and graduation.[2]

In education, evaluation has different definitions, most notable of which are Gronlund's goal-based conception of

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evaluation described as "the systematic process of determining the extent to which instructional objectives are achieved," and Cronbach et al.' s definition as "an examination conducted to assist in improving a programme and other programmes having the same general purpose." There are different purposes of evaluation but most important are to assess the teaching methods used and the effectiveness of the course.[3]

There have been studies evaluating residency training programs in ophthalmology in Jordan[4] and India[5] but there have been no reports of similar studies evaluating post-residency fellowship programs in ophthalmology.

In the Philippines, ophthalmology residency programs are regulated by the Philippine Board of Ophthalmology. However, there is no similar governing body that regulates or evaluates fellowship programs in the country, hence the need for evaluation. Modification and improvement of current fellowship programs may be done after a thorough evaluation, beginning with consolidating perceptions and satisfaction of the programs. The study aimed to assess the effectiveness of existing fellowship programs at the Department of Ophthalmology and Visual Sciences, Philippine General Hospital, based on perceptions and satisfaction of the graduates and trainees of the programs. Specifically, the study aimed to (1) describe the demography of graduates, including the geographic distribution of their practice, (2) measure fellows' satisfaction in their program's clinical/surgical training, research, ancillary services, (3) determine if the fellowship program accomplished its objectives, and (4) identify strengths and weaknesses of the programs based on fellows' satisfaction.

MATERIALS AND METHODS

This was a cross-sectional study that surveyed ophthalmologists who underwent and were ongoing fellowship training from the different subspecialty programs of the PGH DOVS.[6] Approval from the University of the Philippines Manila Research Ethics Board (UPMREB) was sought and obtained after which a permit to conduct research at the PGH was secured from the Expanded Hospital Research Office (EHRO).

Data collection was from January 2021 to March 2021. All ophthalmologists who were accepted into the Clinical Fellowship Program in ED Cornea, VR, Glaucoma, PLO, and POS were invited to participate in the study. Respondents included ongoing fellows who already completed at least one year of training but were extended due to the COVID-19 pandemic. Graduates or ongoing trainees of the N-O fellowship program were excluded since the program had only been launched.

The survey link was emailed to all the participants. The survey link was also disseminated by the Philippine Board of Ophthalmology (PBO) and Philippine Academy of Ophthalmology (PAO) via electronic mail. Informed consent was incorporated in the digital survey form.

Survey Instrument

A uniform survey was conducted among all participants who consented using an online survey form (Google forms template). Survey questionnaires were self-administered. The survey was composed of seven major sections, namely: (1) General Data, (2) Clinical Training Experience, (3) Surgical Training Experience, (4) Diagnostics and Ancillary Services, (5) Inter-Department Exposures, (6) Conferences, Seminars, Presentations, and, (7) Others. Sections 2-7 were measured using close-ended type of questions using a rating scale of 0-5, and open-ended questions, answerable by typing. The survey took around 10-15 minutes to answer. Beta testing was done for the survey questionnaire.

General data included area of practice, fellowship training program, and years of graduation from the program, among others. Rating of Clinical Training Experience included the following criteria - 1) variety of cases encountered, 2) faculty supervision, 3) level of independence, 4) patient volume, and 5) impact of patient volume on training.

Rating of Surgical Training Experience included the following criteria - 1) variety of surgical cases, 2) volume of surgical cases, 3) faculty supervision during OR days, 4) level of independence, and 5) quality and quantity of OR instrumentation.

Rating of Diagnostics and Ancillary Services included the following criteria - 1) availability of diagnostic and therapeutic equipment, 2) supervision in interpretation of diagnostic tests, and 3) supervision in performing therapeutic procedures.

Rating of inter-department exposures included the following criteria - 1) opportunity for co-management of cases in a multi-disciplinary approach, and 2) exposure to interpretation of relevant non-ophthalmologic diagnostic tests.

Rating of conferences, seminars, and presentations included the following criteria - 1) opportunity to conduct research, 2) consultant guidance and input on your research, 3) opportunity to present in department conferences, and 4) opportunity to present outside the department.

Other criteria included – 1) given enough opportunities to teach residents and students, 2) contribution to ability to think critically, 3) overall assessment of training, 4) clearly stated objectives of the fellowship program, and 5) if the fellowship program met its objectives.

Data and Statistical Analysis

Responses of participants were automatically recorded and encoded in a Google Excel sheet generated from the Google form. The Google sheet was accessible only to the research assistant who was responsible for anonymizing the data before being made available to the investigators.

