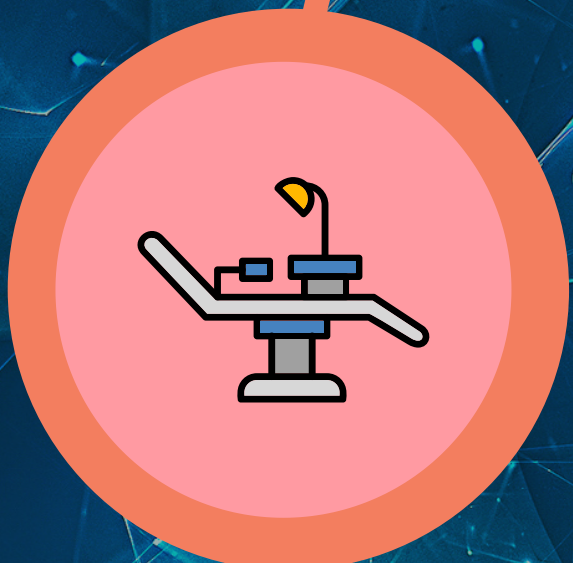


# INFOUPDATE

PPKK ILKKM VOLUME 17, 2022

## DENTISTRY GOING BEYOND



## **DIRECTOR'S NOTE**



**Dr Nor Haslina binti  
Mohd Hashim**

Pakar Pergigian  
Kesihatan Awam  
Pengarah,  
Pusat Pergigian  
Kanak-Kanak &  
Institut Latihan KKM  
(Pergigian)

First and foremost, I want to say thank you to everyone for your effort throughout the productive year of 2022.

Being a part of society means that we must constantly work to better ourselves in order to cope better with constant change in our surrounding. Dentistry is a field that is always changing as a result of new discoveries and technologies. Therefore, having the most recent knowledge of our field is crucial if we want to offer our customer and the general public a better service.

Generally speaking, our institution is Malaysia's only training facility for dental nurses, dental technologies, and dental surgery assistants. As academicians it is our enormous responsibility to make sure that the information we are giving to our students is accurate and current, in order for them to practice efficiently and safely in the work field. With that, we need make it our personal mission to read and study as much as we can because the learning process never ends.

Finally, I applaud the editorial team for working to create the 2022 edition of Info Update. By making edition available, our dental officers and instructors will receive a great deal of new and current dental knowledge.

May you enjoy reading and let us all work together to achieve even more success in the future!

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dari PPKK & ILKKM ke Negeri-Negeri  
di Semenanjung Malaysia

Oral Rehabilitation Following Oral  
Cancer Treatment

## ***EDITORIAL TEAM***

Dr Basiroh Abdullah  
Dr Nor Asyikin Bakri  
Dr Mardhiatul Miskiah  
Dr Safwanah  
Dr Jude Bajagap

# CAD-CAM Digital Dentistry: The Overview

A summary by Dr Nor Suhana Othman, Dr Tan Si Ying

Computer-aided design (CAD) and computer-aided manufacturing (CAM) have become an increasingly popular part of dentistry over the past 25 years. The technology, which is used in both the dental laboratory and the dental office, can be applied to inlays, onlays, veneers, crowns, fixed partial dentures, implant abutments, and even full-mouth reconstruction. It is also being used in orthodontics treatment.

In brief, in-office dental CAD/CAM systems consist of a handheld scanner, a cart that houses a personal computer together with a monitor, and a milling machine.

The scanner head is placed intraorally above the tooth preparation and the resulting data appear on the monitor as 2-dimensional (2-D) or 3-dimensional (3-D) images. Design work is done on the monitor and the instructions are sent to a computer-assisted processing machine for milling.

Restorations are milled from prefabricated blocks of porcelain. Options include feldspathic, leucite, or lithium disilicate materials as well as blocks of composite. After the restoration is examined and approved, it is polished and inserted using conventional bonding techniques.

Results with in-office milling machines appear to be as good as those from laboratory milling machines. A systematic review of 16 articles that comprised 1957 restorations found no significant differences in 5-year survival rates between chairside CEREC restorations (90.2% to 93.8%) and Celay laboratory restorations (82.1%).

The process of CAD/CAM involved:

- Preparation
- Scanning
- Design
- Milling
- Customization
- Firing
- Final adjustments

Components of CAD/CAM dental technology are:

- Scanner
- CAD Software
- CAM machine

	Conventional restoration	CAD/CAM restoration
Material	Ceramic/resin	Ceramic/resin
Number of appointments	Multiple appointments	Single appointment
Aesthetics	Good result	Most accurate
Teeth preparation	Lots of prep required for cement and temporization	More conservative and precise preparation
Dental impressions	Manual by plastic/metal trays and impressions	Digital scanning only
Price	Cheaper	More expensive

Before CAD/CAM, the process of getting crowns, implants, and dentures involved various dental visits. But now, by using CAD/CAM, the process for making dental restorations is much more efficient and can be completed in as little as 45 minutes, and at most a couple of hours.

