PPE and Decontamination for non-Aerosol Generating Procedures in Orthodontics (non-AGPs)

This guidance is in line with NHS England and Public Health England guidance in performing AGPs at the time of publishing.

Advice should be sought from local infection prevention/control teams where applicable.

During periods of widespread community transmission of COVID-19 dentists should use PPE to treat patients based on the type of urgent care they are providing. In effect, there is now an assumption that all patients present a risk of transmission of the virus.\textsuperscript{1}

**Key points for non-AGP PPE and Clinic management\textsuperscript{1-3}**

- Hand hygiene – bare below the elbows.
- Uniform – clinical clothing only under PPE
- **Non AGP** PPE during treatment
  - Donning
    - disposable apron,
    - type IIR fluid resistant mask,
    - Visor/eye protection.
    - gloves
  - Change after EACH pt
  - Doffing technique essential to adhere to minimise risk of transmission
- Decontamination of room according to HTM 01 05\textsuperscript{6} with appropriate viricidal agent
- Waste management according to HTM 01 07\textsuperscript{7}
- Management of transfer of impressions and appliances to lab – according to HTM 01 05\textsuperscript{6}

**Quick links**

Government recommended PPE and decontamination for clinical scenarios in the dental setting are discussed in the Urgent dental centre SOP for England\textsuperscript{1}, and for Scotland\textsuperscript{2} and Wales\textsuperscript{3}

- **PHE** Reducing the risk of transmission of COVID-19 in the hospital setting\textsuperscript{4}
- **Cross Nations** Covid-19: infection prevention and control\textsuperscript{5}
- HTM **01-05** for decontamination\textsuperscript{6}
- HTM **01-07** for waste management \textsuperscript{7}
Summary for **NON AGP clinical scenarios**

**PPE**

- The use of non-aerosol generating procedure specific PPE is required. (see appendix A for mask Type)
- Staff should be formally trained in donning and doffing PPE.
- Ensure donning/doffing procedures highlighted in surgeries and adhered to.

**Decontamination of clinical rooms**

- Decontamination in line with HTM 01-05 guidance should be observed.\(^6\)
- Ensure disinfectant used is appropriately virucidal. (0.1% hypochlorite)
- Management of waste according to HTM 01-07\(^7\)
- PPE must be worn for cleaning down of rooms.
- Consider use of appropriate air filtration / HEPA filter units.

**Decontamination of non-Clinical rooms**

- Standard HTM 01-05 guidance should be observed.\(^6\)
- Ensure social distancing can be maintained.
- All environments should be clutter free and ensure all surfaces can be wiped-down.
- Increase the frequency of cleaning/decontamination.
- Consider use of appropriate air filtration/HEPA filter unit.
PPE advice in the Health care setting

“Bare below the elbows” is an attempt to ensure adequate hand and wrist hygiene and reduce the spread of hospital acquired infections. It emphasises the need for

- short sleeves,
- no wristwatch,
- no jewellery or nail polish/acrylics
- avoidance of neck ties
- No white coats

when carrying out clinical activity in addition to adequate hand hygiene practice. This remains an important part in the cross infection control and PPE recommendations.

links for posters on hand hygiene here and hand rub here

Clothing in the clinical environment

There is an expectation that only specific clothing/uniform should be worn within the clinical setting such as clinical scrubs, dental tunics and trousers under PPE, and that this is not worn outside of the clinical environment. Clinicians should change to go home, and uniform should be placed in washable or disposable laundry bags for separate cleaning, at least at 60°C ideally, if not being laundered on site.