Descriptive statistics were used to summarize the demographic characteristics of the participants. Frequency and proportion were used for nominal variables, median and range for ordinal variables, and mean and standard deviation

for interval/ratio variables. All valid data were included in the analysis. STATA 15.0 was used for data analysis. Open-ended questions were analyzed qualitatively.

RESULTS

Out of the 148 eligible fellows, 110 responded to the survey (74.3%). Out of the 110 respondents, 99 (90%) have graduated, 10 (9%) were current fellows, and 1 (1%) did not graduate due to research deficiency (Table 1). One respondent took consecutive fellowships in ED Cornea and VR, and completed both. This respondent rated the programs together for close-ended questions but answered open-ended questions independently. Most respondents completed fellowships in ED Cornea (29.1%), VR (29.1%), and Glaucoma (20.9%). In describing areas of practice, every declared location was counted for respondents with multiple areas of practice. Sixty-two respondents (56.4%) declared the National Capital Region (NCR) as an area of practice. Luzon (excluding NCR) was the 2nd most common area of practice with 51 (46.4%) respondents, followed by Mindanao, (15.5%) and Visayas (5.5%) (Figure 1). Forty-five (40.9%) took additional training after their fellowship in PGH DOVS. Most of the respondents (82.7%) had teaching responsibilities included in their current practice.

Clinical Training Experience

The majority considered the variety of cases they have encountered either *mostly* (46.4%) or *completely adequate* (50.9%). (Table 2) Most respondents who specified lack of cases graduated during the early 2000s.The cases they identified as lacking during their training have since been encountered in the 2010s. Faculty supervision and level of independence were rated *excellen*t by majority of graduates (58.2% and 63.6%, respectively). A large percentage (82.7%) considered the patient volume *completely adequate*, and considered patient volume to have a *highly beneficial* (82.7%) impact on training.

Surgical Training Experience

Most of the respondents considered the variety of surgical cases, and quality and quantity of the Operating Room (OR) set-up and instrumentation *mostly adequate* (54.6%, 52.7%); while the volume of surgical cases was considered *completely adequate* (63.6%) (Table 2). Majority of the respondents rated their level of independence as *excellent* (69.1%). The faculty supervision during surgeries were rated as either *good* (34.6%) or *excellent* (45.5%). All subspecialties' respondents noted frequent surgery supervisions during their first few cases, but were allowed to be independent during the latter part of their training. However, ongoing trainees noted less faculty supervision and lower variety of surgical cases due to the COVID-19 pandemic.

Most surgical procedures that were identified to be lacking were reported by fellows who trained from 2003-2010.

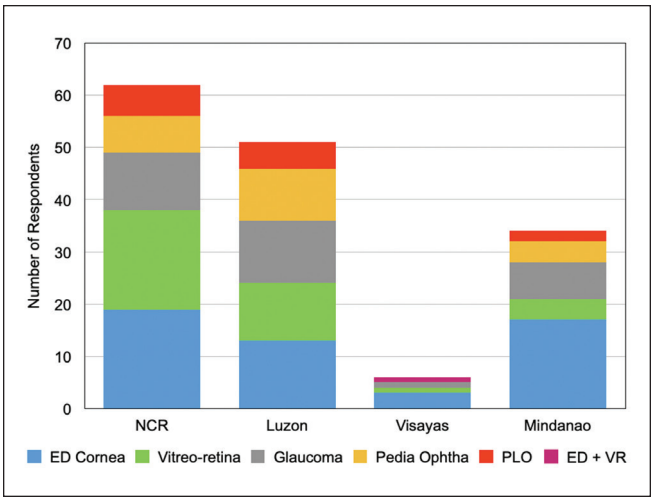

Figure 1. Geographic Distribution of Area of Practice.

Table 1. General Data

	Frequency (%)
Fellowship program	
External Disease and Cornea	32 (29.1)
Vitreo-Retina	32 (29.1)
Glaucoma	23 (20.9)
Pediatric Ophthalmology and Strabismus	15 (13.6)
Orbit and Oculoplastics	7 (6.4)
Both ED Cornea and VR	1 (0.9)
Graduated	
Yes	99 (90)
On time	92 (92.9)
Delayed (total)	7 (7.1)
Delayed due to Research*	6 (85.7)
Delayed due to extension for leave	1 (14.3)
No	11 (10)
Ongoing training	7 (63.6)
Program extension	2 (18.2)
Research deficiency	1 (9.1)
COVID-19	1 (9.1)
Current area of practice	
NCR	62 (56.4)
Luzon (excluding NCR)	51 (46.4)
Visayas	6 (5.5)
Mindanao	17 (15.5)
With teaching responsibilities	91 (82.7)
Residents/fellows	84 (92.3)
Medical students	64 (70.3)
Ophthalmic staff	27 (29.7)
DOH medical	1 (1.10)
Took additional training after fellowship	45 (40.91)