CAD/CAM technology was developed to solve 3 challenges. The first challenge was to ensure adequate strength of the restoration, especially for posterior teeth. The second challenge was to create restorations with a natural appearance. The third challenge was to make tooth restoration easier, faster, and more accurate. In some cases, CAD/CAM technology provides patients with same-day restorations.

Dental CAD/CAM also makes orthodontic treatment easier, because by using this technology, dentists can take digital scans of a patient's teeth, which are faster and more accurate than making molds. These scans can be used with software, making the planning and delivery of treatment easier and faster, especially when it comes to invisible braces.

What's more, patients can see the potential results of their orthodontic treatment before they even begin. Another benefit of CAD/CAM (for any sort of dental treatment) is that it's easier for those patients who have a strong gag reflex that makes it more difficult to make dental impressions.



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# DENTAL IMPLANTS

## ASSOCIATED WITH BONE REGENERATION TECHNIQUE: THE PROGNOSIS

Prepared by,  
DR SITI MAISARAH BINTI RAMLI, DR NURNATASYA BINTI MOHD ZAHIR



Bone regeneration techniques in dental implants consist several other techniques:

- 1 **Guided Bone Regeneration (GBR)**
- 2 **Autologous Bone**

### **Guided Bone Regeneration GBR**

Regeneration of osseous defects via application of occlusive membranes which exclude non-osteogenic cell populations from surrounding soft tissues

### **Autologous Bone**

- Gold standard in dental implants
- Using grafted material
- Most common use bone graft is from iliac crest
- Other site can be from intraoral origin

## PROGNOSIS

### **Guided Bone Regeneration (GBR)**

Used in vertical and/or horizontal augmentation has survival rate of >90%

### **Autologous Bone**

Implant survival rate varies between 76% and 100% with worse results for iliac crest bone compared to calvaria bone or intraoral grafts

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# IS SELF-LIGATING BRACKET MORE EFFICIENT THAN CONVENTIONAL BRACKET?

A summary by Dr Rabiatal Adawiah binti Muhammad Azuar, Dr Nurasyikin binti Abdurahman.

The self-ligating brackets system was initially invented in 1835 and has recently acquired popularity. This system contains an internal metal labial face that can be opened and closed, which do not require an elastic or wire ligature as conventional brackets. Self-ligating brackets are divided into active and passive self-ligating brackets based on bracket and arch wire interaction.

They claim to be more efficient than conventional systems. according to their developers. Lower friction, less discomfort, more efficient tooth movement and sliding mechanics, greater arch expansion. consistent arch-wire contact, quicker chair side time, and reduced biostability are a few of the purported benefits. Despite these assertions, clinical evidence is sparse.

## THE DIFFERENCES

A systematic review study results show no significant differences between self-ligating and conventional brackets in terms of alignment, levelling, friction, space closure, anchorage loss, transversal changes, root resorption, check-up frequency, duration of treatment, patient comfort, hygiene and halitosis. Thus, more research is needed to support their clinical relevance.

A systematic review and meta-analysis study results concluded that :

### **Overall treatment time :**

Although the total treatment time was longer in self-ligating brackets group than in the conventional brackets group, statistical significance was not obtained.

### **Number of appointments :**

In the self-ligating group, the number of appointment was greater than in the conventional brackets group. However, none of those studies were found to be significant.



Self-ligating brackets



Conventional brackets

In summary, self-ligating brackets have characteristics that intersect with conventional ones by removing elastics modules, giving them some advantages over the conventional system. The claimed advantages of self-ligation brackets such as low friction, secured full bracket engagement, rotational control with the self-ligating slot acting as the fourth slot wall, and reduced chair side time have all improved patient compliance and appliance efficiency, resulting in a successful treatment outcome.

However, future developments of the self-ligation brackets warrant more research to support and substantiate their claims of effectiveness against the conventional brackets.

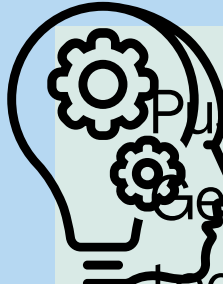
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# THE PLACEMENT AND REPLACEMENT OF RESTORATIONS IN CHILDREN ATTENDING PUSAT PERGIGIAN KANAK-KANAK & INSTITUT LATIHAN KEMENTERIAN KESIHATAN MALAYSIA (PPKK & ILKKM) PERGIGIAN, GEORGETOWN, PULAU PINANG.

