	VOLUME-8, ISSUE-3, MARCH-2019 • PRINT ISSN NO 2277 - 816		
Just FOR Reserves	Original Research Paper	Dental Science	
Press Pres Pre	KNOWLEDGE OF DENTAL PRACTITIONERS ON SPACE MAINTAINERS AS TREATMENT MODALITY FOR PREMATURE LOSS OF PRIMARY TEETH		
Dr. P. S. Krithika	Postgraduate Student, Department Of Pedodontics Moogambigai Dental College And Hospital	s And Preventive Dentistry, Thai	
Dr. Joyson Moses MDS*	Professor And Head Of The Department, Depa Preventive Dentistry, Thai Moogambigai De *Corresponding Author	artment Of Pedodontics And ental College And Hospital	
Dr. R. Sharanya MDS	Senior Lecturer, Department Of Pedodontics A Moogambigai Dental College And Hospital	nd Preventive Dentistry, Thai	
Dr. Pallavi. C	Postgraduate Student, Department Of Pedodontics Moogambigai Dental College And Hospital	s And Preventive Dentistry, Thai	
Dr. Kalpana. H	Postgraduate Student, Department Of Pedodontics Moogambigai Dental College And Hospital	s And Preventive Dentistry, Thai	

In human beings, the primary teeth are replaced by the permanent teeth at time of exfoliation. Tooth lost ABSTRACT prematurely can cause malocclusion such as ectopic eruption, crowding, cross bite, rotation, excessive overjet and overbite. In such scenarios, space maintainers are used to passively hold the adjacent teeth in position and to allow the eruption of permanent successors into occlusion.

Aim: The study was conducted to assess the knowledge of graduate and post-graduate dental practitioners in north-western part of Chennai on space maintainers.

Materials and Methods: The questionnaire consisted of questions related to the clinical and radiographical criteria for the placement and removal of space maintainers. Pediatric dentists were excluded from the study.

Results: 97.5 % dentists were aware of the importance of space maintainers. Most of the dentists had knowledge on the case selection criteria, follow-up duration and removal criteria.

KEY WORDS : Space maintainers, North-west Chennai, Knowledge

INTRODUCTION:

The primary dentition plays a very important role in the child's growth and development, not only in terms of speech, chewing and appearance but also in the guidance and eruption of permanent teeth¹ If the tooth is lost prematurely, the space is encroached by both mesial and distal movement of the adjacent teeth.² About 51% of prematurely lost first primary molars and 70% of the prematurely lost second primary molars result in loss of space and a consequent malposition of the permanent tooth in that quadrant. Studies showed the in that mandible, space loss is more than the maxilla. ⁴ According to Hinrichsen in 1982, a space maintainer is imperative to prevent malocclusion such as ectopic eruption, crowding, cross bite, rotation, excessive overjet and overbite. ⁶ The appliance can be removable or fixed, active or passive, bonded or banded, functional or non- functional ⁷ and depends on child's stage of dental development, the missing teeth, occlusion, patient's age, ability to cooperate and to tolerate a removable appliance. The 2006-07 American Academy of Pediatric Dentistry guidelines state that the objectives of space maintenance are to prevent the loss of arch length, arch width, and/or arch perimeter by maintaining the relative position of the existing dentition.⁵

PROCEDURE:

A questionnaire study was conducted among 120 dental practitioners out of which 100 dentists were MDS graduates and 20 dentists were BDS graduates. All the dentists practice in the northwestern part of Chennai. Among the MDS graduates 22 were endodontists, 22 were oral surgeons, 14 were orthodontists, 9 were prosthodontists, 12 were periodontists, 10 were oral pathologists, 2 belong to the fraternity of Public Health and 9 belong to fraternity of oral medicine. Pedodontists were excluded from this study.

The questionnaire consisted of questions on the importance of space maintainer, the criteria followed for the placement and removal of the space maintainer. The data collected was statistically analysed using SPSS software.

RESULTS:

117 (97.5 %) dentists are aware of the importance of space

maintainers following premature space loss. 116 (97.5%) dentists explain to the parents about the importance of space maintainer. 92 (76.7 %) knows that space maintainer can be used for guiding the eruption of permanent teeth. While 21 (17.5 %) dentists prefer to treat premature loss of primary teeth by themselves, 99 (82.5%) prefer consultants to treat the child. While 65 (54%) dentists prefer placing the space maintainer a week after extraction, 20 (17%) dentists prefer placing immediately after extraction. The results are statistically significant with p-value of 0.048. 74 (61.7%) dentists have stated that the level of bone above the tooth bud and level of crown and root completion of the tooth bud are assessed prior to the treatment planning for space maintenance. Among the space maintainers, band and loop is opted by most of the dentists (84%). On comparing with nance palatal arch, lingual arch and distal shoe, band and loop space maintainer are most common and are statistically significant. 73 (60.8%) dentists prefers to review the patient every 3 months. 82 (68.3%) dentists preferred to remove the space maintainer as soon the permanent tooth starts to erupt in the oral cavity.

