Speech and Language Therapy Model for Children with Cleft Lip/Palate in Lao People's Democratic Republic

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Background: *Surgical treatment can reduces disfigurement for children with cleft lip/palate (CLP); however, most children have persistent speech and language problems especially if speech and language services are not available in underserviced and/or developing regions and countries. Children in such areas cannot reach appropriate and timely speech therapy services.*
Objective: *To establish a speech and language therapy model in Lao People's Democratic Republic (Lao PDR), by combining the principles of Community-Based Rehabilitation (CBR), Primary Health Care (PHC) and institutional medical approaches.*
Material and Method: *Participatory workshops during which a speech and language therapy model would be developed.*
Results: *A speech and language therapy model for children with CLP in Lao PDR was established based upon the existing healthcare system and regional context.*
Conclusion: *A speech and language therapy model should be implemented among children with CLP in Lao PDR as well as other developing countries where there is a paucity of speech and language therapy services.*

Keywords: *Speech therapy model, Speech service, Developing country*

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The worldwide incidence of cleft lip and/or palate (CLP) is between 0.30 and 2.65/1,000 live births[1], while the prevalence of CLP in Thailand is between 1.10 and 2.49/1,000 live births[2]. In 2008 alone, it was estimated that in the poorest parts of the world ~250,000 new babies would be born with cleft lip and/or palate, precisely the area where rehabilitation resources and service are limited or non-existent[3]. The highest prevalence rates for CLP were reported among Native Americans and Asians[4]. Even though there was no estimate of the incidence for CLP in Lao People's Democratic Republic (Lao PDR), trends in neighboring countries were used to interpolate an incidence of 0.02/1,000[5].

Recently, mobile units from non-profit organizations-such as Operation Smile, Smile Train, Interplast Australia and New Zealand, Center for Cleft Lip-Palate and Craniofacial Deformities, Khon Kaen University in association with the Tawanchai Project have brought surgical care and relief to individuals with CLP in Lao PDR. This approach was especially important since it gave access to supplementary or multidisciplinary care to a target group included in the '80% of the world's population without access to such services[6]'.

Multidisciplinary cleft care approaches-particularly speech and language services-have not been addressed as a team. This often occurs in developing countries where there is some accessibility to surgical services but not speech therapy. Unfortunately, delayed speech and language development, compensatory speech disorders and velopharyngeal insufficiency are common problems for children with cleft lip and palate worldwide[7,8]. Indeed, the frequency and severity of speech disorders remain critical because of limited speech services in developing countries or none at all. This is the case in Lao PDR and the situation poses a challenge to incoming therapists because the older patients needing therapy are well past the age when speech is acquired and past the age when surgery can be performed to the best

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advantage[6,9,10].

It was possible to train nurses to provide basic remedial speech services to individuals with CLP. The WHO philosophy regarding healthcare provision for the new Millennium is to promote the development of healthcare within the community, to share knowledge and skills and generally seek to develop and strengthen the community's capacity to care for itself. Successful projects by training volunteers or personnel at the primary level have been proposed in Vietnam[11,12], Sri Lanka[13] and Thailand[14,15]. This will be a challenge in Thailand, where speech services are limited, but even more problematic in Lao PDR where accessibility is more complicated and there are no services for children with CLP. Strictly speaking, the lack of speech and language pathologists in developing countries (*e.g.* Vietnam, Indonesia, India, Burma and China, included Lao PDR) have been addressed with expanded training programs[9,11]. In Lao PDR, however, there exists no program integrating their services into generalized CLP care. There is, therefore, an urgent need to make speech treatment of children with CLP a priority.

Before establishing a speech therapy program in Lao PDR, the authors taught local health providers: (a) how to address speech problems locally (that is, rather than demonstrating service) (b) how to help locally-based national health providers do long-run service in context and (c) how to make an ethically significant and sustainable difference. This is a three-pronged approach not a single mission and in so doing, both Community-Based Rehabilitation (CBR) and Primary Health Care (PHC) theory[16] are served. As such, problem-solving should focus on resolving: (a) inadequate infrastructure and poverty, (b) training (c) community, and (d) the balance between hospital and community[17].

