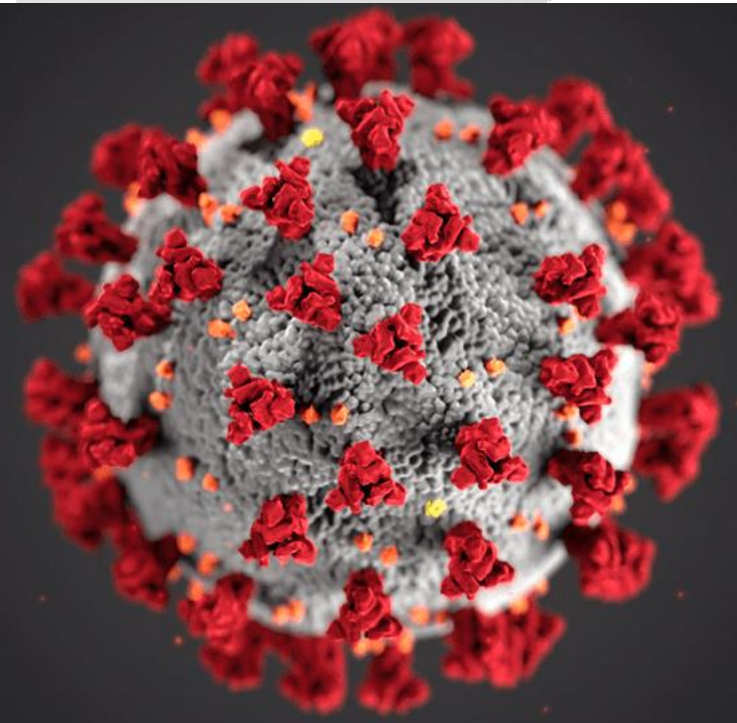
COVID-19

A PRACA W GABINECIE STOMATOLOGICZNYM

AND DENTAL PRACTICE



Autor: Karolina Łukaszewicz
Uniwersytet Medyczny im. Karola Marcinkowskiego w Poznaniu

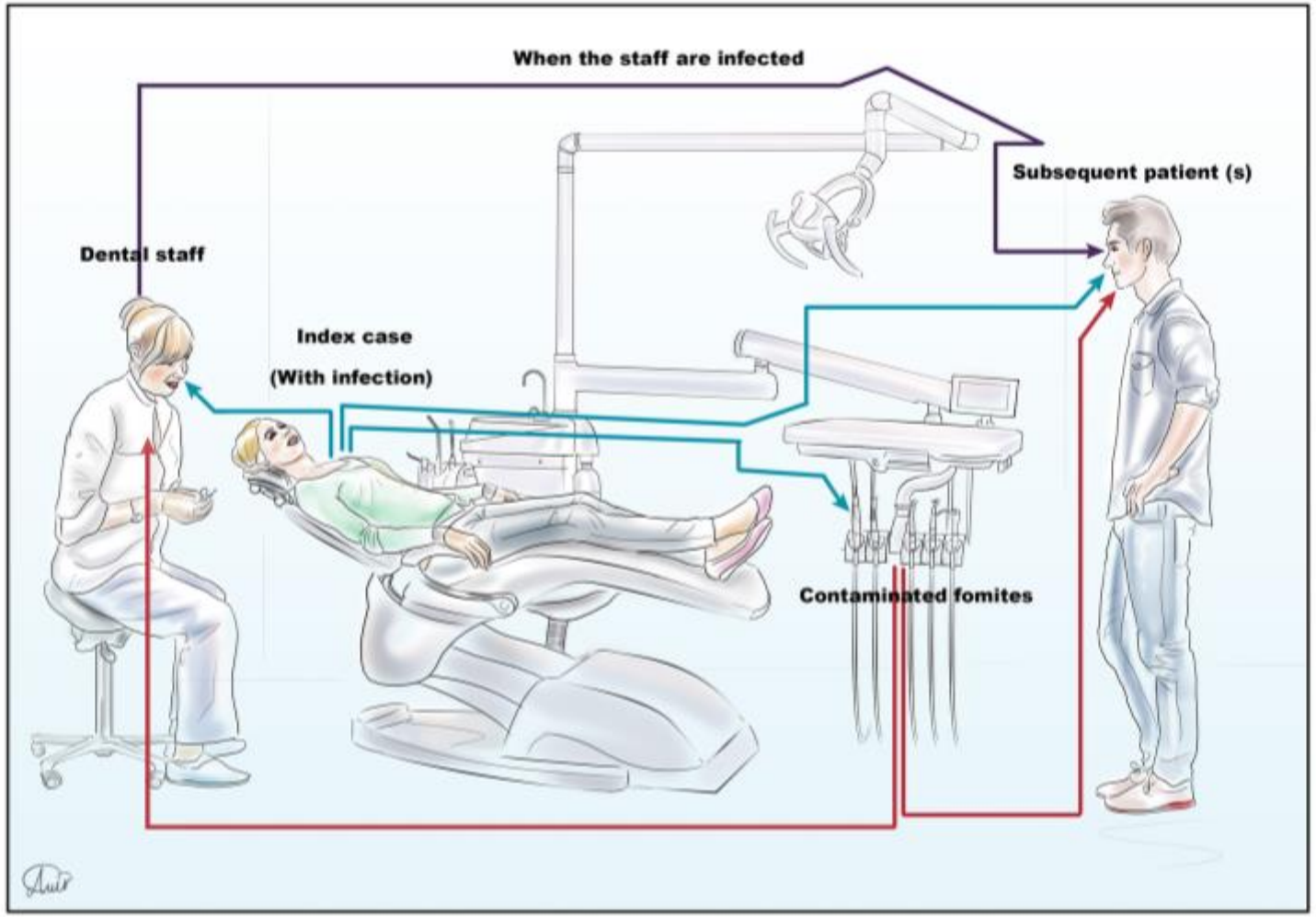


Fig. 4 2019-nCoV transmission dynamics in dental care settings

Źródło: Being a front-line dentist during the Covid-19 pandemic: a literature reviewHamid Reza Fallahi1,2, Seied Omid Keyhan3,4,5*, Dana Zandian1,2, Seong-Gon Kim6,7*and Behzad Cheshmi8-https://jkamprs.springeropen.com/track/pdf/10.1186/s40902-020-00256-5

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REVIEW ARTICLE OPEN

Transmission routes of 2019-nCoV and controls in dental practice

Xian Peng[1], Xin Xu[1], Yuqing Li[1], Lei Cheng[1], Xuedong Zhou[1] and Biao Ren[1]

A novel β-coronavirus (2019-nCoV) caused severe and even fetal pneumonia explored in a seafood market of Wuhan city, Hubei province, China, and rapidly spread to other provinces of China and other countries. The 2019-nCoV was different from SARS-CoV, but shared the same host receptor the human angiotensin-converting enzyme 2 (ACE2). The natural host of 2019-nCoV may be the bat *Rhinolophus affinis* as 2019-nCoV showed 96.2% of whole-genome identity to BatCoV RaTG13. The person-to-person transmission routes of 2019-nCoV included direct transmission, such as cough, sneeze, droplet inhalation transmission, and contact transmission, such as the contact with oral, nasal, and eye mucous membranes. 2019-nCoV can also be transmitted through the saliva, and the fetal–oral routes may also be a potential person-to-person transmission route. The participants in dental practice expose to tremendous risk of 2019-nCoV infection due to the face-to-face communication and the exposure to saliva, blood, and other body fluids, and the handling of sharp instruments. Dental professionals play great roles in preventing the transmission of 2019-nCoV. Here we recommend the infection control measures during dental practice to block the person-to-person transmission routes in dental clinics and hospitals.

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INTRODUCTION

An emergent pneumonia outbreak originated in Wuhan City, in the late December 2019[1]. The pneumonia infection has rapidly

CHARACTERISTICS OF 2019 NOVEL CORONAVIRUS

Coronaviruses belong to the family of *Coronaviridae*, of the order *Nidovirales*, comprising large, single, plus-stranded RNA, as their

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Maxillofacial Plastic and Reconstructive Surgery

REVIEW Open Access

Being a front-line dentist during the Covid-19 pandemic: a literature review

Hamid Reza Fallahi[1,2], Seied Omid Keyhan[3,4,5*], Dana Zandian[1,2], Seong-Gon Kim[6,7*] and Behzad Cheshmi[8]

Abstract

Coronavirus is an enveloped virus with positive-sense single-stranded RNA. Coronavirus infection in humans mainly affects the upper respiratory tract and to a lesser extent the gastrointestinal tract. Clinical symptoms of coronavirus infections can range from relatively mild (similar to the common cold) to severe (bronchitis, pneumonia, and renal involvement). The disease caused by the 2019 novel coronavirus (2019-nCoV) was called Covid-19 by the World Health Organization in February 2020. Face-to-face communication and consistent exposure to body fluids such as blood and saliva predispose dental care workers at serious risk for 2019-nCoV infection. As demonstrated by the recent coronavirus outbreak, information is not enough. During dental practice, blood and saliva can be scattered. Accordingly, dental practice can be a potential risk for dental staff, and there is a high risk of cross-infection. This article addresses all information collected to date on the virus, in accordance with the guidelines of international health care institutions, and provides a comprehensive protocol for managing possible exposure to patients or those suspected of having coronavirus.

Keywords: Coronavirus, Covid-19, 2019-nCoV, Dental care, Dentistry

Background

Since the first reported case in Wuhan, China, in December 2019, coronavirus disease-19 (Covid-19) has widely spread to Japan, Korea, Iran, and many European countries [1]. The World Health Organization (WHO) declared a pandemic in March 2020. As saliva is a main tool of spread, dentists are in danger of contracting Covid-19. Although the exact nature of this disease must be clarified in detailed studies, current knowledge of coronavirus infection should be shared without any restrictions.

This article was written by an Iranian team of oral and maxillofacial surgeons. As Iran has many Covid-19 patients, they have significant experience with this disease. *Maxillofacial Plastic and Reconstructive Surgery* is an open-access journal, and this type of important information can be shared via our publication platform without restrictions.

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Coronaviruses

Coronaviruses are enveloped viruses with a positive-sense single-stranded RNA genome. Their helical symmetry nucleocapsid is approximately 26–32 kb in size, making it the largest investigated genome among RNA viruses [2, 3]. Coronaviruses have a fundamental resemblance in their organization and genome expression [4]. Previously, it was thought that coronaviruses only cause enzootic infections in a number of animals, including certain birds and mammals, but recent findings indicate that a variety of these viruses, including antigenic groups 1 (229E and NL63), antigenic groups 2 (OC43), and HKU1, can infect humans [5, 6]. These viruses often lead to upper respiratory tract infection, frequently resulting in common cold symptoms. Three specific strains of these viruses that are of zoonotic origin, including severe acute respiratory syndrome coronavirus (SARS-CoV), Middle East respiratory syndrome coronavirus (MERS-CoV), and 2019 novel coronavirus (2019-nCoV), have recently caused lethal infections in humans [4, 6, 7].

Coronavirus infections in humans mainly affect the upper respiratory tract and to a lesser extent the gastrointestinal

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medical institution. Under such circumstances, special protective clothing such as hazardous materials (hazmat) suits are required. If hazmat suits are not available, white coats, gowns, head caps, protective eyewear, face shields, masks, latex gloves, and virus-proof shoe covers should be used [56].

Mouth rinses

The effect of chlorhexidine, which is commonly used for pre-procedural mouth washing in dental practice, has not yet been demonstrated to be capable of eliminating 2019-nCoV. However, oxidative agents containing mouth rinses with 1% hydrogen peroxide or 0.2% povidone-iodine are recommended. Pre-procedural use of mouthwash, especially in cases of inability to use a rubber dam, can significantly reduce the microbial load of oral cavity fluids [58].

Rubber dam isolation

Using rubber dams due to the creation of a barrier in the oral cavity effectively reduces the generation of droplets and aerosol mixed with patient saliva and/or blood in 1 m diameter of the surgical field by 70% [59]. Following the placement of the dam, extra high-volume suction is also required for maximum prevention of aerosol and spatter from spreading [60]. If it is not possible to use rubber dams for any reason, manual tools such as Carisolvs or hand scalers are preferable.

Anti-retraction handpiece

Throughout the COVID-19 pandemic, the use of any dental handpieces that do not have an anti-retraction function should be avoided. For emergency treatment, anti-retraction handpieces designed with anti-retractive valves can play an effective role in preventing the diffusion and dispersion of droplets and aerosol [60, 61].

Appropriate disinfectants

Since there is still little information available regarding 2019-nCoV, relatively similar genetic features between 2019-nCoV and SARS-CoV indicate that the novel coronavirus can be vulnerable to disinfectants such as sodium hypochlorite (1000 ppm or 0.1% for surfaces and 10,000 ppm or 1% for blood spills), 0.5% hydrogen peroxide, 62–71% ethanol, and phenolic and quaternary ammonium compounds if utilized in accordance with the manufacturer's instructions. Studies show that other biocidal agents such as 0.05–0.2% benzalkonium chloride or 0.02% chlorhexidine digluconate probably have lower efficiency. In addition to the type of disinfectant, paying attention to other factors such as the duration of use, dilution rate, and especially the expiration time following the preparation of the solution according to the manufacturer's instructions is also crucial.

Management of medical waste

Prior to any inappropriate accumulation, dental office waste should be routinely transported to the institution's temporary storage facility. Reusable tools and equipment must be properly pre-treated, cleaned, sterilized, and properly stored until the next use. Dental waste resulting from the treatment of suspected or confirmed 2019-nCoV patients is considered medically infectious waste that must be strictly disposed of in accordance with the official instructions using double-layer yellow medical waste package bags and "gooseneck" ligation.

Conclusion

Following the announcement of the disease outbreak by international or local authorities, dentists can play a significant role in disrupting the transmission chain, thereby reducing the incidence of disease by simply postponing all non-emergency dental care for all patients. Dental professionals must be fully aware of 2019-nCoV spreading modalities, how to identify patients with this infection, and, most importantly, self-protection considerations. The effect of chlorhexidine, which is commonly used for pre-procedural mouth washing in dental practice, has not yet been demonstrated to be capable of eliminating 2019-nCoV. However, the prescription of oxidative agents containing mouth rinses such as 1% hydrogen peroxide or 0.2% povidone is recommended. A higher rate of virus exposure because of occupational commitments in health care workers is considered a key factor associated with the increased risk of infection.

Abbreviations

Covid-19: Coronavirus disease-19; WHO: World Health Organization; SARS-CoV: Severe acute respiratory syndrome coronavirus; MERS-CoV: Middle East respiratory syndrome coronavirus; 2019-nCoV: 2019 novel coronavirus; qRT-PCR: Quantitative reverse transcriptase polymerase chain reaction; ACE2: Angiotensin-converting enzyme 2; NAAT: Nucleic acid amplification testing

Acknowledgements

Prof. Esmaeil Yazdi passed away due to coronavirus infection few days ago. He was one of the Iranian Society of OMFS founder 60 years ago. The authors send sincere condolence to his family and colleagues. The authors also appreciate his great contribution on the progress of maxillofacial surgery.

