Original Article

An Audit of Paediatric Dental Patient Assessment and Recall in Faculty of Dentistry UiTM Sungai Buloh

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Abstract

Objective: To assess if the recall appointments and the use of radiographs for paediatric dental patients at Faculty of Dentistry, UiTM comply with current guidelines.

Materials and Method: A retrospective study was conducted using patients' dental records that were registered at the Faculty of Dentistry UiTM. The sample consisted of 350 randomly chosen treatment records of paediatric patients aged between birth and 16 years of age at the time of data collection which was in the year 2016. Data collection included demographic details, whom the cases were treated by, caries risk assessment, radiographs taken and time taken for the patient's review appointments.

Results: An initial sample size of 350 records were assessed. The mean age of patients seen when they were first seen is 6.3 years old. Caries Risk Assessment was not reported in majority of the cases (58%,). Baseline radiographs were taken in 44.6% of the cases. For the assessment of recall attendance, only samples with data on CRA was analysed (n=145). The review appointments at 3 months interval was 70% whereas at 6 months was 6.2% and one year recall was 6.7%. A chi-square test showed significant difference (p=0.013) between the category of operators for the 1-year review whereby review was higher among students and specialists as compared to dental officers.

Conclusion: This study shows poor adherence to the recommended recall protocol as suggested by NICE and AAPD guidelines. Further studies need to be done to assess the patients' and clinicians awareness regarding the recall protocol and determine the problems causing poor recall attendance.

Keywords*:* audit, paediatric dental, recall system

Introduction

With the rise in cost of medical and dental care, many question the need and cost-effectiveness of screening and appointments for generally healthy patients. The recall system is nothing new to dentistry and the notion that a person needs to visit the dentist twice a year has been well publicized since the beginning of the 20th century.[1] A recall system encompasses routine oral health examinations which traditionally assesses caries, periodontal diseases and oral cancer. It also addresses the issues of a developing dentition in which caries risk is changing quickly due to an active eruption phase.[2]

Although the general rule of a biannual dental review is widely accepted, there have been `various studies which challenge this recommendation. Sheiham

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(1977) proposed that recall interval can be longer than six months as caries takes more than two years to progress through enamel.[3] Wang et al (1992) looked at the effects of increased recall interval time on caries incidence and they found that that there was no significant differences in the oral health status of patient reviewed in 12 months versus 24 months.[3] However, this study did indicate that there was a tendency for patients with longer intervals to have an increase in DMFS scores.

A systematic review regarding dental recall intervals by Patel et.al (2010) concluded that there is insufficient evidence to support or refute a standard recall protocol that is suitable for all cases.[1] The review mentions that the six-month dental recall has been practised for more than a hundred years and has been readily accepted as part of dental practices.[4] However, they do recommend using a customized recall protocol based on the individual's risk assessment.[5]

Risk assessment can be used to tailor a specific recall protocol which caters to each individual's needs.[6] The risk of developing dental diseases changes along with the developing dentition of a child and this is another important reason why recall appointments are important.[7] Dental recall interval protocols are used to prevent dental disease through regular maintenance evaluations and preventive procedures [1].

American Academy of Paediatric Dentistry (AAPD) recommends the first dental examination once the first primary tooth emerges and no later than 12 months.[7] AAPD does not prescribe a 'one-fits all' recall protocol but rather an interval that is based on the individual's needs and the age group of the patient.[7] AAPD also stresses the importance of anticipatory guidance and counselling for the recall visits.[7] The Ministry of Health, Malaysia also recommends that children should have their first dental visit by age one or within 6 months after the first tooth erupts.[8] The UK National Institute of Health and Clinical Excellence (NICE) issued a guidance document in 2004 recommending that patient's recall interval is established by the individual risk status[5]. In patients less than 18 years of age, the NICE guidelines recommend the shortest interval of 3 months and the longest interval of 12 months[5].

Recall interval for children should generally be less than that of an adult as newly erupted permanent teeth are more susceptible to caries and it is not easy to brush effectively in a mixed dentition.[9,] A periodic assessment of the developing occlusion and orofacial growth is also necessary to pick up malocclusions and other dental problems.[10] Proper recall systems also provide the opportunity to assess the outcome of previous treatment and this is a form of evidence for clinical governance.[11] Besides that, recall visits allow the clinician to reinforce previous advice and help instill patient behavior which will aid in their maintenance of good oral health[1].