Thus, training should take into consideration the needs of the community, resulting in a regional model concerned with developing training programs for trainers rooted in (a) shared attitudes (b) mutual awareness between institutions and communities and (c) non-prescriptive activity-based training[18]. However, a more effective model of service delivery might be achieved through a truly CBR approach which reaches more children over the longer term, at a lower cost (being in their own community), enhancing the effectiveness of subsequent training in communication disorders[19]. It was also considered advantageous to do an out-reach program for development of speech and language therapy potential in Lao PDR via collaboration between health care units and Khon Kaen University, Khon Kaen, Thailand, because the Thai northeastern language is similar to the language of Lao PDR.

The purpose of this project was to establish a speech and language model for children with CLP by combining the principles of community-based rehabilitation (CBR), in the Lao PDR Health Care system, with the expert institutional medical approaches of the Speech Unit, Department of Otorhinolaryngology and the Center for Cleft Lip-Palate and Craniofacial Deformities at Khon Kaen University (Tawanchai Foundation), Thailand. This article presents our findings and results. This article was approved the research protocol on January 12, 2011 (The Helsinki Declaration: HE 531344).

Material and Method

The principal investigator-associated with The Khon Kaen University Cleft Palate Craniofacial Center (Tawanchai Foundation)-first undertook a background study on the regional problems with speech services in Laos, including: (a) a mission for CLP at Luxemberg Hospital and Mahosot Hospital in 2008, (b) a collaborative "Cleft Lip Workshop" at Mahosot Hospital in 2009 and, (c) a collaborative workshop on "Multidisciplinary Care for Cleft Lip and Palate: Cleft Palate Surgery" in 2010. Subsequently, a regional-based speech model for children with CLP-with reference to various previous experiences (9,11-15,18)-was prepared for establishment in Lao PDR. Finally, a regional-based speech model for children with CLP was successfully developed between October 18 and 20, 2010, at Khammouane Province Hospital, Thakhek, Khammouane Province, Lao PDR.

Stage I: Knowledge sharing

Fifty-six Laotian healthcare providers including plastic surgeons, general surgeons, anesthetists, dentists and nurses attended a workshop. Participants included: 9 from Mahosot Hospital, Mahosot; 20 from Khammaun Hospital, Khammaun; 7 from Champasak Hospital, Champasak; 4 from Salawan Hospital, Salawan; 4 from Luang Namtha Hospital, Luang Namtha; 4 from Udomxay Hospital, Udomxay; 4 from Sawannaket Hospital, Sawannaket; 4 from Seesattanak Hospital, Seesattanak. Eight of these were nurses from hospitals who would take a role as para-speech and language therapists. Before beginning the workshop, pre-testing knowledge was given. to 7 nurses (one nurse missed the pre-test because of personal reasons). After this, the standards of care and

protocols for CLP care and the details on the Center for Cleft Lip-Palate and Craniofacial Deformities were given followed by a discussion on related issues in Lao PDR. A post-test knowledge was administered to eight of the participants after the knowledge sharing session.

Stage II: Demonstration of speech and language assessment and therapy

A CLP caregiver and eight nurses (representatives from each hospital in the study) attended a participatory workshop entitled, "Demonstration of Speech and Language Assessment and Therapy". Then, speech and language assessments and therapy were demonstrated for 2 children by the principal investigator, using the northeast language (Isan) which is similar to Laotian. Clarifications and discussions relating to speech and language screening and therapy guidelines were conducted among participants.

Stage III: Speech and language therapy model for children with CLP in Lao PDR

Development of a community-based speech model in Thailand, where there is also a limitation of speech therapy services, was introduced[14,15]. Regarding the participatory workshop on developing a speech and language therapy model for children with CLP in Lao PDR, a focus group was used to explore the problems for speech therapy in Lao PDR among the eight para-speech and language therapists/nurses and the caregiver. Then, a discussion was held regarding the speech therapy CLP model. A consensus model was concluded with an eye to the regional health care system and the context-based CBR and PHC.

