

The Ocular Health of Rural Priests and Novices in Thailand

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Abstract

The Faculty of Optometry performed refraction and primary eye health screenings at mobile eye clinic from September 2016 – March 2017 with the following objectives: to obtain baseline data for research purposes, to teach, to provide community service, and to fulfill the University quality assessment program's religious support requirement. The exam process consisted of history, visual acuity measurement, refraction, tonometry, external exam, slit lamp exam, internal exam and fundus photography. Priests and novices needing spectacles were offered them without charge, and individuals suspected of having eye disease were referred for further evaluation. Referred study participants were followed in order to obtain their final diagnosis and treatment plan. The average age of the 317 priests participating in this study was 51, ranging from 12 – 89. A history of hypertension was reported by 26.81% of participants; hyperlipidemia by 13.56% of participants, and 7.57% of participants had a history of diabetes mellitus. Two priests (0.63%) were blind, and nine had low vision in both eyes (2.84%). 80% of the participants had refractive error, with the following breakdown: presbyopia (62.30%), myopia (11.99%), and hyperopia (2.84%). Eighty-nine priests (28.1%) had cataracts. In addition, 31 (9.78%) priests had glaucoma, 9.46% had significant pterygium, and 8.52% had age-related macular degeneration. The data indicated lower prevalence cataract, but a prevalence of glaucoma similar to that, which was found in a 2007 national survey. The prevalence of cataracts and diabetic retinopathy in priests located in rural Thailand seems to be reduced when compared to a 2007 study, possibly due to the implementation of universal health insurance coverage in 2002. The prevalence of glaucoma, a leading cause of irreversible blindness, seems to be unchanged. Eye care personnel and the National Eye Health Service Plan for Prevention of Blindness should consider making glaucoma screening and early detection, with appropriate treatment and follow-up, a top priority.

Keywords: *ocular health, rural, priest, Thailand*

บทคัดย่อ

วัตถุประสงค์: คณะทัศนมาตรศาสตร์ มหาวิทยาลัยรังสิตต้องการทราบสภาวะสุขภาพตาของพระสงฆ์และสามเณร หลังจากที่มีสิทธิ์หลักประกันสุขภาพถ้วนหน้า จึงออกหน่วยตรวจสุขภาพตา โดยมีวัตถุประสงค์แรกเพื่อการดูแลรักษาตาเบื้องต้น และวัตถุประสงค์รองคือให้บริการวัดและตัดแว่นตาให้แก่พระสงฆ์และสามเณร เมื่อได้ข้อมูลพื้นฐาน จะนำมาปรับปรุงการเรียนการสอน การบริการ และการวิจัย เพื่องานประกันคุณภาพของมหาวิทยาลัย ในหมวดการทำนุบำรุงพระพุทธศาสนา การตรวจตาจะเริ่มด้วยการวัดสายตา วัดแว่น วัดความดันตา พระสงฆ์และสามเณรจะได้รับแว่นตาโดยไม่เสียค่าใช้จ่าย นักศึกษาจะตรวจตาพระสงฆ์ และยื่นยื่นผลการตรวจโดยอาจารย์นักทัศนมาตร และจักษุแพทย์ ผู้ที่สงสัยว่ามีโรคตาที่ต้องการตรวจด้วยเครื่องมือพิเศษ หรือมีต้อกระจก ต้อเนื้อที่ต้องรับการผ่าตัด จะได้รับการส่งต่อไปโรงพยาบาล ตามสิทธิ์หลักประกันสุขภาพถ้วนหน้า คณะผู้วิจัยจะโทรศัพท์ไปถามถึงผลการตรวจและการรักษา เพื่อนำมาลงข้อมูลผลการวิจัยที่สมบูรณ์ พบว่าพระสงฆ์และสามเณร มารับการตรวจ 317 รูป อายุตั้งแต่ 12-89 ปี เฉลี่ย 51 ปี โรคในร่างกายนที่พบมากที่สุดคือความดันโลหิตสูง 26.81% รองลงมาคือไขมันในเลือดสูง 13.56% และเบาหวาน 7.57% มีความชุกของสภาวะตาบอด 0.63% และความชุกของภาวะสายตาเลือนราง 2.84% พบว่าสาเหตุหลักของความบกพร่องทางการมองเห็น มาจากปัญหาสายตาที่ไม่ได้รับการแก้ไข 80.13% เป็นสายตาวายในผู้สูงอายุ 65.3% โรคตาที่พบมากที่สุดได้แก่ ต้อกระจก 28% ต้อหิน 9.78% ต้อเนื้อที่ลามมาถึงรูม่านตา 9.46% และโรคจอตาเสื่อมในผู้สูงอายุ 8.52% การมีหลักประกันสุขภาพทำให้พระสงฆ์เข้าถึงบริการทางตามากขึ้น เนื่องจากต้อหินเป็นสาเหตุสายตาพิการที่ไม่สามารถรักษาให้กลับคืนได้ จักษุแพทย์และนักทัศนมาตร จึงควรให้ความสนใจในการคัดกรองต้อหิน รักษา และติดตามผลอย่างใกล้ชิด รวมทั้งนโยบายด้านสุขภาพตาควรเน้นเรื่องต้อหินเช่นกัน

