Attachment 2

Table S2: Risk assessement

Author, publication year, country	Comparison groups	SARS-CoV-2 prevalence/ incidence	Implementation of personal protective measures (PPE)	Comparison with subgroups or the general population	Potential bias/ limitations	Discussion
Abo-Leyah H. et al., 2020, UK [20]	DCW; Other HCW; General Scottish population (GP)	Prevalence in DCW was 26% (n=13/50)	No information on the use of PPE in dentists. According to the authors, In critical care areas all staff should have worn PPE in accordance with Health Protection Scotland guidance on working in aerosol-generating procedures. Therefore, there, seroprevalence was only 16% (n=21/31).	No statistically significant difference in prevalence between dentists and other HCW (recalu-lated OR 1.82 [95% CI, 0.98-3.40]). SARS-CoV-2 infections in dentists >3 times higher than in the GP (4.5%; no absolute numbers provided)	Selection bias possible	Measures to protect even high-risk front-line staff appeared to be insufficient
Abu-Hammad O, et al., 2021, Saudi Arabia [21]	None	COVID-19 prevalence of 19.6% (n=62/316)	No information on supply with and use of PPE	10 cases did not wear face masks; no quarantine in 7 of the infected persons	-	Infection control insufficient at that time
Akbari N, et al., 2021, Iran [22]	Dentists; Dentists' assistants	Prevalence in DCW 0.4% (n=3/762)	No information on supply with and use of PPE	Prevalence 0.78% (n=3/381) in dentists tested by "paraclinical" tests"; 0% (n=0/381) in dentists' assistants (difference ns)	Selection bias possible	Overall prevalence of COIVD-19 in dentists and their assistants very low. According to the authors use of standard PPE is sufficient to prevent SARS-CoV-2 infections.
Al Kuwari M, et al., 2021, Qatar [23]	Subgroups of primary HCW (e.g. nurses, physicians, pharmacists, lab technicians, dentists, dental staff, radiology staff)	Total prevalence in the 7407 staff members who underwent COVID-19 RT-PCR testing was 16.2% (n=1199/7407)	No infirmation on the actual use of PPE in the compared subgroups	Difference in prevalence of dentists [11.2% (n=22/196)] and dental staff members [7.3% (n=14/192)] ns. Significantly lower prevalence in DCW compared to that in the staff members of other subgroups (calculated OR 0.55; 95% CI, 0.39-0.77; P <0.001)	Selection bias possible as it remains unclear to which subgroups the missing 19% of employees members can be assigned.	Lower SARS-CoV-2 prevalence in dental HCW may be attributed to more proper usage of PPE.