**Delayed fulfillment of research requirements*

These included macular hole surgeries (VR), endoscopic and cosmetic surgeries (PLO), and glaucoma drainage device (GDD) implantation (Glaucoma). Procedures that were frequently declared lacking by fellows across years included lamellar keratoplasties (ED-Cornea) and minimally-invasive glaucoma surgeries (MIGS) (Glaucoma).

Most OR instruments and devices that were identified to be lacking were reported by fellows who trained from 2005-2015. Devices reported lacking included LASIK machine, video recording machines, crosslinking machines, wide field viewing system and OR lights.

Diagnostic and Ancillary Services

Over half of the fellows rated availability of diagnostic and therapeutic equipment as *mostly adequate* (52.7%); while supervision in interpretation of tests was considered *completely adequate* (54.6%) (Table 2). Supervision in performing therapeutic procedures were rated as either *mostly* (30.9%) or *completely* (36.4%) *adequate*. However, current trainees noted limited interaction for supervision due to the pandemic.

Most diagnostic instruments and devices that were identified to be lacking were reported by fellows who trained from 2005-2015. Devices reported included corneal topography, pentacam machine, retinal optical coherence tomography (OCT) machine, pachymeter, ultrasound biomicroscope, and selective trabeculoplasty machines. More recently identified machines were indocyanine green (ICG) machines, and photodynamic therapy machines.

Inter-department Exposures Experience

The opportunity for co-management of cases was considered either *mostly* (36.4%) or *completely adequate* (47.3%); while exposure and interpretation of relevant non-ophthalmologic diagnostic tests was rated as either *moderately* (20.9%) or *mostly adequate* (30.9%) (Table 2). Limitations cited by respondents include inability to rotate in Dermatology for PLO graduates, lack of multidisciplinary conferences, limited communication with other departments such as pediatric oncologists regarding the management of retinoblastoma for POS graduates.

Table 2. Summary of Most Common Response per Criteria Measured

	Response
Clinical Training Experience	
Variety of cases encountered	5 – Completely Adequate
Faculty supervision	5 – Completely Adequate
Level of independence	5 – Excellent
Patient volume	5 – Excellent
Impact of patient volume on the training	5 – Excellent
Surgical Training Experience	
Variety of surgical cases performed	4 – Mostly Adequate
Volume of surgical cases	5 – Completely Adequate
Faculty supervision during OR days	5 – Excellent
Level of independence	4 – Good
Quality and quantity of Operating Room set-up and instrumentation	4 – Mostly Adequate
Diagnostic and Ancillary Services	
Availability of diagnostic and therapeutic equipment	4 – Mostly Adequate
Supervision in interpretation of diagnostic tests	5 – Completely Adequate
Supervision in performing therapeutic procedures (example: LI, Diode, LIO, PRP etc.)	5 – Completely Adequate
Inter-department Exposures	
Opportunity for co-management of cases in a multi-disciplinary approach	5 – Completely Adequate
Exposure and interpretation of relevant non-ophthalmologic diagnostic tests (example: MRI, CT-Scan, 4-vessel angiography)	4 – Mostly Adequate
Conferences, Seminars, Presentations	
Opportunity to conduct research	4 – Mostly Adequate
Consultant guidance and input on your research	5 – Completely Adequate
Opportunity to present in department conferences	5 – Completely Adequate
Opportunity to present outside the department (example: scientific meetings, local/international convention)	4 – Mostly Adequate
Overall Assessment	
Given enough opportunities to teach residents and students at the clinics and operating room	5 – Completely Adequate
Contribution to ability to think critically	5 – Completely Adequate
Overall assessment of training	5 – Completely Adequate
Clearly stated objectives of the fellowship program	5 – Completely Adequate
Fellowship program met its objective	5 – Completely Adequate

With regard to exposure to relevant non-ophthalmologic diagnostic tests such as MRI, CT-Scan, and 4-vessel angiography, respondents from the ED Cornea, POS, and VR programs said that they "rarely needed to have these done," and would "rather refer patients to other doctors for non-ophthalmologic diagnostic test/co-management" or "wait for official readings."