คำสำคัญ: *สุขภาพตา ชนบท พระสงฆ์ ประเทศไทย*

1. Introduction

The Universal Coverage (UC) by the National Health Security (NHS) policy was initiated in Thailand in 2002. In 2007 the Prevention of Blindness and Eye Health Promotion committee of the Ministry of Public Health conducted the Fourth National Survey of Visual Impairment in Thailand, which indicated a (Jenchitr, 2007) prevalence of blindness of 0.59% and low vision of 1.57%. The most common cause of blindness was cataract (51%), followed by glaucoma (9.84%), age-related macular degeneration (6.56%) and diabetic retinopathy (2.46%). The major cause of visual impairment was uncorrected refractive error (24.35%). A survey of 268 priests and novices conducted in 2008 (Jenchitr et al, 2008) revealed that most of them had normal vision (20/20-20/40: 67.54%), with cataract found in 17.54% and glaucoma found in 5.97% of participants. A study of 2,658 novices (Nanthavisit et al, 2008) in 2008 found that 498 had refractive errors (18.74%), and 2% had pterygia or pterygium. Due to a decrease in the prevalence of communicable diseases, national health policy in Thailand was shifted to emphasize on health prevention and promotion in order to address the problem of non-communicable diseases. With regard to eye care, policy was adjusted to promote accessibility to eye care and eye health education. In 2007 the UC Health scheme initiated a vertical program for cataract detection and surgical intervention. To date, a total of 1,000,000 cataract surgeries have been performed throughout Thailand with an approximate expense of 10 billion Baht or about 303 million USD (National Eye Health Data, 2015, Pangputtipong, 2015). A diabetic retinopathy screening program was also created that regularly sends a mobile fundus camera team to every district hospital (Deerochanawong and Ferrario, 2013), with photo-interpretation performed by ophthalmology at a nearby provincial or regional hospital, or by a university hospital retinal specialist. Options for patients needing treatment for diabetic retinopathy include laser photocoagulation, intra-vitreous injection of anti-Vascular Endothelial Growth Factor (Anti-VEGF, which is included in national drug formulary), or surgery. At this time glaucoma intervention is not included in the UC scheme. It is relevant to study the ocular health of Buddhist monks and novices, as they are considered a disadvantaged group, with more than half of them not covered by the UC scheme from various barriers (Figure 2).

2. Objectives

Due to the priest previously having only the priest card that cannot have access to health care system. Under the Universal Health Care coverage, the priests have to register an Identifiable (ID) card Identifiable card (ID) as other Thai population to be able to have access to health care system. After fourteen years of eye health prevention and promotion programs in Thailand, and nine years of diabetic retinopathy screening in district hospitals, the question may be asked whether or not the ocular health of rural priests and novices has improved. The Faculty of Optometry at Rangsit University conducted mobile primary eye care screenings with the objective of obtaining the data needed to answer this question.

