South African National Essential Medicine List
Adult Hospital Level Medication Review Process
Component: Dental conditions

TITLE: INFECTION CONTROL FOR COVID-19 IN DENTISTRY

Date: 20 May 2021

Key findings

- It is hypothesised that keeping a clean and dry environment in the dental office would help decrease the persistence of 2019-nCoV. This empathises the fact that effective sanitisation of the dental room plus dental equipment is critical to prevent transmission of nosocomial infection.
- It is therefore encouraged that pre-operative antimicrobial mouth rinse should be undertaken prior to any dental procedure as this generally has the potential to reduce oral microbes and thus limit transmission of potential oral pathogens particularly during dental procedures.
- We conducted a rapid review of available clinical evidence on the effectiveness of pre-procedural mouth rinses for preventing transmission of COVID-19 in dental practice. We searched Love Epistemonikos, PubMed and the Cochrane Covid-19 study registry and found two relevant review and two ongoing clinical trials.
- Two publications reporting on antimicrobial mouthwashes and nasal sprays administered to patients with suspected or confirmed COVID-19 infection to protect healthcare workers treating them were identified; however, the reviews did not include any relevant study on the subject.

PHC/ADULT HOSPITAL LEVEL EXPERT REVIEW COMMITEE RECOMMENDATION:

Type of recommendation	We recommend against the option and for the alternative **(strong)**	We suggest not to use the option **(conditional)**	We suggest using either the option or the alternative **(conditional)**	We suggest using the option **(conditional)**	We recommend the option **(strong)**
		x			

Recommendation: The PHC/Adult Hospital Level Committee suggests that dental rinses not be used for prevention of COVID-19 transmission during dental procedures.
Rationale: There is currently insufficient evidence of efficacy and harms.
Level of Evidence: III RCTs of low methodological quality
Review indicator: New high quality evidence of a clinically relevant benefit

NEMLC MEETING OF 24 JUNE 2021:
NEMLC Recommendation: The NEMLC accepted the recommendation proposed by the PHC/Adult Hospital Level Committee.

Monitoring and evaluation considerations: n/a

Research priorities: n/a

Background

The practice of dentistry, which by default is associated with proximity of patient during dental care, generation of aerosols due to the practice involving the use of aerosol-generating equipment suction machines, is commonly associated with droplets and aerosols from patients undergoing a dental procedure (Bajaj et al, 2020). These likely contaminate the whole surface in dental offices if coming from a patient who is harbouring an infection. Furthermore, SARS-CoV-2 has been found in saliva of infected patients. These suggests that oral cavity poses as a potential reservoir of the virus and hence has potential for transmission SARS-CoV-2 (COVID-19) Vergara-Buenaventura et al, 2020. In addition, it has been shown at room temperature that human corona virus (HCoV) remains infectious from 2 hours up to 9 days and persists better at 50% compared with 30% relative humidity.

Thus, it is hypothesised that keeping a clean and dry environment in the dental office would help decrease the persistence of 2019-nCoV. This empathises the fact that effective sanitisation of the dental room plus dental equipment is critical to prevent transmission of nosocomial infection (Peng et al, 2020). Furthermore, it is encouraged that pre-operative antimicrobial mouth rinse should be encouraged prior to any dental procedure as this generally has the potential to reduce oral microbes and thus limit transmission of potential oral pathogens.

The commonly used antiseptics are 1% hydrogen peroxide and 0.2-1.5% povidone iodine. These are the recommended antiseptics as they have the potential to reduce salivary microbes including SARS-2 coronavirus (Peng et al, 2020; Lo Giudice, 2020; Bidra et al, 2020, Castro-Ruiz et al, 2020). Other antiseptics include 0.05% cetylpyridinium chloride, which has also shown potential for exerting good clearance of salivary microbes. It is not recommended to use chlorohexidine solution, as efficacy data is conflicting. The data by Peng et al, 2020 points to the fact that chlorohexidine is ineffective despite its common usage as an antiseptic in dental practice. However, Vergara-Buenaventura et al, 2020 suggest that chlorohexidine at higher dosage has some potential effectiveness at exerting oral microbial clearance.

