

## Educational article

# Paediatric dental-oral medicine clinic: management during COVID 19

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**Abstract – Introduction:** Minimising spread of the COVID-19 infection through reducing face-to-face consults is essential. In doing so, alternative assessment and communication methods for management of patients with oral conditions should be considered. **Material and methods:** Patients on the waiting list for the joint oral medicine-paediatric dental clinic between March and June 2020 were prioritised based on a criteria including relevant medical history, diagnosis and clinical need and current management – monitoring, topical therapy or systemic therapy. A telephone consult method was chosen to assess and follow up patients and a parental satisfaction questionnaire was conducted following telephone consult. **Results:** Recurrent aphthous stomatitis (RAS) was the most common diagnosis of patients reviewed on the telephone clinic. Overall, the patient satisfaction questionnaire revealed that 100% of respondents would prefer a telephone consult during COVID-19 rather than face-to-face appointments. 74% opted for a video consult in preference to a telephone consult. **Conclusion:** This service evaluation has found telephone consults to be a valuable alternative to face-to-face consults in the management of patients with chronic oral mucosal diseases. Telephone consultations have high parental satisfaction and are an effective, convenient method to assess and follow up patients whilst maintaining their safety during the COVID-19 pandemic.

## Introduction

The Coronavirus disease 2019 (COVID-19) pandemic has resulted in the need to reduce the frequency and duration of face-to-face consultations within dentistry to limit virus transmission. Dental attendance may contribute to overall community transmission of the COVID-19 virus. Furthermore, Aerosol Generating Procedures (AGPs) are a common feature of dental treatment, increasing the risk of transmission and infection to staff and/or other patients.

The pandemic has affected all clinics, including multidisciplinary team and joint clinics. Both telephone and video consults can be used as alternative strategies to assess, advise, signpost individuals who require further care, and review patients with chronic conditions. Advantages of telephone consults have been cited including speed, convenience to patients and potential cost savings [1]. With paediatric patients, telephone or video consults can reduce disruption to school and work routines. Telephone consults have been used

successfully in medicine for postoperative management of patients [2].

The paediatric-oral medicine multidisciplinary team (MDT) clinic is a busy clinic where a variety of oral conditions are seen including recurrent, sometimes persistent and severe ulcerations, pigmented lesions, graft-versus-host-disease, erythema multiforme, orofacial granulomatosis and others.

To ensure optimal use of the service and to reduce the risk of infection, we looked at alternative ways of managing patients primarily with oral medicine complaints during the COVID-19 outbreak. This was to minimise the spread of infection whilst adhering to three key principles: maintaining staff and patients' safety, preventing community transmission and maintaining the child's oral health in the short and long term.

The aim of this article is to share with the reader how patients on this clinic were managed during this challenging situation in a London teaching hospital. The objectives of this paper are to introduce alternative ways of assessing and consulting patients to ensure timely and appropriate reviews and to discuss the findings from a service evaluation conducted to assess parental satisfaction of telephone consults on behalf of the paediatric-oral medicine MDT.

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**Table I.** Oral medicine telephone satisfaction questionnaire.

	1 – Not at all satisfied	2 – Slightly satisfied	3 – Neutral	4 – Very satisfied	5 – Extremely satisfied	Yes	No	No answer
The manner of the dentist				2	17			
The explanations given by the dentist				3	16			
The advice you were given				2	16			1
Overall how satisfied were you with the service you received				3	16			
Would you prefer to have reviews done by telephone during COVID-19						19		
Would you prefer to have reviews done by telephone in general						6	12	1
Do you think the telephone consult was as helpful as if you had attended the clinic in person?						9	9	1
Would you prefer a video consult over a telephone consult?						14	5	

## Materials and methods

To ensure optimal use of the service, the paediatric-oral medicine clinic waiting list was validated over a period of 3 months from March 2020 to June 2020. A total of 57 patients were on the waiting list that required follow up appointments. A structured approach to prioritisation was adopted for these patients including assessment of medical history, provisional or confirmed diagnosis and current management. Patients on systemic therapies for management of their condition were prioritised. Alongside this, a COVID-19 risk status for these patients was ascertained.