3. Materials and methods

The field survey was conducted from September 2015 to March 2016 at two temples in two districts, in NakornRatchasima (Northeast Thailand), two temples located in two districts of Ratchaburi, one central temple in Pathumthani. Eye exams were conducted in the temple building (Viharn or Hor Chan) where ample space and dark room were available. The primary eye care screening started with an interview of priests and novices regarding general health information, such as systemic disease, ocular disease, prior trauma and treatments. The eye examination consisted of measurement of presenting visual acuity (VA) by Snellen chart and intraocular pressure (IOP) measurement by non-contact tonometer. Refractive error was measured by autorefractor and followed by subjective refraction by optometric instructors. Pre-gazed spectacles of isometric spherical power were dispensed at the end of examination, and dispensed within two months of the exam date. Ophthalmologists, optometrists and optometric students performed external eye examination of the lid and anterior segment by torchlight, followed by external ocular and fundus examination by slit lamp biomicroscopy. Fundus photographs were taken for each person presenting and interpreted shortly thereafter. The participants with or suspected of having eye disease were referred to be seen by an ophthalmologist at nearby regional hospital for definite diagnosis and treatment (as UC guidelines), and some priest preferred to go to Priest Hospital in Bangkok.

4. Results

A total of 317 priests and novices completed the screening and follow-up process, with an age range of 12 - 89 and mean of 51 years (Table 1). Based upon patient history, the most common systemic diseases in those presenting were hypertension; 85 cases (26.81%), dyslipidemia; 43 cases (13.56%) and diabetes mellitus; 24 cases (7.57%) (Table 2). A visual acuity between 20/20 and 20/40 was found in 64.98 % of study participants (Table 2). Using the WHO classification of blindness and visual impairment, two priests (0.63 %) were blind due to cataract with glaucoma and cataract with age-related macular degeneration. Nine participants had low vision (2.84 %) two from cataract, three from glaucoma, one from macular degeneration, one from congenital anomaly, one from diabetic retinopathy, and one due to an incorrect intra - ocular lens power being implanted during cataract surgery. The most common cause of reduced vision was refractive error (RE), with 254 cases (80.13%) as shown by Table 1. Two hundred and twenty two of those receiving eyeglasses were over 40 years old. The nature of refractive error was found to be as follows; 207 cases (65.30%) presbyopia; 38 cases (12%) myopia with or without astigmatism, and 9 cases (2.84%) hyperopia with or without astigmatism. Thirty-three participants (10.41 %) did not need new spectacles, either due to already having appropriate eyeglasses, or needing to defer final refraction until after receiving treatment. One hundred and fourteen (31.67%) ready-made eyeglasses were dispensed immediately after examination, and ninety-nine custom-made spectacles (31.23%) were sent to the participants at a later date. Eighty-nine participants (28.07 %) presented with reduced vision due to cataract (Table 3 and Figure 1). Thirty-one (8.83%) participants were being treated for glaucoma, and forty-one cases (12.93%) were suspected to have glaucoma and referred for further evaluation. Eighty-three (26.18%) participants were referred for treatment of cataract or significant pterygium, but only 11 (3.47 %) presented to ophthalmology within the following two months.

Table 1 Age, systemic diseases and refractive error of rural priests and novices in Thailand

Age range (years)	Total Participants	Associated systemic diseases				No refractive errors	Refractive error		
		Hypertension	Dyslipidemia	Diabetes	Other*		Myopia	Hyperopia	Presbyopia
<10	-	-	-	-	-	-	-	-	-
11 - 20	12	2	-	-	-	10	2	-	-
21 - 30	25	4	-	1	-	12	13	-	-
31 - 40	28	10	1	-	-	16	6	-	6
41 - 50	68	16	4	5	2	4	2	1	51
51 - 60	86	18	12	8	5	1	7	4	63
61 - 70	45	18	15	7	7	-	3	3	40
>70	53	17	11	3	4	-	5	1	47
Total	317	85	43	24	18	43	38	9	207

*Others are ischemic heart disease, anemia, cerebrovascular accident (CVA), hernia and benign prostate hypertrophy

Table 2 Presenting visual acuity in right eye of the priests

Average Age (years)	Total Participants	Presenting visual acuity in right eye						
		20/20-20/40	20/50-20/70	20/100-20/200	<20/200	Count finger	Hand motion	Total
≤ 20	12	10	1	1	-	-	-	12
21 - 40	53	38	10	3	2	-	-	53
41 - 50	68	57	7	1	2	-	1	68
51 - 60	86	56	21	5	1	3	-	86
61 - 70	45	25	9	8	1	-	2	45
>70	53	13	22	9	5	2	2	53
Total	317	199	70	27	11	5	5	317