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Author, publication year, country	Comparison groups	SARS-CoV-2 prevalence/ incidence	Implementation of personal protective measures (PPE)	Comparison with subgroups or the general population	Potential bias/ limitations	Discussion
Antonio-Villa MD, et al., 2021, Mexico [24]	All HCW, dentists; General population in Mexico City	Prevalence in dentists (extrapolated) 25.3% (n=267/1054)	No mentioning of the availability of or adherence to PPE	Dentists had a significantly lower prevalence (P <0.001) than "all" HCW with 30.3% (n=17531/57758), but a higher prevalence than in the general population in Mexico City with 4.61% (n=403,185/8,737,172).	-	HCWs have increased occupational hazard to acquire SARS-CoV-2 infection compared with the general population, attributable to direct contact during care of hospitalized patients.
Araujo M, et al., 2021, USA [25]	None	Cumulative COVID-19 infection prevalence rate (n=57/2196) was 2.6%; incidence ranging between 0.2% and 1.1% each month	Statistically significant decline in dentists reporting sometimes or always wearing N95 or equivalent masks and eye protection during AGPs over time from 92.4% in the first survey to 88.0% in the final survey (P <0.01)	-		Despite of a minor shift in the use of PPE during the 6-month period of the study, US dentists show a high level of adherence to enhanced infection control procedures.
Bonta G, et al., 2020, Italy [26]	Dental hygienists clustered in 3 groups (1-10, 11-20 and 20+ professional experience)	0.25% (n=7/2798) reported COVID-19 infections.	82.8% of dental hygienists wore surgical masks and 90.55% protective glasses or visors.	No statistical difference regarding prevalence between the three group	Response bias possible	This data might suggest a low infection rate among dental hygienists, just as the appropriate preventive measures were correctly implemented.
Cintora P, et al., 2022, Spain [27]	Internal comparison between dental subdisciplines taking administrative staff as reference	Prevalence among all participants 20% (n=39/195)	No information on the use of PPE provided	Prevalence in doctors 23.95% (n=37/155) compared to 5% (n=2/40) in administrative staff (OR 5.96 [95% CI, 1.4-25.9]). Seroprevalence in orthodontists was 34.8% (n=24/69), followed by the pediatric dentists [28.6% (n=2/7)], oral surgeons [14.7% (n=10/68)] and endodontists [9.1% (n=1/11)]. In multivariate analysis only orthodontists have a significantly higher chance of becoming Infected: OR [10.13 (95% CI, 2.25-45.68)].	-	Covid-19 is more prevalent in orthodontists than in the rest of dental subdisciplines with the lowest rate among the administrative staff. This result puts orthodontics on alert regarding the risk of COVID-19 transmission.
Dus-Ilnicka I, et al., 2022, Poland [28]	Internal comparison of different subgroups with each other (e.g., dental surgeons, orthodontists)	8 (6.3%) of all volunteers had positive results for SARS-CoV-2 IgG antibodies.	Numerous protective measures were reinforced (e.g. phone-only registration and gravitational ventilation) but the use of face masks is not mentioned.	Difference of prevalences between SUB1: n=4/67 (6%); SUB2: n=3/40 (7.5%); SUB3; n=1/20 (5%) not statistically significant.	Selection bias (the survey did not cover all the DCW from the Academic Dental Polyclinic [180 dental workers in total?])	According to the authors the risk of COVID-19 transmission in dental offices is low if safety measures are followed.

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Author, publication year, country	Comparison groups	SARS-CoV-2 prevalence/ incidence	Implementation of personal protective measures (PPE)	Comparison with subgroups or the general population	Potential bias/ limitations	Discussion
Estrich GC, et al., 2021, USA [29]	Dental hygienists; General US population (as of 8 October 2020 an estimated 2.3% or 7.6 million people have had COVID-19)	3.1% (n=149/4776) had ever tested positive or been diagnosed with COVID-19	Only 55.7% (n=1871/3357) always used PPE in the past month. Over half (54.6%, n=659) of those with 10 or less years of experience always used PPE according to CDC guidelines, compared with 55.4% (n=511) of those with 11-20 years and 60.7% (n=692) of those with 21 or more years of experience (P <0.01).	As of October 2020, the estimated cumulative COVID-19 prevalence in dental hygienists in the US was low, but higher than found in the general US population	Response bias; study based on self-reported data	Years of experience as a dental hygienist was significantly associated with always following CDC PPE guidelines.
Ferreira RC, et al., 2021, Brazil [30]	Dental HCW; General Brazil population	Total prevalence among dental HCW 21.68% (n= 10,473/ 48,301). Age-standardized cumulative incidence 17.7/1000 (no 95% CI provided)	No information on the actual use of PPE	SARS-CoV-2 infections more frequent compared to the general population: Age-standardized cumulative incidence 18.7/1000 for dental HCW and 17.71/1000 for the general population (ratio 1.05) Subgroup analysis: Prevalence in dentists 21.19% (n=6710/31,666); in other DCW 22.6% (n=3763/16,635); difference in χ^2 test ns.	Selection bias possible because only 72.26% of data of health professionals were analyzed (no data for dental HCW reported).	In light of the 5% higher cumulative incidence of infections among DCW compared to the general population the authors highlight the importance of PPE in dental practice.
Fredriksson L, et al., 2023, Sweden [31]	Clinical and administrative dental employees; General population (seroprevalence in inhabitants of Stockholm in June 2020 11.7%)	Prevalence 12.3% (n=42/341 SARS-CoV-2 infections verified by RT-PCR or antibodies)	No figures on supply with or adherence to PPE provided	No separate prevalence figures available for doctors and assistant DCW. No statistically significant difference in prevalence between clinical (n=197/337; 58.5%) and administrative employees (n=140/337; 58.5%); also no significant difference with respect to patient-related work: daily (42.6%); sporadically (25.8%); never (31.5%)	Selection bias; type of randomization not revealed, no sample size calculation	Prevalence in the selected group of dental health workers did not differ from that of the general population. Lack of statistical difference in prevalence regarding patient contact suggests that non-clinical SARS-CoV-2 infections originated mainly outside the clinical activities.