Title	Yes	No
Dentist opting for consultants	99 (82.5 %)	21 (17.5%)
Dentist knowing the importance of	117 (97.5 %)	3 (2.5%)
space maintainers		
Dentist explaining to parents about	116 (96.7 %)	4 (3.3 %)
the space maintainers		
Dentist with awareness about	92 (76.7 %)	28 (23.3 %)
guiding appliance		

Table 1: Knowledge of practitioners on space maintainer

Space Maintainer Placement	Total	Percentage	p-Value
Immediately after extraction	20	16.7	0.048
1 week after extraction	65	54.1	1
1 month after extraction	14	11.7	1
When I see missing teeth	21	17.5	

VOLUME-8, ISSUE-3, MARCH-2019 • PRINT ISSN No 2277 - 8160

Table 2: Knowledge of practitioners on clinical criteria for space maintainer placement

RADIOGRAPHIC DIAGNOSIS	Total	Percentage	p-Value
With the level of bone above the	22	18.3 %	0.043
underlying tooth bud			
With the crown completion and root completion of the underlying tooth bud	24	20 %	
Both level of bone above the tooth bud and level of crown and root completion of the tooth bud	74	61.7 %	

Table 3: Knowledge of practitioners on radiographic criteria for space maintainer placement

FOLLOW UP			
Percentage of follow up	Total	Percentage	
3 months	73	60.8 %	
6 months	31	25.8 %	
After permanent teeth erupts	16	13.3 %	

Table 4: Knowledge of practitioners on follow-up after space maintainerplacement

REMOVAL OF SPACE MAINTAINER			
REMOVAL OF SPACE MAINTAINER	Total	Percentage	p-Value
When the permanent tooth starts to erupt into the oral cavity	82	68.3	0.644
When the permanent tooth erupts completely	09	7.5	
When the patient complains of eruption pain	29	24.2	
When the permanent tooth starts to erupt into the oral cavity	0	0	
Table 5: Knowledge of practitioners on removal of space			

Table 5: Knowledge of practitioners on removal of space maintainer

DISCUSSION:

According to a study by Andreeava R et al in 2015, 68% of dental practitioners neglects space maintainer therapy which leads to orthodontic treatment in future. According to study conducted in Riyadh by Yousef h. Al-dlaigan in 2007, most of the dental practioners felt that usage of space maintainers was not required. This study was to assess the knowledge of space maintainer therapy in South-west Chennai. In the study , 97.5% of the dental practitioners were aware of the importance of space maintainers. Most of the practitioners examined the patient clinically for the status of the erupting successor tooth and the bone width prior to the fabrication of space maintainer.

Literature states that the placement of a space maintainer in the maxilla or mandible is recommended when a patient presents with one of the following conditions:

- a leptoprosopic facial form and end-on molar relationship and missing maxillary or mandibular primary first molars
- ii. a mesoprosopic/euryprosopic facial form, end-on molar occlusion, and missing mandibular first primary molars.¹⁰

Most of the practitioners preferred three months follow-up and removal of space maintainer once the permanent teeth starts to erupt.

CONCLUSION:

The study reveals that dental practitioners have a decent knowledge about space maintainers. The awareness of the parents towards the importance of primary teeth towards a healthy permanent teeth might be a reason for the increase usage of space maintainers in daily clinical practice.

REFERENCES

1. Setia V, Pandit IK, Srivastava N, Gugnani N, Sekhon HK. Space maintainers in dentistry:

past to present. Journal of clinical and diagnostic research: JCDR. 2013 Oct;7(10):2402.

- Kundu R, Tripathi AM, Jaiswal JN, Ghoshal U, Palit M, Khanduja S. Effect of fixed space maintainers and removable appliances on oral microflora in children: An in vivo study. J Indian SocPedodPrev Dent 2016;34:3-9.
- Rao AK, Sarkar S. Changes in the arch length following premature loss of deciduous molars. J Indian Soc Pedod Prev Dent. Mar1999; 17(1):29-32.
- Nayak UA, Lous J, Sajeev R, Peter J. Band and loop space maintainer-made easy. J Indian Soc Pedod Prev Dent. Sep 2004;22(3):134-136.
 Ronnerman A. The effect of early loss of primary molars on tooth eruption and space
- Komernan A. The effect of early loss of primary motars on court eruption and space conditions: A longitudinal study. Acta Odontol Scand 1977;35:229-39.
 Srivastava N, Grover J, Panthri P. Space Maintenance with an Innovative "Tube and
- Loop*Space Mainteiner (Nikhil Appliance). International Journal of Clinical Pediatric Dentistry. 2016;9(1):86-89.
- 7. S.G Damle. Textbook of pediatric dentistry. 5th edition.
- Yousef h. Al-dlaigan. A survey of the use of space maintainers by private dentists in Riyadh – Saudi Arabia. Pakistan Oral & Dental Journal Vol 27, No. 1:39-41.
- American Academy of Pediatric Dentistry Clinical Affairs Committee. Guideline on management of the developing dentition and occlusion in pediatric dentistry. Reference Manual 2006-07. Pediatr Dent 2006;28:157-169.
- Andreeava R, Arnautska H, Belcheva A. Awareness of the dental practitioners about the possibility to use spacemaintainers when premature temporary teeth extractions. International Journal of Scientific and Research Publications. 2015 Nov:194.
- SA, Askari M, Lewis P. The premature loss of primary first molars: Space loss to molar occlusal relationships and facial patterns. The Angle Orthodontist. 2014 Jul 10;85(2):218-23