Table 3 Eye diseases in rural priests and novices (number by person not by eye)

Eye diseases*	Age range (years)						Total
	< 20	21- 40	41-50	51-60	61-70	>70	
Refractive error	2	25	54	74	46	53	254
Cataract	-	4	12	18	29	26	89
Glaucoma suspected	-	3	9	11	12	6	41
Glaucoma	1*	3	5	8	9	5	31
Significant pterygium	-	4	6	5	5	10	30
Age related Macular Degeneration (AMD)	-	-	1	5	10	11	27
Pseudophakia	-	-	1	3	8	9	21
Corneal diseases, scar	-	-	3	7	-	4	14
Strabismus	-	3	-	2	-	2	7
Blepharitis,Lid deformities	-	-	4	-	-	3	7
Posterior vitreous detachment	-	1	3	1	1	-	6
Pseudoexfoliation Syndrome.	-	-	-	-	1	4	5
Retinal drusens	-	-	1	1	1	1	4
Diabetic Retinopathy	-	-	-	2	1	-	3
Ocular hypertension	-	1	1	-	1	-	3
Optic atrophy	-	-	-	2	-	-	2
Chorioretinal scar	-	-	-	1	-	1	2
Amblyopia	-	-	-	-	1	-	1
Phthisis/bulbi	-	-	-	-	-	1	1
Retinal vascular disease	-	-	-	-	-	1	1
Retinal Detachment	-	-	-	1	-	-	1
Retinitis pigmentosa	-	1	-	-	-	-	-
Posterior capsular opacity	-	-	-	-	-	1	1
Pigment dispersion syndrome	-	-	-	-	-	1	1
Post – op pterygium	-	-	-	-	1	-	1
Post – traumatic maculopathy	-	-	-	1	-	-	1
Total*	3	45	100	142	126	139	555

*One case of juvenile glaucoma

**Some participants had more than one eye disease eg. cataract and refractive error

Table 4 Age group of visual impairment in rural priests

*Visual impairment(WHO)	Age range (year)						Total
	≤ 20	21-40	41-50	51-60	61-70	>70	
Low vision one eye	-	2	-	1	5	2	10
Low vision both eyes	-	2	-	1	2	4	9
Blindness one eye	-	1	-	4	2	4	11
Blindness both eyes	-	-	-	-	-	2	2
Blindness one eye, Low vision one eye	-	-	-	-	1	-	1
Total	-	5	-	6	10	12	33

*Visual impairment by presenting visual acuity of the better eye, visual field is not included

Table 5 Visual impairment of Thai population from the National survey⁽⁴⁾ compare to the survey of priests and novices in 2008^(5,7) and 2015

Eye diseases	2007 (%)		2008 (%)		2015 (%)	
	National Survey		Priests	Novices	Priests	Novices
Refractive errors	24.35		24.63	18.74	86.43	0.63
Pingueculitis, pterygium	Not record		3.36	1.92	Not record	Not record
Significant pterygium	3.17		0.75	-	9.46	-
Cataract	51		17.54	-	28.07	-
Glaucoma	9.84		5.97	-	9.78	-
Diabetic retinopathy	2.46		0.17	-	0.95	-
AMD	6.56		0.75	-	8.52	-
Low vision both eyes	1.57		4.48	-	2.84	-
Blind both eyes	0.59		-	-	0.63	-

