Ear, Nose, Throat and Craniofacial Diseases Community Services Initiative of Khon Kaen University

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The Department of Otorhinolaryngology, Faculty of Medicine, Khon Kaen University has cooperated with the local community to establish the welfare and health education service in the local community.

The first initiative was carried out in the local primary school. This paper described the missions, method and results of our first attempt to screen the students in the community.

Keywords: *Otolaryngology, Craniofacial anomaly, Screening*

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Khon Kaen University is the first and largest university in the northeastern region of Thailand. The university was established since 1966 and hosts more than 30,000 students and 2,000 academic staff nowadays. The university is a public university and principally funded by the government. Khon Kaen University offers 105 undergraduate majors, along with 129 master degree programs, and 59 doctoral programs.

Modern development has caused changes in all aspects of Thai society. The positive impacts of development are economic growth, progress in material and public utilities, modern communication systems, and improvement and expansion of education. However, few of these results have reached rural areas or the underprivileged in the society. The children and youth are the precious resource of the country. They will play a major role developing the country in the future. For this reason, the government needs to spend most of their resource to create a mature and successful adult from a child. This includes investment in health, education, sports, family and religions.

The school is a place that students and teachers do activities together. Students from various backgrounds living in a confined space cause susceptibility to disease transmission. Airborne, water and food were the major factors causing disease transmission in the school[1-3]. Incidence rates of acute respiratory tract infection from six national developing country community-based studies ranged from 12.7 to 16.8 new episodes of acute respiratory tract infection per 100 child-weeks at risk, and rates of lower respiratory tract infection ranged from 0.2 to 3.4 new episodes per 100 child-weeks at risk. Children spend from 21.7 to 40.1 percent of observed weeks with acute respiratory tract infection and from 1 to 14.4 percent of observed weeks with lower respiratory tract infection[4]. In Thailand, the hospitalized acute lower respiratory tract infection incidence rate was 5,772 per 100,000 child-years (95% CI 5,707 to 5,837) and was higher in boys versus girls (incidence rate ratio 1.38, 95% CI 1.35 to 1.41)[5].

Non-transmissible disease was also found amongst teachers and students. A recent study found that teachers had hoarseness from 33 to 39 percent[6,7]. The students also had hoarseness, around, 12 percent (7.8 percent in girls and 15.8 percent in boys)[8], and dysarthria from 35 to 38 percent, which is surprisingly high[9].

The Department of Otorhinolaryngology, Faculty of medicine, Khon Kaen University has cooperated with the local community to establish the welfare and health education service in the community. This first initiative was carried out in the local primary school. The physical examination was done by the otolaryngologists. The objective of this attempt is to identify the size and spectrum of the ear, nose, throat and craniofacial diseases in the schools.

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Material and Method

The Ban Non Muang Primary School is a local primary school in our target community. The head of this project and principal investigator (Dr. Benjamas Prathanee and Dr. Patorn Piromchai) was elected at a first meeting with the principal of the school. In the first meeting, we took the chance to introduce ourselves and the objectives of this project. The principal kindly welcomed us and we agreed that this project will help to improve the health of the students and teachers in the school.

After the principal allowed us to start the project, the consent forms for the guardian of students were distributed to the students. The options for the guardians were: 1) allow the student to participate in this project and report the public summary results without personal identification, 2) allow the student to participate in this project but not allow to report the data of this student, 3) not allow to participating in this project.

From the total of 163 consent forms, all of them were returned to our team. All of them allowed us to conduct this project with their children. There were 13 students' guardian (7.9 percent) that did not allow us to report the results to the public. As a result, this paper reports the screening result from 150 students.

The physical examination by the otolaryngologists included general appearance examination, ear examination using otoscopy, throat and neck examination, nasal examination using rhinoscopy.

The data were collected from the case record forms and was extracted to excel spread sheets by a research assistant. The data were analyzed using the Statistical Package for the Social Sciences version 20.0 (SPSS Inc., Chicago, IL) software program. The categorical variables were present in the form of frequency and percentages. The continuous variables were present in the form of means.

This project was approved by the Khon Kaen University Ethics Committees for Human Research (HE581480).

Results

From one hundred and fifty students who were enrolled in this study, twenty students were year one, 22 students were year two, 32 students were year three, 36 students were year four, 14 students were year five, 26 students were year six.

One hundred and forty-one students completed the physical examination. For the ear examination, we found the ear pathologies around 20 percent for both ears in the students. For left ear, 20 percent had impacted ear wax; 0.7 percent had otitis media with effusion. For right ear, 18.8 percent had impacted ear wax; 0.7 percent had otitis media with effusion, and 0.7 percent had chronic otitis media (Table 1).

For the throat examination, we found problems in around 30 percent of students. Chronic hypertrophic tonsillitis was found in 8.7 percent of students, acute pharyngitis was found in 6.7 percent of students, and dental caries was found in 6.7 percent of students. Other problems that we found in the students were angular cheilitis and foreign body (fish bone) at the tonsil of the student. The foreign body was immediately removed without complications.

The tonsils were hypertrophy in around half of the student. In the students with tonsil enlargement, the most common type is grade 2 hypertrophy (28 percent) (Table 2).

For neck examination, we found a thyroid enlargement in 2 students (1.4 percent). Cervical lymph node enlargements were found in 5 percent of students. Significant lymphadenopathy was found in only 1 students (0.7 percent) (Table 3).

For nasal examination, we found problems in around 35 percent of the students. The most common problem was acute rhinitis and acute rhinosinusitis (12.1 and 8.1 percent, respectively). The other problems were allergic rhinitis, chronic rhinitis and chronic rhinosinusitis (Table 4).