In addition, three paraprofessionals were chosen to visit (a) the Speech Clinic at Srinagarind Hospital, Department of Otorhinolaryngology, Faculty of Medicine and (b) The Khon Kaen University Cleft Palate Craniofacial Center (Tawanchai Foundation), Khon Kaen University, Khon Kaen, Thailand. (Support for the one-week visit was provided by The Tawanchai Foundation). The participants attended sessions on: speech and language, audiological, ENT services and multidisciplinary approaches and facilities. They also visited the speech camp and follow-up session on CBR at Mahasarakham Hospital which made a deep impression and from these two events, the participants retained knowledge and gained conceptual grounding. These experiences would supply the background for developing the speech therapy model based on CBR and PHC in the context of Lao PDR.

Analysis

Descriptive analysis was used for displaying the demographic characteristics of children. The basic knowledge of paraprofessionals was compared from pre- and post- knowledge scores and the Wilcoxon Signed-Rank Test was used to assess knowledge gained.

Results

The pre- and post-test of basic knowledge of thirteen paraprofessionals indicated that their knowledge of the multidisciplianary approaches of children with CLP was not significantly different (Table 1).

As for the participatory workshop on developing a speech and language therapy model for children with CLP in Lao PDR, the problems vis-a-vis speech therapy in Lao PDR-based on the regional lack of speech services-were explored and found to be similar to problems in Thailand[14], as follows:

1) Many families with CLP-affected children have misconceptions regarding both the cause of the

Table 1. Pre- and post-test of basic knowledge of paraprofessionals for speech therapy

Parameter	Scores of basic knowledge						
	Pre	Post	n	Median difference	Z	p-value	95% Confident interval
Median	12	13					
Maximum	15	17	7	-2	-1.035	0.301	-3- 2
Minimum	9	10					

Pre: Pre-test score of basic knowledge for speech therapy
Post: Post-test score of basic knowledge for speech therapy

impairment and the availability of treatment. Some believe that surgery is the only and final solution and are not aware of supplementary services such as speech therapy or dental treatment; neither that they are required nor that they are available.

2) Most patients live in remote areas or small communities; they can neither afford nor are able to travel to receive treatment from any centers in Lao PDR or neighboring countries.

3) They had no idea what was meant by a CBR-approach to the management of speech disorders in children with CLP.

4) Healthcare providers or paraprofessionals have little knowledge regarding speech pathology services for individuals with CLP.

The panelists included eight para-professionals (nurses), a stakeholder (caregiver) and three professionals (speech and language pathologists) from institutional medical care [Department of Otorhinolaryngology, Faculty of Medicine and Center of Cleft Lip-Cleft Palate and Craniofacial Deformities, Khon Kaen University in Association with "Tawanchai Project". There was general consensus on regional problem issues and the type of model that would fit the existing local health care system and address institutional medical or professional approaches in Lao PDR (Fig. 1).

