Dental Council of New Zealand

Tēnā koutou,

This is my response to proposed changes relating to current COVID-19 Additional Transmissible Illness Protocols.

**Please provide your feedback by responding to the following question. 1. Do you support the proposed Supplementary risk management principles for oral health during the COVID-19 pandemic?**
*Yes, but with some minor questions for clarification and possible changes.*

**If you do not support the draft, please share your concerns, reasons for your view, and proposed alternatives if you have any.**

*Firstly, I would like to thank the Dental Council for giving us the opportunity to respond and be part of this process.*
*I am speaking only in the provision of care to over 12-year-olds, as I believe there are far better qualified colleagues to comment on the provision of care to under 12-year-olds in the dental community, and know they will provide quality input.*

*The first relatively simple request is that it is made clearer in the document what a "session" of dentistry involves.*
*Where it says;*

***"Disposable respirators can be used during a session, up to 4 hours – and must be changed when visibly dirty, damaged, or wet."***

*Can we clarify if this means one session, on one patient, or multiple patients.*
*Many would read, and I read this as multiple patients, which does actually follow the lead of many well researched guidelines around the world, but I felt it needed to be clearer if this meant a respirator could be used between patients if not removed. (Keeping in mind that doffing and donning a respirator with previous use is the dangerous time).*

*The reason this is important is due to a comment around eyewear, which is my other discussion that I would like to put forward some thoughts on. (How visors minimise cross contamination of respirators.)*

*This brings me to the sections on eyewear.*

**"• Safety glasses that have side protection, or • Goggles, or • Full face shield"**

And

**"It is no longer a requirement to use a face shield/visor over the protective eyewear (additional eye protection still required over prescription glasses)."**

*I do have some considerable concerns if we are trying to risk mitigate as much as pragmatically possible, if I indeed read this correctly.*

*By my understanding in this proposal at all levels of dentistry you may wear a full-face shield instead of wearing goggles or safety glasses. Especially in high-risk work flow I would consider this non evidence based and increasing risk needlessly.*

*Although I myself, as a dentist who wears loupes, have had to create work arounds to make a visor fit over lights and loupes, it has been easily possible with many different variations of gear.*
*It is not always comfortable, but it is good to have two layers of protection.*

*Evidence from studies and anecdotal experience have led me to be confident that a visor is a very good large droplet/splash/spatter protection.*
*This limits coverage of the operator and assistant in high volumes of contaminated material.*

*But unfortunately, it has also been shown that visors provide inadequate protection from aerosol over extended periods of time.*

***If we look at this table from J Occup Environ Hyg. 2016; 13(4): 235–242. Face Shields For Infection Control A Review Raymond J. Roberge (see following page), we can see that Face Shields have many benefits but also some drawbacks.***

***From J Occup Environ Hyg. 2014; 11(8): 509–518. Efficacy of Face Shields Against Cough Aerosol Droplets from a Cough Simulator***

*"*The use of face shields can substantially reduce the short-term exposure of health care workers to larger infectious aerosol particles and can reduce contamination of their respirators. They are less effective against smaller particles, which can remain airborne for extended periods and can easily flow around a face shield to be inhaled. Thus, face shields can provide a useful adjunct to respiratory protection for workers caring for patients with respiratory infections. However, they cannot be used as a substitute for respiratory protection when it is needed."

"During testing of an influenza-laden cough aerosol with a volume median diameter (VMD) of 8.5 μm, wearing a face shield reduced the inhalational exposure of the worker by 96% in the period immediately after a cough. The face shield also reduced the surface contamination of a respirator by 97%. When a smaller cough aerosol was used (VMD = 3.4 μm), the face shield was less effective, blocking only 68% of the cough and 76% of the surface contamination. In the period from 1 to 30 minutes after a cough, during which the aerosol had dispersed throughout the room and larger particles had settled, the face shield reduced aerosol inhalation by only 23%"

**Table 1.**

Advantages and disadvantages of face shields compared with other forms of face/eye protection (i.e., protective facemasks [filtering facepiece respirators, medical/surgical masks], goggles, safety glasses).[11, 12, 16, 19, 21, 22, 38–44]

| Advantages |
| --- |
| -more comfortable |
| -protect a larger portion of the face |
| -less retained dermal facial heat |
| -less fogging than goggles |
| -less claustrophobic |
| -no impact on breathing resistance |
| -no fit testing required |
| -can be disinfected easily |
| -wearers do not need to be clean shaven |
| -easy to don and doff |
| -relatively inexpensive |
| -no impact on vocalization |
| -can be worn concurrent to other face/eye PPE |
| -do not impede facial nonverbal communication |
| -reduced patient anxiety |
| -protects against self-inoculation over a wider facial area |
| -may extend the useful life of a protective facemask when used concurrently |
| **Disadvantages** |
| -glare |
| -fogging |
| -optically imperfect |
| -some models may not fit properly over some respirators (e.g., duckbill filtering facepiece respirators) |
| -bulkier than goggles and safety glasses |
| -peripheral fit poorer than protective facemasks |

*The key points that my interpretation of these findings, combined with anecdotal experience and testing of many different risk reduction systems and masks over the last year, is that both safety eyewear, and visors offer different protection which combine to reduce risk when used together.*

*I do not see any reference to the type of procedure of the duration of time in the chair in the proposed guidelines, and these are key issues when it comes to selection of PPE.*

