

World Journal of *Methodology*

World J Methodol 2022 September 20; 12(5): 331-464



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INDEXING/ABSTRACTING

The *WJM* is now abstracted and indexed in PubMed, PubMed Central, Reference Citation Analysis, China National Knowledge Infrastructure, China Science and Technology Journal Database, and Superstar Journals Database.

RESPONSIBLE EDITORS FOR THIS ISSUE

Production Editor: *Xiang-Di Zhang*; Production Department Director: *Xiang Li*; Editorial Office Director: *Ji-Hong Liu*.

NAME OF JOURNAL

World Journal of Methodology

ISSN

ISSN 2222-0682 (online)

LAUNCH DATE

September 26, 2011

FREQUENCY

Bimonthly

EDITORS-IN-CHIEF

Bruno Megarbane

EDITORIAL BOARD MEMBERS

<https://www.wjgnet.com/2222-0682/editorialboard.htm>

PUBLICATION DATE

September 20, 2022

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ARTICLE PROCESSING CHARGE

<https://www.wjgnet.com/bpg/gerinfo/242>

STEPS FOR SUBMITTING MANUSCRIPTS

<https://www.wjgnet.com/bpg/gerinfo/239>

ONLINE SUBMISSION

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Mouth shield to minimize airborne transmission risk of COVID-19 and other infectious diseases in the dental office

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Specialty type: Medical laboratory technology

Provenance and peer review:

Unsolicited article; Externally peer reviewed.

Peer-review model: Single blind

Peer-review report's scientific quality classification

Grade A (Excellent): 0

Grade B (Very good): B, B

Grade C (Good): 0

Grade D (Fair): 0

Grade E (Poor): 0

P-Reviewer: Kalani M, Iran;
Nalunkuma R, Uganda

Received: June 1, 2022

Peer-review started: June 1, 2022

First decision: June 27, 2022

Revised: July 4, 2022

Accepted: August 7, 2022

Article in press: August 7, 2022

Published online: September 20, 2022



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Abstract

Transmission of coronavirus disease (COVID-19) and other infectious diseases is a significant risk during dental procedures because most dental interventions involve aerosols or droplets that could contaminate the surrounding environment. Current protection guidelines to address the high risk of droplets, aerosols, and airborne particle transmission of COVID-19 in the dental office recommend minimizing aerosol-generating procedures. In this paper, an innovative mouth shield is presented that should minimize water backsplash from the air-water syringe during dental treatment. The mouth shield can be added to the personal protective equipment to provide the dental team with extra protection. It can be made of different materials, is straightforward, inexpensive, and safe to fabricate, and is easy to use.

Key Words: Mouth shield; Transmission; Dentistry; COVID-19; Airborne; Droplets; Aerosols; Infectious diseases

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Core Tip: This letter to the editor presents an innovative mouth shield to increase the protection of the dental team against the water back splash of aerosols, droplets, and airborne particles during dental procedures.

Citation: Dimashkieh MR, Nassani MZ, Talic YF, Alqerban A, Demachkia AM. Mouth shield to minimize airborne transmission risk of COVID-19 and other infectious diseases in the dental office. *World J Methodol* 2022; 12(5): 461-464

URL: <https://www.wjgnet.com/2222-0682/full/v12/i5/461.htm>

DOI: <https://dx.doi.org/10.5662/wjm.v12.i5.461>

TO THE EDITOR

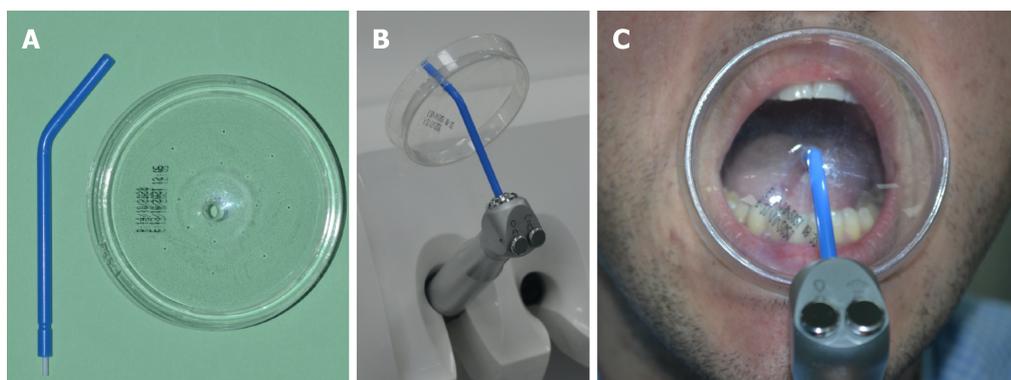
The coronavirus disease (COVID-19) pandemic has spread fear and anxiety across the globe because of its high death toll[1]. Various strategies have been introduced to combat the transmission of COVID-19 and reduce its severity, including the expedited development and approval of vaccines[2]. The risk of transmission of COVID-19 in the dental office has led to specific treatment guidelines and protocols, including the minimal use of aerosol- or droplet-generating procedures[3-6]. However, most dental interventions produce aerosols and droplets, contaminating the surrounding environment and leaving dental personnel at risk of acquiring COVID-19 from infected patients. Although non-emergency dental services were halted at the outset of the pandemic, the long duration of the pandemic has required dental practices to resume their services, but with additional precautions and careful triage of patients [7]. Strict adherence to preventive and protective measures became the mantra for oral care services to maintain an active dental practice at the era of COVID-19[8,9]. The aim of this paper is to introduce an innovative, straightforward, and inexpensive personal protection device that minimizes water back splash from air-water syringes during cavity washing and drying. The goal was to develop a special mouth shield that should minimize the transmission risk of COVID-19 and other infectious diseases *via* airborne droplets or aerosols in the dental office.