Authors' contributions

The article was written by HRF and BC. DZ collected the data. Illustrations were drawn by SOK and BC. SOK and KSG corrected the article and performed the critical review. The authors read and approved the final manuscript.

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Availability of data and materials

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Ethics approval and consent to participate

Not applicable.

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COVER STORY

Aerosols and splatter in dentistry

A brief review of the literature and infection control implications

STEPHEN K. HARREL, D.D.S.; JOHN MOLINARI, Ph.D.

The production of airborne material during dental procedures is obvious to the dentist, the dental team and the patient. An aerosol cloud of particulate matter and fluid often is clearly visible during dental procedures. This cloud is evident during tooth preparation with a rotary instrument or air abrasion, during the use of an air-water syringe, during the use of an ultrasonic scaler and during air polishing. This ubiquitous aerosolized cloud is a combination of materials originating from the treatment site and from the dental unit waterlines, or DUWLs. It is common for the patient to comment on this cloud of material. With the advent of severe acute respiratory syndrome, or SARS, questions concerning the potential for the spread of infections from this aerosol may arise.

Many dental procedures produce aerosols and droplets that are contaminated with bacteria and blood.

In this article, we review relevant literature that has addressed the presence and makeup of dental aerosols and splatter. We also assess the threats that may be inherent in this airborne material, including risk potential to patients and the dental team. We make recommendations for the control of dental aerosols and splatter.

DISEASE TRANSMISSION THROUGH AN AIRBORNE ROUTE

The potential routes for the spread of infection in a dental office are direct contact with body fluids of an infected patient, contact with environmental surfaces or instruments that have been contaminated by the patient and contact with infectious particles from the patient that have become airborne.[1] There is a long history of infections that have been transmitted by an airborne route. Even before the discovery of specific infectious agents such as bacteria and viruses, the potential of infection by the airborne route was recognized. In historical reports of the bubonic plague—

ABSTRACT

Background. Aerosols and droplets are produced during many dental procedures. With the advent of the droplet-spread disease severe acute respiratory syndrome, or SARS, a review of the infection control procedures for aerosols is warranted.

JADA CE CONTINUING EDUCATION ARTICLE 1

Types of Studies Reviewed. The authors reviewed representative medical and dental literature for studies and reports that documented the spread of disease through an airborne route. They also reviewed the dental literature for representative studies of contamination from various dental procedures and methods of reducing airborne contamination from those procedures.

Results. The airborne spread of measles, tuberculosis and SARS is well-documented in the medical literature. The dental literature shows that many dental procedures produce aerosols and droplets that are contaminated with bacteria and blood. These aerosols represent a potential route for disease transmission. The literature also documents that airborne contamination can be minimized easily and inexpensively by layering several infection control steps into the routine precautions used during all dental procedures.

Clinical Implications. In addition to the routine use of standard barriers such as masks and gloves, the universal use of preprocedural rinses and high-volume evacuation is recommended.

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TABLE 3

METHODS OF REDUCING AIRBORNE CONTAMINATION.

DEVICE	ADVANTAGES	DISADVANTAGES
Barrier Protection—Masks, Gloves and Eye Protection	Part of "standard precautions," inexpensive	Masks will only filter out 60 to 95 percent of aerosols, subject to leakage if not well-fitted, do not protect when mask is removed after the procedure
Preprocedural Rinse With Antiseptic Mouthwash Such as Chlorhexidine	Reduces the bacterial count in the mouth, saliva and air; inexpensive on a per-patient basis	Tends to be most effective on free-floating organisms; it will not affect biofilm organisms such as plaque, subgingival organisms, blood from the operative site or organisms from the nasopharynx
High-Volume Evacuator	Will reduce the number of bacteria in the air and remove most of the material generated at the operative site such as bacteria, blood and viruses; inexpensive on a per-patient basis	When an assistant is not available, it is necessary to use a high-volume evacuator attached to the instrument or a "dry field" device; a small-bore saliva ejector is not an adequate substitute
High-Efficiency Particulate Air Room Filters and Ultraviolet Treatment of Ventilation System	Effective in reducing numbers of airborne organisms	Only effective once the organisms are already in the room's air, moderate to expensive, may require engineering changes to the ventilation system

Źródło: Aerosols and splatterin dentistryA brief review of the literatureand infection control implicationsSTEPHEN K. HARREL, D.D.S.; JOHN MOLINARI, Ph.D - https://jada.ada.org/article/S0002-8177(14)61227-7/pdf

Postępowanie z personelem poradni

„Osobom powyżej 60. roku życia lub z chorobami układu krążenia, nadciśnieniem, chorobami układu oddechowego i/lub cukrzycą zaleca się w miarę możliwości pracę zdalną. Gdy nie jest to możliwe, zaleca się, aby u wszystkich osób pozostających w gabinecie wykonywać codzienny pomiar temperatury ciała termometrem bezdotykowym oraz 1 raz w tygodniu złożyć deklarację epidemiologiczną [...]. ⟸
Należy zapoznać cały personel medyczny oraz administracyjny placówki służby zdrowia z aktualnymi procedurami postępowania w sytuacji podwyższonego ryzyka epidemiologicznego i przeprowadzić szkolenie dotyczące postępowania z pacjentem zakażonym wirusem SARS CoV-2.

Należy umieścić w widocznym miejscu numery telefonów do:

•powiatowej stacji sanitarno-epidemiologicznej,
•firmy wykonującej transport sanitarny pacjentów z podejrzeniem infekcji koronawirusem SARS CoV-2 (lista z OW NFZ),
•oddziału zakaźnego lub obserwacyjno-zakaźnego.

Rekomendowane są szeroko zakrojone teleinformatyczne akcje informacyjne, w tym social media. Powinno stworzyć się również szybką drogę komunikacji z personelem jednostki, tak aby w sprawny i efektywny sposób przekazywać najpilniejsze informacje przez telefon mobilny."

Źródło: COVID-19 a praca lekarza dentysty: wytyczne PTS uaktualnione https://pts.net.pl/covid-19-a-praca-lekarza-dentysty-wytyczne-pts-uaktualnione/

WZÓR DEKLARACJI EPIDEMIOLOGICZNEJ

§ Wywiad epidemiologiczny
Pacjent/Opiekun Pacjenta

SCTT sp. z o.o.
NZOZ Akademicka Poliklinika Stomatologiczna

DANE PERSONALNE

Imię ..... **Nazwisko** .....

PESEL | | | | | | | | | | | |

Deklaracja

Biorąc pod uwagę niezbędne środki ostrożności, w związku z sytuacją epidemiologiczną związaną z wirusem SARS-CoV-2, niniejszym oświadczam, że w ciągu ostatnich 14 dni:

	Tak	Nie
przebywałem/-am w kraju/regionie ryzyka wskazanych przez WHO i GIS		
miałem/-am kontakt z osobami z obszarów zagrożonych		
miałem/-am kontakt z osobami z NCoViD19		
miałem/-am kontakt z osobami poddanymi kwarantannie		
miałem/-am gorączkę, kaszel, katar, zapalenie spojówek lub trudności w oddychaniu/duszności		
Jednocześnie pragniemy zapytać czy w dniu dzisiejszym przyjmowałeś/ -aś którykolwiek z leków:		
Zawierające Paracetamol *(Apap, Panadol, Paracetamol, Vicks, Fervex, Gripex, Etopiryna, , Metafen, Nurofen, Terafiu, Febrisan, Acenol, Calpol, Codipar, Efferalgan, Omnipap, Panacit, Paramax, Pedicetamol, Sinebriv, Flu Control, Grypolek, Cerugrip, GripBlocker, Grypostop, Coldrex, KidofenAntidol, Dafalgan, Paramax, Talvosilen, Ultracod, Solpadeine, Cefalgin, Saridon, Excedrin, Apopatram, Doreta, Exbol, Padolten, Palgotal, Paratram, Poltram, Synrtam, Tramadol, Tramapar, Tabcin, Zaldiar)*		
Zawierające Ibuprofen i pochodne *(Ibuprom, Ibum, Metafen, Babyfen, Brufen, Ibalgin, Ibufen, Ibumax, Ibupar, Ibuprofen, Iburapid, Ifenin, Kidofen, MIG, Nurofen, Pediprofen, Flustad, Modafen, Acatar, Infex, Sudafed, Biprofenid, Febrofen, Ketonal, Ketoprofen, Ketores, Profenid, Refastin, Deksak, Ketesse, Skudeksa, Diklophenak, Diclac, Dicloduo, Dicuno, Majamil, Olfen, Voltaren, Artrotec)*		
Zawierające Kwas Acetylosalicylowy *(Aspiryna, Alcaprim, Alcaseltzer, Aspirin, Encopirin, GripBlocer, Maxipirin, Polopiryna, Pyramidon, Coffepirine, Dampiryna, Kopiryna, Etopiryna, Ekscedrin, Upsarin, Antygrypin, Ascalcin)*		
Inne: *Pyralgin, Pyralgina, Realgin, Nefopam, Sativex*		

Świadomy(a) odpowiedzialności karnej za składanie fałszywych oświadczeń – art. 233 §1 i §6 Kodeksu Karnego, oświadczam, że wszystkie dane podane przeze mnie w niniejszym wniosku są prawdziwe oraz zgodne z rzeczywistym stanem rzeczy.

Potwierdzam, że zapoznałam/em się z klauzulą informacyjną dot. przetwarzania danych osobowych.

.....
Data i podpis

Podstawa prawna:
1. Ustawa z dnia 5 grudnia 2008 r. o zapobieganiu oraz zwalczaniu zakażeń i chorób zakaźnych u ludzi (Dz. U. z 2019 r. poz. 1239 i 1495 oraz z 2020 r. poz. 284 i 322)
2. Ustawa z dnia 2 marca 2020 r. o szczególnych rozwiązaniach związanych z zapobieganiem, przeciwdziałaniem i zwalczaniem COVID-19, innych chorób zakaźnych oraz wywołanych nimi sytuacji kryzysowych (Dz. U. z 2020 r. poz. 374)

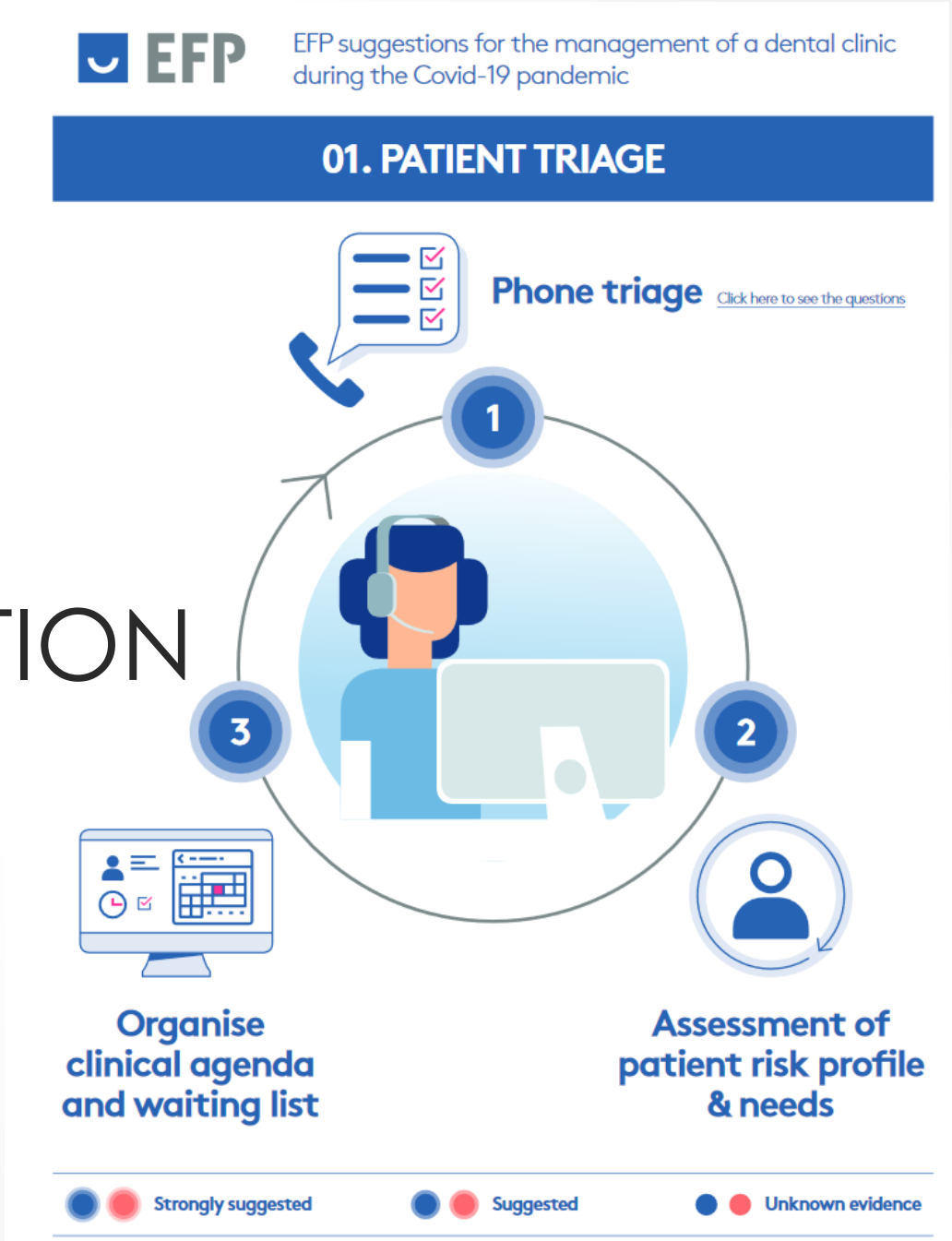
Źródło: https://pts.net.pl/wp-content/uploads/2020/03/Wywiad-epidemiologiczny-PTS.pdf

- Lekarz dentysta jak i asystujące mu osoby, a także inny personel gabinetu powinni być odpowiednio przeszkoleni w zakresie nowych procedur oraz czynności odpowiedniego zakładania i zdejmowania środków ochrony indywidualnej.
- Ogólnie należy przyjąć zasadę, że lekarz nie może pracować samodzielnie nawet podczas badania.
- W przypadku zabiegów z naruszeniem ciągłości tkanek wymagana jest praca na cztery, a nawet na sześć rąk.
- Personel medyczny bezpośrednio po przyjściu do gabinetu powinien mieć zmierzoną temperaturę ciała.
- Umyć i zdezynfekować ręce.
- Następnie powinien zmienić obuwie i skarpetki.
- Przebrać się w jednorazowe komplety chirurgiczne użytku z krótkim rękawem, ponownie zdezynfekować ręce.