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Author, publication year, country	Comparison groups	SARS-CoV-2 prevalence/ incidence	Implementation of personal protective measures (PPE)	Comparison with subgroups or the general population	Potential bias/ limitations	Discussion
Froum SJ, et al., 2020, USA [32]	None	No COVID-19 infection in dental health workers working in the offices during the observation period	Wearing of FFP2 masks and maximum protection mandatory (e.g., hand washing, HEPAC air filters and UV-C germicidal lights)	Not applicable	No inclusion in the prevalence calculation possible because a denominator (number of employees at risk during the observation period) is missing.	Dental health care can be administered safely even when exposed to high risk patients.
Gallus S, et al., 2021, Italy [33]	Internal comparison between different groups (dentists, dental technicians; dental assistants, administrative personnel; students and others)	10.8% HCW (n=54/499) tested positive; of those 10.9% dentists (n=20/183), 13.0% dental technicians (n=3/23), 7.1% dental hygienists (n=2/28) and 8.4% dental assistants (n=15/179)	It is stated that dentists are able to protect themselves by utilizing PPE under the premise that they had already worked for several decades. However, the actual use of “protective devices” was not queried.	No statistically significant difference in prevalence between any group.	-	The clinical staff was less frequently tested positive to SARS-CoV-2 than the administrative staff probably due to more scrupulous management of protective devices.
Hosoglu S, et al., 2022, Iraq [34]	Impact of 13 main variables associated with SARS-CoV-2 infection in dentists investigated	25.3% (n=21/83) stated a positive PCR.	PPE was always available for only 50.6% of the participating dentists. No information on wearing of masks available; only information on wearing glasses (83.6%) and hand washings (91.6%) found	Working in a public hospital COVID 19 in dentists (n=12/14) was a risk factor for infection (OR 6.8 [95% CI, 1.2-37.6)]. In univariate analysis, paradoxically, a lower working time was associated with SARS-CoV-2 positivity (17.3 ± 11.0 hr versus 23.8 ± 13.7 hr; P =0.020)	-	Insufficient prevention measures may have contributed to the high prevalence of infection among dentists.
Jungo S, et al., 2021, France [35]	Dentists; dental assistants; General French population at the same date (2% COVID-19 infections)	Prevalence of laboratory-confirmed COVID-19 was 1.54% (n=93/6040).	In the subgroup of symptomatic dentists (n=1097) and dental assistants (n=360), dental assistants used FFP2 masks and safety goggles less frequently than dentists (3.9% vs 8.8% and 39.2% vs 62%, respectively (P <0.01 and P <0.001).	Prevalence in dentists with 1.9% (n=79/4172) was significantly higher than in dental assistants with 0.8% (n=14/1868); calculated OR 2.56 (95% CI, 1.44-4.52).	Possible selection bias	According to the authors healthcare professionals did not have a higher risk of COVID-19 overall than the general population.
Lucaciu O, et al., 2021, Romania [36]	Dentists; dental assistants; General Romanian population	The calculated infection rate for the period between March 2020 and March 2021 was 6.37% (n=238/3735)	No information on the extent of implementing PPE in individual employees or number of dental offices.	6.46% (117/1811) in dentists and 6.37% (121/1924) in dental assistants (difference ns). Prevalence in the general Romanian population 0.26% (March 2020 to February 2021)	Possible response bias as the total number of invited offices not reported.	According to the authors most infections (“contaminations”) occurred outside the dental offices. Protective measures not sufficiently implemented at that time.