Povidone Iodine is the most commonly recommended effective oral antiseptic followed by hydrogen peroxide for reduction of the risk of coronavirus transmission during dental procedures. It further suggested that use of oral prophylactic protocol with PVP-I for dental healthcare workers and patients as an adjunct to the current preventive safety guidelines could help reduce the transmission of corona virus infection during this pandemic era.

Review Question:

Does pre-rinsing with povidone/hydrogen peroxide mouthwashes among COVID-19 asymptomatic patients prevent transmission of COVID-19 in dental practice to dental practitioners?

Methods:

We conducted a rapid review including a systematic search of searched the Cochrane Covid-19 study registry, love epistemonikos and PubMed on the 23rdApril 2021. The details of the search are in appendix 1. We included systematic reviews of randomised controlled trials and randomised controlled trials. We excluded observational studies. The details of each search output are presented in appendix 1. The search output was imported into Covidence where studies were screened in duplicate by two reviewers (OA and VN) and with discrepancies settled by the third reviewer (PN). We found two eligible reviews (table 1) and two on-going trials (table 2). The reviews identified did not find any completed studies to include in the two studies**.**

Eligibility criteria

-P *(patient/population): Asymptomatic patients attending dental clinics.*
-I *(intervention): Antiseptic mouthwashes (povidone/ hydrogen peroxide) used for dental patients at the start of a dental procedure.*
-C *(comparator): No antiseptic mouth wash, alternative mouth wash (non-antisepticl).*
-O *(outcome): -COVID-19 acquisition in dental staff and adverse events of mouth washes to patients.*

Results

Search

The search produced 199 studies and 46 duplicates were removed. 153 studies were screened, and 145 studies were irrelevant. 8 full texts were assessed for eligibility. Two reviews were identified for inclusion and two ongoing trials

were identified. The relevant reviews to our PICO did not include any completed study but identified 16 ongoing studies (14 RCTs) that have not yet been completed.
PRISMA diagram

Description of included studies
The main characteristics of the included studies were described in table 1 while the excluded studies were reported in table 3 and table 2 described the ongoing studies identified. The reviews did not find any completed eligible studies to include but found some ongoing randomised controlled trials.

Conclusion
There is currently no evidence to support our research question.