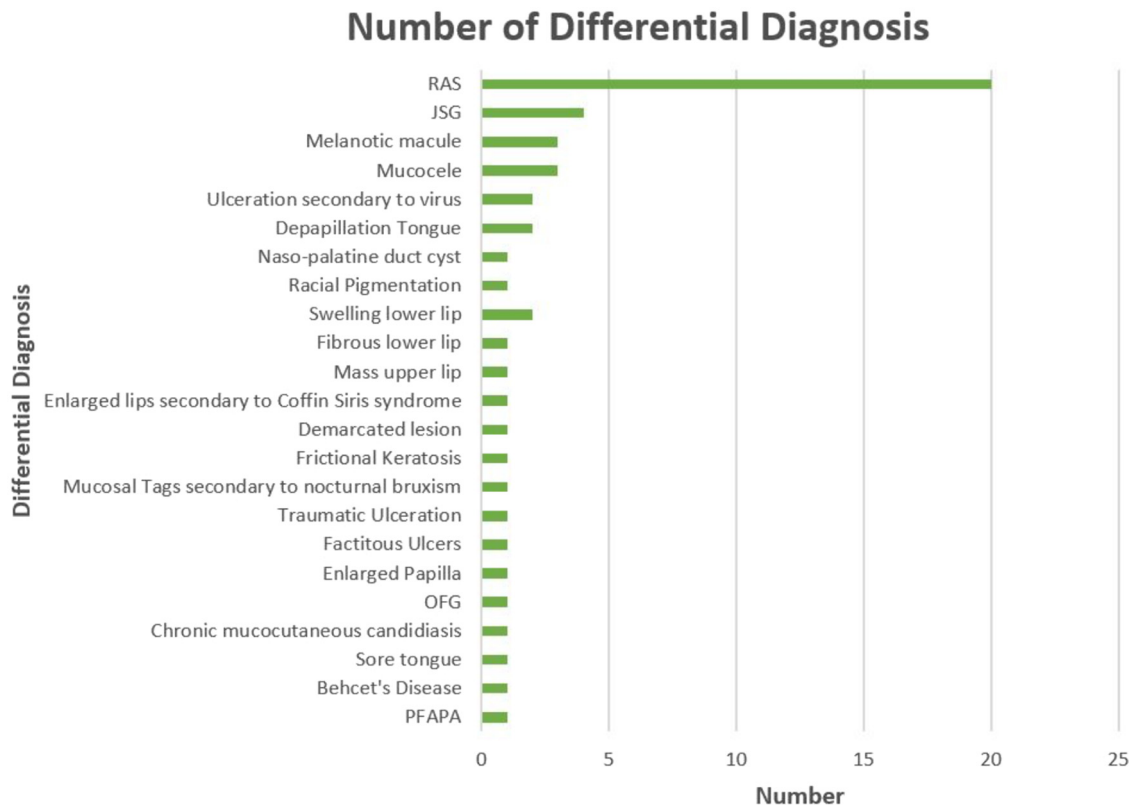
Following analysis and prioritisation of patients, a discussion with the oral medicine team was conducted to confirm the most suitable, effective and convenient method to enable the team to assess and follow up patients whilst maintaining safety. A telephone consult method was chosen, starting with patients of the highest priority, which was conducted at both Guy's Hospital and St Thomas' Hospital. This only included patients who had been previously seen on the clinic. It was agreed that new patient assessments would not be suitable for a telephone consult method due to the high likelihood of diagnostic errors. During the telephone consult, oral hygiene instruction and dietary advice was reinforced which was of particular importance as most of these children had reduced or no access to their usual dental services. The questions asked were relevant to the patients diagnosis ascertained from previous appointments. A systematic approach was used discussing symptoms and patient complaints, current medication use and compliance and medical history. For patients with oral ulceration an ulcer severity score proforma, which was already in use in the clinic, was maintained allowing direct symptom comparison to previous