Neoh ZH, Nurfarhana FA, Norhayati M, Fauzilah MA, Hazimah AH

## Introduction

 Pusat Pergigian Kanak-kanak & Institut Latihan Kementerian Kesihatan Malaysia (PPKK & ILKKM) Pergigian, Georgetown, Pulau Pinang is a training institution where dental nurses, dental assistant and dental technician are trained and supply to all government's dental clinics and dental specialist clinics. Therefore, all the auxiliaries' dental staff are produced from this institution to fulfil the demand in the dentistry service. This research aims to study the placement and replacement of restorations for permanent and deciduous tooth in children attending in PPKK & ILKKM (Pergigian) done by trainee dental nurses and related factors.

## Specific Objective



### Main Objective

To study the placement and replacement of restorations for permanent and deciduous tooth in children attending in PPKK & ILKKM (Pergigian) and related factors.

To determine the reason of restoration replacement.

To determine the types of restoration by GV Black classification need to be replaced.

To determine the prevalence types of restorative material used in restoration need to be replaced.

To determine the median survival rate of placement of filling.



## Methodology

A retrospective study was carried out

Children aged 17-year-old and below who attended to PPKK & ILKKM (Pergigian) for restoration done by trainee dental nurses since year 2016 with inclusion and exclusion criteria

Analysis data was done using Microsoft Excel

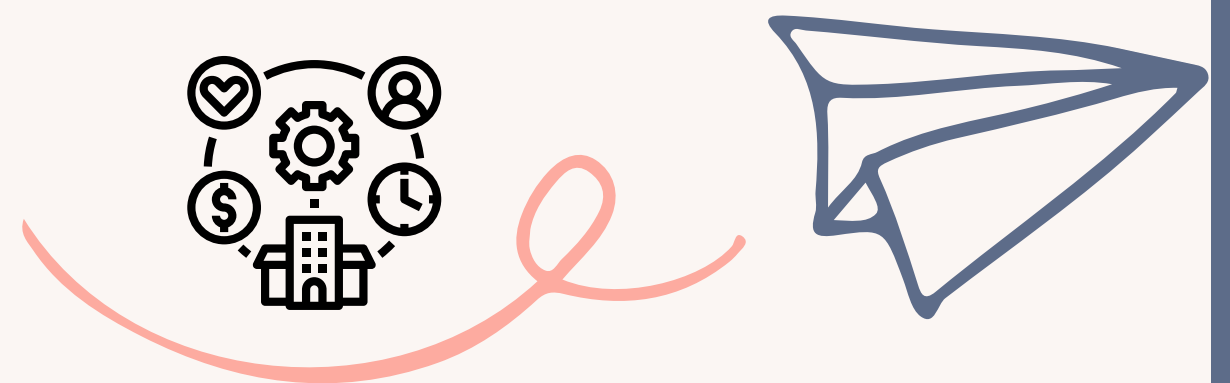
## Results

1 The main reason of restoration replacement reported was restoration dislodged (61.70%) followed by recurrent dental caries (25.53%) and fracture restorative material (11.17%).

3 The prevalence types of restoration material used in restorations need to be replaced were glass ionomer cement (4.96%), amalgam (2.38%) and composite (1.87%).

2 The main reason of restoration replacement reported was restoration dislodged (61.70%) follo The types of restoration (G.V Black) needed to be replaced were class II compound (8.04%), class I compound (7.08%), class III (5.18%), class II simple (1.82%), class I simple (1.65%), class V (1.47%).

4 The median survival rate of restoration done by trainee dental nurses was 213 days.



## Discussion

The Children who attended to PPKK & ILKKM (P) required restoration placement due to dental caries (99.65%). caries is still a major factor for restoration among dental treatment although promotion program and dental hygiene education have been promoted and enhanced in school program.

## Recommendations

This research's result can used as a reference for other researcher to study on other factors related to replacement restoration done by trainee in PPKK & ILKKM(M). Recommendation to improve: 1) Emphasis on the training part as a whole by reinforce skill and knowledge of cavity preparation through lecture and practical session not only to the trainees but also to the tutors. 2) Close monitoring during procedures needs to be done to minimize factors which can affect the restoration. 3) Trainee dental nurse need to aware the predisposing factors in order to reduce restoration dislodged and improve the quality of work.

## Conclusion

This research show that the main reason of replacement restoration is due to restoration dislodged. The majority types of restoration by G.V Black classification need to be replaced are class II compound (8.04%) and class I compound (7.08%). Restorative material which has highest prevalence to be replaced is glass ionomer cement. The survival rate of restoration done by trainee dental nurse is almost 7 months. This research results show that improvement of trainee dental nurses' restorative skill is important to ensure the quality of work provide to the patient.