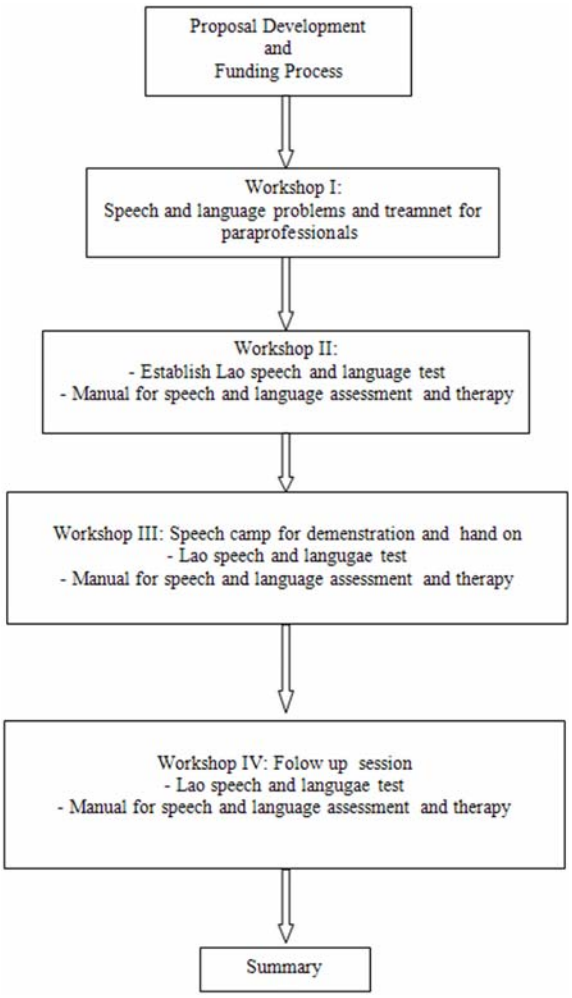

Fig. 1 Speech Therapy Model in Lao PDR

Discussion

Among healthcare providers, whether about basic knowledge or multidisciplinary approaches for treating children with CLP, there was no statistically significant difference between the pre- and post-test. One day was used to introduce the multidisciplinary cleft care protocol. Multidisciplinary care was briefly introduced, in case of paraprofessionals they needed more information before applying multidisciplinary cleft care in their context. Thus, they were expected to have knowledge about multidisciplinary cleft care for long-term problem-solving. Such an awareness is necessary in order to construct a more sensitive holistic model to explore the need for developing a training program for trainers, based on shared attitudes, a mutual awareness between institutions and communities and prescriptive, activity-based training[17,19].

The strategy for developing a consensus model for speech and language therapy for children with CLP is to empower local healthcare providers to increase the availability of speech therapy. It is one of the best ways to provide speech and language services and simultaneously, to establish other multidisciplinary approaches.

Even though the model of service developed might not meet the needs of the population in every country[20], its development strategies were effective for reaching and treating speech disordered children with CLP in focused areas in Lao PDR, as was the case in Northeast Thailand.

Conclusion

A speech and language therapy model for children with CLP in Lao PDR was established, based on combining CBR, PHC and institutional approaches to remedy shortages of speech-language pathologists. The next step is to extend the implementation and application of this model and to improve it for long-term problem-solving in Lao PDR. The model and

approach may have application in other countries where speech services are scarce.

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Potential conflicts of interest

None.

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รูปแบบการบริการแก้ไขการพูดของเด็กปากแหว่งเพดานโหว่ในสาธารณรัฐประชาธิปไตยประชาชนลาว

เบญจมาศ พระธานี, ทวิตรี ภูมินำ, เพชรรัตน์ ใจยงค์, ชลดา สีพั้วฮาม, เวียง ไชยาสิน

***ภูมิหลัง**: การผ่าตัดเป็นการแก้ไขโครงสร้างที่ผิดปกติของเด็กที่มีภาวะปากแหว่งและเพดานโหว่ แต่เด็กส่วนใหญ่ยังคงมีปัญหาทางภาษาและการพูดอยู่ในขณะที่การบริการด้านการแก้ไขการพูดและภาษายังไม่มีในประเทศที่กำลังพัฒนาบางประเทศ เด็กเหล่านี้จึงไม่สามารถเข้าถึงบริการด้านการแก้ไขการพูดได้*

***วัตถุประสงค์**: เพื่อสร้างรูปแบบการบริการการแก้ไขการพูดและภาษาตามหลักของการฟื้นฟูสุขภาพในชุมชนศูนย์สาธารณสุขมูลฐานและการบริการระดับวิชาชีพในบุคคลปากแหว่งเพดานโหว่ในประเทศลาว*

***วัสดุและวิธีการ**: การจัดสัมมนาเชิงปฏิบัติการแบบมีส่วนร่วมของผู้เกี่ยวข้องเพื่อพัฒนารูปแบบการบริการด้านการแก้ไขการพูดและภาษา*

***ผลการศึกษา**: รูปแบบของการบริการการแก้ไขการพูดและภาษาสำหรับเด็กปากแหว่งเพดานโหว่บนพื้นฐานระบบสุขภาพและบริบทของพื้นที่ที่มีอยู่*

***สรุป**: รูปแบบการบริการด้านการแก้ไขการพูดและภาษาที่ได้สามารถนำไปใช้สำหรับเด็กปากแหว่งเพดานโหว่ในประเทศลาวและประเทศที่กำลังพัฒนาอื่นๆ ที่ยังไม่มีการบริการด้านการแก้ไขการพูดและภาษา*