Conferences, Seminars, Presentations Experience

Most respondents considered experiences in conferences, seminars, and presentations either *mostly* or *completely adequate*. The majority considered the opportunity to present in department conferences to be *completely adequate* (65.5%) (Table 2). Respondents identified consultant guidance in research as a strong point. However, among those who thought of research as a weak aspect of the program identified the following limitations: inadequate time to focus on research because of the clinical load and because there were a lot of patients, lack of technical and financial support, and having paper-based charts. Suggestion given by respondents was to start offering research fellowships.

Overall Assessment of Training Program

More than half were satisfied with the opportunities to teach residents and students at the clinics and operating room (61.8%) and with the program's ability to stimulate critical thinking skills of trainees (74.6%) (Table 2). This is also correlated with the majority of the graduates having teaching responsibilities in their current practice (82.73%). More than half of the fellows rated the following as *completely adequate*: given enough opportunities to teach (61.8%), program contribution to critical thinking ability (74.6%), clearly stated fellowship program objectives (51.8%), and fellowship meeting its objective (60%). Overall, 65.6% of the fellows assessed the training as *completely adequate*.

DISCUSSION

In terms of geographical distribution, the majority of graduates eventually practiced in the NCR (56.4%), and Luzon (46.4%). There is a notably large difference compared to Visayas, with only 5.5% of graduates choosing to practice there after training. No other data gathered in our study seemed to account for such disparity.

For both clinical and surgical training experience, patient volume was perceived to be a strength of the fellowship program. This was more apparent in clinical training experience, with a large majority identifying volume as completely adequate and with positive impact on their training. Variety of clinical cases was also adequate. A factor that could have contributed to this perception was the various clinics attended by ED Cornea fellows, such as the ED Cornea, Contact lens, Dry eye, and Uveitis clinic.

While volume of surgical cases was also positively received, the satisfaction in terms of surgical case variety was lower. Such low variety may be explained by the nature of cases seen in PGH DOVS, with a majority being tertiary cases in their latter stages of severity. The disparity in rating can also be explained by the fact that not all specialized cases seen in the clinics would proceed to surgery. Perception of adequacy in variety could have been affected by the gap between the respondents' expectations and the programs' objectives, which lists only specific cases. Updating of surgical case lists and prescribing a number of cases is an opportunity that may help bridge this gap in expectations.

Some surgical procedures that have been identified to be lacking have since increased since the 2010s, namely macular hole surgeries (VR), endoscopic and cosmetic surgeries (PLO), and glaucoma drainage device (GDD) implantation (Glaucoma).[7] In 2019, the department appointed a new consultant with experience in lamellar keratoplasty to train ED Cornea fellows and make these surgeries accessible to charity patients. How this affects perception of adequacy of variety and adequacy of surgical cases of subsequent fellows remains to be seen.

Other subspecialties such as in Canadian Respirology Fellowship programs identified the need to set guidelines on the minimum number of procedures needed to achieve competency in procedural training.[8] This is true for Ophthalmology Fellowship programs as well.

Faculty supervision was consistently perceived to be mostly to completely adequate in most areas evaluated. More respondents believed that clinical supervision is completely adequate than surgical supervision. This may be due to the decreasing supervision in the operating room towards the end of their training to gain independence. For all the subspecialties, there was balance between the faculty supervision and independence. Such was reflected in similar satisfaction in independence in both clinical and surgical realms.

Ongoing trainees unanimously experienced a drastic reduction in the clinic census and faculty supervision because of the COVID-19 pandemic.[7] This is comparable to previous studies on other programs such as emergency medicine, family medicine, internal medicine, and obstetrics and gynecology programs which received the most significant impact.[9] Other specialties reported reduced opportunities for elective surgeries, lower patient volumes, altered clinical rotations, increased reliance on telemedicine, and dependence on virtual didactic conferences.[9] The impact on ophthalmology fellowship training of the decrease in interaction and supervision due to the pandemic remains to be seen. A repeat survey on the fellows after their fellowship may be performed to assess impact.

Most respondents perceived operating room instruments and equipment to be mostly adequate. However, this criterion had one of the least numbers of *completely adequate* respondents. Respondents described instruments in the OR to be old, obsolete, broken, and of low quality. Some identified deficiencies in the operating room have since been acquired,

including operating room lights, crosslinking machine, and recording devices.[7] However, some are yet to be acquired i.e., LASIK machine.