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# Effects of Polishing Systems on Surface Roughness and Colour Stability of Microhybrid Composite Resin

Naziah Md Jasin , Husniyati Roslan , Fatanah Mohamad Suhaimi , Ahmad Fairuz Omar

Malaysian Journal of Medicine and Health Sciences (eISSN 2636-9346)

## INTRODUCTION

The discolouration of the tooth coloured filling may cause patient dissatisfaction and lead to the replacement of the restoration which is costly and consume additional time. Due to an increasing demand for aesthetic appearance and fear of mercury toxicity, replacement of amalgam fillings by tooth-coloured materials, particularly composite resins showed a more significant increment over 60 years ago. Currently, commercial composite resins are available either with light-activated or solely chemically cured polymerisations

## ABSTRACT

Discolouration of microhybrid composite resin is a common problem faced by both dental practitioners and patients. The accumulation of plaque, penetration of colourant particles from foods and beverages, dietary habits and the smoothness of restorations have been known to influence the quality of the aesthetic restoration. The purpose of this study was to determine the effects of polishing systems on surface roughness that led to discolouration of the microhybrid composite resin.

## HYPOTHESIS

The colour stability of composite resin is expected to be affected by the surface roughness due to polishing systems used.

## OBJECTIVE

To determine the effects of polishing systems towards the colour stability of polished microhybrid composite resin after immersion in two types of beverages.

## MATERIALS AND METHOD

Forty five samples of Nissin permanent upper central incisors were prepared with 2 mm (width) x 4 mm (depth) cavities on both distal and mesial surfaces. All samples underwent 3 steps technique of composite restoration. A visible-light activated (light-activated polymerisation) packable 3MTM ESPE Z100 (3M ESPE, United States of America), shade A3 was chosen to restore all prepared cavities as the shade would show a slight change over a period of time and exhibit an excellent shade match with natural teeth. Restorations were polished with two different polishing systems; one-step polishing (OP) system on the distal surface and multiple-step polishing (MP) system on the mesial surface. All samples were then immersed in two common beverages: black coffee and cocoa, for 20 minutes daily throughout 28 days of the experimental period.

## ANALYSIS

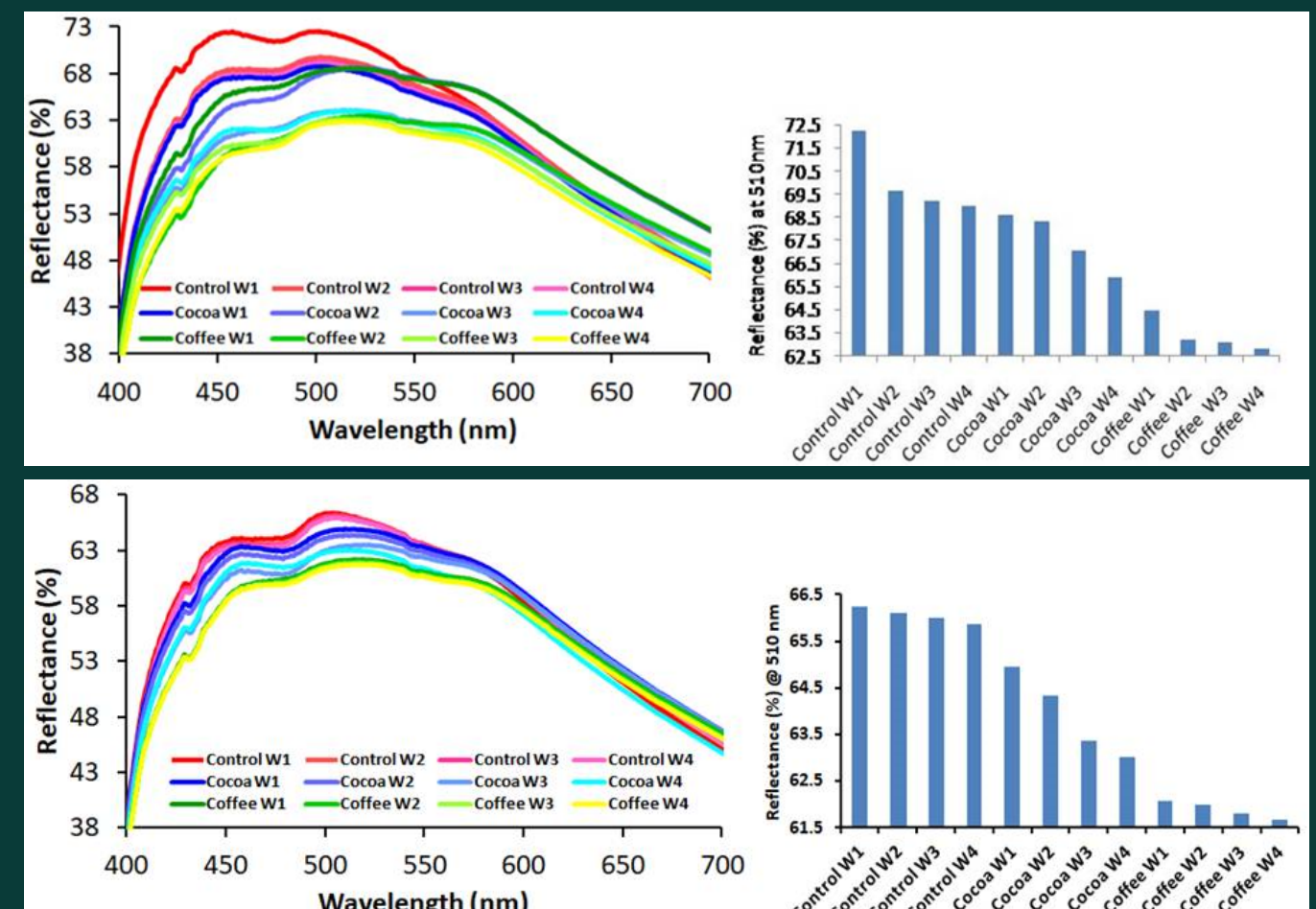
Data on visual colour measurement and spectrometer colour spectrum was subjected to one-way ANOVA test at a significance level of 0.05.