5. Discussion

The results of these mobile eye clinics are similar to those found in a 2008 study (Table 5). It appears that trachoma, malnutrition and infectious eye diseases are no longer significant causes of visual impairment in rural area of Thailand. The 2007 National survey indicates Refractive error (RE) is the major cause of visual impairment (Jenchitr and Raiyawa, 2012) and it is accepted that managing refractive error with spectacles is a cost-effective eye health intervention with the potential to dramatically improve quality of life. The current shortage of qualified optometrists in Thailand limits the population's access to quality refractive care. Eye screenings for cataract and diabetic retinopathy performed in accordance with National Health Security Office (NHSO) policy in Nakorn Ratchasima and Ratachburi may account for the fact that no cases of blinding cataract or severe diabetic retinopathy were found in these provinces. However, 31 (9.78%) participants had glaucoma, and 41 (12.93%) were suspected of having glaucoma and referred. Since the fourth National survey of blindness in Thailand (Jenchitr et al, 2007) indicates a higher prevalence of low or normo-tension (Sothornvit et al, 2007) glaucoma, in the short term the NHSO should consider using the system currently employed to screen for diabetic retinopathy to provide glaucoma screening in the form of intraocular pressure measurement and optic disc photography with cup-to-disc ratio analysis. The prevalence of glaucoma and visual impairment increases with age (Table 3, 4). When the supply of optometrists is adequate, they will be able to perform a glaucoma screening when examining the Thai population presented for their first presbyopic glasses, and then regularly thereafter. Optometrists can also screen other high-risk groups as member of glaucoma and AMD family, present of systemic diseases with ocular involvement (Diabetes, hypertension, Chloroquin treatment for rheumatoid arthritis and previous history of eye or facial injury etc. In addition, all community health personnel should be educated about the benefits of early glaucoma detection in order to reduce the prevalence of a major cause of non-reversible blindness (Quigly and Broman, 2006) and impaired vision (Chan et al, 2013). The final finding was that the ocular health of Thai priests has not improved since the availability of UC Health insurance.

6. Conclusion

Cataract and diabetic retinopathy may not be significant eye problems among rural areas at this time except in disadvantage area, such as along country border, refugee camp, hill tribe or mountainous area. Refractive error is the most common cause of visual impairment and should get priority for early intervention. The number of qualified optometrists should be increased so that they may be assigned to serve in rural areas. Glaucoma is emerging as a leading cause of irreversible blindness and reduced quality of life, which should receive more attention from health personnel, especially when the age demographics of the Thai population are considered. Ophthalmologists and optometrists must prioritize their efforts to focus on glaucoma screening and early detection along with treatment that includes regular follow-up. Glaucoma detection and management should be emphasized in the Ministry of Public Health's Prevention of Blindness program, and strongly supported by National Health Security Office.

