



## Inequity in access to oral health service of primary students: A case study of a dental fund in a central region province



Thanida Pothidee <sup>a,\*</sup>, Luechai Sringeruyang <sup>b</sup>, Songvuth Tuongratanaphan <sup>c</sup>

<sup>a</sup> Doctoral Program in Health Social Science, Faculty of Social Sciences and Humanities, Mahidol University, Nakhon Pathom 73170, Thailand

<sup>b</sup> Faculty of Social Sciences and Humanities, Mahidol University, Nakhon Pathom 73170, Thailand

<sup>c</sup> Faculty of Dentistry, Chiangmai University, Chiang Mai 50200, Thailand

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### ABSTRACT

Inaccessibility to services and the prevalence of oral health problems in the school-age children group is consistently increasing and has become a major driver to establish a dental fund since the 2011 fiscal year with productive indicators to increase accessibility to oral health service as the major strategy of the fund. Therefore, the purpose of this study was to investigate equity in the accessibility to oral health promotion and prevention based on this fund. Thus, the research questions formed were whether or not the mechanism of a dental fund has created equity in the accessibility to services of the students and what is the consequence of the funding operation? This study used ethnographical research in a small province in the central region of Thailand and was conducted from May 2012 to January 2013. The key informants consisted of 8 dentists and 14 dental hygienists. The research methods were in-depth interviews, observations, and group discussions. Content analysis was applied and the results were considered based on the concept of health equity.

The research findings showed that though the operation had been successful based on the productive indicators of the dental fund, inequity in oral health service provision for school-age children still existed in the research area. Only 20 percent of the students in the suburban area received complete dental treatment which was lower than the target indicator, while more than 20 percent of the students in the district town received the service. Since the operation aimed to achieve the productive indicator, this resulted in dental personnel selecting only the less problematical group of students from the large-sized schools to be able to achieve the indicator easily.

Moreover, the procedure indicator findings showed that the goal of having participation from the District Health Coordinating Committee (DHCC) was not achieved in developing oral health promotion and prevention for grade 1 students because the DHCC deferred to the knowledge and expertise of the dentists who still operated based on bio-medicine. As a result, the present work plan and methods for organizing activities with the student group are still emphasizing a full mouth examination and complete treatment according to the quantitative indicator only, without any new approaches or operational concepts.

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\* Corresponding author.

E-mail address: [thanida018@hotmail.com](mailto:thanida018@hotmail.com) (T. Pothidee).

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## Introduction

The results of oral health operation in Thailand found that vertical programs such as "Yimsodsai Dekthaifundee" (oral health promotion and prevention services in school) often achieved the operational indicators. However, it was also found that oral diseases have been continuously increasing while accessibility to oral health services has lessened, especially for those living in remote rural areas. Data from the Department of Service Support, Ministry of Public Health in 2008, showed that only 15 percent of the population were using the dental services within Universal Coverage (UC). Based on this, the National Health Security Office (NHSO) established a "Dental Fund" in 2011 with the important strategy of managing its budget so that it separated the budget from the promotion and prevention fund (PP budget) in a transparent manner in order to support the works of oral health promotion and prevention for the Contracting Unit for Primary care (CUP) to receive an average budget allocation of 12.13 baht for all kinds of health care coverage. The purpose was to organize services for four main target groups—pregnant women, children (pre-school age), school-age students and the elderly aged over 60 years (National Health Security Office, 2010). However, the current study focused only on primary school children.

From the past to the present, school children have been considered the main target in the operation of oral health promotion and prevention, but the set goals have not been reached. This school-age group became the major target group for this operation of the government sector both in Thailand and worldwide since as children start to grow their permanent teeth, there is incomplete mineralization in the teeth and oral health care behavior including brushing and identifying risky food consumption is essential but oral health surveillance and follow up are more easily implemented when the children are in the school education system (Lapying, 2006; Marya, 2011; Nathe, 2005). In the same manner, the dental fund has focused on this group of children by identifying indicators for work outcomes in school-age children, namely that at least 70 percent of grade 1 students in the service areas must have a full mouth examination and not less than 20 percent of them must have received complete dental treatment for both prevention and treatment (NHSO, 2010). This strategy adjustment to the dental fund in providing budget support and identifying the work indicators has been considered a guideline for the operation of CUP. It is interesting to study the operational outcomes under the dental fund policy in school-age children and whether they have equivalent access to the oral health services and whether or not these services are more effective than in the past.