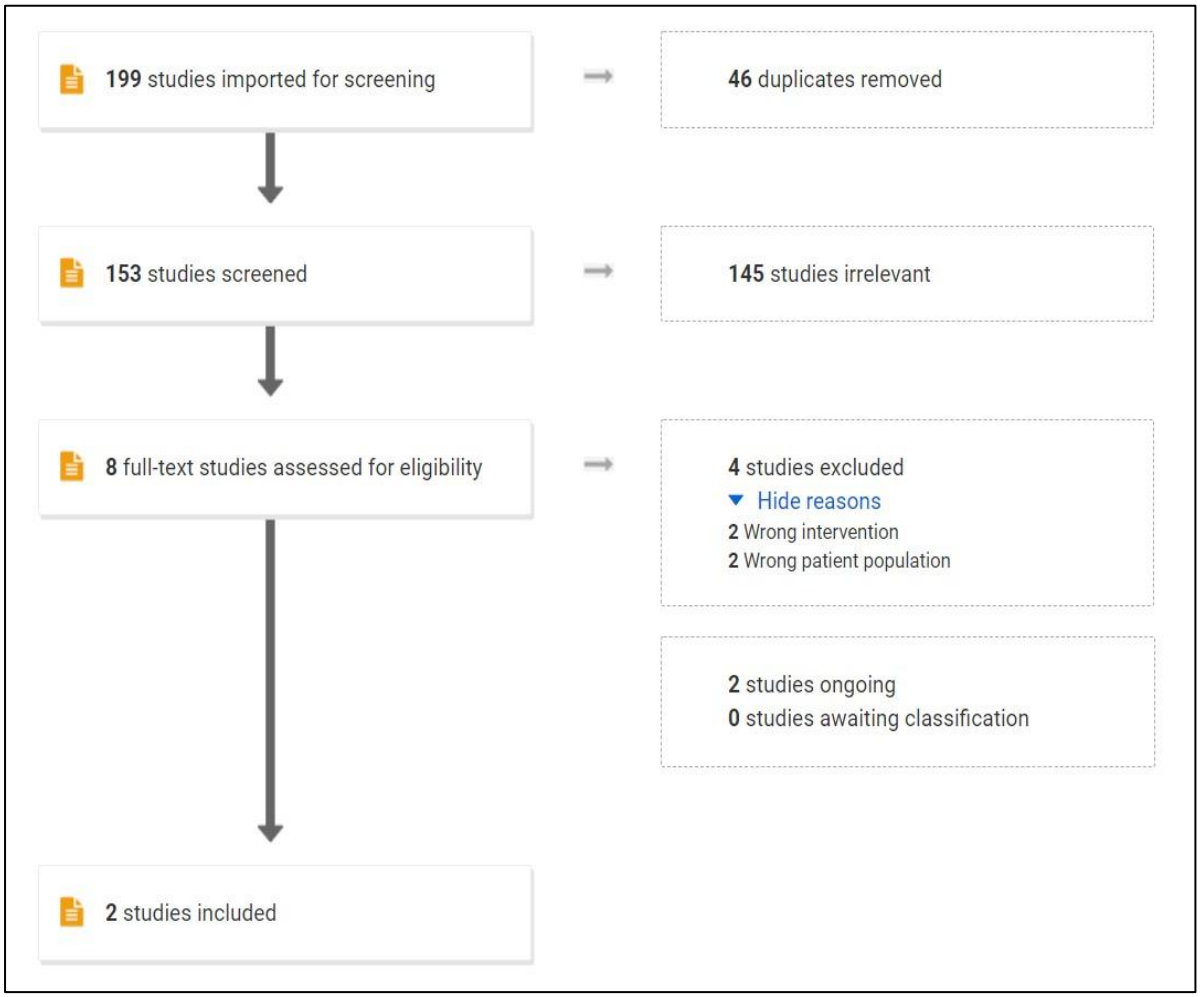

Figure 1: Process for searching and selecting studies for inclusion

Table 1. The main characteristics and outcomes of this report

Author, date	Type of study	Intervention	Population	Comparators	Primary outcome	Effect sizes	Comments
Burton MJ, 2020a	Systematic review	Any antimicrobial mouthwash and/or nasal spray (alone or in combination) to suspected/confirmed COVID-19 patients.	Patients with suspected or confirmed COVID-19 infection.	No treatment or saline or water.	1. Mortality; hospitalisation status; use of ventilation; use of renal dialysis. 2. Incidence of symptomatic or test-positive COVID-19 infection in HCWs. 3. Significant adverse events.	Nil	The review did not identify any study for inclusion.
Burton MJ, 2020b	Systematic review	Any antimicrobial mouthwash and/or nasal spray (alone or in combination) at any concentration, delivered to the patient or HCW before and/or after an aerosol-generating procedure (AGP).	healthcare workers (HCWs) and/or patients when undertaking aerosol-generating procedures (AGPs) on patients without suspected or confirmed COVID-19	No treatment or saline or water.	Incidence of symptomatic or test-positive COVID-19 infection in HCWs or patients. • Significant adverse event: anosmia (or disturbance in sense of Smell	Nil	No completed study was found to include in the review

Table 2. Characteristics of planned and ongoing studies

Title of the study	Study design	Participants	Interventions
Kejner et al. Povidone-Iodine Intranasal for Prophylaxis in Front-line Health-care Personnel and Inpatients During the Sars-CoV-2 Pandemic. ClinicalTrials.gov, NCT04364802. April 28, 2020	Open-label non-randomized phase II clinical trial.	Front-line healthcare workers, Inpatients who have a 7+ day hospitalization and Community participants.	povidone-iodine nasal spray and gargle (10% diluted 1:30)
Perznski et al. Role of Naso-oropharyngeal Antiseptic decolonization to Reduce Covid-19 Viral Shedding and disease transmission: SHIELD Study. ClinicalTrials.gov, NCT04478019. July 20 2020	Randomized cross-over open label phase I clinical trial	Participant is an essential worker performing at least some in-person job duties (not 100% remote)	Treatment is 3 weeks of nasal (10% povidone-iodine swab sticks in each nostril) and CHG oral decolonization (swish and spit 15 ml 0.12% CHG oral rinse for 30 seconds, four times/day) procedures, followed by 2 weeks of washout, and 3 weeks of standard personal protective equipment without any PI or CHG intervention (control