appointments. Furthermore, for these patients a history of COVID-19 symptoms or abdominal pain was also noted due to findings of oral ulceration being an early feature of paediatric multisystem inflammatory syndrome associated with COVID-19 (PIMS-TS) [3]. Throughout the pandemic, the paediatric dental department at St Thomas' Hospital continued to provide an emergency paediatric dental service. An urgent walk in appointment was arranged for patients who were telephone reviewed and needed face-to-face consults. These were offered in situations of severe or worsening symptoms which were not being controlled with current medications and when changes in lesions were noticed by patients or guardians for example alterations in size or colour. Furthermore, patients in pain or with swelling were offered face-to-face visits.

With the use of remote consultations it was important to ascertain whether parents felt reassured regarding their child's oral condition following a telephone-based clinic. A parent satisfaction questionnaire was devised, adapted from Salisbury [4] which was originally based on a validated questionnaire [5] (Tab. I). Following telephone consult with a dentist, the parent was asked for verbal consent to take part in the service evaluation following which a second dentist completed the questionnaire. This was conducted immediately after telephone consultation.

## Results

A total of 57 patients were on the waiting list from March-June 2020. Parents or carers of 57 patients were contacted for a telephone consult. Of this, parents/carers of five patients did not answer after repeated attempts. An urgent face-to-face review was arranged for two patients in the paediatric dental department.



**Fig. 1.** A graph showing the differential diagnosis of patients reviewed on the clinic.

Figure 1 shows the range of working diagnoses seen by our service in the timeframe assessed. These diagnoses were based on previous diagnoses ascertained from face-to-face consults. Relevant questions on history and appearance of oral conditions were asked to confirm the accuracy of the working diagnosis on telephone review and to exclude oral ulceration potentially associated with PIMS-TS. The most common differential diagnosis was recurrent aphthous stomatitis (RAS), with 38% of patients with this diagnosis. The symptoms of patients with RAS were reviewed and medication adjusted accordingly. 65% of patients with RAS were discharged from the joint clinic following telephone consult as their symptoms were controlled and had been effectively managed with medication.

The age of patients with their respective differential diagnosis is displayed on Figure 2. RAS had the greatest range of patients, from 5 years old to 15 years old.