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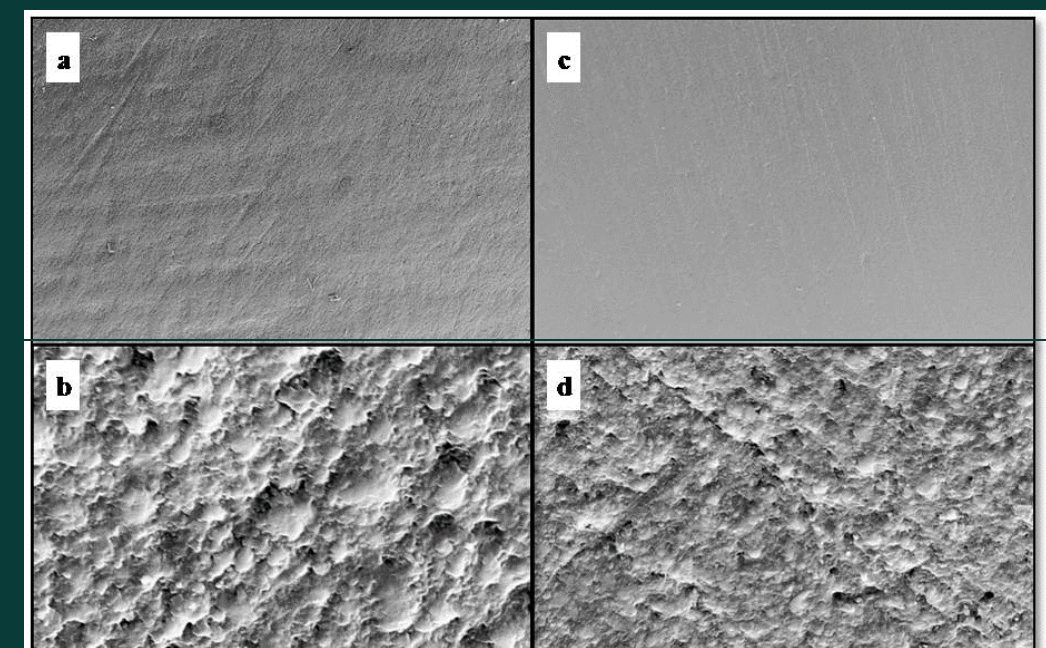
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## RESULTS

Both solutions (black coffee and cocoa) were found to cause a significant colour change ( $p=0.0195$ ) on the microhybrid composite resin. Black coffee solution obtained the highest score (71.6) of visual colour change and the lowest reflectance value (62.818) on the distal surface.



Surface roughness evaluation using a scanning electron microscope (SEM) had presented that both polishing systems used produced low level of surface roughness



## DISCUSSION

Immersion into staining solutions showed a diverse effect on the colour spectrum changes of microhybrid composite resin due to the differences of colourant pigment as well as consistency. MP system appeared to be more stain resistant. Prolonged sorption of colourant from beverages may result in an unacceptable colour change especially in the samples immersed in the black coffee solution.