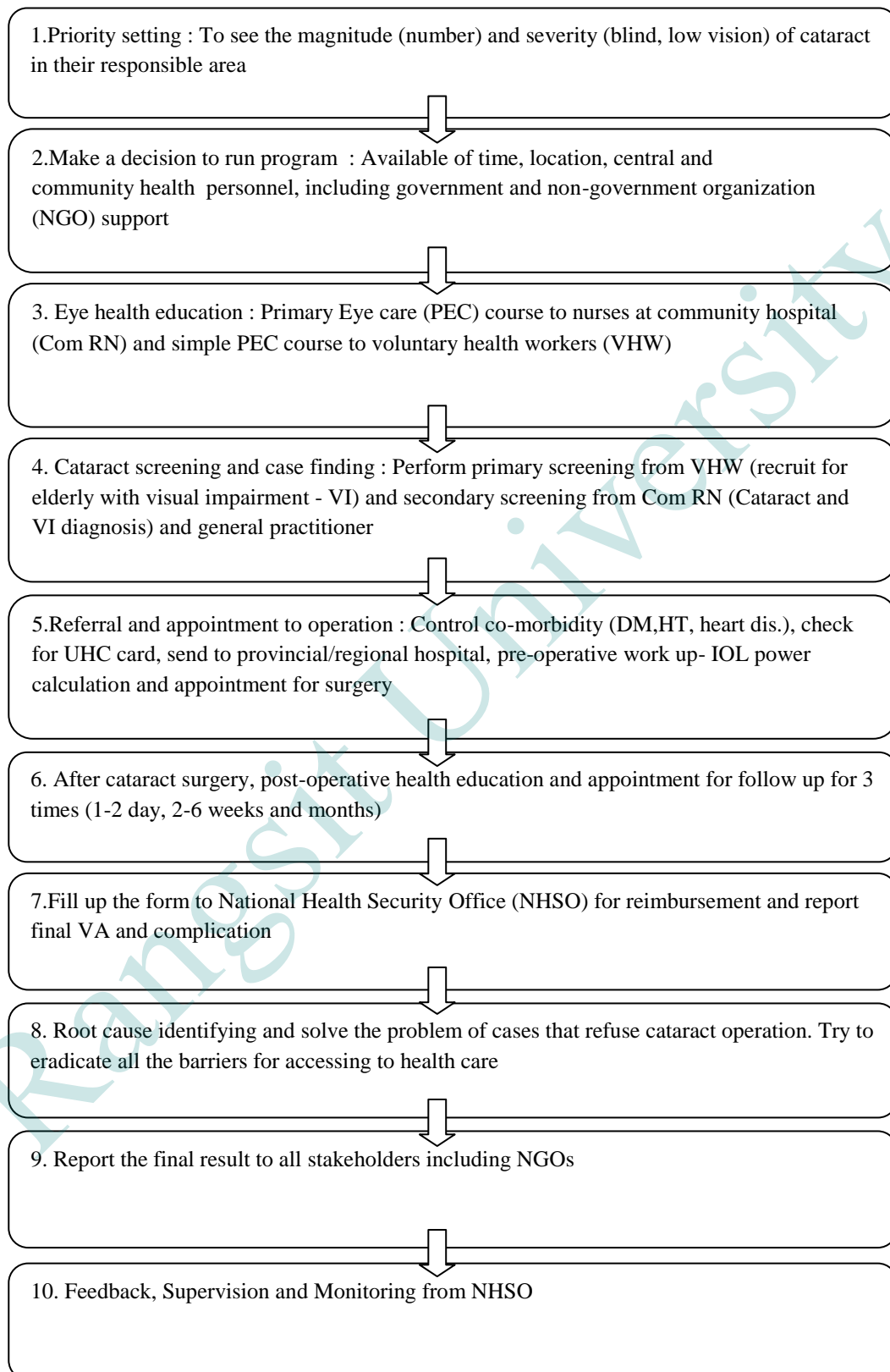


Figure 1 Flow chart for cataract intervention program under Universal Health Care coverage