The concept of equity in health is related intimately to the central human rights thread that has run right through the key articles of the WHO from its inception in the 1940s to the resolutions of the twenty-first century. The WHO Constitution asserted back in 1946 that "the highest standards of health should be within reach of all, without distinction of religion, race, political belief, economic, or social condition" (Whitehead, 1990).

Echoing these sentiments nearly 60 years later, equity in health implies that ideally everyone could attain their full health potential and that no one should be disadvantaged from achieving this potential because of their social position or other socially determined circumstances.

Inadequate access to essential health services is one of several determinants of social inequities in health. It may not be the major determinant, but it is an important one for the health sector to tackle directly—to put its own house in order (Whitehead, 1990). Access to health service was observed according to the following criteria: affordability—relationship between prices, and ability to pay; accommodation—appropriateness of systems for accepting patients; availability—relationship between patients' needs and volume of services; accessibility—relationship between locations of patients and services; and acceptability—relationship between providers and patient preferences (Penchansky & Thomas, 1981).

## Research Methodology

This research studied equity in accessibility to the oral health promotion and prevention services of primary students under the dental fund policy. Therefore, the researcher set the research guidance accordingly:

### Research Setting

The researcher decided to select a province in the central region of Thailand as the research setting while also considering field data collecting practicalities, as a small province with small numbers spread over not too great an area was suitable for the qualitative study. The researcher wanted to be able to become involved with activities in the study area to learn and to understand the context as well as relating with several groups of relevant people in order to create good relations and become acquainted with the issues. The research context included organizations within the Ministry of Public Health consisting of the Provincial Health Office, two general hospitals (Muang Hospital and Ingfa Hospital), one community hospital (Bannpoon Hospital), and seven sub-district health promotion hospitals which had dental hygienists and were under the supervision of the district hospital. The key informants were dental personnel who worked in research areas which comprised 8 dentists and 14 dental hygienists. To protect individual's right, this research used pseudonyms for both people and work places.

### Data Collection

The data were collected according to the ethnographic approach, so the researcher was the most important tool in order to gain the benefit of understanding the phenomenon. Thus, the researcher participated closely in several activities of the key informants to observe and learn about various contexts related to the informants in terms of their status, way of thinking, belief, and their inter-personal groups relations in order to absorb and understand their ways of life (Bishop, 2007; Bothisita, 2004).

The researcher participated in several activities together with the key informants over 9 months from May 2012 to January 2013. As a faculty member in the dental school, the researcher was able to collect data covering every work context of the key informants that related to the work indicators of the dental fund. This involved interviewing techniques with structural and non-structural questions concerning the operational methods, work planning, and the operational results. The researcher also employed participatory and non-participatory observational techniques in order to monitor the phenomena, operations, context, problems and obstacles, or to observe some problems that it was not possible to enquire about as well as to help validate some of the data gained from the interviews. Furthermore, a group discussion with four dental hygienists was conducted to learn more about the management pattern of the dental fund in the district from their perspective. Then, the collected data were analyzed and synthesized based on the research question topics as follows.

Point 1, whether students have access to the services as a productive indicator of dental fund or not.

Point 2, what was the equity outcome of the dental personnel as a result of the work system under the supervision of the NHSO's indicators?

This study presents the research findings through content describing according to the points.

## Results

The dental fund's purposes are to reduce oral diseases and to expand services to cover all the target population equally for both urban and rural communities (National Health Security Office, 2010). The NHSO was concerned about the specific budget allocation for works on oral health promotion and prevention including necessary treatment for CUP which is separated from the PP budget. The results showed that each hospital in this province had increasingly received different budget amounts according to their population in the range 200,000–700,000 baht compared to the previous time when each hospital might allocate 20,000–30,000 baht for each project activity proposal submitted.