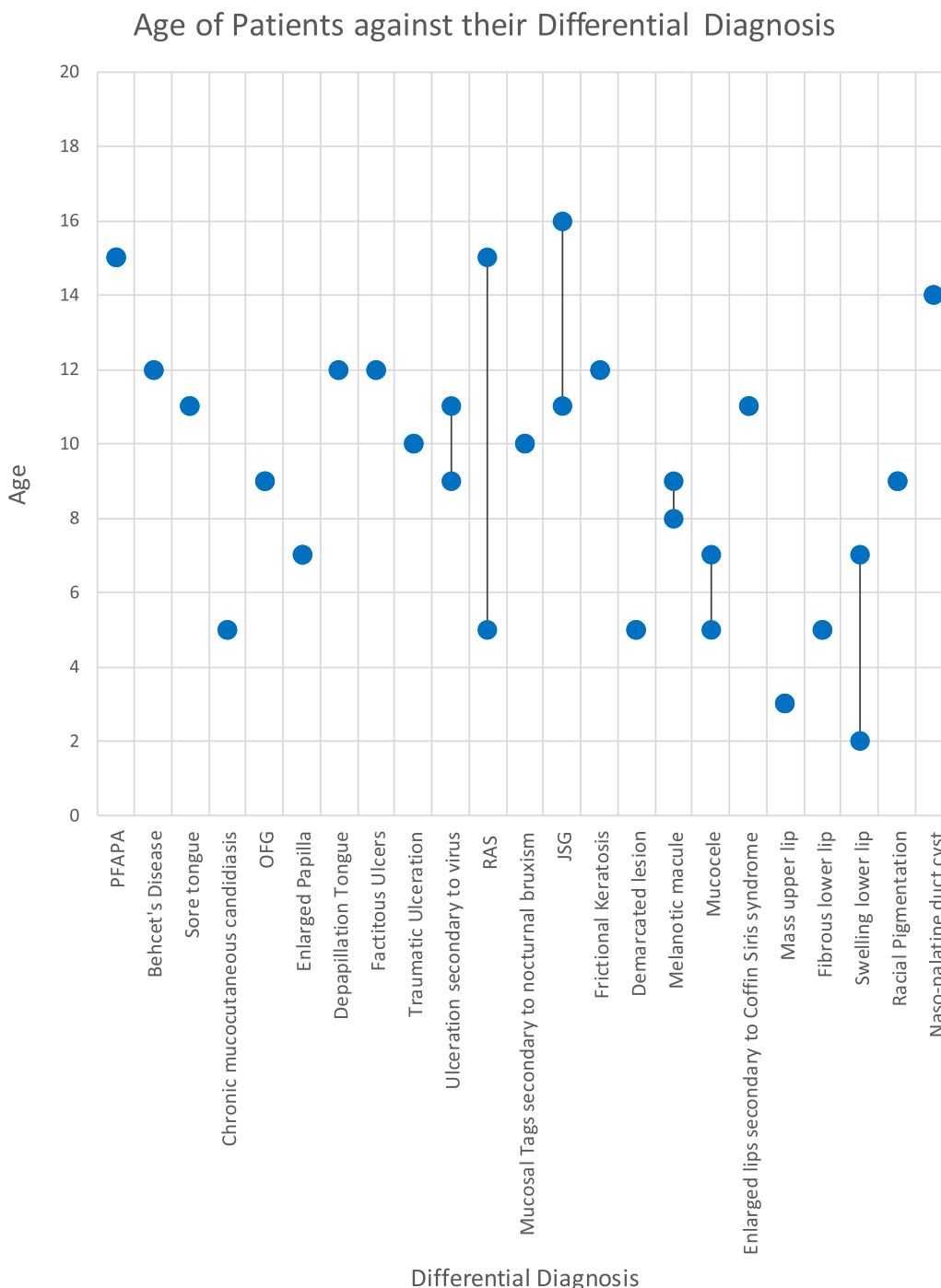
The results from the patient satisfaction questionnaire following the telephone consult can be found in Table I. These were based on how satisfied parents were following the telephone consult, with 1 being not at all satisfied and 5 extremely satisfied. All of the respondents (100%) preferred to have a telephone consult over a face-to-face review during COVID-19. 74% of respondents would prefer a video consult over a telephone consult. The preference of telephone consult could be considered an expected finding during the pandemic due to the national guidance to avoid travel and personal anxiety of parents and patients to attend the hospital.

## Discussion

Healthcare as we know it is changing dramatically in this current climate. From emergency calls to patient follow-ups, the telephone is now widely used in the delivery of healthcare. We call this mode of communication between participants ‘Telemedicine’, or more appropriately in a dental context, ‘Teledentistry’. Teledentistry is the use of digital information and communication technologies, such as computers and mobile devices, to send data and images between participants who are physically separated.

There are two main methods of consultation in a digital setting – ‘Real-Time Consultation’ and the ‘Store and Forward Method’. Real-Time Consultation involves digital communication, via telephone or video, between dental professionals and their patients at different locations. This allows patients to access healthcare services remotely and for their care to be managed appropriately. This method was used when assessing patients on the joint oral medicine paediatric clinic in St Thomas’ Hospital. The Store and Forward method involves the storage of clinical information and images by the treating dental clinician who then forwards them for consultation and treatment planning from another clinician remotely, in this method, the patient is absent during the consultation. This type of method is particularly useful if specialist input is required [6].