While most criteria measured in the study had a majority response, this was not the case for inter-departmental exposure experience. This may be explained by some subspecialties having diagnoses requiring more multidisciplinary cases than others. Inter-department exposures were also perceived as deficient in terms of multi-disciplinary management of patients, and exposure and interpretation of non-ophthalmologic diagnostics. This weakness has recently been addressed with the introduction of required inter-departmental conferences for each division, and with the recent autonomy of the Ocular Oncology and Retinoblastoma Division, aimed at focused liaison with the medical oncology, pediatric oncology, and radiation oncology divisions. Cases of ocular tumors and orbital tumors have more multidisciplinary treatment approaches than other eye disorders and may have affected perception of "opportunity for co-management." Exposure and interpretation of non-ophthalmologic diagnostic tests had a lower adequacy score. In this regard, a respondent said, they would rather "refer patients to other doctors for non-ophthalmologic diagnostic test/co-management" or "wait for official readings."

There were conflicting views on research from the respondents. Less than half were completely satisfied both in terms of opportunity to conduct research (34.6%) and consultant guidance on research (44.6%). Some regarded it as a strong point while others had a hard time doing research due to inadequate time allotted for research. Protected research time does exist with all divisions, however, actual time used for research cannot be validated. Included in the program requirements for fellowship education in Cornea, External Disease and Refractive Surgery provided by the Association of University Professors of Ophthalmology Fellowship Compliance Committee (AUPO FCC) are protected time allotted for clinical or laboratory research without exceeding 20% of the total fellowship time; otherwise the fellowship should be extended beyond 12 months.[10] Time-bound monitoring through goal-oriented landmarks may be prescribed for all divisions to incentivize fellows to be prompt with their research goals. The recent transition to electronic medical records (EMR) is also an opportunity to streamline chart review for retrospective studies. PGH has more than doubled the research funds available for the department in 2016. Fellows have been able to apply for research grants from PGH since 2018.

Majority of the fellows rated that the objectives of their program were clearly stated (51.8%) and that their fellowship program met its stated objectives (60%). A common observation among respondents was that surgical procedures were clearly enumerated but the minimum number of cases was not.

Majority were satisfied with their training (65.5%). Despite the deficiencies identified, all respondents would still recommend their training program to others. While 45 (40.9%) took additional training after their fellowship in PGH DOVS, no responses or comments seem to indicate that the decision to do so was a consequence of the inadequacy of the program.

A weakness of the study design is that it asks general questions that apply to all fellowship programs. Nuances in responses within each subspeciality may be lost or diluted during the compilation of responses. We suggest that individual fellowship programs undergo a similar survey to identify strengths and weaknesses that give further focus on specific cases or clinical situations. Another weakness is that the population surveyed included fellows who graduated during the pre-pandemic era. With changes in the current practice in PGH DOVS - including quota of patients, introduction of telemedicine and new protocols, it is possible that the results of this study may not necessarily apply to the improvement of all aspects of training during the pandemic.

CONCLUSION

This is the first attempt to assess post-residency fellowship programs in ophthalmology after more than 20 years of offering the first fellowship program of the department. Majority of graduates were practicing in NCR and Luzon. Majority of the graduates perceived that the objectives of their fellowship program were met. Strengths identified were volume of patients, level of independence, and consultant supervision. Weaknesses identified were lack of specialized instruments, lack of inter-department exposures, and difficulties in the conduct of research. In spite of the difficulties and deficiencies identified, the majority were satisfied with their training and would recommend their training program to others. Some of the perceived weaknesses observed by the graduates have been addressed since their graduation from their program. Due to the broad non-measurable nature of most of the programs' objectives, thorough evaluation of effectiveness was not possible in the scope of this study. The department will use the findings in this assessment to guide us in instituting improvement in the implementation of our fellowship training programs.

Recommendations

Further study should be done regarding the fellowship training during the COVID-19 pandemic since their experience was different from the majority of the respondents. With the adoption of telemedicine and electronic records, perceptions may drastically change across time. Other information that may be worth knowing include distribution of patient types seen by the fellow graduates in their current practice and presence of other specialists in their area of practice. We recommend that the results of this study be discussed with the fellows' training committee through a focused group discussion in order to guide the committee in revising the fellowship training programs and their

evaluation. Revisions in course syllabi may be necessary to bridge the gap in fellow perception at the end of training. The fellowship program syllabi need to be reviewed and updated including skills and required surgeries, with numbers to be specified.

Statement of Authorship

MNV, MJHR and PNAR contributed in the conceptualization of work, acquisition and analysis of data, drafting and revising of manuscript, and final approval of the version to be published. BVQM and NVDGF contributed in the conceptualization of work, drafting and revising of manuscript, and final approval of the version to be published. FAADJ served as scientific adviser, and contributed in the conceptualization of work and final approval of the version to be published.

Author Disclosure

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