There are currently around 4000 paediatric patient records which are available at the Faculty of Dentistry, Universiti Teknologi MARA, Sungai Buloh. Up till the introduction of the

Integrated Dental Record Management System (IDERMS) in 2017, all records were in the form of folders and continuation sheets. Appointments with specialists are handled by the respective clinic nurses while the students contact their patients individually to give them the appointment dates. Undergraduate students treat paediatric patients between 2 to 3 years

during their training. Once they have finished the course, their patients should ideally be reviewed by the junior undergraduate students. Although folder checking is routinely done to check the status of active cases being treated by students, a similar monitoring system is not done for recall patients. Hence, there is need of a proper recall system to cater to the need of the patients by assessing the progress of the dental treatment done for regular monitoring and preventive management.

The aim of this study is to assess the recall appointments for paediatric dental patients at Faculty of Dentistry, UiTM and assess its adherence to international guidelines.

Materials and Methods

A cross sectional retrospective study was conducted using patient's records. The sample consisted of 350 randomly chosen treatment records of paediatric patients aged between birth and 16 years of age at the time of data collection which was in the year 2016. Ethical approval was obtained from Universiti Teknologi (600-IRMI 5/1/6) followed by the permission to conduct the study by Faculty of Dentistry UiTM Sungai Buloh. Patient data system was utilized to recognize paediatric patients based on their National Registration Identification Card (NRIC) number and their date of births. Randomization was done and 350 number were generated for the selection of sample. Data on demography of patient, caries risk assessment, recall interval and radiographic examination were all recorded. Statistical analysis was carried out using SPSS version 23. Chi square test was performed to assess compare the compliance recall protocol between clinical operators. Based on the AAPD and NICE guidelines, review at 3, 6 and 12 months was used as the gold standard for comparison of recall protocol in this study.[2,7]

Results

The study sample of 350 records consisted of 44% males and 55% females. Mean age of paediatric patients at first visit is 6.29 ± 250 with independent t-test showing no significant statistical differences between the genders (p=0.378). The distribution of patients was almost equal between the operator group; dental officer (32%), students (34%) and specialists (34%).

It was noted that Caries Risk Assessment was not recorded in 58% of the cases. Failure to record the CRA status was more prominent among the dental officers as compared to students and specialists. Pearson's chi-square test showed significant differences (p=0.01) between the groups of operators (Fig 1).

Baseline radiographs taken at the initial visit shows no significance difference between patients treated by either group of operators. The use of radiographs was low in all categories whereby only 45% patient had their baseline radiograph taken (Fig 2). Bitewings were the most common radiographs used by all three groups of operators. Pearson's chi-square test showed no significant differences (p=0.743) between the groups of operators.

For the analysis of the recall attendance, the number of subjects are 145 which is based on 42% of the initial cohort which had records of CRA (table 1).

For assessment comparing the attendance for recall according to operators, chi-square test showed no significant statistical differences in the 3 months (p=0.886) and 6 months (p=0.41) recall interval. There was a significant difference (p=0.013)

