# Community service for infants with cleft lip and palate at *Mitra Sejati* and *Grandmed Hospital* North Sumatera

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**ABSTRACT**
Cases of cleft lip and palate (CLP) in infants were many in Medan and surrounding areas. There were about 150 cases of infants with CLP in a year handled by Mitra Sejati Medan Hospital and Grandmed Hospital Lubuk Pakan, but the treatment given was only surgical treatment, while the follow-up care, which is the fabrication of artificial palate or feeding plate before or after surgery, cannot be facilitated. Until now CLP further treatment cannot be done because the parents do not know the treatment and most of them came from groups with low socio-economic level and the fabrication of feeding plate required high costs. To overcome this problem, we held community service by fabricating feeding plates as feeding aids for babies with CLP. The method used to achieve this goal of service is collecting data from patients with CLP in the two hospitals, general examination by pediatrician, making the impression of the oral cavity to create the working cast, making outline design, doing the wax pattern and feeding plate fabrication in the laboratory using hard and soft acrylic materials combination. The insertion of feeding plates is performed at the hospital and evaluated whether the baby can drink milk normally using a bottle. Body weight changes are evaluated every month until the baby is declared ready for surgery.
**Keywords**: cleft lip, cleft palate, feeding plate

## INTRODUCTION

Babies born with of cleft lip and palate (CLP) are unable to suckle normally.[1,2] The cleft of the palate due to imperfect unification at the time of fetal formation can cause the baby to choke because the water/milk can be potentially enter the respiratory tract. Babies with CLP usually drink through a hose or spoon, causing the nutritional intake is not maximal so the baby's weight is difficult to increase and general health decreases. Delayed treatment of CLP can reduce the confidence of the patients and their families due to aesthetic, function and speech disturbance. Therefore, a feeding aid appliance called feeding plate is recommended.[1,3]

Feeding plate is an artificial palate to help babies drink normally. Most CLP babies are unable to reach their normal weight due to insufficient intake.[1,4,5] Surgery for CLP babies must meet *the rule of 10* i.e. age 10 weeks, Hb 10, weight 10 pounds.[3,4,6] At this time the role of prosthodontist is very important especially in the manufacture of feeding plates so that babies can eat and drink normally so as to increase the baby's weight and general health of the babies. Once the rule of ten is met, the surgery can be done on time. The lack of information and financial capabilities of the community led to many CLP babies being comprehensively untreated. Therefore, a community service was carried out a community service in order to improve the quality of life of babies with CLP.

The community service team was led by a prosthodontist, with members consist of a prosthodontist and an oral surgeon, and was assisted by students of Prosthodontic Postgraduate Program, Faculty of Dentistry, Universitas Sumatera Utara. This community service is a Program of Non PNBP USU Resources under the Institute of Community Service, Universitas Sumatera Utara (LPPM USU). *Mitra Sejati Hospital Medan* and *Grand Med Hospital Lubuk Pakam* were chosen as partners in this community service, based on the idea that the high numbers of CLP cases were referred to both hospitals, due to the existence of oral surgeon in handling the cases surgically. *Mitra Sejati* and *Grandmed* are two hospitals in North Sumatra that have handled many cases of CLP (about 150 cases per year). However, the treatment given so far was limited to surgical treatment only. In fact, the treatment of CLP should be done comprehensively by pediatricians, oral surgeon and prosthodontists.

This article is intended to expose about community service for infants with CLP at *Mitra Sejati* and *Grandmed Hospital* North Sumatera

## METHODS

Community service was conducted in 2 hospitals, namely *Mitra Sejati Hospital* Medan (Partner 1) and *Grandmed Hospital* Lubuk Pakam (Partner 2). The first stage was socialization with hospitals by providing education and information on the impor-

tance of making feeding plates in aspects of public health, oral and psychological health of patients as well as cooperation from hospital staff in handling infants and educating their parents (Fig.1).

**Figure 1A** Socialization at *Grandmed Hospital* Lubuk Pakam; **B** Socialization at *Mitra Sejati Hospital* Medan

The second stage, data collection and screening of infants with CLP in both hospitals, is conducted by oral surgeon, pediatrician, prosthodontists and students of Prosthodontics Postgraduate Program (PPDGS Prostodonsia FKG USU). The examinations included general health, blood test, baby weight and intraoral examination (Fig.2).