In order to operate the dental fund to service every target population, the NHSO also uses two types of indicators to provide the operational driving force: (1) procedural indicators and (2) productivity indicators (as target indicators of work). The former indicators aim to promote the participation of the District Health Coordinating Committee (DHCC) which consists of several sectors including dental personnel, health personnel, local representatives, and civil society in designing work plans and monitoring their implementation, while the latter focused on the achievements according to the indicators set. These indicators are (2.1) not less than 70 percent of the grade 1 students in the service areas must have been through the full mouth of examination, (2.2) not less than 20 percent of the grade 1 students who have been examined must receive the complete treatment in terms of both prevention and treatment, and (2.3) 30,000 elderly must receive dentures each year. These indicators highlighted the fact that

the NHSO pays more attention to funding primary school operations. However, the NHSO has invited each area to propose a work plan that corresponds with the problems and contexts of the area, so it has no set pattern and ratio for the budget for each target group. The budget allocation for each group is considered by the DHCC to suit the contextual settings.

Based on the interviews and observations when the researcher had the chance to attend the provincial meeting to summarize the operation plan of each CUP, it was found that all districts stick to the productive indicators of oral examination and complete treatment services according to the numbers stated by the dental fund together with the indicator identified by the dental health working group in the provincial Public Health Office which stated that not less than 50 percent of grade 1 students must receive the pit and fissure sealant service for permanent first molars.

The research results revealed that:

1. The indicator of examination could be achieved easily.
2. The indicator of pit and fissure sealant for the permanent first molars, which was the indicator set up by this province, is considered as preventive work that helps achieve the indicator concerning complete treatment.
3. The indicator of complete treatment is rather difficult, so the dental personnel try to think of ways to avoid it by not paying attention to high priority disease severity but rather choose to work on the less severe diseases instead.
4. There is no distribution of complete treatment service to cover the sub-district health promotion hospitals since it may cause difficulties.

For the indicator that not less than 70 percent of grade 1 students in the service areas must have been through the full mouth examination, the researcher found that the dental personnel would selectively provide service to large schools with high numbers of students first in order to achieve the target indicator quickly. Since the full mouth examination does not take too long, every hospital can complete almost 100 percent by missing only the few students who do not come to school on that day or in small schools do not come at the appointment time. This means that this indicator is still achieved in term of quantity with no difficulty.

After the oral health problems were identified by screening examination of the students, the NHSO identified as an indicator on complete treatment service provision that not less than 20 percent of those who have been examined must receive the complete service in terms of both prevention and treatment. From the interviews, this indicator worried the dental personnel because this indicator refers to providing services for both the treatment needs and treatment plan of each child. In fact, completing this indicator can take up differing amounts of time depending on the severity of the dental problems with each child. The research findings showed that to focus on achieving such a target indicator, the dental personnel in the hospitals chose to prioritize works by selecting only

easy and non-complicated cases rather than the more severe diseases needing treatment.

Therefore, identifying the indicator of not less than 50 percent achievement in providing the service for pit and fissure sealant, becomes the indicator that, if provided, results in the achievement of both indicators for providing sealant service and the complete treatment service too, wherever one particular student had no problems with tooth decay.

Muang Hospital and Ingfa Hospital, which are considered general hospitals, service areas with high populations (Table 1). The students from the other districts will come to study in the downtown district which made the ratio of target groups in the urban area higher than in other districts. The dental hygienists who were responsible for this campaign in these hospitals would use the above-mentioned work technique of selecting only the students who were easy to service in order to achieve the target indicator with no difficulties. This meant focusing on servicing the group of students who did not have dental diseases so they would need no other treatment except pit and fissure sealant for prevention. Providing this one kind of service to this group was considered as a complete treatment. Sometimes, the hygienists would choose the group of students who had only one or two decayed teeth which required less complicated procedures. Consequently, this group of students received only tooth filling and pit and fissure sealant since these two treatments required less time, were easy to control, and achieved the indicator goals quickly.