Źródło: pts.net.pl/wp-content/uploads/2020/05/Webinar-PTS-Sirona-Dentsply.pdf

REJESTRACJA WIZYTY

APPOINTMENT REGISTRATION



Źródło: efp.org/publications/EFP-Infographic-COVID19.pdf

„Polskie Towarzystwo Stomatologiczne (PTS) rekomenduje rejestrację wyłącznie w formie telefonicznej lub poprzez inne środki komunikacji, np. Internet. **Nie zaleca się rejestracji osobistej**. Rekomenduje się także udzielanie **teleporad stomatologicznych**, **wystawianie e-recept** tak, aby do minimum ograniczyć liczbę osób zgłaszających się do poradni i/lub leczenia. Tylko w sytuacjach, kiedy jest to niezbędne, pacjent powinien zostać umówiony na wizytę. Lekarz udzielający teleporady na podstawie przeprowadzonego wywiadu medycznego i oceny stanu zdrowia pacjenta ma **możliwość wystawienia zwolnienia lekarskiego** [23]. Udzielone teleporady powinny być odnotowane w dokumentacji medycznej pacjenta.

Zaleca się, aby już podczas rozmowy telefonicznej zebrać podstawowy wywiad epidemiologiczny, ze **szczególnym uwzględnieniem pobytu zagranicą w ciągu ostatnich 14 dni**. Sugeruje się, aby u wszystkich osób zgłaszających **duszność i objawy grypopochodne** (kaszel, podwyższona temperatura ciała, katar) **przenieść termin wizyty.**

Zaleca się, aby wszystkie zaplanowane wcześniej wizyty w trybie **planowym, w szczególności u osób z grupy ryzyka, tj. powyżej 65. roku życia,** z chorobami współistniejącymi (w szczególności choroby układu krążenia, nadciśnienie, cukrzyca), **pacjenci immunoniekompetentni, przenieść telefonicznie na inny termin.**

Rejestracja pacjenta do poradni powinna odbywać się z **założeniem bezpiecznego marginesu czasu**, tak aby w przypadku wystąpienia opóźnień w realizacji świadczeń umożliwić minimalizację kontaktu pacjentów między sobą podczas oczekiwania na wizytę. **Zaleca się dłuższą przerwę pomiędzy pacjentami**, tak aby należycie wykonać dezynfekcję i wietrzenie gabinetu lekarskiego."

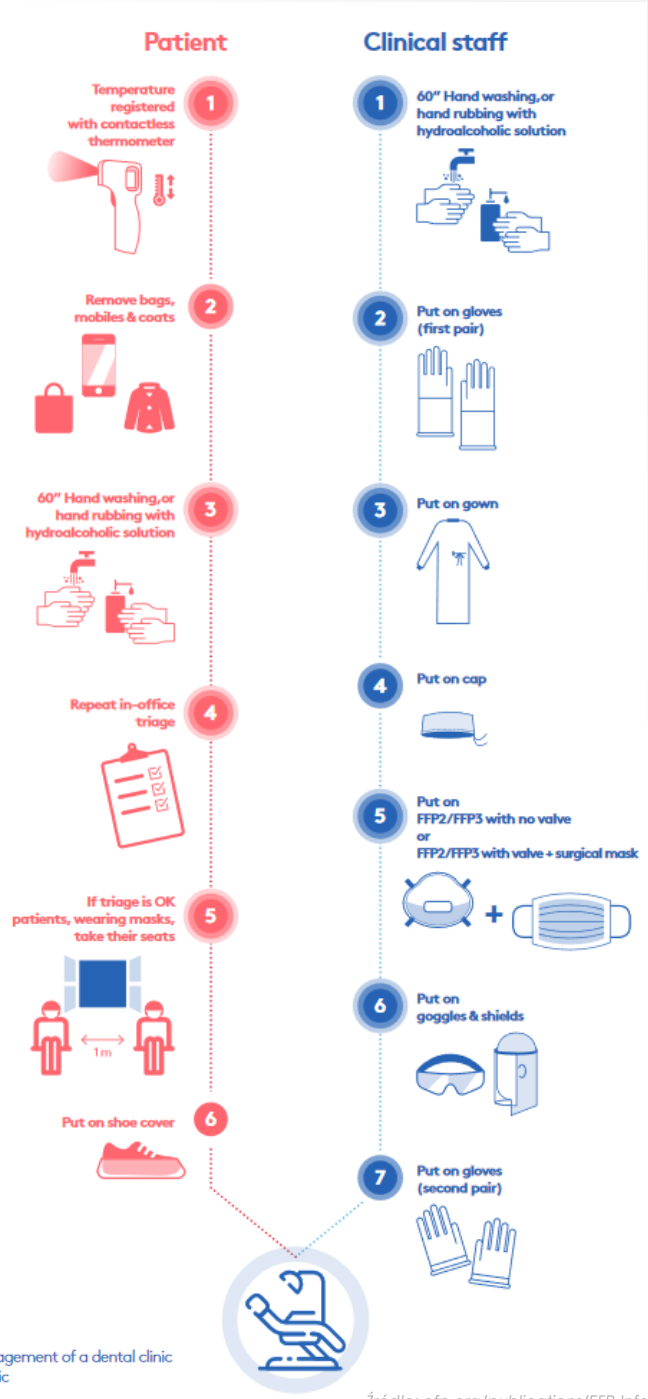
Źródło: COVID-19 a praca lekarza dentysty: wytyczne PTS uaktualnione https://pts.net.pl/covid-19-a-praca-lekarza-dentysty-wytyczne-pts-uaktualnione/#przed-przyjecie

- Contact all patients prior to dental treatment.
  - Telephone screen all patients for symptoms consistent with COVID-19. If the patient reports symptoms of COVID-19, avoid non-emergent dental care. If possible, delay dental care until the patient has recovered.
  - Telephone triage all patients in need of dental care. Assess the patient's dental condition and determine whether the patient needs to be seen in the dental setting. Use teledentistry options as alternatives to in-office care.
  - Request that the patient limit the number of visitors accompanying the patient to the dental appointment to only those people who are necessary.
  - Advise patients that they, and anyone accompanying them to the appointment, will be requested to wear a face covering when entering the facility and will undergo screening for fever and symptoms consistent with COVID-19.

Źródło: Guidance for Dental Settings – Centers for Disease Control https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html

WEJŚCIE PACJENTA DO GABINETU

PATIENT ARRIVAL AT THE DENTAL OFFICE



Źródło: efp.org/publications/EFP-Infographic-COVID19.pdf

„PTS zaleca, aby przed wejściem pacjenta do gabinetu/praktyki wykonać **pomiar temperatury ciała urządzeniem bezdotykowym w 2 miejscach (szyja, czoło) oraz przed wizytą pacjent powinien wypełnić kwestionariusz epidemiologiczny i go podpisać** [Propozycja w załączniku]. **Kwestionariusz epidemiologiczny i pomiar temperatury ciała dotyczy wszystkich wchodzących do gabinetu/praktyki** łącznie z personelem medycznym i personelem pomocniczym, niemedycznym.

PTS zaleca, aby przyjmowani byli pacjenci wyłącznie niskiego ryzyka (wywiad negatywny, pomiar temperatury poniżej 37,3 st. C). **Szczególnego postępowania wymagają pacjenci z negatywnym wywiadem, ale temperaturą ciała>37,3 st.** C z uwagi gdyż pewne sytuacje nagłe mogą wiązać się z objawami ogólnymi w postaci podwyższonej temperatury ciała.

[..] W sytuacji zwiększonego ryzyka epidemiologicznego i zmniejszonego ogólnego dostępu do opieki medycznej, w tym stomatologicznej, racjonalny jest podział zabiegów na 3 grupy:

- wykonywane w trybie pilnym,
- wykonywane w trybie przyspieszonym
- wykonywane w trybie planowym.

PTS zaleca, aby do odwołania stanu zagrożenia epidemicznego wykonywane były wyłącznie zabiegi w trybie pilnym i przyspieszonym. Do takich zabiegów należą:

A. **Leczenie w trybie pilnym** (zmiany nowotworowe, potencjalnie nowotworowe, bólowe na błonach śluzowych, martwicze zapalenie dziąseł, zespół perio-endo, trepanacja komory zęba ze względu na występujący ból, nacięcie ropnia okołowierzchołkowego i/lub przyzębnego, ekstrakcja zęba będącego przyczyną ropnia, zaopatrzenie pacjentów urazowych).

B. **Leczenia w trybie przyspieszonym** (np. usuniecie torbieli, ekstrakcja zęba z bólem), zaopatrzenie w doraźną pomoc z zakresu stomatologii zachowawczej (utracone wypełnienie z ostrymi brzegami korony zęba, utracony opatrunek) endodoncji (utracony opatrunek i zakończenie leczenia), protetyczne (uszkodzenia protez stałych i ruchomych) i ortodontyczne (utrata zamka ortodontycznego, uszkodzenie ligatury, uszkodzenie łuku lub utrata retencji).

Wskazane jest odroczenie planowanego leczenia stomatologicznego do czasu odwołania stanu zagrożenia epidemiologicznego (w każdej sytuacji, w której odroczenie wizyty nie wpłynie negatywnie na stan zdrowia Pacjenta)."

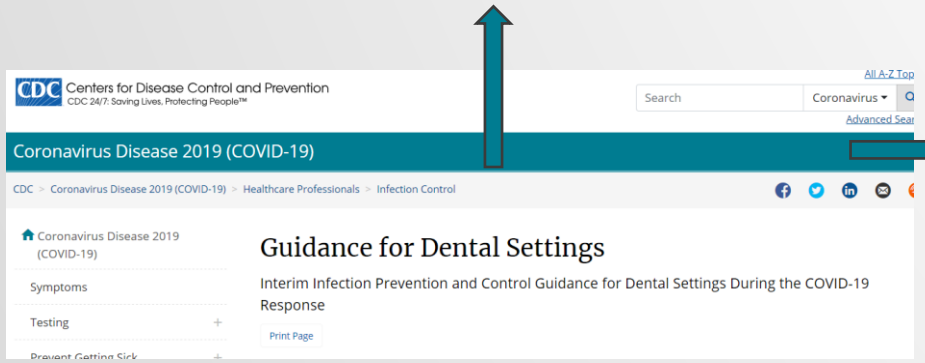
Źródło: COVID-19 a praca lekarza dentysty: wytyczne PTS uaktualnione https://pts.net.pl/covid-19-a-praca-lekarza-dentysty-wytyczne-pts-uaktualnione/#przed-przyjecie

- Systematically assess all patients and visitors upon arrival.
  - Ensure that the patient and visitors have donned their own face covering, or provide a surgical mask if supplies are adequate.
  - Ask about the presence of fever or other symptoms consistent with COVID-19.
  - Actively take the patient's temperature.
  - If the patient is afebrile (temperature < 100.4˚F)* and otherwise without symptoms consistent with COVID-19, then dental care may be provided using appropriate engineering and administrative controls, work practices, and infection control considerations (described below).

38°C

- Ask patient to re-don their face covering at the completion of their clinical dental care when they leave the treatment area.
- Even when DHCP screen patients for respiratory infections, inadvertent treatment of a dental patient who is later confirmed to have COVID-19 may occur. To address this, DHCP should request that the patient inform the dental clinic if they develop symptoms or are diagnosed with COVID-19 within 14 days following the dental appointment.

**For the general population, fever is measured as a temperature ≥ 100.4˚F. Fever may be subjective or confirmed. If the patient has a fever strongly associated with a dental diagnosis (e.g., pulpal and periapical dental pain and intraoral swelling is present), but no other symptoms consistent with COVID-19 are present, care can be provided with appropriate protocols.*



Facility Considerations

- Take steps to ensure patients and staff adhere to respiratory hygiene and cough etiquette, as well as hand hygiene, and all patients follow triage procedures throughout the duration of the visit.
  - Post visual alerts (e.g., signs, posters) at the entrance and in strategic places (e.g., waiting areas, elevators, break rooms) to provide instructions (in appropriate languages) about hand hygiene and respiratory hygiene and cough etiquette. Instructions should include wearing a cloth face covering or facemask for source control, and how and when to perform hand hygiene.
  - Provide supplies for respiratory hygiene and cough etiquette, including alcohol-based hand rub (ABHR) with 60–95% alcohol, tissues, and no-touch receptacles for disposal, at healthcare facility entrances, waiting rooms, and patient check-ins.
  - Install physical barriers (e.g., glass or plastic windows) at reception areas to limit close contact between triage personnel and potentially infectious patients.
- Place chairs in the waiting room at least six feet apart.
- Remove toys, magazines, and other frequently touched objects that cannot be regularly cleaned or disinfected from waiting areas.
- Minimize the number of persons waiting in the waiting room.
  - Patients may opt to wait in a personal vehicle or outside the dental facility where they can be contacted by mobile phone when it is their turn for dental care.
  - Minimize overlapping dental appointments.

Źródło:Guidance for Dental Settings – Centers for Disease Control https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html

Należy rozważyć poszczególne scenariusze przyjęć:

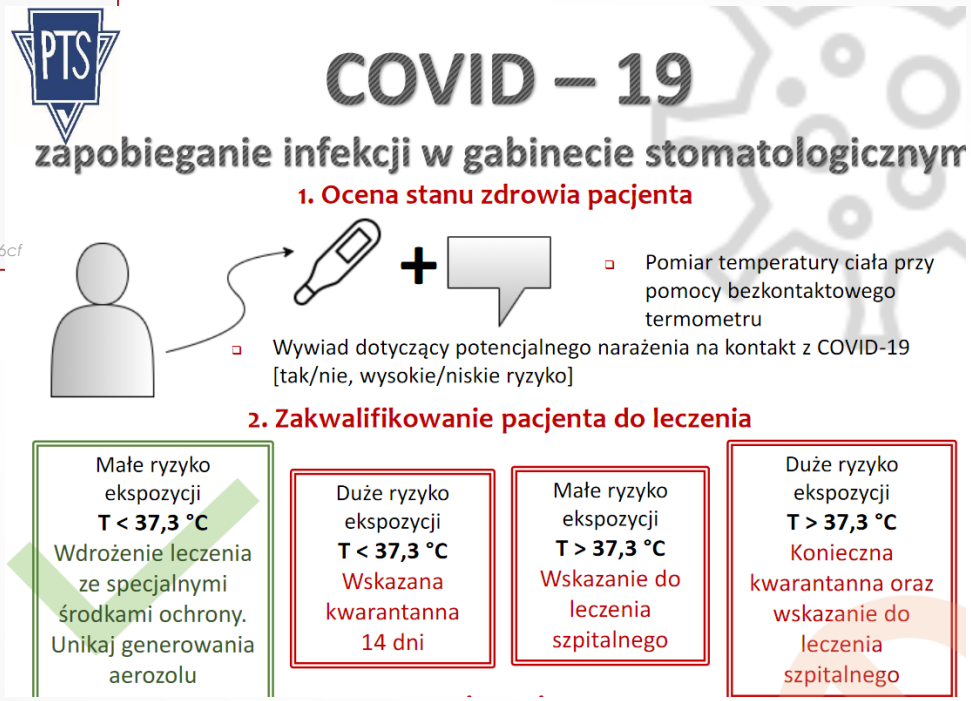
Jeśli którakolwiek odpowiedź w wywiadzie epidemiologicznym jest pozytywna odstępujemy od wizyty i w zależności od aktualnych komunikatów Głównego Inspektora Sanitarnego i stanu pacjenta rekomendujemy:

a. **Kontakt z lokalną stacją sanepidarno-epidemiologiczną w każdej wątpliwej sytuacji**
b. **Wysłanie pacjenta na kwarantannę domową 14 dni (na etapie samej rejestracji uważamy że jest możliwe wydanie takiej rekomendacji mając na uwadze procedury GIS z dnia 14 lutego 2020 r. Należy również rozważyć farmakologiczne zabezpieczenie Pacjenta na drodze rozwiązań telemedycznych – e-konsultacja oraz e-recepta**

Inne sytuacje występujące przy negatywnym wywiadzie epidemiologicznym i bez objawów grypopochodnych:

- Temperatura ciała poniżej 37,3 – stan nagły – bez objawów grypopochodnych – rekomendacja wizyty
- Temperatura ciała powyżej 37,3 niższa niż 37,9 – stan nagły – bez innych objawów grypopochodnych – rekomendacja wizyty
- Temperatura ciała powyżej 37,3 niższa niż 37,9 – stan nagły – z objawami grypopochodnych – do decyzji lekarza prowadzącego względem korzyści wynikających z podjęcia leczenia a skutków odroczenia wizyty
- Temperatura ciała powyżej 37,9 – stan nagły – przekazanie informacji do stacji sanepidarno-epidemiologicznej, postępowanie z ich wskazaniami, przekazanie Pacjenta pod opiekę jednostki zakaźnej celem weryfikacji epidemiologicznej pacjenta.