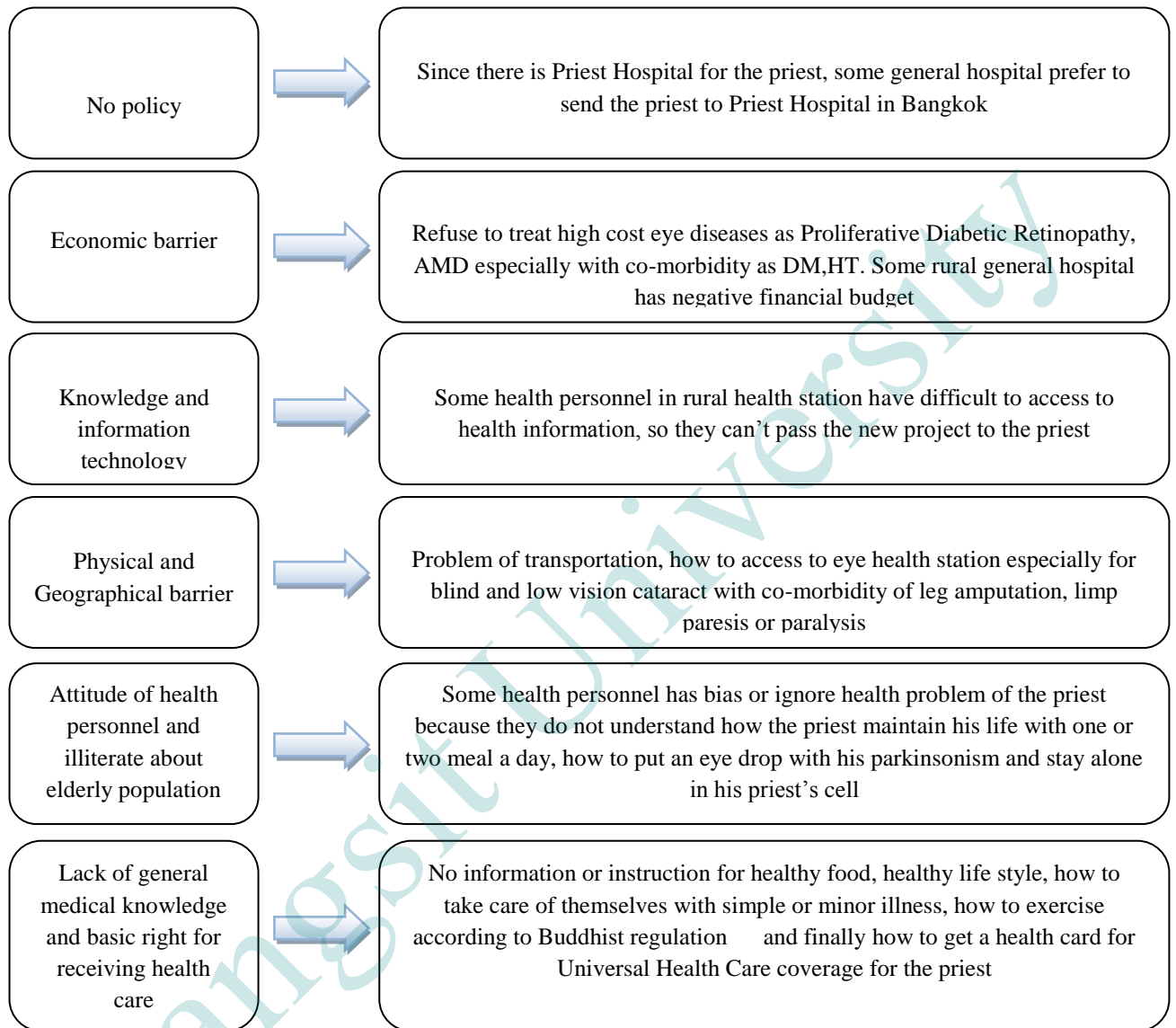


Figure 2 Barrier to access to eye health care

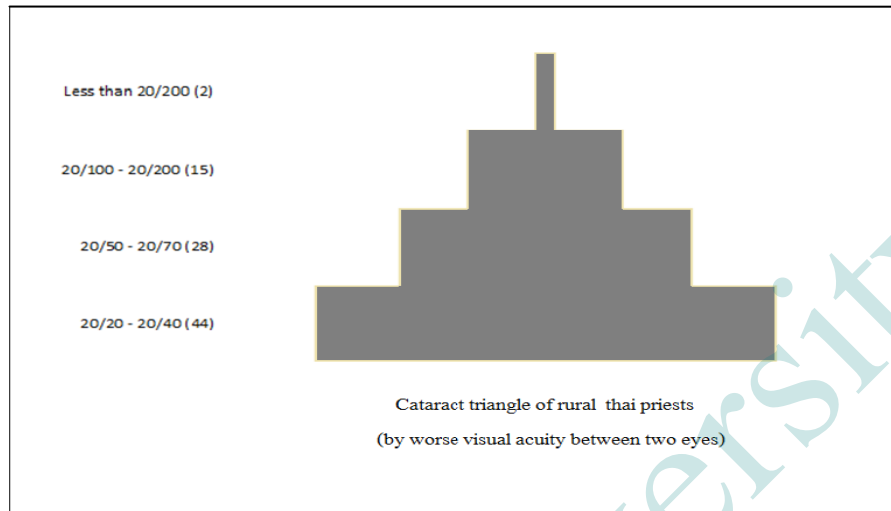


Figure 3 Cataract triangle of rural priests (by worse visual acuity between two eyes)

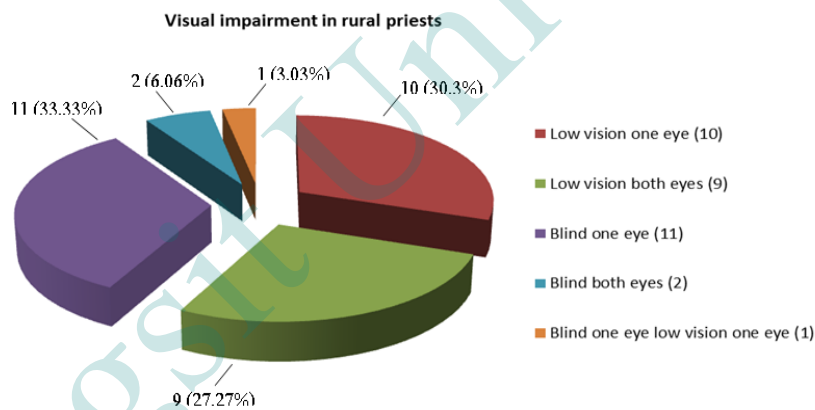


Figure 4 Visual impairment* in rural priests (by visual acuity only and no visual field was included)

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