## CONCLUSION

Although MP system produced a smoother surface compared to OP system, a prolonged exposure to colourant particle found to cause an unacceptable discolouration of microhybrid composite resin.

# EVERYTHING YOU NEED TO KNOW ABOUT FLEXIBLE DENTURE.

A close-up photograph of a person's hand holding a flexible, pinkish-orange denture. The denture is curved and shows several white teeth. The background is a soft, out-of-focus white fabric.

## **A summary by Comalavalli a/p Subrumaniam**

The removable partial denture (RPD) is one of the treatments for patients who partially lost their teeth. An acrylic base partial denture is most prepared for the patient. But now flexible denture is an alternative treatment for removable RPD that aids the retention by ensuring a seal around the entire border of the denture.

A flexible denture is also suitable for hypoallergenic dentures, especially for those who are allergic to conventional acrylic dentures and metal cobalt chromium. The material used in denture exhibits lower flexural modulus than the baseplate conventional type poly-methyl methacrylate monomer (PMMA) or cobalt chromium.

The thermoplastic materials for flexible denture available for more than 30 years and continues to develop with new and existing companies manufacturing their own products. The material is made from Thermoplastic nylon resin that is ultrathin and very flexible during chewing and speaking. It is also not absorbing odors or stains and is more suitable for patients suffering from allergies to metal or acrylic. Flexible denture feel disappears or is invisible in their mouth and to aesthetic compared to conventional acrylic and metal partial dentures.

A flexible partial prosthesis is recommended to patients in general for prosthetic treatment. Although esthetics and patient adaptation are superior, it is indicated more as a provisional treatment solution and avoid bad breath.



# KAJIAN KEBERKESANAN KOS PEMINDAHAN UNIT PERGIGIAN TETAP DARI PPKK & ILKKM KE NEGERI- NEGERI DI SEMENANJUNG MALAYSIA

Nor Haslina MH, Safwanah MN, Mardhiatul MMI, Nur Nuha MN, Muhammad Luqman HA, Salehfuddin MI, Mohamed Adzhar NA

## Pengenalan

Pusat Pergigian Kanak-Kanak dan Institut Latihan Kementerian Kesihatan Malaysia (Pergigian) Gerogetown, Pulau Pinang adalah sebuah institusi yang melatih Auksilari Pergigian

Institusi ini juga menawarkan perkhidmatan Kesihatan Pergigian kepada murid sekolah, para pelatih auksilari dan orang awam yang terdiri daripada orang dewasa dan warga tua.

Institusi ini telah diperuntukkan penggantian Unit Pergigian Tetap di bawah program MEET. Justeru, kajian telah dijalankan bagi mengkaji keberkesanan kos pemindahan Unit Pergigian Tetap dari PPKK & ILKKM (Pergigian) ke negeri-negeri di Semenanjung Malaysia.

## Objektif

Umum :  
Mengkaji keberkesanan kos pemindahan Unit Pergigian Tetap dari PPKK & ILKKM (Pergigian) ke negeri-negeri di Semenanjung Malaysia

1

Mengkaji **perbelanjaan** / kos pemindahan Unit Pergigian Tetap (terpakai) ke negeri-negeri dan kos purata per unit

2

Mengkaji **perbezaan antara kos** yang terlibat dalam proses pemindahan berbanding kos perolehan unit yang baru (penjimatan)

3

Mengkaji hubung kait antara **kos** / perbelanjaan dan status **kebolehfungsian**

4

Mengkaji hubung kait antara **usia** Unit Pergigian Tetap & **kebolehfungsian**

## Metodologi

**Jenis Kajian**  
Retrospektif & deskriptif

**Populasi**  
197 Unit Pergigian Tetap  
**Sampel Saiz**  
99 Unit Pergigian Tetap

**Jenis Persampelan**  
Sampel mudah (convenience sampling)

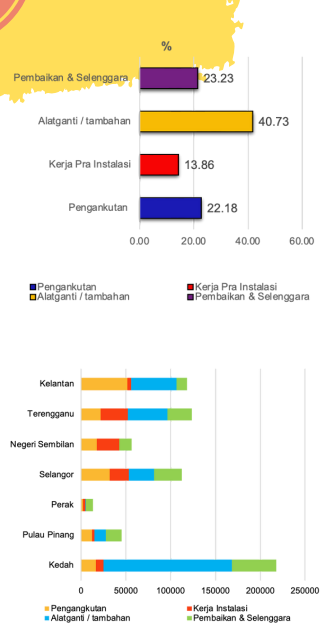
**Pengumpulan Data**  
Borang profoma  
**Analisis Data**  
Perisian SPSS versi 22.0