Źródło: https://pts.net.pl/centrum-wiedzy-covid-19-a-praca-lekarza-dentysty/#1584609992230-9de403ef-f6cf



Źródło: COVID-19 a praca lekarza dentysty: wytyczne PTS uaktualnione https://pts.net.pl/covid-19-a-praca-lekarza-dentysty-wytyczne-pts-uaktualnione/#przed-przyjecie

w poczekalni

1. Wywiad epidemiologiczny ze zwróceniem uwagi na przyjmowane środki przeciwbólowe i przeciwzapalne
2. Pomiar temperatury w miejscach ucieplonych
3. Myje i/lub dezynfekuje ręce
4. Maski ochronne i/lub rękawiczki foliowe
5. Pozostawia wierzchnią odzież ochronną i rzeczy osobiste w poczekalni

W gabinecie stomatologicznym

1. Pacjent po podpisaniu zgody na leczenie i zajęciu miejsca na fotelu stomatologicznym zdejmuje maskę ochronna wkładając ja do kieszonki śliniaka dentystycznego
2. Płucze jamę ustna roztworem alkoholowym chlorheksydyny lub roztworem wodnym wody utlenionej

Zmniejszenie kontaktu personelu ze śliną pacjenta

Rekomenduje się, aby zastąpić wykonywanie zdjęć wewnątrzustnych zębowych zdjęciem pantomograficznym (półpantomogramem lub wycinkiem pantomogramu) lub tomografią stożkową CBCT ze względu na kontakt personelu ze śliną pacjenta w trakcie wykonywania zdjęć wewnątrzustnych oraz jej zwiększoną produkcję u pacjenta pod wpływem założonego detektora do jamy ustnej.

Mycie rąk	WHO zaleca mycie rąk zgodnie z zasadą dwa-przed-i-trzy-po **Przed** użyciem środków dezynfekcyjnych **Po:** kontakcie z pacjentem, narażeniu na aerozol, leczeniu
Środki Ochrony Osobistej	Stosuj jednorazowe czepki na włosy, maska chirurgiczna (rekomendowane w filtrem HEPA), rękawiczki, fartuchy chirurgiczne. Używaj przyłbicy lub gogli.
Płukanie jamy ustnej	Usunie drobnoustroje obecne w jamie ustnej. Rekomendowane stosowanie 1 % nadtlenku wodoru lub 0,2% Povidine
Koferdam	Zredukuje rozpylanie aerozolu
Narzędzia ręczne i wysoka siła ssania	Narzędzia ręczne redukują ilość generowanego aerozolu
Częste dezynfekowanie	Dezynfekuj wszystkie miejsca do dostępne pacjentom, poza gabinetem również poczekalnie i rejestrację. Pamiętaj o wietrzeniu pomieszczeń
RTG	Rekomendowane RTG pantomograficzne i/lub CBCT

Źródło Powrót do planowych bezpyłowych zabiegów stomatologicznych – webinar/zalecenia- Wykładowca prof. Marzena Dominiak https://pts.net.pl/wp-content/uploads/2020/05/Webinar-PTS-Sirona-Dentsply.pdf ; https://pts.net.pl/wp-content/uploads/2020/03/Plakat_covid-19.pdf

OBJAWY
SYMPTOMS

COVID-19 affects different people in different ways. Most infected people will develop mild to moderate illness and recover without hospitalization.

Most common symptoms:

- fever.
- dry cough.
- tiredness.

Less common symptoms:

- aches and pains.
- sore throat.
- diarrhoea.
- conjunctivitis.
- headache.
- loss of taste or smell.
- a rash on skin, or discolouration of fingers or toes.

Serious symptoms:

- difficulty breathing or shortness of breath.
- chest pain or pressure.
- loss of speech or movement.

Seek immediate medical attention if you have serious symptoms. Always call before visiting your doctor or health facility.

People with mild symptoms who are otherwise healthy should manage their symptoms at home.

On average it takes 5–6 days from when someone is infected with the virus for symptoms to show, however it can take up to 14 days.

Source: https://www.who.int/health-topics/coronavirus#tab=tab_3

The main symptoms of coronavirus are:

- **high temperature** – this means you feel hot to touch on your chest or back (you do not need to measure your temperature)
- **new, continuous cough** – this means coughing a lot for more than an hour, or 3 or more coughing episodes in 24 hours (if you usually have a cough, it may be worse than usual)
- **loss or change to your sense of smell or taste** – this means you've noticed you cannot smell or taste anything, or things smell or taste different to normal

Most people with coronavirus have at least one of these symptoms.

Source: https://www.nhs.uk/conditions/coronavirus-covid-19/check-if-you-have-coronavirus-symptoms/

ECDC REPORT — **Coronavirus disease (COVID-2019) and supply of substances of human origin in the EU/EEA**

The virus is transmitted from human to human via droplets coughed or exhaled by infected persons and by touching droplet-contaminated surfaces or objects and then touching the eyes, nose or mouth [4,5]. The most commonly reported clinical symptom in laboratory-confirmed cases is fever (88%), followed by a dry cough (68%), fatigue (38%), sputum production (33%), dyspnoea (19%), sore throat (14%), headache (14%) and myalgia or arthralgia (15%) [11]. Less common symptoms are diarrhoea (4%) and vomiting (5%). Around 80% of the reported cases in China had mild-to-moderate disease (including non-pneumonia and pneumonia cases), 13.8% had severe disease and 6.1% were critical (respiratory failure, septic shock, and/or multiple organ dysfunction/failure) [12-14].

Source: www.ecdc.europa.eu/sites/default/files/documents/covid-19-supply-substances-human-origin.pdf

SCTT sp. z o.o.
NZOZ Akademicka
Poliklinika Stomatologiczna

Algorytm Postępowania (COVID-19) Sala kliniczna

Czy Twój Pacjent ma objawy grypopochodne takie jak gorączka, kaszel lub duszności?

TAK

Wstrzymaj kontynuacje wizyty. Dokonaj pomiaru temperatury ciała oraz dokonaj ponownej ankiety epidemiologicznej.

Temperatura Pacjenta **poniżej 37,4°C** oraz negatywny wynik ankiety epidemiologicznej

Możesz rozpocząć badanie stomatologiczne lub kontynuować leczenie

Temperatura Pacjenta **powyżej 37,4°C** oraz negatywny wynik ankiety epidemiologicznej

Wyznacz termin kolejnej wizyty

NIE

Możesz rozpocząć badanie stomatologiczne lub kontynuować leczenie

Jeśli osoba podróżowała i przebywała w regionie, w którym podejrzewa się utrzymującą się transmisję SARS-CoV-2 lub miała bliski kontakt z osobą, u której stwierdzono prawdopodobieństwo zakażenia SARS-CoV-2 lub przebywała jako odwiedzający w jednostce opieki zdrowotnej, w której leczono pacjentów zakażonych SARS-CoV-2

PAMIĘTAJ!

W pierwszej kolejności zachowaj spokój.

Jeśli nie wiesz co robić, poproś o pomoc bezpośredniego przełożonego/lekarza prowadzącego/kierownika poradni.

Wirus SARS-CoV-2 nie stanowi najprawdopodobniej znacząco większego zagrożenia niż wirus grypy sezonowej A/H1N1 natomiast pamiętaj o procedurach i swoim bezpieczeństwie.

Okres wylęgania COVID-19 wynosi od 2 do 14 dni, przeciętnie 3-5 dni. Początkowe objawy to:
gorączka, dreszcze, uczucie zmęczenia, kaszel, zapalenie spojówek, bóle mięśni, stawów, głowy

Pamiętaj o zabezpieczeniu siebie i osób, które miały styczność z Pacjentem.

Przypominamy o obowiązku należytej staranności przy zabiegach dezynfekcyjnych rąk oraz unikaniu bezpośredniego kontaktu dłoni z okolicami twarzy (szczególnie oczy, nos, usta). Należy stosować standardowe procedury higieniczne podczas pracy z Pacjentem, takie jak dezynfekcja oraz używać środków ochronnych koniecznych podczas kontaktu z tkankami, wydzielinami lub materiałami szkodliwymi (rękawice, fartuchy, maski, okulary, fartuchy itp.)

Ostateczna decyzja o podjęciu leczenia u każdego pacjenta, w szczególności u pacjentów z grup ryzyka (cukrzyca itd.) należy do lekarza prowadzącego, uwzględniając korzyści wynikające z podjętych procedur medycznych, a skutki odroczenia wizyty.

Niezwłoczne przekazanie informacji do Koordynatora ds. Optymalizacji Procesów Leczenia lub osoby przez niego wyznaczonej celem wprowadzenia postępowania wg algorytmu kwalifikacji osób do postępowania epidemiologicznego oraz medycznego

Wdrożenie czynności zgodnych z aktualnymi komunikatami **Głównego Inspektora Sanitarnego**.

Separacja Pacjenta w asyście Lekarza Prowadzącego do miejsca wskazanego przez Koordynatora ds. Optymalizacji Procesów Leczenia bądź osoby przez niego wyznaczonej najszybszą możliwą drogą.

Przygotowanie przez personel spisu osób znajdujących się w gabinecie w chwili przyjęcia danego Pacjenta

Przekazanie zestawu ***DIAGNO*** do miejsca izolacji

Zabezpieczenie Pacjenta do czasu decyzji Wojewódzkiej Stacji Sanitarno-Epidemiologicznej

PYTANIA ANKIETY EPIDEMIOLOGICZNEJ:

1. Czy przebywał Pan/Pani w kraju/regionie ryzyka wskazanych przez WHO i GIS?
2. Czy miał Pan/Pani kontakt z osobami z obszarów zagrożonych?
3. Czy miał Pan/Pani kontakt z osobami z NCoViD19?
4. Czy miał Pan/Pani kontakt z osobami poddanymi kwarantannie?
5. Czy miał Pan/Pani gorączkę, kaszel, katar, zapalenie spojówek lub trudności w oddychaniu/duszności?

Źródło: pts.net.pl/wp-content/uploads/2020/03/Algorytm-Post%C4%99powania-sala-kliniczna.pdf

ŚRODKI OCHRONY OSOBISTEJ

PERSONAL PROTECTIVE EQUIPMENT

20 March 2020

Coronavirus disease 2019 (COVID-19) and supply of substances of human origin in the EU/EEA

Table 1. Minimal composition for PPE set to manage suspected or confirmed cases of 2019-nCoV

Protection	Suggested PPE
Respiratory protection	FFP2 or FFP3 respirator
Eye protection	Goggles or face shield
Body protection	Long-sleeved water-resistant gown
Hand protection	Gloves

Respiratory protection

The respirator protects from the inhalation of droplets and particles. Given that the fitting of different types of respirator will vary for each user, the respirator will require a fitting test in order to find the best match of PPE to user.

In the event of the need to assess a suspected case or in the management of a confirmed case, ECDC suggests the use of filtering face piece (FFP) respirators class 2 or 3 (FFP2 or FFP3). An FFP3 respirator should always be used when performing aerosol-generating procedures.

Eye protection

To prevent exposure of the eye mucosa to the virus, goggles or a face shield should be considered. It is important that the goggles fit the contours of the user's face and are compatible with the respirator.

Body protection

Long-sleeved water-resistant gowns should be used. This PPE does not need to be sterile, unless used in a sterile environment (e.g. operating room).

If water-resistant gowns are not available, single-use plastic aprons can be used on top of the non-water-resistant gowns to prevent body contamination.

Hand protection

Gloves should be used when managing suspected or confirmed 2019-nCoV patients.

For more detailed information on the PPE for management of high consequence infectious diseases, please refer to the ECDC technical document Safe use of personal protective equipment in the treatment of infectious diseases of high consequence [5].

https://www.ecdc.europa.eu/sites/default/files/documents/COVID%2019-supply-substances-human-origin-first-update.pdf

Zestaw PPE powinien zawierać środki:

- ***ochraniające drogi oddechowe***: *maski o standardzie Filtering Face Piece 2 (FFP2) lub 3 (FFP3) oraz maseczka chirurgiczna*
- ***zabezpieczające oczy*** *– gogle lub przyłbica*
- ***ochraniające ciało*** *– fartuch medyczny ochronny oraz jednorazowe czepki*
- ***ochraniające ręce*** *– rękawiczki*

W każdej sytuacji zanieczyszczenia maseczki chirurgicznej należy ją wymienić, zachowując zasady bezpieczeństwa.

Przyłbica poniżej linii brody. Rękawice powinny zakrywać nadgarstek i mankiety fartucha.