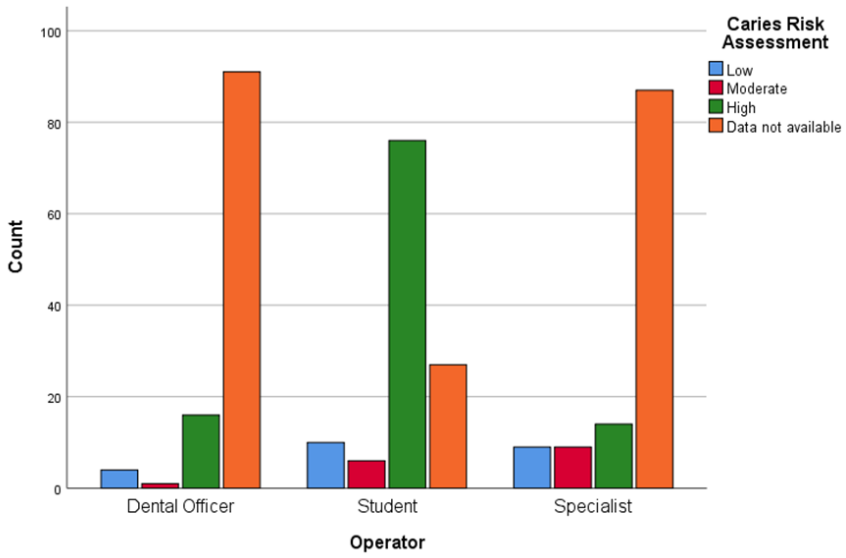

Figure 1: Caries risk assessment according to operators

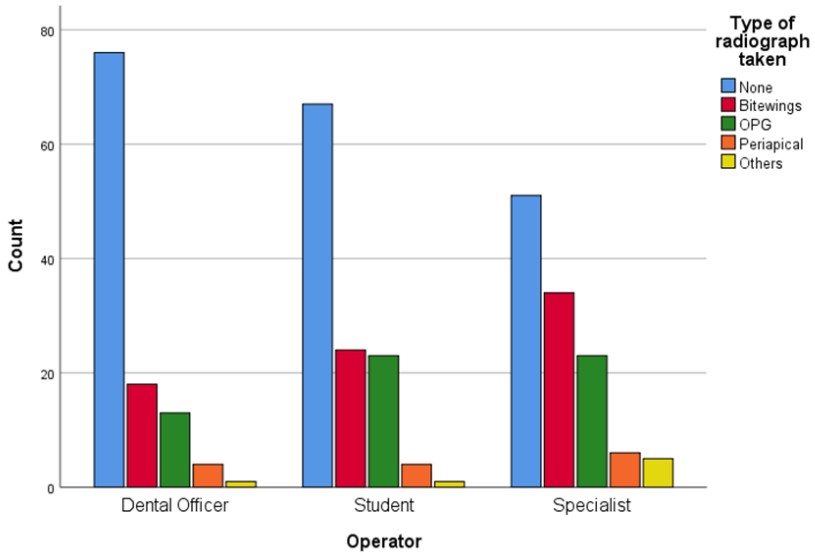

Figure 2: Type of radiographs taken by operators

Risk category (n)	Recall Appointment		
	3 months n (%)	6 months n (%)	1 year n (%)
High 106 (73.1%)	100 (94.3%)	8 (7.5%)	12 (11.3%)
Moderate 16 (11%)	0 (0%)	0 (0%)	1 (6.3%)
Low 23(15.9%)	0 (0%)	1 (4.3%)	1 (4.3%0
p-value (chi-square)	0.316	0.467	0.524

Table 1: Percentage of attendance according to recall intervals and risk category

between the operators in the 1-year recall interval whereby the students reviewed the most number of patients.

Discussion

Some children's non-attendance may be beyond the control of the service, but information about the likelihood that a child will miss appointments may be useful when organizing care provision and planning patient recall routines.[12,]Associations between dental anxiety in children and missed appointments have been reported but knowledge of other characteristics of child non-attenders is scarce.[12] It may be hypothesized that missed appointments in children are associated with factors related to demographic background and previous experience with dental care.[12]

Early childhood caries (ECC) is a serious health issue that can cause significant pain and psychological trauma to children.[13] The American Academy of Paediatric Dentistry (AAPD) and the American Dental Association (ADA) have proposed that children should be seen by a dentist as early as 1 year of age for early recognition and referral of ECC.[7,20] In addition, parents should be advised on the early prevention of oral diseases as well as harmful habits such as thumb-sucking that would predispose a child into developing malocclusion.[14] As an advantage of detecting signs of ECC at an early age, burden of pain and restorative work that is commonly done under sedation for very young children can be avoided.[13] Ismail et. al (2013) conducted a study whereby family physicians and paediatricians recommended the first dental examination to be done by the age of 2.5 years.[13] In this study, the mean age of children who register for the first time at the faculty is 6.29 years. This reflects on the poor parents' awareness level of sending their children at an appropriate age for dental screenings.

A study by Wang et al (2009) was conducted in Norway where they assessed factors associated with children's non-compliance with regular dental appointments.[12] The study used demographics, oral health behaviour, oral health and use of dental services for children with a recent history of broken appointments and compared them with children who kept recall appointments .[12] The results suggest that children who break appointments are mainly from the caries risk group and need special attention.[15] This finding correlates with the results of this study whereby 94.3% of the patients who had high caries risk did not come for review at the 3 month recall interval.

Possible reasons for the failure to attend an appointment include parents not receiving appointments due to change in contact number and special care children with multiple health needs who have other appointment to attend elsewhere. Non-attendance has been related to parents' perception such as disagreeing with the need for referral, fearful of consequences such as unwanted diagnoses, or believe the costs of attending outweighs the benefits.[15] Parental beliefs about children's health seem particularly important with 'child now well' the most commonly reported reason for non-attendance in one study.[15]

Taking posterior bitewing radiographs for children at their initial visit is critical to detect any interproximal or occlusal caries that are not visible clinically.[16] Radiography serves as an adjunct to the clinical examination.[17] It still remains as a method of choice for caries diagnosis in most of the situations. With regard to occlusal caries, a

report published in 1990 involving adolescents in Scotland, showed that a large proportion of occlusal surfaces that were diagnosed as clinically sound had caries affecting dentine when examined using bitewing radiography as an adjunct.[16] In this study, baseline radiographs at the initial visit were not routinely taken by all the operators. The low number of radiographs taken can also be attributed to poor record keeping as the data was based on the operators notes in which they may have failed to describe the radiological findings.

