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ESTABLISHING A PEDIATRIC OPHTHALMOLOGY FELLOWSHIP THROUGH INTERNATIONAL ACADEMIC COLLABORATION: A MODEL FOR ADDRESSING CHILDHOOD BLINDNESS

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ABSTRACT

We need to improve skills among pediatric ophthalmologists, as there is an increased number of childhood blindness diseases in our country. These local residency and fellowship programs exist thanks to an existing academic relationship among the stakeholders. We looked at the idea of starting a pediatric ophthalmogly fellowship program, using what is working well in current postgraduate academic settings as a model. Both a sitution analysis and a needs assessment were carried out at a regional hospital. Metaf says it checked its staff expertise, the tools they use and all available resources to ensure it is eligible for international fellowship status. Officials looked at the records to determine how many pediatric patients needed treatment. We also looked at the way local training is organized and what is needed. All organizers came together to design the program's structure. Eleven doctors, among them two who are experts in pediatric ophthalmology, worked there. Last year, the center handled 14,627 health problems for children and did 3,641 children's surgeries. Each participant in the fellowship will be taught about anterior segment anatomy, retinoblastoma, strabismus and retinopathy of prematurity in two years. Research, anatomy and surgical skills are the areas where medical students need more training, according to the program. Part of quality assurance involves judging how well faculty perform, storing accurate patient information and keeping a close watch on the skills of staff members. In case of trouble with implementation, health organizations rely on telemedicine, improve their hospital buildings and set up maintenance arrangements. As a result of the assessment, the team proposed several steps to get the region's first pediatric ophthalmology fellowship program started. Owing to our resources, skilled clinical team and experienced patients, we should reach the intended learning outcomes. A firm's assets will last if partners of the stakeholders are working together successfully.

Keywords: Pediatric Ophthalmology, Telemedicine, Childhood Blindness

INTRODUCTION

There are approximately more than 19 million children worldwide with problems seeing and the highest numbers come from low- and middle-income countries [1,2]. A great deal of the world's blindness and lost years of life is a result of children becoming blind at an early age. There appears to be a correlation between reliable child survival rates and the health of children's eyes [3]. Most of the blindness in these children is linked to certain conditions and 6% of that blindness comes from

0.1% of all blindness in the region [4]. The major pediatric eye diseases in developing countries occur because of vitamin A deficiency, followed by scarring caused by measles, many surface issues, damage after accidents and refractive errors [5–7]. Many health experts say that close to 89% of childhood blindness here can be avoided [8]. There is an extra difficulty, as India has just 2.7 ophthalmologists per million people, the lowest figure internationally [9]. The number for 2017 was that 90 million people attended eye centers at just three pediatric medical institutions in the area [7]. At present, there are no local courses available for pediatric ophthalmology. Since there is not enough focus on pediatrics in existing training, working on improving education systems is especially key to fighting diseases in children's eyes. One way to meet such goals is through the help of international agencies and two examples are the International Agency for the Prevention of Blindness and World Health Organization's Vision 2020: The Right to Sight [10]. The curriculum for doctors' postgraduate classes is designed by a successful team made up of a well-known university overseas and a close public university. When the partnership was created in 2008, the plan was to develop a psychiatry training program that would help limit the number of mental health specialists moving from the country. In the past decade, the collaboration has expanded to support training in family medicine, emergency medicine, critical care and more than 20 other graduate programs. During that year, 222 teachers completed the program with more than 90 percent saying they wanted to become part of the local teacher groups [13]. As a result, the agency designs its own programs, has its team of trainees work on them and always evaluates how successful its actions have been. Local faculty at the university are the main leaders and international trainers contribute occasionally. Thanks to our successful residency program, the local university now has what it takes for a pediatric ophthalmology and adult strabismus subspecialty fellowship. This research seeks to see how such a program can be built by following this model.