Table 3. Characteristics of excluded studies

Excluded studies		Reasons
1	Guenezan J, et al. Povidone Iodine Mouthwash, Gargle, and Nasal Spray to Reduce Nasopharyngeal Viral Load in Patients with COVID-19: A Randomized Clinical Trial. JAMA Otolaryngology–Head & Neck Surgery. 2021 Apr 1;147(4):400-1.	Wrong patient population
2	Nagraj SK, et al. Interventions to reduce contaminated aerosols produced during dental procedures for preventing infectious diseases. Cochrane Database of Systematic Reviews. 2020(10).	Wrong intervention
3	NCT04719208. [COVID-19] Reduction of Sars-CoV-2 Oral Viral Load With Prophylactic Mouth Rinse	Wrong patient population
4	Sette-de-Souza PH, et alA critical appraisal of evidence in the use of preprocedural mouthwash to avoid SARS-CoV-2 transmission during oral interventions. European review for medical and pharmacological sciences. 2020 Oct 1;24(19):10222-4.	Wrong intervention

Appendix 1

Data sources

1. Love Epistemonikos
2. Cochrane Covid-19 study register
3. PubMed

Search strategy

1. **L·OVE Platform** (https://app.iloveevidence.com/)
   - **Date:** 23 April 2021
   - **Search strategy:** povidone OR "hydrogen peroxide" OR "mouth wash" OR mouthwash OR "mouth washes" OR mouthwashes OR "mouth rinse" OR "mouth rinses" OR mouthrinse OR mouthrinses
   - **Records retrieved:** 42 systematic reviews
     42 randomised trials

2. **Cochrane COVID-19 Study Register** (https://covid-19.cochrane.org/)
   - **Date:** 23 April 2021
   - **Search strategy:** povidone OR "hydrogen peroxide" OR "mouth wash" OR "mouth washes" OR mouthwash OR mouthwashes OR "mouth rinse" OR "mouth rinses" OR mouthrinse OR mouthrinses
   - **Records retrieved:** 81 studies

3. **PubMed**
   - **Date:** 23rd April 2021

Search	Query	Results
#6	Search: (#1 AND #2) NOT (animals[mh] NOT humans[mh]) Filters: Randomized Controlled Trial, Systematic Review Sort by: Most Recent	22
#5	Search: (#1 AND #2) NOT (animals[mh] NOT humans[mh]) Filters: Systematic Review Sort by: Most Recent	20
#4	Search: (#1 AND #2) NOT (animals[mh] NOT humans[mh]) Sort by: Most Recent	252
#3	Search: #1 AND #2 Sort by: Most Recent	254
#2	Search: Povidone[mh] OR povidone[tiab] OR hydrogen peroxide[mh] OR hydrogen peroxide[tiab] OR mouthwash*[tiab] OR mouth wash*[tiab] OR mouth rins*[tiab] OR mouthrins*[tiab] Sort by: Most Recent	104,513
#1	Search: Coronavirus[mh:noexp] OR coronavirus*[tiab] OR corona virus*[tiab] OR COVID-19[mh] OR covid-19[tiab] OR covid19[tiab] OR covid 2019[tiab] OR SARS-Cov-2[mh] OR SARS-CoV-2[tiab] OR SARS-CoV2[tiab] OR SARSCoV2[tiab] OR SARsCov-2[tiab] OR SARS-coronavirus*[tiab] OR severe acute respiratory syndrome coronavirus 2[nm] OR severe acute respiratory syndrome coronavirus 2[tiab] OR 2019-nCov[tiab] OR 2019nCov[tiab] OR nCov2019[tiab] OR nCOV-2019[tiab] OR hCOV*[tiab] OR n-cov[tiab] OR ncov*[tiab] Sort by: Most Recent	136,796

a. **Evidence quality:** Not applicable since the included reviews did not include any completed studies.
b. **Alternative agents:** Since there are on-going studies on the agents of interest, we recommend the completion of such studies rather than suggesting alternative agents.