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Author, publication year, country	Comparison groups	SARS-CoV-2 prevalence/ incidence	Implementation of personal protective measures (PPE)	Comparison with subgroups or the general population	Potential bias/ limitations	Discussion
Madathil S, et al., 2022, Canada [37]	Dentists; General population	Prevalence 4.17% (6/644). Incidence rate 5.1 per 100,000 person-days (95%CI, 1.86-9.91)	Whilst the routine use of surgical masks decreased form 91.8% to 79.4 during the follow-up period (every four weeks), the use of N95 respirators was low increasing from 40.2% over time to 62.9% at the end of the follow up.	Incidence proportion 1084 per 100,000 dentists (95% CI, 438 to 2011 per 100,000 dentists); incidence proportion in the general population 1864 per 100.000 people [95% CI, 1.859 to 1.868)	-	Less COVID-19 infections observed among Canadian dentists compared to that of the general population
Mksoud M, et al., 2022, Germany [38]	Dentists (n=927); dental nurses and prophylaxis nurses; (n=1812); General German population	Prevalence 6.43% (n=179/2784) [IgG antibodies and/or positive SARS-Cov-2 PCR test]	74.2% FFP masks; 63.9% visors, 77.7% safety goggles; 12.6% rubber dams; mean number of protective measures 2.6 (± 1.2 SD)	Prevalence in dentists 5.5% (n=53/972) and 7.0% (n=126/1812) in other dental HCWs; difference ns. No single protective measure (e.g., FFP mask, use of rubber dam, number of aerosol-generating devices) significantly associated with SARS-CoV-2 positivity. 7% IgG antibodies were reported in March 2021 across Germany.	Selection bias possible	According to the authors the prevalence of SARS-CoV-2 antibodies in dental team members is comparable to that of the general population.
Molvik M, et al., 2021, Norway [39]	Dentists; other Norwegian HCW	Prevalence among dentists 1.19% (n=35/2941)	No information on the number of HCW wearing PPE	Prevalence in all HCW 1.48% (n=5673/382,332); difference to prevalence in dentists ns.	Selection bias (no self-employed HCW included)	Incidence rates in the first 4 weeks may be under-estimated, as test data are incomplete before 1 April 2020.
Moraes RF, et al., 2022, Brazil [40]	Dentists; General Brazil population	26.6% (n=466/1754) of participants had tested positive for SARS-CoV-2 by May 2021	Only 69.1 (n=1182/1710) dentists always wearing N95 masks in appointment with patients and only 59.6% (n=1012/1699) wearing face shields.	Prevalence in dentists higher than that in the general Brazilian population (7.9% confirmed SARS-CoV-2 infections by May 2021)	-	High prevalence of COVID-19 infections among Brazilian dental professionals
Ribeiro JM, et al., 2021, Brazil [41]	Dentists; General population of the Federal district	Seroprevalence 19.1% (n=62/324)	No information on supply with and adherence to PPE	Prevalence associated only with COVID-19 in a household member (OR 2.5, [95% CI, 1.13–5.3]) and treatment of patients with fever (OR 2.99 [95% CI, 1.03–8.70]); results similar to that of the general population (17% of 1077 tested residents SARS-CoV-2 positive by December 2020)	-	The consistent use of personal protection measures are doubted by the authors as dentists were considered more rigorous in using PPE when treating patients with fever.