METHODS

All senior authors were connected to educational institutions of the collaboration and had professional relationships as well. Author S.T.S spent time training abroad in Pediatric Ophthalmology and, afterward, became in charge of Ophthalmology studies at their native university. Meetings of local college faculty were organized to help prepare a planned fellowship for pediatric ophthalmology at all partner institutions which included major teaching hospitals. The growth of the fellowship is overseen by the university's ophthalmology department to ensure it follows the curriculum for pediatric ophthalmology and strabismus as suggested by the ICO. This curriculum outlines the knowledge pediatric ophthalmology and strabismus fellows require and supports learning for models used in programs with children and adults. The government finances the local university's ophthalmology residency and the health authority handles the scheduling of residents into the program. Fellows will be chosen by department staff and the government will fund their living expenses for the year. By visiting clinics, watching experts at work and consulting with University educators, the research team evaluated both the resources and the eye surgeons. The last three years of clinical data were examined to find out how many kids were seen in the hospital. Learning from faculty in the region, seeing demonstrations from international teachers, observing patients closely and carefully looking at the cases available made it clear what further training was required. The group met organizations in eye care at both the local and international level to see what support the fellowship program could receive from them. We spoke with people working in the collaboration to learn about previous successful partnerships. At the end of the week, the main stakeholders looked over the results and started developing a new curriculum. To be feasible, the program needed to have staff to meet ICO requirements. We made sure to use the certification procedure from CASQE while drafting the program specification document.

RESULTS

The team members, we observed 15 ophthalmologists who worked in a variety of ophthalmological areas. The field with the most consultants was vitreoretinal surgery, at four and the second most was

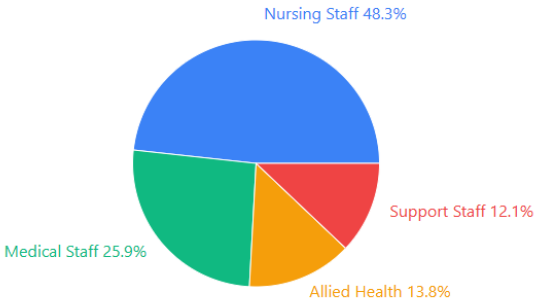
pediatric ophthalmology and strabismus, with three. Every part of ophthalmology was considered and the center had three ophthalmologists focusing on cornea and external disease, plus three in glaucoma. We had two experts in oculoplastics on our team. Various subspecialties allow eye doctors to deliver full eye care to patients with any type of problem. Apart from ophthalmologists, the division relied on a number of other staff essential for providing correct eye treatments. With surgery being a permanent part of what they do, the department had twenty nurses in the operating room to offer good perioperative care. The eight clinic nurses were involved in providing important care for patients who visited the outpatient department. Within the clinics (n=3), coordinators handled making, managing and moving appointments for patients. Three optometrists evaluated patients' basic eye health in the center, two ocularists created and fitted prosthetic eyes and two ophthalmic assistants helped manage both behind-the-desk tasks and clinical duties. Correct communication and documentation in the work of administrative experts were made easier by having two departmental administrative assistants. Ophthalmic imaging was done by only one person, an expert, while our team's optician managed lens preparation and dispensing. Members of the eye care team, orthoptists supported the handling of eye movement and binocular vision diseases. With access to a wide range of experts, the department can help patients by both surgical and medical means. Subspecialists are especially needed to manage complex disorders in children's eyes, so the need for these experts led to the creation of fellowship programs in pediatric ophthalmology and strabismus. The abundance of trained staff helps preserve the top quality of the ophthalmology service. Department success in meeting needs largely comes from these professional specialists.