Reviewers: Prof P.S. Nyasulu (Stellenbosch University), Dr O Adetokunboh (Stellenbosch University), Ms V Ngah (Stellenbosch University), Dr M. McCaul (Stellenbosch University)
Declaration of interests: PSN, OA, VN and MM have no interests to declare in respect of infection control in dentistry.

References

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6. Castro-Ruiz C, Vergara-Buenaventura A. Povidone-Iodine Solution: A Potential Antiseptic to Minimize the Risk of COVID-19? A Narrative Review. J Int Soc Prev Community Dent. 2020 Oct 19;10(6):681-685. doi: 10.4103/jispcd.JISPCD_304_20.

Evidence to decision framework

	JUDGEMENT	EVIDENCE & ADDITIONAL CONSIDERATIONS
QUALITY OF EVIDENCE OF BENEFIT	**What is the certainty/quality of evidence? N/a** High ☐ Moderate ☐ Low ☐ Very low ☐ Not applicable ☒ *High quality:* confident in the evidence *Moderate quality:* mostly confident, but further research may change the effect *Low quality:* some confidence, further research likely to change the effect *Very low quality:* findings indicate uncertain effect	No evidence base to answer this PICO question.
EVIDENCE OF BENEFIT	**What is the size of the effect for beneficial outcomes?N/a** Large ☐ Moderate ☐ Small ☐ None ☐	No evidence base to answer this PICO question.
QUALITY OF EVIDENCE OF HARM	**What is the certainty/quality of evidence? n/a** High ☐ Moderate ☐ Low ☐ Very low ☐ *High quality:* confident in the evidence *Moderate quality:* mostly confident, but further research may change the effect *Low quality:* some confidence, further research likely to change the effect *Very low quality:* findings indicate uncertain effect	No evidence base to answer this PICO question.
EVIDENCE OF HARMS	**What is the size of the effect for harmful outcomes? n/a** **L**arge ☐ Moderate ☐ Small ☐ None ☐	No evidence base to answer this PICO question.
BENEFITS & HARMS	**Do the desirable effects outweigh the undesirable harms?** Favours intervention ☐ Favours control ☐ Intervention = Control *or* Uncertain ☐	No evidence base to answer this PICO question.
THERAPEUTIC INTERCHANGE	Therapeutic alternatives available: n/a Yes ☐ No ☐ List the members of the group. List specific exclusion from the group:	Rationale for therapeutic alternatives included: n/a References: n/a Rationale for exclusion from the group: n/a References: n/a
FEASABILITY	**Is implementation of this recommendation feasible?** Yes ☒ No ☐ Uncertain ☐	
RESOURCE USE	**How large are the resource requirements?** More intensive ☒ Less intensive ☐ Uncertain ☐	**Price of medicines:** Wide implementation would be costly. **Other resources:** n/a

	JUDGEMENT	EVIDENCE & ADDITIONAL CONSIDERATIONS
VALUES, PREFERENCES, ACCEPTABILITY	**Is there important uncertainty or variability about how much people value the options?** Minor [ ] Major [ ] Uncertain [ ] **Is the option acceptable to key stakeholders?** Yes [ ] No [ ] Uncertain [X]	There is no survey date to inform this judgement, but the Committee was of the opinion that dental practitioners and patients would find this practice acceptable.
EQUITY	**Would there be an impact on health inequity?** Yes [ ] No [ ] Uncertain [X]	

Version	Date	Reviewer(s)	Recommendation and Rationale
1.0	20 May 2021	PSN, OA, VN, MM	Dental rinses not be used for prevention of COVID-19 transmission during dental procedures as there is currently insufficient evidence of efficacy and harms.