The interview with the dental hygienists who were responsible for the school children group in the hospital revealed that the students who qualified for the easy treatment approach were often in the larger schools in the downtown district. Their parents were financially well off and took good care of their children. Since almost all these children lived near a hospital, it was very convenient to access these dental services or to travel to receive services at the hospital. In contrast, rural children with spontaneous oral health problems never received these dental services as explained by one dental hygienist *“These cases (ones that must have complete treatment, researcher), we cannot treat from the outside because the children there already had severe tooth decay and gingivitis. We will not win.”* Therefore, making appointments with children having good oral health would often meet the target indicators in terms of

numbers. However, if such numbers were not sufficient, the dental hygienists would use the technique of selecting only the easy cases for treatment.

*“After finishing the oral examination, we will take a look at each case to select those who could receive complete treatment. Then we chose to do sealants all over the area and the schools in the responsible areas would send the students to the hospital and the dentists would provide the complete treatment. We would keep the cases of severe tooth decay for later and wait until we could not complete the goal indicators, at which stage we would come back to them again to include their treatment to reach the goal numbers. For the students outside the area, we would use a mobile chair to do scaling and prophylaxis, filling, extraction, and sealant. Since our patient numbers are mainly in the large-sized schools, we have to leave the appointment dates up to them (“them” means the teachers in these schools who make arrangement for students to receive treatment, the researcher). However, the small schools must come at the times we appoint to them.”* (Rose, a dental hygienist in Muang Hospital)

This corresponded with the guidelines for work in Ingfa Hospital, where selection favors the students who receive complete treatment from the group with low disease severity in the large-sized schools in the hospital's areas of responsibility in the downtown district.

*“In case we need to do the complete case, we will do only the schools in the area which there are only 2 schools e.g. Wat Bot Bon and Wat Bot Lang which are big schools nearby. We call them to service only the numbers that meet the target or give services only when new term starts when we have to urgently get as many cases as possible so we focus on the big schools first.”* (Kwang, dental hygienist in Ingfa Hospital)

As a result of focusing on achieving the productive target indicators, the implementers will select only the easy cases of students with no problems or spend less time per service in order to complete cases and achieve the numbers required in the indicators. This lacks any prioritization of problem severity and relies solely on the dental personnel in the hospital to achieve the indicator without distributing or assigning work to the dental hygienists in sub-district health promotion hospitals in the responsible areas.

Inappropriate administration by selecting students who have good oral health in the downtown district leads to inadequate communication between dental personnel in the hospitals and dental hygienists in the sub-district health promotion hospitals. As a consequence, students under the care of those dental hygienists, who are available for and entitled to receive treatment, fail to receive dental services as indicated in the dental fund target indicators. The results of observation showed that the dental hygienists in sub-district health promotion hospitals provided the dental service for grade 1 students as their routine work, which means that the dental hygienists would provide any service during a one-time visit according to the students scheduled for them by the teachers. For example, within a 3 h period, the dental hygienists had to complete services

**Table 1**

Numbers of full mouth examinations, complete treatment, and sealant services provided by district (at the end of fiscal year 2012)

Hospital	Number of grade 1 students	Percentage		
		Oral examination	Complete treatment	Sealant
Muang	759	98.81	25.42	58.37
Ingfa	611	76.43	22.20	51.39
Bannpoon	240	100	31.55	74.17
Bannkai	324	100	20.26	57.40
Sriburi	169	100	38.14	71.00
Chiangtai	141	100	55.56	97.87
<b>Total</b>	<b>2,244</b>	<b>93.18</b>	<b>27.31</b>	<b>61.45</b>

for 8–10 students. Thus, each student had only 18–22 min for service. As a result, the dental hygienists tended to skip or ignore the high severity group of students.

Dental personnel in a hospital did not inform the dental hygienists in the sub-district health promotion hospitals to help provide services on complete treatment as a result of problems in entering the information into the work system and thus these data were not available in the computer system and so at that time, the sub-district hospitals did not have the necessary records on the students' oral health. Therefore, if there was a service that needed to be counted as a work outcome, the dental personnel in the hospital would have to ask for the data from the dental hygienists in the sub-district hospitals and then input the data into the system themselves. The dental personnel in the hospitals considered this to be onerous, so they tended to neglect submitting this information.