Among these 3 different operators, dental officers and specialist shows poor system of data recording in which the caries risk assessment is not recorded as compared to students. Difficulties of maintaining a good record system might be due to the high number of patients being seen by both the specialist and dental officers in the limited clinical time available.

Patients with high caries risk should ideally be reviewed every 3 months but this was not seen in the current study. Attendance for the 6 months and 1-year review is also very poor. It must be stressed that caries risk was not done in 58% of the subjects, leaving a wide gap in the maintenance phase of the patients. However, even if most of the patients had low caries risk, the attendance for 6 months recall should have been ideally better. To address this problem, it is important for us to recognize problems faced by the clinical operators' sides which may be due to specialist being too busy to handle large amount of referral cases, change of students which poses a problem to keep track the number of patients that need to be reviewed and poor record keeping. Also, we need to reinforce the importance of getting every child patients' caries risk assessed using the proper forms by all three clinical operators at their initial visits.

Reducing the duration between time of referral and booked appointment would decrease patients' waiting time thus addressing their disease earlier before it progresses and it would not compromise their parents' interest to continue with the treatment needed.[16] Nowadays, there are multiple modes of communication available such as smartphones, telephones and emails that we can incorporate into our recall system by repeating reminders to parents. Collecting as much of patient information as possible especially by the dental officers of the primary care unit for example patients' manageability towards dental treatment help in reducing the long waiting list for the specialist to treat as some of the cases are manageable enough for undergraduate students.[16]

If these barriers were properly documented in the first place, the operator can identify them and work towards the solution to provide a more structured and organized routine recall system that is flexible for the parents and clinicians to comply with. A questionnaire can be done to assess parents' awareness and interest in this system. In addition, enhancing communication, explaining the clinical procedures and the importance of oral health implication to their child's growth and development would improve the parents' motivation. Effective communication between the operator and parents can help reduce the perceived barriers between clinicians and parents.

The patient record system at Faculty of Dentistry of UiTM Sungai Buloh has been evolving from the traditional paper folder to the current paperless system called Integrated Dental Electronic Record Management System (IDERMS) which was introduced in the year 2017. Paediatric patients have been seen and treated at the

faculty since 2008. With the increasing number of patients, the introduction of a computerized patient information system offers a more systematic data collection system. With the new record system available, it is a stepping stone to provide a better recall system in which electronic and computerized based to address the issue of poor recall system among the paediatric patients in the faculty.

Implementation of IDERMS in Faculty of Dentistry UiTM provides a platform for developing an automated generated review protocol that will act as reminder to the operator as well as the parents of patients. A list of patients who need to be reviewed according to the suitable recall interval can be automatically generated by the IDERMS. This would address the problems of patients being lost in the system due to change in operator especially among undergraduate students who eventually leave the faculty. Electronic Health Record provides advantages mainly for clinical institutions where the documentation, storage, accessibility of information and evaluation of data and overall information will be improved.[18] Usage of templates, wizards, or reminders in electronic patient records result in more persistent documentation and is able to enhance compliance of patient.[18.] Electronic health record (EHR) should be able to generate recall schedules based on specific individual risk assessment and based on the above-mentioned evidence.[19]

Existence of new record system needs to be managed accordingly to avoid any inconvenience in the future. Problematic issues such as high cost and inadequate staff to contact each patient for every recall appointment may arise as a result of implementation of the new system.

Suggestion of having a recall day for student's clinic as well specialist would be one the most effective ways to enhance the recall regime among the practitioner in the faculty. Implicitly, it can reduce the burden faced by Faculty of Dentistry in terms of financial and most importantly poor recall system especially among paediatric patients. Despite having an advanced recall system, it is imperative that the parents of these patient have awareness and interest in attending recall appointment. The dental faculty should play an important role in educating the patients as well as the society regarding the significance of recall appointments.

Conclusion

The Paediatric Dental recall system at Dental Faculty UiTM needs to be improved to meet the internationally accepted standards of recall. As of now, there is currently no system in place to monitor the recall of paediatric patients, most notably among patients treated by students. This gap in patient management may be detrimental as patients are not reviewed according to the recommended guidelines.

Suggestions can be done to improve the patient recall system and categorize the patients according to treatment needs and ensure the implementation of a suitable on-call regime. It helps in regulating the status of a previously diagnosed and treated disease. Recall system guides in providing a more beneficial outcome for the patients through considerations between clinician and patients to modify the dental treatment regime.

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