Table 1:Department of Ophthalmology Staff at Addis Ababa University

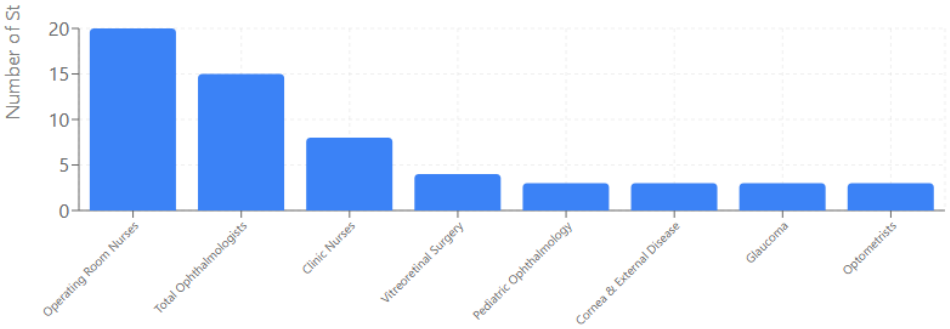
Staff	No.
Ophthalmologists	15
Vitreoretinal Surgery	4
Pediatric Ophthalmology & Strabismus	3
Cornea and External Disease	3
Glaucoma	3
Oculoplastics	2
Other (Pediatric Ophthalmology)	
Operating Room Nurses	20
Clinic Nurses	8
Clinic Coordinators	3
Optometrists	3
Ocularists	2
Ophthalmic Assistants	2
Departmental Administrative Assistants	2
Ophthalmic Imaging Specialists	1
Opticians	1
Orthoptists	1

Figure 1: Department of Ophthalmology Staff Distribution

a) Addis Ababa University - Total Staff: 58



b) Detailed Staff Breakdown



Curriculum development and program specification

There were four professional experts living at the center, plus state-of-the-art resources and plenty of patients, so the program met all the ICO's standards for education and training. The plan for the pediatric ophthalmology fellowship program is provided in detail further in the document, not shown in the figure. The team came to the conclusion that a site fellowship at the local teaching hospital to meet ICO and local requirements was the most suitable solution. ICO commitments to EthiCode would guide the conduct of each of the specialists [19]. While the ICO now runs year-long training, the group recommended extending this to two years to support better learning and so two fellows may join at the same time. In the planning phase, the curriculum links patient care work to instruction received in classes and during lectures. It's expected that surgery on certain cases will be done by either fellow or resident, with the fellow being able to take priority in advanced strabismus and cases involving minor eyes. The faculty selected retinopathy of prematurity (ROP), retinoblastoma, procedures affecting the front of the eye and strabismus as key course modules. Our international participants will be taught specific techniques in the area of retinopathy of prematurity and retinoblastoma, since they are key issues in this region. The region's faculty assert that participatory learning, searching for research and directing surgeries are crucial and expected visitors should help with these tasks too. Still, with the understanding that international faculty need to visit the institution three times a year for one month, heavy responsibilities in their work and studies may sometimes prevent keeping to the schedule. For this reason, two-week faculty trips were organized, giving surgical guidance and small doses of lectures and virtual advice on both primary and later care of a few specific cases. People in the program are required to undertake formal research and also take a final test. For additional quality, staff review their own work, participate in journal clubs, help out with education, create journal articles, present at medical meetings, receive reviews from other members and are evaluated by the trainees and juniors. Surgical evaluations at ICO courses are done using the OSCAR rubric.

DISCUSSION

Through needs assessments, it is easier to know what is vital in education and to join forces with others on international academic works [11, 15, 17, 21–28]. Several real clinical scenarios demonstrated that cooperating in a training program was easy for team members representing each institution. In 2008, the government began this collaboration by arranging a program to help increase teaching capacity in universities [13]. With the help of funding from both institutions and the country, along with planned visits from visiting faculty from the international university [13]. With the knowledge, tools and group of patients required, establishing a fellowship in pediatric ophthalmology was possible, after the earlier postgraduate program had proven successful. Since starting in 1980, nearly 120 ophthalmologists have graduated from the residency program and now practice in nearby places. While those who finish their training work in cities and the countryside, others that are sponsored by other universities will go back to where they studied [13]. More pediatric ophthalmologists support the national Universal Eye Health Plan in achieving its goals. Based on the earlier framework, busy schedules of visiting specialists have sometimes reduced their visits to the program. Online tools can help make lectures successful and using telemedicine can improve clinical case talks to support the time faculty spend on-site. Its simple structure and clear graphics mean the ROP module helps with live lectures as well as remote image capture from retina cameras. Our system has made it possible to see that ophthalmology residents become more accurate in making diagnoses [30]. Emergency care staff have arranged online consultations with specialists in their field, but sometimes Internet problems got in the way [15]. Other regions facing similar problems have found that digital medical education via telehealth thrives, so as the internet improves, more online learning will become possible. Though our current tools are sufficient for users, a rise in fellows may require us to include more devices for review. For some people, the care they need can be found at private health centers and nowhere else. Thanks to the partnerships at these centers, fellows will learn how to use private sector technologies and methods in public healthcare. The hospital's training program managers have worked together with non-governmental organizations. It is possible that we will educate medical engineers in the future to continue technical work in the ophthalmology department. In an advanced eye care facility, organizing maintenance for equipment, running inventory, setting rules for work and medical engineering on the site is extremely important [33]. As partners, students can join a team with the Institute of Biomedical Engineering at the foreign university.