Źródło: https://pts.net.pl/covid-19-a-praca-lekarza-dentysty-wytyczne-pts-uaktualnione/#przed-przyjecie

Kolejność zakładania PPE powinna wyglądać następująco:

1.dezynfekcja rąk
2.założyć fartuch jednorazowy
3.założenie maski ffp-2
4.założenie maski chirurgicznej
5.założenie gogli ochronnych lub przyłbicy (przyłbica zachodząca do linii brody)
6.założenie rękawiczek (rękawice powinny zakrywać nadgarstki oraz mankiety fartucha)

Kolejność zdejmowania środków ochrony indywidualnej:

1.dezynfekcja rąk
2.zdjęcie rękawiczek
3.dezynfekcja rąk i założenie nowej pary rękawiczek
4.zdjęcie fartucha
5.dezynfekcja rąk
6.zdjęcie maski/przyłbicy
7.dezynfekcja rąk
8.zdjęcie maseczki
9.dezynfekcja rąk oraz zdjęcie rękawiczek
10.mycie ostateczne oraz dezynfekcja rąk

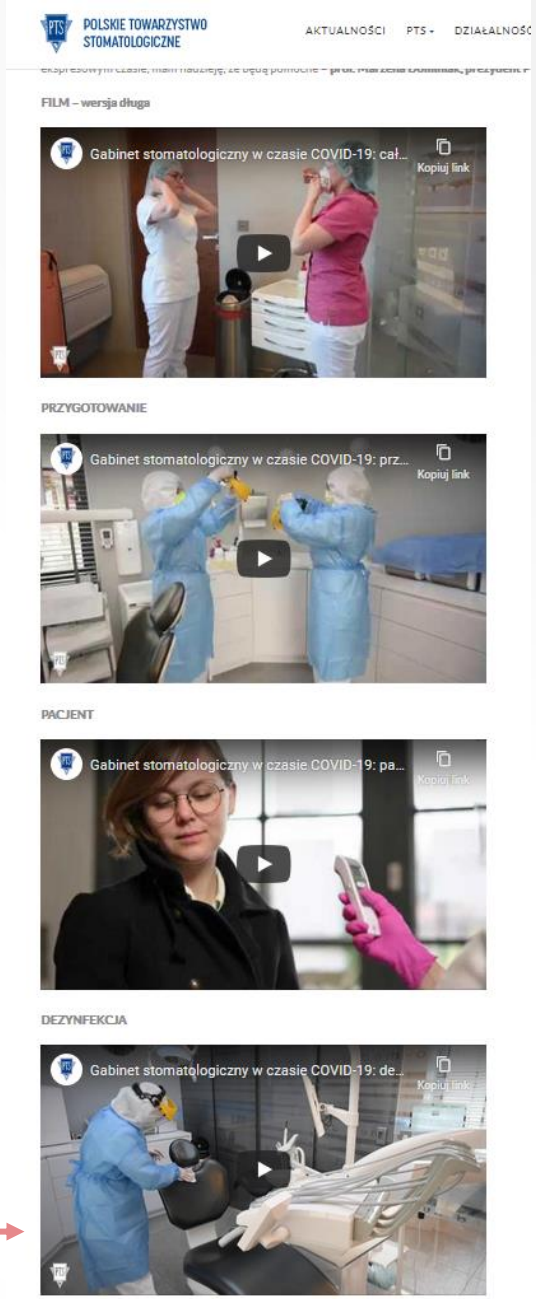
Uwagi:

W przypadku jeśli w procedurze uczestniczy druga osoba, lub jest obecna w pomieszczeniu gdy wykonywana jest procedura, w czasie której tworzy się aerozol, również powinna być ona ubrana w PPE (maska, fartuch, rękawiczki) i stosować te same zalecenia co lekarz.
Nie dotykać powierzchni i przedmiotów rękami ubranymi w rękawice, które były używane w czasie wykonywania procedury stomatologicznej. Pamiętać o dekontaminacji dotykanych przedmiotów i powierzchni. W szczególności należy unikać dotykania rękami okolicy swojej twarzy.

Zdejmowanie PPE jest procedurą wymagającą szczególnej uwagi, ponieważ materiał zakaźny może się znajdować na zewnętrznej powierzchni PPE. Przy nieprawidłowym lub niestarannym zdejmowaniu PPE może dojść do przypadkowej kontaminacji i późniejszego zakażenia. Sprzęt jednorazowy zaraz po zdjęciu powinno się wyrzucić do kosza na odpady zakaźne. Sprzęt wielorazowy (np. przyłbica) należy po użyciu umieścić w pojemniku przeznaczonym na zanieczyszczony sprzęt medyczny i przed następnym użyciem poddać dekontaminacji zgodnie z zaleceniem producenta. Jako pierwsze zdejmuje się rękawiczki (po uprzednim zdezynfekowaniu), w sposób minimalizujący kontaminację rąk.

Następnie należy zdezynfekować ręce i założyć nową parę rękawiczek. Po założeniu nowej pary rękawiczek zdejmuje się fartuch. W tym celu należy chwycić tył fartucha i odciągając od ciała zanieczyszczoną przednią część, zawinąć do środka i wywinąć rękawy na zewnątrz (należy unikać dotykania przedniej zanieczyszczonej części fartucha). Ręce należy zdezynfekować. Następnie zdejmuje się gogle/przyłbicę, nie dotykając ich przedniej strony, po czym ponownie dezynfekuje ręce.

Kolejne kroki to: zdjęcie maseczki (należy chwycić za paski i ostrożnie zdjąć maskę, uważając, aby nie dotknąć jej zewnętrznej powierzchni), dekontaminacja rąk, zdjęcie rękawiczek założonych przed zdjęciem fartucha i ponowna dekontaminacja rąk. Jeśli przy zdejmowaniu PPE uczestniczy osoba asystująca, ona również powinna być ubrana w PPE (maskę chirurgiczną i rękawiczki) i stosować zasadę dekontaminacji rąk po każdej czynności przy zdejmowaniu PPE.
PPE należy założyć tuż przed wejściem na salę chorego oraz zdjąć w wyznaczonym miejscu przy wyjściu, przy którym powinny się znaleźć również kosz na jednorazowe PPE oraz sprzęt niezbędny do higieny rąk.

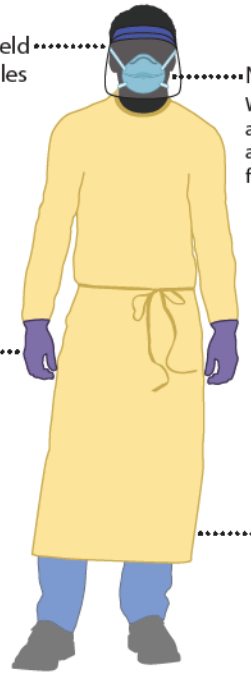


Instruktaż i filmy instruktażowe opublikowane na stronie Polskiego Towarzystwa Stomatologicznego.

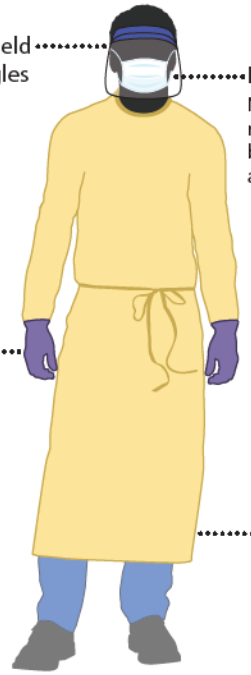
Źródło: pts.net.pl/centrum-wiedzy-covid-19-a-praca-lekarza-dentysty/#1584609992230-9de403ef-f6cf

COVID-19 Personal Protective Equipment (PPE) for Healthcare Personnel

Preferred PPE – Use | **N95 or Higher Respirator**



Acceptable Alternative PPE – Use | **Facemask**



cdc.gov/COVID19

CS 315838-C 03/23/2020

Demonstration of Donning (Putting On) Personal Protective Equipment (PPE)

Demonstration of Doffing (Taking Off) Personal Protective Equipment (PPE)

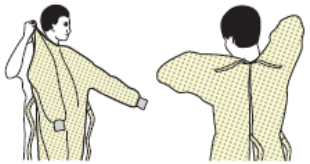
For further instructions and Demonstrations of Donning and Doffing go to www.cdc.gov/coronavirus/2019-ncov/hcp/using-ppe.html

SEQUENCE FOR PUTTING ON PERSONAL PROTECTIVE EQUIPMENT (PPE)

The type of PPE used will vary based on the level of precautions required, such as standard and contact, droplet or airborne infection isolation precautions. The procedure for putting on and removing PPE should be tailored to the specific type of PPE.

1. GOWN

- Fully cover torso from neck to knees, arms to end of wrists, and wrap around the back
- Fasten in back of neck and waist



2. MASK OR RESPIRATOR

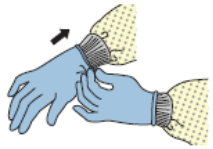
- Secure ties or elastic bands at middle of head and neck
- Fit flexible band to nose bridge
- Fit snug to face and below chin
- Fit-check respirator

3. GOGGLES OR FACE SHIELD

- Place over face and eyes and adjust to fit

4. GLOVES

- Extend to cover wrist of isolation gown



USE SAFE WORK PRACTICES TO PROTECT YOURSELF AND LIMIT THE SPREAD OF CONTAMINATION

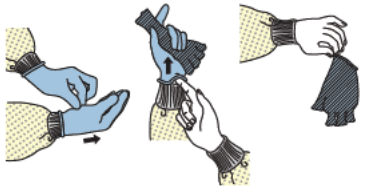
- Keep hands away from face
- Limit surfaces touched
- Change gloves when torn or heavily contaminated
- Perform hand hygiene

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 1

There are a variety of ways to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. Here is one example. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GLOVES

- Outside of gloves are contaminated!
- If your hands get contaminated during glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Using a gloved hand, grasp the palm area of the other gloved hand and peel off first glove
- Hold removed glove in gloved hand
- Slide fingers of ungloved hand under remaining glove at wrist and peel off second glove over first glove
- Discard gloves in a waste container



2. GOGGLES OR FACE SHIELD

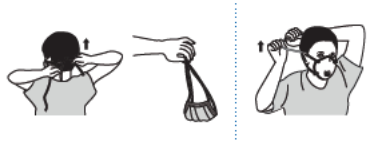
- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band or ear pieces
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

3. GOWN

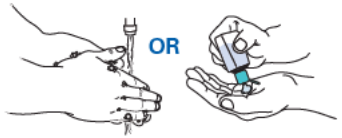
- Gown front and sleeves are contaminated!
- If your hands get contaminated during gown removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Unfasten gown ties, taking care that sleeves don't contact your body when reaching for ties
- Pull gown away from neck and shoulders, touching inside of gown only
- Turn gown inside out
- Fold or roll into a bundle and discard in a waste container

4. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container



5. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



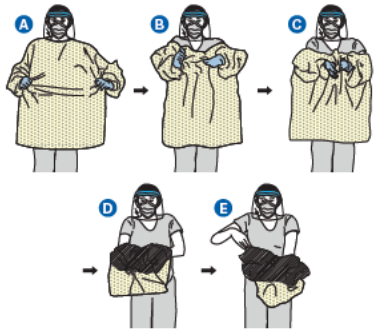
PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

HOW TO SAFELY REMOVE PERSONAL PROTECTIVE EQUIPMENT (PPE) EXAMPLE 2

Here is another way to safely remove PPE without contaminating your clothing, skin, or mucous membranes with potentially infectious materials. **Remove all PPE before exiting the patient room** except a respirator, if worn. Remove the respirator **after** leaving the patient room and closing the door. Remove PPE in the following sequence:

1. GOWN AND GLOVES

- Gown front and sleeves and the outside of gloves are contaminated!
- If your hands get contaminated during gown or glove removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp the gown in the front and pull away from your body so that the ties break, touching outside of gown only with gloved hands
- While removing the gown, fold or roll the gown inside-out into a bundle
- As you are removing the gown, peel off your gloves at the same time, only touching the inside of the gloves and gown with your bare hands. Place the gown and gloves into a waste container



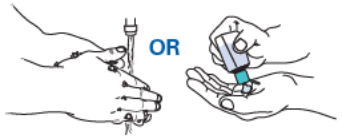
2. GOGGLES OR FACE SHIELD

- Outside of goggles or face shield are contaminated!
- If your hands get contaminated during goggle or face shield removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Remove goggles or face shield from the back by lifting head band and without touching the front of the goggles or face shield
- If the item is reusable, place in designated receptacle for reprocessing. Otherwise, discard in a waste container

3. MASK OR RESPIRATOR

- Front of mask/respirator is contaminated — DO NOT TOUCH!
- If your hands get contaminated during mask/respirator removal, immediately wash your hands or use an alcohol-based hand sanitizer
- Grasp bottom ties or elastics of the mask/respirator, then the ones at the top, and remove without touching the front
- Discard in a waste container

4. WASH HANDS OR USE AN ALCOHOL-BASED HAND SANITIZER IMMEDIATELY AFTER REMOVING ALL PPE



PERFORM HAND HYGIENE BETWEEN STEPS IF HANDS BECOME CONTAMINATED AND IMMEDIATELY AFTER REMOVING ALL PPE

Źródło: www.cdc.gov/niosh/npptl/pdfs/PPE-Sequence-508.pdf

2. **Ochrona ciała**: fartuch jednorazowy - barierowy/wodoodporny, z długimi rękawami, zakrywający kolana. W przypadku braku dostępności takiego fartucha dopuszcza się stosowanie fartucha flizelinowego w takim przypadku optymalnie powinno się założyć na wierzch fartuch foliowy.

Kombinezon jest wyższym poziomem zabezpieczenia i nie jest konieczny w przypadku kontaktu z SARS-CoV-2, ale możliwe jest jego zastosowanie, jeśli jest niedobór odpowiednich fartuchów, a dostępne są kombinezony.

Używanie szczególnych rodzajów obuwia, ochraniaczy na obuwie czy też dodatkowego fartucha nie jest wymagane.