Discussion

The chief proponent of localism in Thailand is King Bhumibol Adulyadej's philosophy of "sufficiency economy". The foundations of King Bhumibol's theory include sustainability, moderation, and broad-based development. The Learning Centre

Table 1. Ear examination results

Sides	Numbers (percent)
Left (n = 125)	
Normal	94 (63)
Impacted ear wax	30 (20)
Otitis media with effusion	1 (0.7)
Right (n = 141)	
Normal	111 (74)
Impacted ear wax	28 (18.8)
Otitis media with effusion	1 (0.7)
Chronic otitis media	1 (0.7)

of King Bhumibol's Philosophy of Economic Sufficiency claims the concept is focused on living a moderate, self-dependent life without greed or over exploitation of, for example, natural resources.

Table 2. Throat examination results

Types	Numbers (percent)
Oral cavity and pharynx (n = 139)	
Normal	103 (69.1)
Chronic hypertrophic tonsillitis	13 (8.7)
Acute pharyngitis	10 (6.7)
Dental caries	10 (6.7)
Angular cheilitis	2 (1.4)
Foreign body	1 (0.7)
Tonsils size	
Left (n = 136)	
Grade 1	80 (53.7)
Grade 2	43 (28.9)
Grade 3	13 (8.7)
Grade 4	0 (0)
Right (n = 139)	
Grade 1	84 (56.4)
Grade 2	42 (28.2)
Grade 3	13 (8.7)
Grade 4	0 (0)

Table 3. Neck examination results

Types	Numbers (percent)
Thyroid gland (n = 141)	
Not palpable or visible	139 (98.6)
Detectable only on palpation	2 (1.4)
Cervical lymph nodes (n = 141)	
Impalpable	133 (89.3)
Non-significant lymphadenopathy	7 (4.7)
Significant lymphadenopathy	1 (0.7)

Table 4. Nasal examination results

Types	Numbers (percent)
Nasal examination (n = 141)	
Normal	99 (66.4)
Allergic rhinitis	5 (3.4)
Acute rhinitis	18 (12.1)
Chronic rhinitis	4 (2.7)
Acute rhinosinusitis	12 (8.1)
Chronic rhinosinusitis	1 (0.7)

The governmental organization most responsible for implementing the sufficiency economy is the National Economic and Social Development Board (NESDB). The NESDB's primary tool for mobilizing action is the publication of the National Economic and Development Plan. The latest (eleventh) version of this plan covers the years 2012-2016.

The Khon Kaen University received funding from the government to develop the local community according to the "sufficiency economy" theory and sustainable community. We saw the opportunity to create the possibility for a better ear, nose and throat health in the community. As the budget from the funding body is limited, the project was discussed between the teaching staffs of the Department of Otorhinolaryngology, Khon Kaen University. We obtained the consensus from the members to devote some of our time to start this project without additional payment.

This project received very good co-operation from the community. The parents of the students allowed us to conduct this project in more than 90 percent of cases. The principal of the school had a major role in the success of this project. The project schedules and communications to arrange this project also needed help from the class teacher.

The screening results did not surprise us. The incidence of the diseases was not higher than the previous reports[10,11]. The data from the ministry of public health also supported our screening result. The ministry had collected the data from all outpatient clinics in Thailand from 2005 to 2014 and found that the most common disease was respiratory diseases followed by gastrointestinal and oral problems[12].

We found some unexpected conditions such as a foreign body in the tonsil and angular cheilitis[13-15]. Several different nutritional deficiency states of vitamins or minerals have been linked to angular cheilitis. It is thought that in about 25 percent of people with angular cheilitis, iron deficiency or deficiency of B vitamins are involved[16].

This initiative has a limitation to apply the project as a national scheme as this study used the Otolaryngologist to screen the students as opposed to the general practice of using the general practitioners or qualified nurses to screen the students. Most of the regions in Thailand still have a shortage of Otolaryngologist which may be too busy to support the project.

These screening results will help us to plan

the next series of projects for this local community.

Conclusion

We identified the problems amongst the primary school's students in the local community. This initial project will help us to estimate the size of the problems in the students for the upcoming community-based service series for sustainable health community.

What is already known on this topic?

The students are the major resource of the country.

There were undetected health problem in the community.

What this study adds?

This project demonstrated the co-operation between the university and local community.

This project showed the size of ear, nose, throat and craniofacial problems in the primary school in the local community.

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Potential conflicts of interest

None.

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โครงการชุมชนต้นแบบสุขภาพหู คอ จมูกและใบหน้า มหาวิทยาลัยขอนแก่น

ภาธร ภิรมย์ไชย, พรเทพ เกษมศิริ, ภัทรวุฒิ วัฒนศัพท์, ขวัญชนก ยิ้มแต้, วิสูตร รีชัยพิชิตกุล, สงวนศักดิ์ ธนาวิรัตนานิจ

ภาควิชาโสต ศอ นาสิกวิทยา คณะแพทยศาสตร์ มหาวิทยาลัยขอนแก่น ได้ร่วมกับชุมชนใกล้เคียงมหาวิทยาลัยจัดตั้งโครงการให้บริการทางสุขภาพและบริการทางวิชาการแก่ชุมชน

โครงการระยะแรกได้เริ่มต้นในโรงเรียนประถมศึกษา ในรายงานฉบับนี้ได้นำเสนอเป้าหมาย แนวทางการปฏิบัติและรายงานผลความสำเร็จของโครงการระยะแรกจากความพยายามตรวจคัดกรองเด็กนักเรียนในชุมชน