The main focuses during the fellowship were RP and retinoblastoma. Although there were enough patients overall, few cases of ROP were seen, mainly because there was not a formal ROP screening program and only 30 neonatal intensive care units in the capital. Because not many pediatric ophthalmologists conduct these screenings, the difficulty increases. Recently, the International Pediatric Ophthalmology and Strabismus Council found that numerous countries in the area lack programs for both screening and treating ROP. Since babies survive longer with better neonatal care, more cases of ROP are appearing; a national screening program is now necessary. Other areas have shown improvements, so a national strategy for retinoblastoma is gaining importance. As an example, a team of countries facing retinoblastoma created a strategy in 2008 to help design rules, enhance pathology abilities and address other needs [34]. This plan, like the Universal Eye Health Plan, gets support from the Ministry of Health to guide vital medical investments and learning. About one-fourth of pediatric surgeries at the main teaching hospital involve injuries of the eyes or the area around them. Although there are more patients than needed for learning, the fact that many cases occur means it's necessary to prevent eye problems together with managing those that do occur such as trachoma and congenital glaucoma. The fellowship will place a strong emphasis on prevention activities applicable to the clinic, research and community service sectors. Also, overseas education is important to plenty of ophthalmologists and this leads them to travel and practice outside their own countries [35]. Because of increasing cooperation between local institutions and foreign eye centers, many more ophthalmologists have been trained in the region [36]. By collaborating on the VISION 2020 LINK project, regional eye care groups have improved how they

teach, defined new standards for treatments and provided ongoing education [37]. This fellowship seeks to expand our efforts to make pediatric ophthalmology education more effective. Partnering with educational institutions helps make training better, gives access to research and ensures the materials are suited to the region. The same outcome is true for active high-wage workers, since improving their understanding of culture, learning about common diseases and recognizing local barriers to care improves the services they provide[38].

CONCLUSIONS

If this region combines a strong ophthalmology fellowship with academic efforts, it might decrease the number of children affected by vision loss. We feel confident that we can set up a two-year fellowship following the guidelines used in other countries, thanks to the findings from our analysis. Because South Asia sees a lot of eye problems caused by retinopathy of prematurity and retinoblastoma, these modules should be added to the training. Clinical training takes place on-site, courses are offered, research is carried out, fellows receive hands-on monitoring and this combination is supported by both in-person and online teaching. Through the process, students have regular guidance and can learn from each other despite faculty being busy. Working together, public and private organizations make better treatments and diagnostic tools available to more people, improve the training of doctors and promote a lasting future for healthcare. Also, the program supports government goals, like the eye health plan, by boosting expertise in children's ophthalmology everywhere. Because eye injuries and childhood eye diseases are common in Taiwan, the center gives priority to eye prevention, research and working with communities. The report highlights the main issue as both the missing programs for prematurity and the lack of neonatal care units, making it clear why national screening and treatment should be established. Partnering with such organizations allows us to manage resources well and make sure the lessons learned in our training last. In essence, the fellowship will streamline access to eye medicine and education for people in this area. Because of its local knowledge, thorough research and fresh teaching plans, the program can shape how children's eyes are cared for in the future.

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