Źródło: pts.net.pl/wp-content/uploads/2020/05/Webinar-PTS-Sirona-Dentsply.pdf

Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19)

Interim guidance
19 March 2020

World Health Organization

Table 1. Recommended personal PPE during the outbreak of COVID-19 outbreak, according to the setting, personnel, and type of activity[a]

Setting	Target personnel or patients	Activity	Type of PPE or procedure
Health care facilities			
Inpatient facilities			
Patient room	Health care workers	Providing direct care to COVID-19 patients	Medical mask Gown Gloves Eye protection (goggles or face shield)
		Aerosol-generating procedures performed on COVID-19 patients	Respirator N95 or FFP2 standard, or equivalent. Gown Gloves Eye protection Apron
	Cleaners	Entering the room of COVID-19 patients	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals) Boots or closed work shoes
	Visitors[b]	Entering the room of a COVID-19 patient	Medical mask Gown Gloves
Other areas of patient transit (e.g. wards, corridors).	All staff, including health care workers.	Any activity that does not involve contact with COVID-19 patients	No PPE required
Triage	Health care workers	Preliminary screening not involving direct contact[c]	Maintain spatial distance of at least 1 metre. No PPE required
	Patients with respiratory symptoms	Any	Maintain spatial distance of at least 1 metre. Provide medical mask if tolerated by patient.
	Patients without respiratory symptoms	Any	No PPE required
Laboratory	Lab technician	Manipulation of respiratory samples	Medical mask Gown Gloves Eye protection (if risk of splash)
Administrative areas	All staff, including health care workers.	Administrative tasks that do not involve contact with COVID-19 patients.	No PPE required

Outpatient facilities			
Consultation room	Health care workers	Physical examination of patient with respiratory symptoms	Medical mask Gown Gloves Eye protection
	Health care workers	Physical examination of patients without respiratory symptoms	PPE according to standard precautions and risk assessment.
	Patients with respiratory symptoms	Any	Provide medical mask if tolerated.
	Patients without respiratory symptoms	Any	No PPE required
	Cleaners	After and between consultations with patients with respiratory symptoms.	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
Waiting room	Patients with respiratory symptoms	Any	Provide medical mask if tolerated. Immediately move the patient to an isolation room or separate area away from others; if this is not feasible, ensure spatial distance of at least 1 metre from other patients.
	Patients without respiratory symptoms	Any	No PPE required
Administrative areas	All staff, including health care workers	Administrative tasks	No PPE required
Triage	Health care workers	Preliminary screening not involving direct contact[c]	Maintain spatial distance of at least 1 metre. No PPE required
	Patients with respiratory symptoms	Any	Maintain spatial distance of at least 1 metre. Provide medical mask if tolerated.
	Patients without respiratory symptoms	Any	No PPE required
Community			
Home	Patients with respiratory symptoms	Any	Maintain spatial distance of at least 1 metre. Provide medical mask if tolerated, except when sleeping.
	Caregiver	Entering the patient's room, but not providing direct care or assistance	Medical mask
	Caregiver	Providing direct care or when handling stool, urine, or waste from COVID-19 patient being cared for at home	Gloves Medical mask Apron (if risk of splash)
	Health care workers	Providing direct care or assistance to a COVID-19 patient at home	Medical mask Gown Gloves Eye protection
Public areas (e.g. schools, shopping malls, train stations).	Individuals without respiratory symptoms	Any	No PPE required

Źródło: apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf

Points of entry			
Administrative areas	All staff	Any	No PPE required
Screening area	Staff	First screening (temperature measurement) not involving direct contact[c]	Maintain spatial distance of at least 1 metre. No PPE required
	Staff	Second screening (i.e. interviewing passengers with fever for clinical symptoms suggestive of COVID-19 disease and travel history)	Medical mask Gloves
	Cleaners	Cleaning the area where passengers with fever are being screened	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
Temporary isolation area	Staff	Entering the isolation area, but not providing direct assistance	Maintain spatial distance of at least 1 metre. Medical mask Gloves
	Staff, health care workers	Assisting passenger being transported to a health care facility	Medical mask Gown Gloves Eye protection
	Cleaners	Cleaning isolation area	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes
Ambulance or transfer vehicle	Health care workers	Transporting suspected COVID-19 patients to the referral health care facility	Medical mask Gowns Gloves Eye protection
	Driver	Involved only in driving the patient with suspected COVID-19 disease and the driver's compartment is separated from the COVID-19 patient	Maintain spatial distance of at least 1 metre. No PPE required
		Assisting with loading or unloading patient with suspected COVID-19	Medical mask Gowns Gloves Eye protection
		No direct contact with patient with suspected COVID-19, but no separation between driver's and patient's compartments	Medical mask
	Patient with suspected COVID-19.	Transport to the referral health care facility.	Medical mask if tolerated
	Cleaners	Cleaning after and between transport of patients with suspected COVID-19 to the referral health care facility.	Medical mask Gown Heavy duty gloves Eye protection (if risk of splash from organic material or chemicals). Boots or closed work shoes

Rational use of personal protective equipment for coronavirus disease (COVID-19): interim guidance

Special considerations for rapid-response teams assisting with public health investigations[d]			
Community			
Anywhere	Rapid-response team investigators	Interview suspected or confirmed COVID-19 patients or their contacts.	No PPE if done remotely (e.g. by telephone or video conference). Remote interview is the preferred method.
		In-person interview of suspected or confirmed COVID-19 patients without direct contact	Medical mask Maintain spatial distance of at least 1 metre. The interview should be conducted outside the house or outdoors, and confirmed or suspected COVID-19 patients should wear a medical mask if tolerated.
		In-person interview with asymptomatic contacts of COVID-19 patients	Maintain spatial distance of at least 1 metre. No PPE required The interview should be performed outside the house or outdoors. If it is necessary to enter the household environment, use a thermal imaging camera to confirm that the individual does not have a fever, maintain spatial distance of at least 1 metre and do not touch anything in the household environment.

Źródło: apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf

„Rekomendacje Światowego Towarzystwa Zdrowia (WHO) dotyczące noszenia ubioru ochronnego pracowników ochrony zdrowia (lekarzy i personelu medycznego) podczas kontaktu z pacjentami z ryzykiem zakażenia COVID-19 [19]:

Ochrona przed zakażeniem z powietrza:
- maski ochronne: N95 lub FFP2
- fartuchy
- rękawiczki
- okulary ochronne

Ochrona podczas kontaktu bezpośredniego:
- maski ochronne: N95 lub FFP2
- fartuchy
- rękawiczki
- Przyłbica

Ochrona personelu sanitarnego (sprzątanie pomieszczeń):
- maski ochronne
- fartuchy
- gumowe rękawice robocze
- okulary ochronne
- buty ochronne”

Więcej na: https://pts.net.pl/centrum-wiedzy-covid-19-a-praca-lekarza-dentysty/#1584621123142-00df3cc2-c61f

Maski
masks

„SARS-CoV-2 – podstawowe środki ochrony przed zakażeniem z powietrza [16]:

•maski jednorazowego użytku *(zwykle jedna warstwa, bardzo cienka): skuteczne tylko w wychwytywaniu większych cząstek wielkości pyłu. Pochłaniają 95% cząsteczki o wielkości do 3 mikrometrów.*

•standardowe maski chirurgiczne*: skuteczne w wychwytywaniu cząsteczek wirusa o rozmiarach 0.1 mikrometra (Standard: YY 0459 I ASTM F2100). Pochłaniają 95% cząsteczki o wielkości do 1 mikrometrów (Standard: YY 0459 I ASTM F2100). Uwaga: maski chirurgiczne w standardzie europejskim (EN 14683) pochłaniają TYLKO cząsteczki o wielkości do 3 mikrometrów.*

•maska respiratorowa*: zwykle wychwytują> 90% cząstek wielkości wirusa. Możesz użyć systemu ocen w powyższej tabeli, aby zobaczyć dokładną proporcję każdej wymaganej certyfikacji.*

Maski ochronne mogą różnić się w zależności od regionu, na który są produkowane dlatego do oceny maski należy stosować odpowiednie oznaczenia:

FFP1 i P1 *Co najmniej 80% filtracji wszystkich cząstek o średnicy 0,3 mikrona lub większych.*
FFP2 i P2 *Co najmniej 94% filtracji wszystkich cząstek o średnicy 0,3 mikrona lub większych.*
N95 *Co najmniej 95% filtracji wszystkich cząstek o średnicy 0,3 mikrona lub większych.*
N99 i FFP3 *Co najmniej 99% filtracji wszystkich cząstek o średnicy 0,3 mikrona lub większych.*
P3 *Co najmniej 99,95% filtracji wszystkich cząstek o średnicy 0,3 mikrona lub większych.*
N100 *Co najmniej 99,97% filtracji wszystkich cząstek o średnicy 0,3 mikrona lub większych.*

UWAGA: *Jako, że wielkość wirusa SARS-CoV-2 wynosi 0.06-0.14 mikrometra to żadna maska nie zapewnia dobrej ochrony przed wirusem znajdującym się w powietrzu. Jednakże, noszenie maski u osób zainfekowanych zmniejsza ryzyko zakażania osób zdrowych drogą powietrza, dlatego WHO zgodnie z zaleceniami z dnia 27.02.2020 roku rekomenduje noszenie masek ochronnych o osób z symptomami infekcji układu oddechowego (kaszel, kichanie). Ponadto u wszystkich pacjentów zabezpiecza przed niekontrolowanym dotykiem własnymi palcami twarzy."*

Źródło: pts.net.pl/centrum-wiedzy-covid-19-a-praca-lekarza-dentysty/#1584621123142-00df3cc2-c61f

Recommendations for the re-opening of dental services: a rapid review of international sources

6 May 2020

Substantial update 16 May 2020

COVID-19 Dental Services Evidence Review (CoDER) Working Group

Version 1.3 – 16th May 2020 includes 16 countries (5 new added)

NHS Education for Scotland · Cochrane Oral Health · SDCEP · University of Aberdeen · University of Dundee · Manchester 1824 The University of Manchester

Key messages

- This review reports on national recommendations for the re-structuring and re-opening of dental services from 16 countries.
- There is a highly variable level of detail given across international sources.
- Most sources recommend patient triage by telephone; some recommend also temperature screening at reception.
- Most sources recommend avoiding aerosol generating procedures (AGPs), if possible.
- Most sources recommend surgical masks for non-COVID-19 cases not requiring AGPs.
- Most sources recommend filtering facepiece class 2 (FFP2, equivalent to N95) masks for non-COVID-19 cases undergoing AGPs and all suspected or confirmed COVID-19 cases undergoing any procedure.
- Sources include recommendations on how to reduce the risk of transmission (e.g. use of pre-operative mouthwashes; high volume suction; rubber dam; and Personal Protective Equipment [PPE]).
- Most sources recommend cleaning and disinfection procedures.
- Across sources, for most statements there is no referenced, underpinning evidence and some of them are unlikely to have strong (or any) research evidence.
- All sources emphasise the need to focus on activities that minimise risk (to staff/patients/public) but still support high quality clinical care.
- There is a need to consider the inter-relationship between the appropriate use of PPE (including donning and doffing), AGPs and interventions to reduce aerosol generation.

Źródło: oralhealth.cochrane.org/sites/oralhealth.cochrane.org/files/public/uploads/covid19_dental_review_16_may_2020_update.pdf

Understanding the Difference

	Surgical Mask	N95 Respirator	Elastomeric Half Facepiece Respirator
Testing and Approval	Cleared by the U.S. Food and Drug Administration (FDA)	Evaluated, tested, and approved by NIOSH as per the requirements in 42 CFR Part 84*	Evaluated, tested, and approved by NIOSH as per the requirements in 42 CFR Part 84
Intended Use and Purpose	Fluid resistant and provides the wearer protection against large droplets, splashes, or sprays of bodily or other hazardous fluids. Protects the patient from the wearer's respiratory emissions.	Reduces wearer's exposure to particles including small particle aerosols and large droplets (only non-oil aerosols)	Reusable device made of synthetic or rubber material
Face Seal Fit	Loose-fitting	Tight-fitting	Tight-fitting
Fit Testing Requirement	No	Yes	Yes
Designed for Reuse	No	No	Yes
User Seal Check	No	Yes. Required each time the respirator is donned (put on)	Yes. Required each time the respirator is donned (put on)
Filtration	Does NOT provide the wearer with a reliable level of protection from inhaling smaller airborne particles and is not considered respiratory protection	Filters out at least 95% of airborne particles including large and small particles	May be equipped with filters that block 95%, 99%, or 100% of very small particulates. Also may be equipped to protect against vapors/gases.
Leakage	Leakage occurs around the edge of the mask when user inhales	When properly fitted and donned, minimal leakage occurs around edges of the respirator when user inhales	When properly fitted and donned, minimal leakage occurs around edges of the respirator when user inhales
Use Limitations	Disposable. Discard after each patient encounter.	Ideally should be discarded after each patient encounter and after aerosol-generating procedures. It should also be discarded when it becomes damaged or deformed; no longer forms an effective seal to the face; becomes wet or visibly dirty; breathing becomes difficult; or if it becomes contaminated with blood, respiratory or nasal secretions, or other bodily fluids.	Reusable and must be cleaned/ disinfected and stored between each patient interaction

Centers for Disease Control and Prevention
National Institute for Occupational Safety and Health

Resources:
Hospital Respiratory Protection Program Toolkit
http://www.cdc.gov/niosh/docs/2015-117/pdfs/2015-117.pdf
Implementing Hospital Respiratory Protection Programs: Strategies from the Field
https://www.jointcommission.org/assets/1/18/Implementing_Hospital_RPP_2-19-15.pdf

Źródło: www.cdc.gov/niosh/npptl/pdfs/UnderstandingDifference3-508.pdf

Varsoy HEALTHCARE

MASK PROTECTION EFFICIENCY

?

[redacted]

N95

STRONGEST PROTECTION

Virus	95%
Bacterial	100%
Dust	100%
Pollen	100%

SURGICAL MASK

MEDICAL USE

Virus	95%
Bacterial	80%
Dust	80%
Pollen	80%

FFP1 MASK

ISOLATE SUSPENDED PARTICLES

Virus	95%
Bacterial	80%
Dust	80%
Pollen	80%

ACTIVATE CARBON

STOP ODOR

Virus	10%
Bacterial	50%
Dust	50%
Pollen	50%

CLOTH MASK

DIY

Virus	0%
Bacterial	50%
Dust	50%
Pollen	50%

SPONGE MASK

FASHION USE

Virus	00%
Bacterial	05%
Dust	05%
Pollen	05%

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NIOSH Science Blog

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Respiratory Protection During Outbreaks: Respirators versus Surgical Masks

Posted on April 9, 2020 by Christopher Coffey, Ph.D; Maryann M. D'Alessandro, PhD; and Jaclyn Krah Cichowicz, MA

When worn by healthcare professionals, FFRs are designed to protect the wearer and surgical masks are designed to protect the patient

When worn properly, FFRs are designed to protect the wearer (e.g., healthcare worker) by removing at least 95% of particles from inhaled air. The National Institute for Occupational Safety and Health (NIOSH) regulates FFRs by using stringent test conditions to evaluate these devices, approving those that meet a minimum filtration efficiency requirement for occupational use. However, to provide this expected level of protection, an FFR must seal to the wearer's face, without allowing air leaks to pass through gaps between the respirator and the wearer's skin. FFRs also provide a physical barrier to protect the wearer's mouth and nose from being touched by contaminated hands or gloves.

Surgical masks, on the other hand, are not specifically designed to protect the wearer from airborne hazards. These devices limit the spread of infectious particles expelled by the wearer. They are used to help protect a sterile field, such as the area surrounding the site of a surgical incision, from contamination by particles expelled by the wearer, such as those generated by coughs or sneezes. Surgical masks also help provide a physical barrier to protect the wearer from splashes, sprays, or contact with contaminated hands. The Food and Drug Administration (FDA) regulates surgical masks. The FDA regulations do not require surgical masks to form a seal against the user's face or to have a level of filtration that provides the user protection from aerosol exposures.

Scientific studies have shown properly-fitted and worn N95 respirators provide greater protection than surgical masks

Recently, there has been discussion whether N95 FFRs or surgical masks should be the recommended minimum level protection for use in healthcare facilities during outbreaks of infectious diseases. Since the results of studies comparing effectiveness of N95 FFRs and surgical masks are inconsistent, it could not be determined if surgical masks provided comparable protection to healthcare professionals as N95 FFRs.[1-4] It should be noted that respirators are designed to reduce the wearer's exposure to airborne particles. Respirators do not make claims regarding disease prevention. To determine the effectiveness of respirators in the workplace, it is important to verify the performance of the respirator and ensure the wearer is protected.5 Laboratory studies have demonstrated that FFRs provide greater protection against aerosols compared with surgical masks[6,7]; however, the results of clinical studies have been inconclusive.[1-4, 8]

During times of shortage, it is important to prioritize N95 respirators for aerosol-generating procedures. When the supply chain is restored, facilities with a respiratory protection program should follow established OSHA and CDC guidelines to protect healthcare workers in cases of airborne transmissible diseases, as described in the Hospital Respiratory Protection Program Toolkit.