As a consequence of the working process mentioned above, there was inequity in dental service access, as dental personnel, providing dental services to school children with oral health problems, would definitely delay these operations. As such, this school group was ignored by the dental health care provider, even though urgent treatment was needed for them. Dental personnel would have to provide comprehensive dental care for those students, including dental sealant, filling, extraction, and scaling. Furthermore, this treatment process would require several appointments, leading to increased costs and not achieving the target indicators determined by the NBSO.

Besides the productive indicators that forced inequity in accessibility to the services, the procedural indicator requiring participation from several sectors who were on the DHCC was not being achieved. From the interview with the head of one the sub-district health promotion hospitals who was a member of the DHCC, it was found that the committee members dared not express their opinions or propose opposing ideas to the action advocated by the dentists. The DHCC would not push such matters as their technical knowledge and expertise were limited with regard to "dentist"-related procedures. All projects proposed by the dentists on the DHCC who were knowledgeable with regard to medical science would be accepted without question. The other stakeholders did not dare express their opinions or raise issues of conflict. This was consistent with the report by [Jatikate and Chaiprasit \(2014\)](#) that the working process of the DHCC was monopolized by the head of the dental work group who is a dentist. The dentist only notified and reported progress to the committee for their information. As a result, the authority to plan the work following the dental fund policy was handled by only the dentists as proposals were always approved by the DHCC unconditionally.

*"For my part, I have not expressed much opinion. In the meetings, the dentists would present how much budget our CUP has received, and what projects we would do. I personally thought that what the dentists presented were good things that we could do, and the sub-district health promotion hospitals would get benefits too. ... So in the meeting there was scarcely disagreement with the dentists as we were not as keen on these things as they were."*

(Nate, the director of Plaengna sub-district health promotion hospital, the Commission on DHCC)

All activities in the three hospitals in the research setting were designed by the dental health working group in each hospital, and in particular, the dentists composed the proposals and designed the work plan themselves. This work idea is still the traditional way of working where dental personnel are the main implementers for service provision, placing emphasis on the elimination of the causes of the diseases and treatment e.g. oral health examination, sealant, and complete treatment. This is the biomedical approach. Although the NBSO has tried to open up activity implementation so that it corresponds with the context, it still finds that dental personnel give significance only to the quantitative indicators set by the NBSO. In particular, the two general hospitals in the research area (Muang Hospital and Ingfa Hospital) only focused on health examination activity and the provision of complete treatment services. The dental personnel in these two hospitals have not integrated their working ideas with other working patterns or with other sectors' stakeholders to take part in operations to achieve the target of students having oral health well-being.

## Discussion

School-aged children have been identified as the operational target group in the dental fund based on the productive indicators because the objective is to increase the opportunities for children to get access to dental health services. The results found that the children have access to the services according to the indicators, but it also found that the dental personnel at every level adjust their work to achieve the target indicators. They were not able to consider other relevant factors as they had to rush to complete work according to the indicators by selecting only the students from the large schools in urban areas in order to achieve the goals on time. However, there is evidence that the populations living near the downtown area seldom have dental health problems or have less problems compared to those who live in the rural areas, since most people living downtown have better socio-economic status and are able to access the services easier. Moreover, in the downtown areas there are more dental personnel per population ([Kwan & Petersen, 2010](#); [National Rural Health Association, 2005](#); [Simpson & Braun, 2007](#)).