MOUTH SHIELD

The mouth shield attaches to the air-water syringe tip and consists of a transparent shield made from the plastic lid of a conventional, disposable, crystal clear plastic cup. The center of the lid is perforated with a 3.5-mm-diameter twist drill to produce a frictional fit with the tip of an air-water syringe and form a disposable mouth shield (Figures 1A and B). The mouth shield can be positioned to maintain light contact with the patient's lips (Figure 1C). It can be used with most air-water syringes during various dental procedures. Different size lids made from disposable, crystal clear polyethylene terephthalate plastic or polystyrene can be selected to accommodate patients with varying degrees of mouth opening. The front surface of the shield can be relined with a water absorbent liner to capture scattered droplets. The mouth shield can also be easily adjusted forward and backward along the tip (nozzle) of the air-water syringe for convenience (video).

DISCUSSION

The COVID-19 pandemic and the increased risk of infection prompted the authors to develop a cost-effective disposable mouth shield to provide protection against back splashes of aerosols, droplets, and airborne particles during dental treatment. An air-water syringe is essential for dental procedures such as etching, bonding, cavity cleansing, and impression making. Contamination from the aerosol could be a major source of infection[10]. The association between aerosols, droplets, and splatter and the transmission of COVID-19 has been emphasized, and recommendations have been made to reduce their generation during the coronavirus pandemic[4,11-13]. Furthermore, emphasis has been placed on the role of personal protective equipment such as medical masks, protective face shields, and goggles in preventing and minimizing airborne transmission of COVID-19[14,15]. Despite the use of personal protective equipment, transmission of the viral infection is still possible, and additional preventive precautions are advised. For example, while wearing magnifying loops, it is not feasible to wear a face shield, leaving the face of the operator exposed to contamination. The described mouth shield provides additional protection at minimal cost. It is designed to prevent water back splash out of the oral cavity during mouth/tooth washing and drying, minimizing contamination of the surrounding environment and dental personnel. Being transparent, the shield will allow light to reach the field of operation and



DOI: 10.5662/wjm.v12.i5.461 Copyright ©The Author(s) 2022.

Figure 1 Crystal clear plastic cup lid mouth shield. A: Traditional, disposable, crystal clear plastic cup lid perforated in the center using a 3.5-mm-diameter twist drill and a disposable air-water syringe tip; B: The air water syringe tip is inserted with a friction fit through the central hole of the plastic cover to form a mouth shield; C: The mouth shield rests lightly on the patient's lips, sealing the mouth during water/air spray.

allow the operator to easily see into the patient's mouth. The described mouth shield has been successfully implemented and evaluated in our dental practice. Nevertheless, the effectiveness of the mouth shield in minimizing the airborne aerosols and droplets spread during dental treatment should be investigated, and its role in protecting against infectious diseases, with a comparison of the load of produced aerosols, droplets and airborne particles with and without this shield, should be examined before this shield can be adopted for global use.

ACKNOWLEDGEMENTS

The authors would like to thank the Deanship of Graduate Studies and Scientific Research at Dar Al Uloom University for supporting the publication of this paper.

FOOTNOTES

Author contributions: Dimashkieh MR proposed the topic of the paper; Dimashkieh MR and Nassani MZ prepared the original draft; Talic YF, Alqerban A and Demachkia AM reviewed and revised the original draft; all authors discussed and agreed the final draft.

Conflict-of-interest statement: All authors declare no conflict of interest.