# Hasil Kajian

# Perbincangan

1

## KOS VARIASI MENGIKUT NEGERI & KOS PURATA/ UNIT



Bil	Negeri	Bil	Kos Berubah (Variasi) (RM)				Perbelanjaan Keseluruhan (RM)	
			Pengangkutan	Kerja Instalasi	Alat ganti / tambahan	Pembaikan & Selenggara	TOTAL	Purata / Unit
1	Kedah	13	16,300.00	8,600.00	14,346.00	49,600.00	217,960.00	16,766.15
2	Pulau Pinang	10	12,000.00	2,910.00	12,500.00	17,902.56	45,312.56	4,531.26
3	Perak	6	1,932.20	2,500.00	940.00	7,710.00	13,082.20	2,180.37
4	Selangor	12	32,000.00	21,200.00	28,260.00	30,650.00	112,110.00	9,342.50
5	Negeri Sembilan	18	17,228.20	25,200.00	0.00	14,120.00	56,548.20	3,141.57
6	Terengganu	19	21,500.00	30,400.00	44,200.00	27,500.00	123,600.00	6,505.26
7	Kelantan	21	51,389.00	4,400.00	50,480.00	12,060.00	118,329.00	5,634.71
	<b>Total</b>	<b>99</b>	<b>152,349.40</b>	<b>95,210.00</b>	<b>279,840.00</b>	<b>15,9542.56</b>	<b>686,941.96</b>	<b>6,938.81</b>
	<b>Purata</b>		<b>1538.88</b>	<b>961.72</b>	<b>2826.67</b>	<b>1611.54</b>	<b>6,938.81</b>	

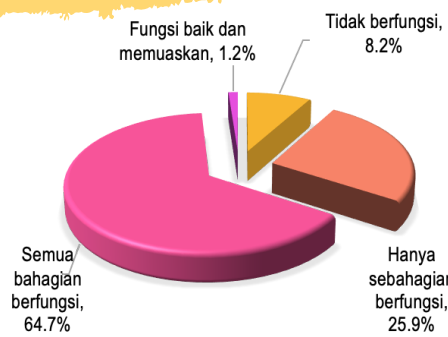
## PERBEZAAN ANTARA KOS

2

Bil	Perbelanjaan Keseluruhan	Kos Perolehan Unit Baru (Anggaran = RM 95K/UNIT)	PENJIMATAN	
			Keseluruhan	%
13	217,960.00	1,235,000.00	1,017,040.00	82.35
10	45,312.56	950,000.00	904,687.44	95.23
6	13,082.20	570,000.00	556,917.80	97.70
12	112,110.00	1,140,000.00	1,027,890.00	90.17
18	56,548.20	1,710,000.00	1,653,451.80	96.69
19	123,600.00	1,805,000.00	1,681,400.00	93.15
21	118,329.00	1,995,000.00	1,876,671.00	94.07
99	686,941.96	9,405,000.00	8,718,058.04	92.70

3

## KOS vs STATUS KEBOLEHFUNGSIAN



Bil	STATUS KEBOLEHFUNGSIAN	KATEGORI KOS		n
		< 20 K	> 20K	
1	Tidak berfungsi	7	0	7
2	Hanya sebahagian berfungsi	16	6	22
3	Semua bahagian berfungsi	55	0	55
4	Fungsi baik dan memuaskan	1	0	0
	<b>Jumlah</b>	<b>79 (92.9%)</b>	<b>6 (7.1%)</b>	<b>85 (100%)</b>

## USIA vs STATUS KEBOLEHFUNGSIAN

4

BIL	STATUS KEBOLEHFUNGSIAN	USIA	
		< 15 TAHUN	>15 TAHUN
1	Tidak berfungsi	0	7
2	Hanya sebahagian berfungsi	0	22
3	Semua bahagian berfungsi	0	55 (64.7%)
4	Fungsi baik dan memuaskan	0	1 (1.2%)
	<b>Jumlah</b>	<b>0</b>	<b>85 (100%)</b>

14 UNIT PERGIGIAN TIADA MAKLUMAT

## Kos Variasi

- Perbezaan kos antara negeri-negeri dipengaruhi oleh :
  - Pengangkutan
  - Kerja instalasi
  - Alat ganti/tambahan
  - Pembaikan & selenggara
- Kos tertinggi melibatkan kos pembelian alat ganti/ tambahan
- Purata kos / perbelanjaan per unit RM6,938.81 (kurang dari 1/10 dari kos pembelian unit baru)