+ An **N95 respirator** is a respiratory protective device designed to achieve a very close facial fit and very efficient filtration of airborne particles. Note that the edges of the respirator are designed to form a seal around the nose and mouth.

+Maski N95 zapewniają bardzo dokładne dopasowanie do twarzy- wokół nosa i ust.

Źródło: blogs.cdc.gov/niosh-science-blog/2020/04/09/masks-v-respirators/

BRIEF COMMUNICATION
https://doi.org/10.1038/s41591-020-0843-2

nature medicine

Check for updates

Respiratory virus shedding in exhaled breath and efficacy of face masks

Nancy H. L. Leung[1], Daniel K. W. Chu[1], Eunice Y. C. Shiu[1], Kwok-Hung Chan[2], James J. McDevitt[3], Benien J. P. Hau[1,4], Hui-Ling Yen[1], Yuguo Li[5], Dennis K. M. Ip[1], J. S. Malik Peiris[1], Wing-Hong Seto[1,6], Gabriel M. Leung[1], Donald K. Milton[7,8] and Benjamin J. Cowling[1,8] ✉

We identified seasonal human coronaviruses, influenza viruses and rhinoviruses in exhaled breath and coughs of children and adults with acute respiratory illness. Surgical face masks significantly reduced detection of influenza virus RNA in respiratory droplets and coronavirus RNA in aerosols, with a trend toward reduced detection of coronavirus RNA in respiratory droplets. Our results indicate that surgical face masks could prevent transmission of human coronaviruses and influenza viruses from symptomatic individuals.

Respiratory virus infections cause a broad and overlapping spectrum of symptoms collectively referred to as acute respiratory virus illnesses (ARIs) or more commonly the 'common cold'. Although mostly mild, these ARIs can sometimes cause severe disease and death[1]. These viruses spread between humans through direct or indirect contact, respiratory droplets (including larger droplets that

medically attended ARIs and determining the potential efficacy of surgical face masks to prevent respiratory virus transmission.

Results

We screened 3,363 individuals in two study phases, ultimately enrolling 246 individuals who provided exhaled breath samples (Extended Data Fig. 1). Among these 246 participants, 122 (50%) participants were randomized to not wearing a face mask during the first exhaled breath collection and 124 (50%) participants were randomized to wearing a face mask. Overall, 49 (20%) voluntarily provided a second exhaled breath collection of the alternate type.

Infections by at least one respiratory virus were confirmed by reverse transcription PCR (RT–PCR) in 123 of 246 (50%) participants. Of these 123 participants, 111 (90%) were infected by human (seasonal) coronavirus ($n = 17$), influenza virus ($n = 43$) or rhinovi-

https://doi.org/10.1038/s41591-020-0843-2.pdf

Wielokrotność użycia

Jak i gdzie przechowujemy?

Jednorazowy użytek

Wyrzucamy ✓

OSHA Guidance for Dentistry Workers and Employers ADA

Do OSHA regulations require the use of N95 masks during aerosol generating procedures?

The OSHA Respiratory Protection Standard requires that respirators, such as N95 masks, be used any time there is a respiratory hazard and effective engineering controls are not feasible or while they are being instituted.

If the hazard assessment conducted by an employer dentist determines that workers will be exposed to airborne contaminants, including aerosols containing SARS-CoV-2, that cannot be mitigated by the systems or controls put in place to protect them, the employer should consider implementing and following the respiratory protection standard.

According to the Guidance, aerosol-generating procedures performed on patients who are well are considered high risk procedures and the Guidance recommends, but does not require, that dentistry workers wear N95 masks when performing those procedures.

The Guidance does require the use of N95 masks any time dentistry workers treat patients who are known to have tested positive for COVID-19 or who are suspected of having COVID-19. Pre-screening patients for symptoms of COVID-19, by phone and/or upon arrival for treatment, increases the likelihood those with COVID-19 symptoms will not be seen and treated. Of course, it's important to keep in mind some people with COVID-19 remain asymptomatic.

Wielokrotność użycia

Jak i gdzie przechowujemy ?

Jednorazowy użytek

Wyrzucamy ✓

Źródło: success.ada.org/~/media/CPS/Files/COVID/OSHA_Guidance_For_Dentistry_Workers_And_Employers.pdf?utm_source=cpsorg&utm_medium=covid-resources-lp-safety&utm_content=cv-safety-osha-guidelines&utm_campaign=covid-19 ; https://pts.net.pl/wp-content/uploads/2020/05/Webinar-PTS-Sirona-Dentsply.pdf

Extending the Use of N95 Masks

ADA

Healthcare workers in all fields have reported difficulties sourcing Personal Protective Equipment (PPE) during the COVID-19 pandemic. Resources are available to help dentists determine when and how to extend the use of N95 masks/respirators while maintaining appropriate infection control.

The **National Institute for Occupational Safety and Health** (NIOSH), as part of its Pandemic Planning resources, has developed a comprehensive resource, Recommended Guidance for Extended Use and Limited Reuse of N95 Filtering Facepiece Respirators in Healthcare Settings, to help dentists and other healthcare personnel assess the applicability of both options. **Masks can provide adequate protection for eight hours of continuous or intermittent use.**

"Extended use" and "Reuse" are defined as follows:

- Extended use refers to continuous wear of the same N95 respirator, without removal between patients, when working on multiple patients.
- Reuse refers to wearing the same N95 mask, with removal between patients for a **maximum of five donnings, when working on multiple patients** *(see "additional steps apply for N95 masks that will be reused," below.)*

You must observe each of the following when reusing or extending the use of N95 masks:

- Conduct a user seal check after each donning.
- Discard any N95 mask contaminated by the patient.
- Discard N95 masks following close contact with patients exhibiting active signs or symptoms of COVID-19 or any other infectious disease.
- Discard any N95 mask that is damaged or difficult to breathe through.
- Consider using a face shield over the N95 masks.
- Perform hand hygiene before and after touching or adjusting the N95 mask.

Additional steps apply for N95 masks that will be reused:

- Masks need to be hung in a designated storage area or kept in a clean, breathable container between uses.
- Stored masks should be organized in such a way that they do not touch one another.
- The user of the mask needs to be clearly identified (e.g., writing the user's name on the straps).
- If the inside of the mask is touched, it needs to be discarded and hand hygiene performed.
- Clean, non-sterile gloves are to be worn when donning an N95 mask or performing a user seal check, after which the gloves are to be discarded.

Extending the Use of N95 Masks

ADA

The **Centers for Disease Control and Prevention's** (CDC) Summary for Healthcare Facilities: Strategies for Optimizing the Supply of N95 Respirators during the COVID-19 Response provides conventional capacity strategies to be incorporated into everyday practices as well as contingency capacity strategies to assist during expected shortages.

The agency also offers a resource on Decontamination and Reuse of Filtering Facepiece Respirators, which offers an additional reuse strategy for disposable N95 masks or filtering face piece respirators (FFR) and notes that:

- A worn N95 mask may be stored in a breathable paper bag for a minimum of five days and then used again.
- Be attentive when doffing the mask, and
- Ensure that the storage bag for each N95 mask is labeled with the user's name and every date worn to ensure the use is properly tracked.

In the **Food and Drug Administration's** Personal Protective Equipment EAUs (Emergency Use Authorization) the FDA offers guidance on reprocessing respirators (N95 masks), which covers such topics as:

- Vapor Phase Hydrogen Peroxide (VPHP) for single-user reuse by healthcare personnel in a healthcare setting

Unsuitable methods for reprocessing that destroy respirator integrity (OSHA also has a page that lists processes not to use):

- Autoclaving, microwaving, dry heat, ionizing radiation, disinfectant wipes, ethylene oxide, isopropyl alcohol, soap, and chlorine bleach.

Additional resources include:

- The Food and Drug Administration's (FDA) Appendix A: Authorized Respirators (updated April 24, 2020) which offers information on authorized manufacturers and products
- FDA Emergency Use Authorization (EUA)
- The ADA's Understanding Mask Types provides an easy-to-follow chart that compares masks, N95 respirators and respirators with EUA, including KN95, KP95, PFF2, P2, DS/DL2, KOREAN SPECIAL 1ST
- The ADA's Tips to Avoid Counterfeit Masks provides the Centers for Disease Control and Prevention (CDC) guidance to help healthcare professionals avoid buying counterfeit masks.

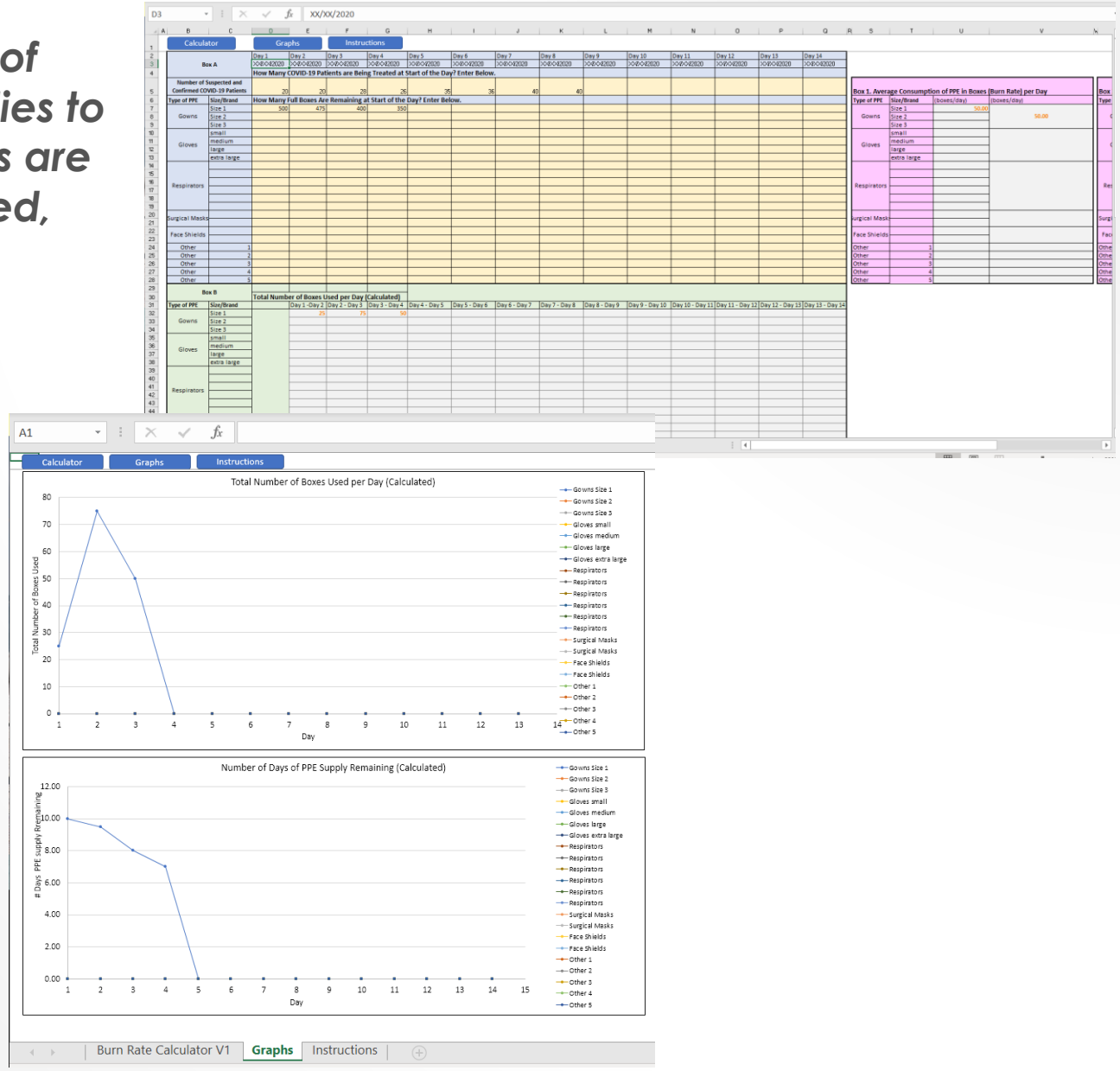
Disclaimer. These materials are intended to provide helpful information to dentists and dental team members. They are in no way a substitute for actual professional advice based upon your unique facts and circumstances. ***This content is not intended or offered, nor should it be taken, as legal or other professional advice***. You should always consult with your own professional advisors (e.g. attorney, accountant, insurance carrier). To the extent ADA has included links to any third party website(s), ADA intends no endorsement of their content and implies no affiliation with the organizations that provide their content. Further, ADA makes no representations or warranties about the information provided on those sites.

Źródło: : success.ada.org/~/media/CPS/Files/COVID/ADA_Extending_Use_Of_N95_Masks.pdf??utm_source=cpsorg&utm_medium=updatesection&utm_content=cv-safety-clinical-extend-N95-masks&utm_campaign=covid-19

„Ensure that you have the appropriate amount of personal protective equipment (PPE) and supplies to support your patient volume. If PPE and supplies are limited, prioritize dental care for the highest need, most vulnerable patients first."

Personal Protective Equipment (PPE) Burn Rate Calculator

Use this Excel spreadsheet to calculate your PPE burn rate



To download go to: https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe-strategy/burn-calculator.html

Źródło: www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html

METODY INAKTYWACJI/ZWALCZANIA WIRUSA

VIRUS INACTIVATION/REMOVAL METHODS

Environmental Infection Control

- DHCP should ensure that environmental cleaning and disinfection procedures are followed consistently and correctly after each patient (however, it is not necessary that DHCP should attempt to sterilize a dental operatory between patients).
  - Clean and disinfect the room and equipment according to the Guidelines for Infection Control in Dental Health-Care Settings—2003 .
- To clean and disinfect the dental operatory after a patient **without suspected or confirmed COVID-19**, wait 15 minutes after completion of clinical care and exit of each patient to begin to clean and disinfect room surfaces. This time will allow for droplets to sufficiently fall from the air after a dental procedure, and then be disinfected properly.[3]
  - To clean and disinfect the dental operatory after a patient **with COVID-19**, DHCP should delay entry into the operatory until a sufficient time has elapsed for enough air changes to remove potentially infectious particles.
- Routine cleaning and disinfection procedures (e.g., using cleaners and water to clean surfaces **before** applying an Environmental Protection Agency-registered, hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate for SARS-CoV-2 in healthcare settings, including those patient-care areas in which aerosol-generating procedures are performed.
  - Refer to List N on the EPA website for EPA-registered disinfectants that have qualified under EPA's emerging viral pathogens program for use against SARS-CoV-2.
- Alternative disinfection methods
  - The efficacy of alternative disinfection methods, such as ultrasonic waves, high intensity UV radiation, and LED blue light against COVID-19 virus is not known. EPA does not routinely review the safety or efficacy of pesticidal devices, such as UV lights, LED lights, or ultrasonic devices. Therefore, EPA cannot confirm whether, or under what circumstances, such products might be effective against the spread of COVID-19.
  - CDC does not recommend the use of sanitizing tunnels. There is no evidence that they are effective in reducing the spread of COVID-19. Chemicals used in sanitizing tunnels could cause skin, eye, or respiratory irritation or damage.
  - EPA only recommends use of the surface disinfectants identified on List N against the virus that causes COVID-19.
- Manage laundry and medical waste in accordance with routine policies and procedures.