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S-Editor: Wang LL

L-Editor: A

P-Editor: Wang LL

REFERENCES

- 1 Javelot H, Weiner L. Panic and pandemic: Narrative review of the literature on the links and risks of panic disorder as a consequence of the SARS-CoV-2 pandemic. *Encephale* 2021; **47**: 38-42 [PMID: 33221039 DOI: 10.1016/j.encep.2020.08.001]
- 2 Shamim S, Khan M, Kharaba ZJ, Ijaz M, Murtaza G. Potential strategies for combating COVID-19. *Arch Virol* 2020; **165**:

- 2419-2438 [PMID: [32778950](#) DOI: [10.1007/s00705-020-04768-3](#)]
- 3 **Peng X**, Xu X, Li Y, Cheng L, Zhou X, Ren B. Transmission routes of 2019-nCoV and controls in dental practice. *Int J Oral Sci* 2020; **12**: 9 [PMID: [32127517](#) DOI: [10.1038/s41368-020-0075-9](#)]
 - 4 **Alharbi A**, Alharbi S, Alqaidi S. Guidelines for dental care provision during the COVID-19 pandemic. *Saudi Dent J* 2020; **32**: 181-186 [PMID: [32292260](#) DOI: [10.1016/j.sdentj.2020.04.001](#)]
 - 5 **Izzetti R**, Nisi M, Gabriele M, Graziani F. COVID-19 Transmission in Dental Practice: Brief Review of Preventive Measures in Italy. *J Dent Res* 2020; **99**: 1030-1038 [PMID: [32302257](#) DOI: [10.1177/0022034520920580](#)]
 - 6 **Ge ZY**, Yang LM, Xia JJ, Fu XH, Zhang YZ. Possible aerosol transmission of COVID-19 and special precautions in dentistry. *J Zhejiang Univ Sci B* 2020; **21**: 361-368 [PMID: [32425001](#) DOI: [10.1631/jzus.B2010010](#)]
 - 7 **Gurzawska-Comis K**, Becker K, Brunello G, Gurzawska A, Schwarz F. Recommendations for Dental Care during COVID-19 Pandemic. *J Clin Med* 2020; **9** [PMID: [32545477](#) DOI: [10.3390/jcm9061833](#)]
 - 8 **Li G**, Chang B, Li H, Wang R, Li G. Precautions in dentistry against the outbreak of corona virus disease 2019. *J Infect Public Health* 2020; **13**: 1805-1810 [PMID: [33069661](#) DOI: [10.1016/j.jiph.2020.09.013](#)]
 - 9 **Benzian H**, Beltrán-Aguilar E, Niederman R. Systemic Management of Pandemic Risks in Dental Practice: A Consolidated Framework for COVID-19 Control in Dentistry. *Front Med (Lausanne)* 2021; **8**: 644515 [PMID: [33718412](#) DOI: [10.3389/fmed.2021.644515](#)]
 - 10 **Harrel SK**, Molinari J. Aerosols and splatter in dentistry: a brief review of the literature and infection control implications. *J Am Dent Assoc* 2004; **135**: 429-437 [PMID: [15127864](#) DOI: [10.14219/jada.archive.2004.0207](#)]
 - 11 **Kumbargere Nagraj S**, Eachempati P, Paisi M, Nasser M, Sivaramakrishnan G, Verbeek JH. Interventions to reduce contaminated aerosols produced during dental procedures for preventing infectious diseases. *Cochrane Database Syst Rev* 2020; **10**: CD013686 [PMID: [33047816](#) DOI: [10.1002/14651858.CD013686.pub2](#)]
 - 12 **Ather A**, Patel B, Ruparel NB, Diogenes A, Hargreaves KM. Coronavirus Disease 19 (COVID-19): Implications for Clinical Dental Care. *J Endod* 2020; **46**: 584-595 [PMID: [32273156](#) DOI: [10.1016/j.joen.2020.03.008](#)]
 - 13 **Nassani MZ**, Shamsy E, Tarakji B. A call for more utilization of laser dentistry at the time of coronavirus pandemic. *Oral Dis* 2021; **27** Suppl 3: 783-784 [PMID: [32524746](#) DOI: [10.1111/odi.13482](#)]
 - 14 **Ueki H**, Furusawa Y, Iwatsuki-Horimoto K, Imai M, Kabata H, Nishimura H, Kawaoka Y. Effectiveness of Face Masks in Preventing Airborne Transmission of SARS-CoV-2. *mSphere* 2020; **5** [PMID: [33087517](#) DOI: [10.1128/mSphere.00637-20](#)]
 - 15 **Sommerstein R**, Fux CA, Vuichard-Gysin D, Abbas M, Marschall J, Balmelli C, Troillet N, Harbarth S, Schlegel M, Widmer A; Swissnoso. Risk of SARS-CoV-2 transmission by aerosols, the rational use of masks, and protection of healthcare workers from COVID-19. *Antimicrob Resist Infect Control* 2020; **9**: 100 [PMID: [32631450](#) DOI: [10.1186/s13756-020-00763-0](#)]



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