Based on the results of the survey on oral health status at the national level in 2012, the group of school children aged from 5 to 12 years old, the percentage of decayed teeth and average DMFT (decayed, missing, and filling for deciduous teeth and permanent teeth, respectively) of the children in the urban area was lower than for those in the rural area. Similarly, the percentages of gingivitis and calculus found in 12-year-old children were lower in the urban group compared to the rural group ([Department of Health, 2013](#)). This evidence is consistent with the current study that found children in the city with few or no dental problems were often selected to receive services. Having quantitative indicators like this affected children in remote rural areas, who had dental problems and needed

to get treatment, but were denied treatment because the dental personnel had to rush to achieve the target indicators. As providing service to students in remote areas was an obstacle to achieving the target indicators, the dental personnel and their organizations would be blamed by their superiors for not achieving targets if they spent more time on rural treatment. This situation has resulted in inequity in oral health care for the children who should get service since this is contrary to the goal of equal access for equal need (Whitehead & Dahlgren, 2007; Whitehead, 1990). Thus, for equity of service access, the dental health care provider must consider the need of service for each target group (Watt, Williams, & Sheiham, 2014).

Assessment of service access is a good indicator for health equity since a good system should provide equal access for equal health needs, although in practice, the "accessibility" might not assure equity in the service quality. Even though people are able to reach the doctor, dentist, nurse, and health personnel easily, the quality of treatment may require appraisal using a different set of indicators (Na-ranong & Na-ranong, 2007).

One solution to inequity of treatment access proposed by Mouradian, Wehr, and Crall (2000) involved the integration of medicine and dentistry. The goal of reducing children's oral health disparities also supports increased integration of dentistry with medicine and other health disciplines. The problem of solving dental personnel shortages and also increasing skillful providers in basic dental care could be addressed by attempting to run training courses in both knowledge and skills for healthcare personnel. For example, trained primary care practitioners can evaluate children before they are referred to a dentist, and can reassess the current dental curricula with respect to important areas of child health.

Moreover, the purpose of promoting the participation of stakeholders from all relevant sectors seems to have been unsuccessful, since all work decisions are still monopolized by the dentists in hospitals as they have the authority to design and control dental projects. This indicates a lack of participatory sharing of opinions by the DHCC because the DHCC knowledge and expertise on project decisions lies primarily with the dentists on the committee. All projects proposed by the dentists based on rational medical science would be accepted unconditionally. The other stakeholders in the DHCC did not dare express their opinions or conflicting comments. As a result, there was a lack of diversity in the work designs. This finding was similar to the study of Jatikate and Chaiprasit (2014) which concluded that the patterns of work in the dental fund were still based on the work concept of the epidemiology of the diseases.

The limitation on operations through this bio-medical paradigm is its diminish-mechanism concept which is narrowed down to being disease-oriented only, so the health care providers remain focused only on physical health treatment, and prevention. Thus, the service is aimed at protection from or elimination of infections which are the causes of disease such as pit and fissure sealant to prevent tooth decay. Moreover, the bio-medical paradigm still looks at the health of individuals so it tends to overlook or not emphasize the social, economic, political, and environmental aspects (Chuengpattanawadee, 2005; Marcum,

2008; Navarro, 1986). If there is no diversity in thinking methods and viewpoints in the participation process of the dental fund, the dental personnel will continue to monopolize the major roles as the service providers for students. This situation will stifle broader participation from several sectors in society to empower and strengthen the capacity for social, community, and individual considerations that can lead a situation where all students in the area have equally good dental health (O'Connor-Freming & Parker, 2001).

All the presented issues are considered to be at the heart of the reform of dental health works that emphasize promotion and prevention as well as promoting equity in access to dental health services. If these problems are not solved or improved, it will be not possible to have efficacy and efficiency in operations through determining how much budget is allocated to organizations at the closest level to the people who receive the services as revealed through this study of the dental fund.

## Recommendations

Oral health promotion and prevention as well as equity in oral health service would be achieved if: (1) indicators were developed that are capable of measuring both the efficiency and efficacy of services on oral health promotion and prevention in terms of both quality and quantity through the distribution of the widespread coverage of services in order to create true equity in accessibility to oral health services including the students in both the urban and rural areas, and for people with different severities of dental problems, (2) true participation of all sectors in implementing works was increased by conducting cultural reconstruction to attenuate the monopolized authority of the dental profession, and (3) there was effective financial management with an effective operation and monitoring system too.

## Conflict of interest

There is no conflict of interest.

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