Education for Scotland

How can dental aerosol generating procedures be carried out safely?

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Aim: to review the evidence related to several pre-determined key questions about dental AGPs to inform policy and clinical guidance.

Introduction

During the COVID-19 pandemic, a major concern for dental care has been the potential transmission of SARS-CoV-2 via aerosols created during many routine dental procedures. Other countries' recommendations about aerosol generating procedures (AGPs) varied considerably and were not informed by evidence. To provide greater rigor to decisions about how to conduct dental AGPs safely, SDCEP conducted a rapid review of evidence.

Results

The rapid review was completed in 14 weeks, published on the SDCEP website and has been highly accessed (Figure 2). It was stressed that the rapid review is not guidance.

A pragmatic approach to determining fallow time was proposed and was subsequently incorporated into the UK's national infection prevention and control guidance (Figure 5). The overall reduction in the recommended fallow time should facilitate an increase in the capacity of dental healthcare.

Methods

We adapted SDCEP's standard NICEaccredited guidance development methodology to rapidly review evidence and to reach Agreed Positions on several key questions.

Extensive literature searches were conducted by Cochrane Oral Health. A large multidisciplinary Working Group was convened with broad representation from across the UK.

Figure 2: Rapid review publication and **SDCEP website activity Sept-Nov 2020**



Three groups of dental procedures were proposed based on the characteristics of the instruments used and assumptions regarding aerosol generation (Figure 3).

Figure 5: Fallow time determination



Conclusion

Figure 1: Considered Judgment conducted online to reach Agreed Positions

Evidence, including its certainty



Values & preferences

Applicability Feasibility

Via numerous online meetings and polls, the Working Group used a considered judgment process informed by the GRADE Evidence-to-Decision framework (Figure 1) to reach agreed positions on several key questions. The Group also considered proposals to support implementation.

Working Group Membership

Based on the available evidence and the other factors considered, the Working Group reached Agreed Positions on each key question (Figure 4).

Figure 3: **Categorisation of** dental procedures according to aerosol production

	Group A	Group B*	Group C
	Dental procedures that will produce aerosol particles <5 µm	Dental procedures that may produce aerosol particles <5 μm, with the amount depending on instrument use	Dental procedures that r produce splatter but are unlikely to produce aero particles <5 µm
Definition	Procedures that use powered, high velocity instruments that emit or require water or irrigants for cooling	Procedures that use powered, low velocity instruments	Procedures that do not u powered instruments
Precautions	 Airborne transmission- based precautions Procedural mitigation Fallow time 	 Standard infection prevention and control precautions as routinely used in dentistry Procedural mitigation 	 Standard infection prevention and contro precautions as routine used in dentistry
PPE required*	 Single use disposable gloves Single use gown FFP3 respirator or hood Single use or reusable eye/face protection (visor) 	 Single use disposable gloves Single use apron (gown required if risk of spraying/splashing) FRSM Type IIR mask Single use or reusable eye/face protection (visor) 	 Single use disposable gloves Single use apron (gow required if risk of spraying/splashing) FRSM Type IIR mask Single use or reusable eye/face protection (v
Examples of instruments/ procedures	 Ultrasonic scaler (including piezo) High speed air/electric rotor (i.e. >60,000 rpm) Piezo surgical handpiece Air polishers 3-in-1 syringe (air and water together¹) 	 3-in-1 syringe (air-only/ water-only) Slow speed/electric handpiece (i.e. <60,000 rpm) Prophylaxis with pumice (using slow-speed handpiece/prophy cup) Diathermy Denture/ortho adjusting using slow-speed handpiece Surgical implant procedure Surgical handpiece 	 Extraction (using forceps/elevator) Hand scaling Inhalation sedation Impressions Intraoral radiographs Local anaesthetic administration Dental examination without 3-in-1 syringe Re-cement crown
*From UK IPC g *While 3-in-1 sy of aerosol prod a risk assessme procedures are *For some proc instrument will	uidance, ³⁹ which also includes ad ringe with combined air and wate uced may be considerably less th nt establishes that the combined planned, the precautions for Grou edures or instruments categorised be used is required to determine	Surgical implant procedure Surgical handpiece vice on sessional use. r is categorised as Group A, when an that produced by other Group / 3-in-1 will only be used very briefl up B procedures can be followed. d in Group B, a further risk assessm whether to follow the precautions	Re-cement crown used very briefly the ar A procedures. Consequ y, and no other Group / nent of exactly how the s recommended for Group

Figure 4: Agreed positions within the rapid review

Agreed Positions of the working group were

By adapting its guidance development methodology, SDCEP has reviewed the evidence regarding dental AGPs and enabled an expert group to rapidly reach agreed positions on an issue of crucial importance for the remobilisation of dental services.

About SDCEP

The Scottish Dental Clinical Effectiveness Programme (SDCEP), within NES's Dental Directorate, provides user-friendly, evidence-based guidance on topics identified as priorities for oral health care.

SDCEP has gained a strong reputation for using a robust methodology to deliver reliable guidance. In 2016, SDCEP's guidance development process was accredited by the National Institute for Health and Care Excellence (NICE), making SDCEP the only dental organisation with this status.

General Dental Practice Dental Hygiene Therapy Public Dental Service Hospital Dental Service Dental Public Health Orthodontics Oral Surgery Paediatric Dentistry

SDCep

Restorative Dentistry Cochrane Oral Health **Dental Faculties** Clinical Microbiology Biosafety National Physical Laboratory Virology

to recommend: high volume suction, rubber dam, fallow time to not recommend: pre-procedural antimicrobial mouth rinses, antimicrobial coolants, air cleaners

Scottish Dental **Clinical Effectiveness Programme** For further information contact: Dr Doug Stirling, Programme Lead (SDCEP Guidance) **Dental Clinical Effectiveness Workstream NHS Education for Scotland** Email: scottishdental.cep@nes.scot.nhs.uk

You can access the rapid review at: www.sdcep.org.uk

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