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Author, publication year, country	Comparison groups	SARS-CoV-2 prevalence/ incidence	Implementation of personal protective measures (PPE)	Comparison with subgroups or the general population	Potential bias/ limitations	Discussion
Rock LD, et al., 2022, Canada [42]	Dentists; General population in the correspon-ing Canadian provinces	20 participants infected during the follow-up period (cumulative incidence 2.39% (95% CI 1.49%–3.50%)	No concrete information on PPE. According to the authors the low infection rate is a cumulative effect of "all the different protective measures" that have been employed.	Cumulative incidence lower than that in the general population (5.12% [95% CI, 5.12%–5.13%]) during the same period. 69% of participants had received two vaccine doses, and 19.7% three vaccine doses.	Response bias	Beside other protective measures, uptake of vaccination may explain low COVID-19 infection rates.
Santana LADM, et al., 2021, Brazil [43]	None	75.2% (n=15/20) tested positive (RT-PCR or antibodies) including 4 cases of reinfection	No information on use of PPE	No other DCW than surgeons tested for SARS-CoV-2	Arbitrarily selected observation	Shortfall of PPE, inadequate decontamination and sharing of the emergency room with other healthcare professionals and their patients contributed to high rate of COVID-19 infections
Sarapultseva M, et al., 2021, Russia [44]	Dentists; Dental assistants; General population	12.1% (n=19/157)	No information on use of PPE	Dentists 10.26% (n=8/78); dental assistant 13.92% (n=11/79); difference ns (prevalence unaffected by sex or role of the member in the dental team). Seroprevalence rate in the general population of the Russian Federation 7.4-9.3%	Arbitrarily selected observation	SARS-CoV-2 infection in DCW higher than in the Russian population, according to the authors due the increased risk.
Schmidt J, et al., 2021, Czechia [45]	Dentists; Czech general population	13.9% PCR-positive (n=377/2716)	No information on supply with and adherence to PPE	Prevalence significantly lower than that of the general population (13.9% vs 15.64%; P =0.018)	Underreporting bias (incomplete information on actual test positivity as 154 respondents with clinical symptoms had not been tested and were not considered in the evaluation).	Proper focus on infection control led to a reduction in occupational infection risks.
Sebastian P, et al., 2021, Argentina [46]	None	Prevalence 4.47% (n=16/358; 95% CI, 3-7%)	PPE was used in all work-related tasks.	No differentiation between dentists and assistant dental workers made. No significant difference in test results between clinical or non-clinical job type	-	Low rates of COVID-19 infection among clinical personnel may be due to proper use of PPE

Author, publication year, country	Comparison groups	SARS-CoV-2 prevalence/ incidence	Implementation of personal protective measures (PPE)	Comparison with subgroups or the general population	Potential bias/ limitations	Discussion
Shields AM, et al., 2021, UK [47]	Dentists; other DCW; General population in the West Midlands region	Prevalence of spike antibodies at baseline 16.3% (n=246/1507)	According to the authors dentistry reopened until July 2020 “including FFP3 masks, eye protection, and gowns”. No information on the actual supply with and adherence to PPE	Prevalence in dentists 16.7% (115/687); other DCW 16.0% (131/820), difference ns. Seroprevalence in DCW higher than that of the general population seroprevalence at the time of baseline sampling (6-7%)	-	Initial use of PPE was not sufficient in reducing the risk of occupational exposure. The risk of PCR-proven infection in seronegative DCW decreased between June 2020 and January 2021 to 11.7% suggesting enhanced infection control, including FFP3 masks.
Suarez-Cabello C, et al., 2022, Peru [48]	None	Prevalence 43.9% (n=179/408)	No information on supply with and adherence to PPE	Job context unclear as only 357/408 (87.5%) participants had worked during the pandemic	Selection bias possible	There is a likelihood that COVID-19-transmissions may have occurred in non-dental settings.

AGP: aerosol generating procedures

DCW: dental healthcare workers

FFP: filtering face piece

GDP: general dental practitioner

GP: general population

HCW: healthcare workers

hr: hours

ns: not significant

OR: odds ratio

PPE: personal protective equipment

RT-PCR: real-time PCR test

SD: standard deviation

vs: versus

yr: years

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