Sterilization and Disinfection of Patient-Care Items

- Sterilization protocols do not vary for respiratory pathogens. DHCP should perform routine cleaning, disinfection, and sterilization protocols, and follow the recommendations for Sterilization and Disinfection of Patient-Care Items present in the Guidelines for Infection Control in Dental Health Care Settings – 2003 .
- DHCP should follow the manufacturer's instructions for times and temperatures recommended for sterilization of specific dental devices.

Źródło: https://www.cdc.gov/coronavirus/2019-ncov/hcp/dental-settings.html#Hygiene

„SARS-CoV-2 – podstawowe środki chemiczne powierzchniowo czynne do zwalczania/inaktywacji wirusa [9–15]:

Wysoce efektywne:

•alkohol etylowy od 78%
•roztwór jodopowidony od 0.23%
•woda utleniona od 0.5%
•podchloryn sodu od 0.21%

Mniej efektywne:

•alkohol etylowy minimalne stężenie 62-71%
•0.05-0.2% chlorek bezalkoniowy
•0.02% diglukonianchlorheksydyny
•podchloryn sodu od 0.01%"

„Środki dezynfekujące zawierające etanol (78%-95%), roztwór jodopowidonu (0.23%–7.5%) gwałtownie inaktywują koronawirusa o wysokim stężeniu (większym niż 4 log10) już po czasie 30 sekund do 1 minuty [9-11]. Aby efektywnie inaktywować wirus SARS-CoV-2 za pomocą podchlorynem sodu, to wymagane stężenie minimalne powinno wynosić 0.21% (30 sekund) [8,9], przy stężeniach 0,01% – czas ekspozycji powinien wynosić 10 minut [11,13]. Ostatnio opublikowane badania nad koronawirusem sugerują skuteczność działania inaktywującego już po 1 minucie, stężenia 0,1% [11].
Wirusobójcze działanie wody utlenionej stwierdzono dla roztworu 0,5% i ekspozycji przez 1 minutę [11,14]. W odróżnieniu, roztwór 0,2% diglukonianuchlorheksydyny podawany jest jako zasadniczo mało skuteczny [11,15]."

Źródło: www.pts.net.pl/centrum-wiedzy-covid-19-a-praca-lekarza-dentysty/#1584619652064-2e2bcfe2-8811

Dezynfekcja wewnętrzna sprzętu stomatologicznego

dezynfekcja

- Dezynfekcja przewodów ssących w unitach
- Dezynfekcja systemu wodnego
- Program intensywnej sterylizacji zapobiegający gromadzeniu się biofilmu

Zaleca się krótkie (ok. 20 sek) przepłukiwanie po każdym pacjencie, a także ok. 2 min. płukanie na początek i koniec dnia pracy.
Raz w miesiącu lub po dłuższym przestoju powinno się wykonać dłuższą i bardziej intensywną 24-godzinną dekontaminację, która wyeliminuje ryzyko tworzenia się biofilmu.

Specjalistyczne preparaty np.. firmy Dentsply Sirona, **Dentosept S**. Służa do dezynfekcji i utrzymania w czystości dróg wodnych w unitach stomatologicznych

Źródło: https://pts.net.pl/wp-content/uploads/2020/05/Webinar-PTS-Sirona-Dentsply.pdf

	Ozon	UV	TiO_2	Plazma	Techniki mieszane UV/chlor; UV/O_3
Potwierdzenie	*Thailand Medical news, Nature volume 452 (2008), Antiviral Research (2007)*	*Nature volume 452 (2008),*	*Nature volume 452 (2008),*	*Trends in Biotechnology (2020) – pre-proof*	
Brak potwierdzenia działania/wynik niejednoznaczny	*Antiviral Research (2007)**	*Nature volume 452 (2008),*	*Nature volume 452 (2008), J Materiomics 3 (2017)*		*Nature volume 452 (2008),*
Wydajność	Zależna od ilości O_3, ilości zanieczyszczeń, przepływu, wilgotności, czasu ekspozycji	Odległość wirusa od źródła światła	Zależna od przepływu, rodzaju i wielkości porów, obecności innych zanieczyszczeń powietrza, wyższa przy wspomaganiu UV	Zależna od wilgotności, przepływu, mocy plazmy	Brak danych
Dodatkowe dane	Toksyczne działanie na komórki tkanki miękkiej; penetrowanie całej objętości pomieszczenia; **50% skuteczności dla maksymalnego badanego stężenia w czasie 48h*	Niszczenie DNA/RNA; ograniczone głębokość penetracji; Dane podające odporność wirusów na promieniowanie UV	Wysokie powinowactwo do małocząsteczkowych organicznych zanieczyszczeń powietrza	Generatowanie O_3; Minilalne zaztosowanie komercyjne Wysokie zużycie energii elektrycznej i relatywnie niewielka wydajność produkcji O_3 (~1%–15%)	Brak potwierdzenia działania na wirusy, skuteczność usuwania bakrerii

Źródło: https://pts.net.pl/wp-content/uploads/2020/05/Webinar-PTS-Sirona-Dentsply.pdf

	Ozone	UV	TiO_2	Plasma	Combined techniue UV/chlorine; UV/ozone
Confirmed	Thailand Medical news, Nature volume 452,	Nature volume 452,	Nature volume 452,	Trends in Biotechnology (2020) – pre-proof	
Unconfirmed		Nature volume 452	Nature volume 452,		Nature volume 452,
Special parameter	Wetness, flow	close to the UV light	flow	Wetness, flow	
Efficienci					
Comments	toxic effects on tissue cel; penetrate to every corners of the room	damaging the DNA/RNA; limited penetration capacity; Virusis resistant to UV		Generation of O_3 minimum commercial applications; high electrical consumption and a relatively low efficiency (~1%–15%) for converting oxygen to O_3	resistant to both UV and combined chlorine disinfection

Źródło: pts.net.pl/wp-content/uploads/2020/05/Webinar-PTS-Sirona-Dentsply.pdf

How long does an examination room need to remain vacant after being occupied by a patient with confirmed or suspected COVID-19?

Although spread of SARS-CoV-2 is believed to be primarily via respiratory droplets, the contribution of small respirable particles to close proximity transmission is currently uncertain. Airborne transmission from person-to-person over long distances is unlikely.

The amount of time that the air inside an examination room remains potentially infectious is not known and may depend on a number of factors including the size of the room, the number of air changes per hour, how long the patient was in the room, if the patient was coughing or sneezing, and if an aerosol-generating procedure was performed. Facilities will need to consider these factors when deciding when the vacated room can be entered by someone who is not wearing PPE.

For a patient who was not coughing or sneezing, did not undergo an aerosol-generating procedure, and occupied the room for a short period of time (e.g., a few minutes), any risk to HCP and subsequent patients likely dissipates over a matter of minutes. However, for a patient who was coughing and remained in the room for a longer period of time or underwent an aerosol-generating procedure, the risk period is likely longer.

For these higher risk scenarios, it is reasonable to apply a similar time period as that used for pathogens spread by the airborne route (e.g., measles, tuberculosis) and to restrict HCP and patients without PPE from entering the room until sufficient time has elapsed for enough air changes to remove potentially infectious particles.

General guidance on clearance rates under differing ventilation conditions is available.

In addition to ensuring sufficient time for enough air changes to remove potentially infectious particles, HCP should clean and disinfect environmental surfaces and shared equipment before the room is used for another patient.

Źródło: www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html

NHS Education for Scotland

Scottish Dental Clinical Effectiveness Programme

Drugs for the Management of Dental Problems During COVID-19 Pandemic

Updated 11 May 2020

This advice might change as new information becomes available. Please ensure that you are viewing the most recent version of this document by referring to www.sdcep.org.uk.

This supplement to the SDCEP guide on the *Management of Acute Dental Problems During COVID-19 Pandemic* includes information based on the SDCEP *Drug Prescribing for Dentistry* guidance. It lists the drug regimens that dentists are most likely to remotely advise or prescribe for their patients during the COVID-19 pandemic to support **Advice & Self Help** (see Figure 1) and provides additional details of contraindications and cautions.

Due to the COVID-19 pandemic, national policy since 23 March 2020 has been for primary care triage to focus initially on the provision of the three As:

- **Advice;**
- **Analgesia;**
- **Antimicrobials where appropriate.**

Unless urgent or emergency care is required, the patient should be encouraged to manage their symptoms at home while treatment options are restricted. Mild and moderate dental symptoms should be managed remotely by providing advice and analgesics and/or antimicrobials where appropriate.

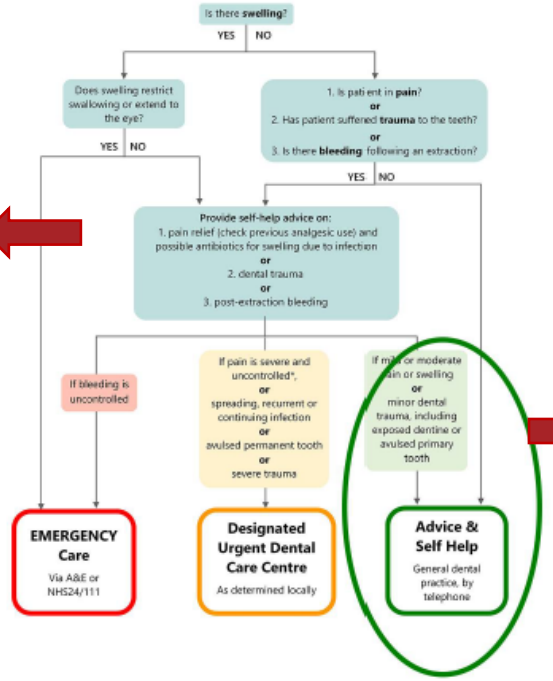


Figure 1 Triage of Commonly Presenting Acute Dental Problems

Źródło: www.sdcep.org.uk/wp-content/uploads/2020/05/SDCEP-MADP-COVID-19-drug-supplement-update-110520.pdf

Patients with dental pain and infection may need to self-manage for longer than normal during the COVID-19 pandemic. If this applies to a patient with a relevant underlying health condition (see Appendices 1 and 2 for contraindications and cautions), liaison with their general medical practitioner or specialist is advised.

In all cases, if self-management is particularly extended or the patient's symptoms do not resolve, referral to designated providers of urgent dental care is required.

Drugs and Investigational Therapies

Are empiric antibiotics recommended for patients suspected of having COVID-19?

Several patients with COVID-19 have been reported to present with concurrent community-acquired bacterial pneumonia. Decisions to administer antibiotics to COVID-19 patients should be based on the likelihood of bacterial infection (community-acquired or hospital-acquired), illness severity, and antimicrobial stewardship issues. For more information, see Diagnosis and Treatment of Adults with Community-acquired Pneumonia: An Official Clinical Practice Guideline of the American Thoracic Society and Infectious Diseases Society of America.

What antiviral drugs are available to treat COVID-19?

There are currently no antiviral drugs approved by FDA to treat COVID-19. See Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease 2019 (COVID-19).

- For information on use of investigational drugs for treatment of patients with COVID-19, see Therapeutic Options for Patients with COVID-19.
- For information on specific clinical trials underway for treatment of patients with COVID-19 infection, visit clinicaltrials.gov.

Do nonsteroidal anti-inflammatory drugs (NSAIDs) worsen the course of disease for people with COVID-19?

CDC is currently not aware of scientific evidence establishing a link between NSAIDs (e.g., ibuprofen, naproxen) and worsening of COVID-19. FDA, the European Medicines Agency, the World Health Organization, and CDC are continuing to monitor the situation and will review new information on the effects of NSAIDs and COVID-19 disease as it becomes available. For those who wish to use treatment options other than NSAIDs, there are other over-the-counter and prescription medications approved for pain relief and fever reduction. Patients who rely on NSAIDs to treat chronic conditions and have additional questions should speak to their healthcare provider for individualized management. Patients should use NSAIDs, and all medications, according to the product labels and advice of their healthcare professional.

Źródło: www.cdc.gov/coronavirus/2019-ncov/hcp/faq.html

Salivary Glands: Potential Reservoirs for COVID-19 Asymptomatic Infection

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According to a latest report on coronavirus disease 2019 (COVID-19), authors had drawn attention to dental risk, in which asymptomatic patients had been mentioned many times (Meng et al. 2020). Previously, researchers have shown the role of oral mucosa in COVID-19 infection (Xu, Zhong, et al. 2020). We would like to draw attention to salivary glands in the epidemic process of asymptomatic infections.

ACE2 is an important receptor for COVID-19 (Xu, Chen, et al. 2020). In a previous study about severe acute respiratory syndrome–coronavirus (SARS-CoV), salivary gland epithelial cells with high expression of ACE2 were infected (Liu et al. 2011). We analyzed the expression of ACE2 in human organs in the GTEx portal (https://www.gtexportal.org/home/gene/ACE2#geneExpression). The expression of ACE2 in minor salivary glands was higher than that in lungs (lung medium PTM [transcripts per kilobase of exonmodel per Million mapped reads] = 1.010, minor salivary gland medium PTM = 2.013), which suggests salivary glands could be potential target for COVID-19. In addition, SARS-CoV RNA can be detected in saliva before lung lesions appear (Wang et al. 2004). This may explain the presence of asymptomatic infections. For SARS-CoV, the salivary gland could be a major source of the virus in saliva (Liu et al. 2011). The positive rate of COVID-19 in patients' saliva can reach 91.7%, and saliva samples can also cultivate the live virus (To et al. 2020). This suggests that COVID-19 transmitted by asymptomatic infection may originate from infected saliva.

Therefore, the cause of asymptomatic infection might be from salivary glands. We should not ignore the potential infectivity of saliva alone.

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ACE2#geneExpression). The expression of ACE2 in minor salivary glands was higher than that in lungs (lung medium PTM [transcripts per kilobase of exonmodel per Million mapped reads] = 1.010, minor salivary gland medium PTM = 2.013), which suggests salivary glands could be potential target for COVID-19. In addition, SARS-CoV RNA can be detected in saliva before lung lesions appear (Wang et al. 2004). This may explain the presence of asymptomatic infections. For SARS-CoV, the salivary gland could be a major source of the virus in saliva (Liu et al. 2011). The positive rate of COVID-19 in patients' saliva can reach 91.7%, and saliva samples can also cultivate the live virus (To et al. 2020). This suggests that COVID-19 transmitted by asymptomatic infection may originate from infected saliva.

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