*In the case of AGP generating.*

*We should consider that the visor will decrease contamination of underlying PPE and allow for safer doffing and clean down of loupes. It will also decrease gross contamination of the wearer.*
*Going back to the original question of whether a single mask can be used between patients, I would suggest that this could only be if a visor was used over top as we can see that "The face shield also reduced the surface contamination of a respirator by 97%."*

*The other way suggested by some to reduce contamination of that respirator is a surgical mask over it.*
*But during my conversations with manufacturers of respiratory protection equipment we have discussed that if a surgical mask is used over top of an N95 mask or any respirator, it is no longer complying with the standards if was tested under. Therefore, the compliance certificates are null and void. This seems in line with the NIOSH official stance on surgical masks over N95.*
*It could accumulate C02 at higher levels than we consider safe and could have a deleterious effect on operator safety. Especially if we consider it may be worn for up to 4 hours. This very problem has held back the development of many exhalation filters by 3M and Sundstrum, and other reusable respirator companies. (Leading to the development of NIOSH accredited N95 non exhalation valve, two way filtering reusable respirators which I am currently bringing into the country for testing).*

*With the above in mind I would suggest that a visor is considered spatter protection, and a very good risk mitigator in procedures likely to create spatter, when used in combination with safety eyewear.*

*In the case of procedures that are longer in duration and cause aerosol, or longer consultations, any coughs or aerosols will likely bypass the visor easily and provide limited help for eye protection.*

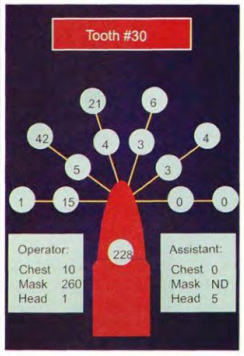
*In a consultation with little spatter likelihood I would suggest that safety glasses are best unless a very short duration consultation. As they will provide better protection over a longer period in patient area.*
*In cases of more spatter likely such as AGP generation I would suggest retaining the need for a visor on top of safety glasses for risk reduction.*

*I would not recommend visor wear on its own in any situation where we are trying to protect from aerosol. (This is keeping in mind that during consults patients can cough and create aerosol).*

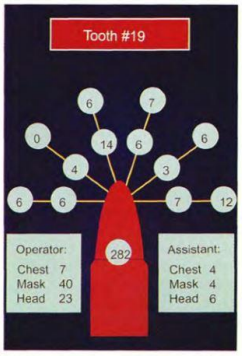
*In the case of AGP generating procedures I would also like to lend my support to the proposed guidelines suggesting single use Aprons between patients.*

*Studies have shown that the chest area of patient/dentist and assistant are a high contamination zone (see diagram )*
*EVALUATING SPATTER AND AEROSOL CONTAMINATION DURING DENTAL PROCEDURES JADA, Vol. 125, May 1994*
*So I would like to lend my support to the provision of Aprons single use on all AGP patients at least to mitigate one factor.*
*It may also be good practice in AGP of having a good coverage apron on the patient chest to minimise the spatter on their clothing, which may become contaminated and then end up touched by the patient and contaminate our clinics after surgery on the way out.*

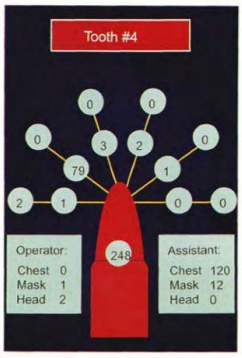
**Figure 3. Diagrams showing bacterial counts (alpha haemolytic streptococci) collected on the agar plates around the subject's head, on the subject's chest and the operator and assistant during various procedures.**



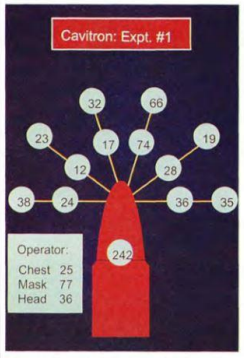

**3a. Preparation of a mandibular right first molar.**



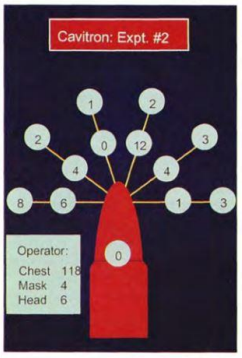

**3b. Preparation of a mandibular left first molar.**




**3c. Preparation of a maxillary right second premolar.**




**3d. Ultrasonic scaling of a subject who did not brush or floss within 24 hours before appointment.**




**3e. Ultrasonic scaling of subject who brushed and flossed before the appointment.**

or floss for 24 hours before the procedure can be seen in Figure 3d. The dispersion was less directional than that generated by the restorative procedures and was fairly evenly distributed, 24 inches from the operating area. There were high levels of contamination on the operator's mask and on the subject's chest. Moderate bacterial counts were also found on plates from the main bracket table and counter shelf in this experiment.

In the second scaling experiment, the subject brushed and flossed before the ultrasonic scaling procedure. The same widespread dispersion was found but with much lower

*Thankyou for the opportunity to provide feedback, and my general comments are in support of most of the proposed guidelines, but with some small tweaks which I feel will balance reduced risk further for patients and dentists, without impacting heavily on cost to patients/practices or quality of service.*

*Nāku iti noa, nā*

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