Telemedicine has been described in the literature as a potential useful tool for diagnosing and managing patients in



**Fig. 2.** A graph showing the age of patients against their differential diagnoses.

disasters and public health emergencies [7]. The telephone can both reduce the time pressures on practitioner and also allow patients and relatives to consult from the comfort and more importantly, the safety of their own homes. In doing so, patients, clinicians and the wider community are protected from exposure to COVID-19. Teledentistry has previously been used successfully in a range of specialties within dentistry including periodontics, oral pathology, oral medicine and orthodontics [8]. Importantly, Bradley *et al.* (2010) demon-

strated that using teledentistry in the management of patients with oral mucosal disease can work successfully [9]. Yet, despite the everyday use and increasing popularity of the telephone in healthcare settings there are barriers to using this modality both medico-legally and as an assessment tool to diagnose and manage patients.

There are a number of limitations to the use of Teledentistry. Firstly, the potential for diagnostic errors. For the patients followed up in this service evaluation, telephone

consults negated the ability to carry out on oral examination which potentially increased the risk of diagnostic errors. This was the main reason as to why only follow up patients were included and new patients excluded. The follow up patients had all attended at least one prior face-to-face review in which a working diagnosis had been ascertained which facilitated an accurate telephone consult. Despite this, it must be considered that without an oral examination, silent pathologies or chance findings will be missed. For all patients, including those who were subsequently discharged the importance of maintaining regular dental reviews with a local dentist was emphasised. Our service evaluation, perhaps surprisingly, found a number of patients requesting to be discharged following telephone consult. This may be have been due to the limited time during the telephone consult that the parent had to assess the risks and benefits of being discharged and it would be interesting to retrospectively assess whether this would still be their preferred option. Secondly, patient's confidentiality could be compromised and concerns over storage of patient's information arises. Clinicians must ensure patients' privacy is not compromised and data is stored safely. Patients should be made aware during the consent process information transmitted electronically risk being intercepted, despite maximum efforts to maintain security [10]. Patients should also be informed of the inherent risk of improper diagnosis and inappropriate management and treatment when using video and telephone consults rather than face-to-face assessments. A further limitation with Teledentistry is that telephone consults were often with the parents or carers only. Arguably the reliance of a parent or carers history of the child's presenting condition compared to discussing the pain with the child themselves is not a child-centred approach and important information or the true extent of the complaint could be potentially emitted. This is an important limitation and should be considered with the use of Teledentistry. In hindsight, it would have been prudent when timetabling these appointments that the child was also available during the consult to reduce errors in disseminating information and to prevent falsifying data.

The patient satisfaction questionnaire revealed 84% of respondents were extremely satisfied with the telephone consult they had received. This is a promising finding, but it must be considered that as the questionnaire was conducted directly after the telephone consult, the questionnaire was evaluating how satisfied parents were with the advice and reassurance provided by telephone consult as opposed to the actual effectiveness of treating the patient remotely. As Teledentistry continues to be used it would be interesting to see whether remote treating of patients mirrors this degree of satisfaction. 100% of respondents preferred to be reviewed by telephone during COVID-19 compared to just 32% if in normal circumstances. This highlights the increased public resistance to accessing routine medical services, a similar picture which has been seen throughout healthcare during this pandemic.

When given the option whether the respondent would prefer a video over a telephone consult, 74% of respondents opted for a video consult. This may be due to patients feeling more comfortable talking to a clinician face-to-face and as such emulating a normal dentist to patient interaction, albeit a virtual one. Additionally, it could be that showing a clinical feature, for example, an ulcer, through video is much easier than describing this feature by phone call. Indeed, in the absence of access to video consultation software, telephone consult supplemented by photos taken by patients/ their carers (e.g. on their smart phone) may provide an acceptable compromise for some oral medicine conditions and lesions. The results following this service evaluation will help shape the future of this clinic.

## Conclusion

In the face of a global pandemic, the practice of dentistry must evolve to coexist safely and play its part in reducing transmission risk. Technological advances in communication has transformed society, yet has lagged behind in some areas of healthcare. We have found Teledentistry to be an efficient and well accepted method of managing patients with chronic oral mucosal diseases, however this method is not without limitations. This paper highlights some of the benefits and drawbacks with the use of Teledentistry and suggests some solutions that can be used as we embark on this new world of digitised dentistry.

## Conflicts of interests

The authors declare that they have no conflicts of interest in relation to the publication of this article.

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