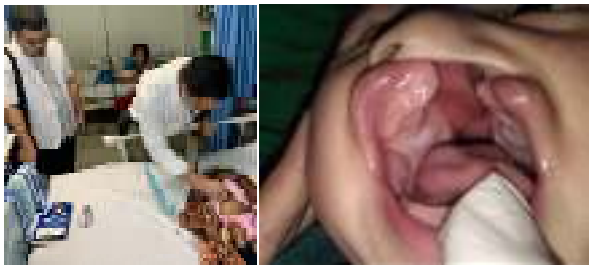

**Figure 2A** Patient examination; **B** baby with CLP

The third stage was performing maxilla impression by prosthodontists and students. The impression process was carried out in a surgical room under sterile conditions (Fig.3A). The first was 1) the baby was fasting 2-3 hours before the impression to prevent vomiting at the time of impression, then 2) breathing apparatus in the form of oxygen and suction were prepared with the assistance of an anesthesiologist, 3) impression trays in various sizes were prepared and sterilized, 4) soaking the printed spoon on the physiological solution before and after it was removed from the oral cavity. The impression trays were tried out to decide whether the tray is suitable with the baby's oral cavity. Furthermore, 6) the impression was taken with polyvinyl siloxane putty material (I-sil Regular Set Putty, Korean Spident) (Fig.3B), 7) after the material set, the impression was removed from the oral cavity. Afterwards, 8) examination of the baby's oral cavity to ensure there were no impression materials left, and 9) impression was evaluated.

**Figure 3A** Impression was carried out in a surgical room under sterile conditions, **B** impression with putty polyvinylsiloxan material and special tray for the babies.

The fourth stage, after impression was taken, the impression was evaluated whether a gap defect and limiting structure have been obtained to support the fabrication of feeding plates (Fig.4). After the evaluation, the impression was washed, the working casts was manufactured by using dental stone type IV, the outline form was designed and waxed up according to the different patient conditions (Fig.5).

The fifth stage, feeding plate manufacturing procedure in the laboratory, which includes 1) cast with wax pattern were inserted into the cuvette, then the cuvette was soaked in water; heated until the wax melted about 30 minutes, 2) the mold was packed with soft acrylic mixture for the inta-

**Figure 4** Imprints covering all defects and barrier structures

**Figure 5** The waxed up according to the variations of the cleft.

**Figure 6** The feeding plates after finished and polished

glio surface and hard acrylic mixture for the cameo surface 3) the cuvette was put in the water bath, heated it to reach 70ºC for 30 minutes, then continue heating until it reaches a temperature of 100ºC for 90 minutes, 4) after the polymerization was reached, the feeding plate was removed from the mold, 5) the feeding plate was finished and polished, and 6) the feeding plate was evaluated before insertion (Fig.6).

The sixth stage, the trial feeding plate and vestibule parts were conducted to prevent the movement of feeding plate when the wing of feeding plate was on a moving mucosa, and retention and stabilization were evaluated (Fig.7). After good retention and stabilization, mother was instructed to give milk to the baby using a bottle to see the feeding plate adaptation to the supporting tissue (Fig.8). After the baby can suck well, parents were taught to open, install and clean the feeding *plate* periodically.

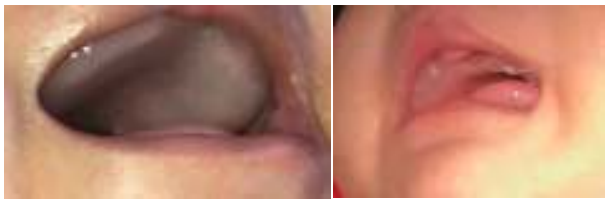

**Figure 7** Feeding plate insertion

**Figure 8** The babies were evaluated for suction and swallowing ability with feeding plate used

## RESULT

Community service has been done by providing feeding aid on 17 babies with CLP at Mitra Sejati Hospital Medan and Grandmed Hospital Lubuk Pakam. Partners participated in this community service program by providing patient data information, and providing space facilities to perform the care of infants with CLP. The installation of feeding plates that are artificial palate in infants aims to allow the baby to drink normally. Most babies with CLP are unable to reach normal weight due to poor nutrition intake. Treatment of infants with this disorder is not only until the operation of the union of CLP alone but continues with comprehensive treatment among others for advanced dental care, speech therapy, and psychology.

## DISCUSSION

Evaluation of the implementation of the program is carried out by the team to ensure the implementation of the program has achieved the specified objectives. The sustainability of the program is expected to be implemented continuously in the following years, because in Indonesia, especially in Medan, there are still many similar cases that are not handled properly due to lack of information and financial incompetence among the community.

Feeding plates were designed differently according to the diagnosis. Innovations were made in order to provide optimal results and support the normal growth of the baby's jaw.[2,5,6] The next stage is similar program will be carried out with the goal to help more CLP babies who need feeding plate through the publication of activities using social media and direct counseling to the community.

From this community service report, it is summarized that the counseling had a positive influence on knowledge about the consequences and treatment of CLP, as well as motivation to use the feeding plate. Feeding plates that are made in this community service program can help babies to eat or drink normally. Different feeding plate designs are innovations made in order to provide optimal results by taking into account the developing baby's jaw.

The continuation of this activity resulted in several suggestions; first, to increase the publication through social media so that information can reach all levels of society. Second, conducting direct socialization to the community through the Community Health Center so that more people can get information about CLP babies. Lastly, immediately check and bring the baby to the health center 2 days after birth. If it is found that the baby has CLP problems in babies can be overcome immediately.

## ACKNOWLEDGEMENT

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