## Keberkesanan Kos

- Purata penjimatan/ unit = 92.7%
- Majoriti dari unit-unit (92.9%) menunjukkan kos / perbelanjaan < 20K (mampu dilaksanakan di peringkat PTJ)
- Hampir 2/3 (65.9%) dari keseluruhan unit berfungsi dengan baik dan memuaskan, manakala 1/3 tidak / sebahagian berfungsi
- 70.9% unit dengan kos < RM 20K menunjukkan keberkesanan yang baik (semua berfungsi dan memuaskan).
- 65.9% unit yang berusia > 15 tahun menunjukkan keberkesanan yang baik (semua berfungsi dan memuaskan)

## Keterbatasan Kajian

- Borang kaji selidik / pengumpulan data tanpa validasi
- Borang kaji selidik tidak dilengkapi oleh responden
- Kos yang dilaporkan adalah kos anggaran
- Tiada kajian keberkesanan kos yang pernah dilakukan

## Cadangan

- Inisiatif pemindahan aset kepada fasiliti lain dapat diteruskan di masa akan datang.
- Kaedah kajian ditambahbaik dan diperhalusi di masa akan datang.

# Kesimpulan

- Kos purata bagi pindahan sebuah Unit Pergigian Tetap adalah kurang dari 1/10 harga perolehan sebuah unit baru.
- Aspek penjimatan dan kebolehgunaan / kebolehfungsian merupakan dua aspek yang boleh dijadikan pengukur keberkesanan kos untuk jangka pendek dalam keadaan di mana perolehan unit-unit baru adalah sukar.

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# ORAL REHABILITATION

## *Following*

# ORAL CANCER TREATMENT

A SUMMARY BY DR TAN YEN NEE, DR MUHAMMAD ZUHAILI BIN ABU BAKAR

## TREATMENT MODALITIES

*For oral cancer include* surgery, radiotherapy & chemotherapy, either alone or in combination. Treatment modalities vary in both their extent & intensity, depending on the tumour site & stage of disease.

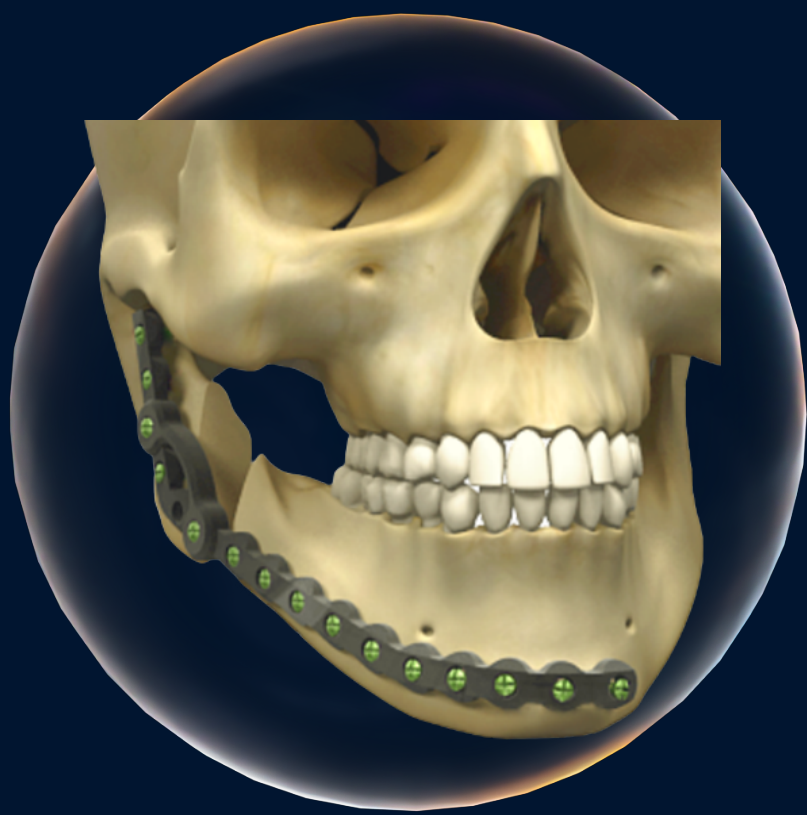
## EFFECTS OF TREATMENT

- Impaired mastication ability
- Speech disorders
- Facial appearance
- Deglutition
- Xerostemia

## IDEAL REHABILITATION *following treatment for advanced oral cancer*

- Restoration of the external appearance of the patient
- Reconstruction of the mandibular arch & facial contour
- Retaining / restoring oral competency
- Restoring clarity of speech
- Restoring stable dentition to achieve the ability to chew all types of foods
- Preserving / restoring the ability to swallow

## ORAL REHABILITATION



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