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In summary for treatment in the Orthodontic setting in **Non AGP** situations

The *minimum* PPE recommended is (the single use of)

<table>
<thead>
<tr>
<th>Setting</th>
<th>Context</th>
<th>Disposable gloves</th>
<th>Disposable plastic apron</th>
<th>Disposable fluid repellent long sleeved gown</th>
<th>Fluid resistant surgical mask (type IIR)</th>
<th>Filtering Respirator FFP3 mask</th>
<th>Eye/face protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dental Surgery</td>
<td>Non AGP procedure</td>
<td>✓</td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
<td>✗</td>
<td>✓</td>
</tr>
</tbody>
</table>

This is in line with Guidance from PHE and HPS, for PPE in the [Urgent Dental Care settings](#).

### Table 1: Personal protective equipment (PPE) for urgent dental care settings

<table>
<thead>
<tr>
<th>PPE Item</th>
<th>Waiting room/reception</th>
<th>Dental surgery Non AGP treatment</th>
<th>Dental surgery Treatments involving AGPs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Good hand hygiene</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Disposable gloves</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Disposable plastic apron</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Disposable gown*</td>
<td>No</td>
<td>No</td>
<td>Yes*</td>
</tr>
<tr>
<td>Fluid-resistant surgical mask</td>
<td>Yes**</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td>Filtering face piece (FFP3) respirator***</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>Face / Eye protection***</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
</tbody>
</table>

* Fluid-resistant gowns must be worn during aerosol generating procedures (AGPs). If non-fluid-resistant gowns are used, a disposable plastic apron should be worn underneath.

**Where working in reception/communal area with possible or confirmed case(s) and unable to maintain 2 metres social distance

***If wearing a ‘valved respirator’ that is not fluid resistant, a full-face shield/ visor must be worn

****Face / Eye protection ideally should be disposable. If non-disposable safety glasses/goggles or face visors are used they should be disinfected in line with manufacturers guidance.
Clickable link for PHE poster here

clickable link for Scottish poster here
Donning and Doffing of non AGP PPE

Correct technique donning and especially doffing of PPE is essential to maintain efficacy and prevent self/cross-contamination. Space and time for donning and particularly doffing of PPE must be considered as part of dental surgery management. A recent study⁸, all be it in a heath care environment not dental setting, observed that ‘90% of observed doffing was incorrect. Common errors were; doffing gown from the front, removing face shield of the mask, and touching potentially contaminated surfaces and PPE during doffing’.

Safe doffing of PPE requires knowledge, skills and attitudes. In the dental setting, attention to cross infection and knowledge is high, but the addition of specific PPE in this covid environment is new, and likely to need time to be perfected.

Consideration of the location of clinics and their access (waiting rooms/corridors) as well as staff access to Hand hygiene measures (hand gel and/or hand washing) should be planned as part of the PPE and decontamination protocol.

A PHE video on donning and doffing non AGP PPE is available here

Clickable link here for donning, and doffing posters for the non AGP clinical setting (as seen below)
Decontamination in Non-AGP rooms

Surfaces

In line with the recommendations for current Urgent Dental Centres, decontamination following treatment should follow HTM01 05.6.

Clinical staff should also consider disinfecting inert surfaces using chemicals confirmed against COVID-19 and keep a dry atmosphere to mitigate the 2019-nCoV spread. Such surface sanitizers include 62–71% ethanol, 0.5% hydrogen peroxide, and 0.1% (1 g/L) sodium hypochlorite.9

Staff performing Decontamination should be in the appropriate PPE and follow the doffing procedure at the end of the process.

Non clinical areas

The environment should also be kept clean and clutter free. All non-essential items including toys, books and magazines should be removed from reception and waiting areas.

WHO continues to recommend droplet and contact precautions for those people caring for COVID-19 patients10. In line with this, an increased frequency of decontamination should be incorporated into the environmental decontamination schedules for areas where there may be higher environmental contamination rates4:

• toilets and toilet facilities
• ‘frequently touched’ surfaces such as medical equipment, door/toilet handles and locker tops, reception areas, etc should be cleaned at least twice daily and particularly when known to be contaminated with body fluids

Equipment

Decontamination following treatment should follow HTM01-056.

Consideration should be given where external companies are used for sterilisation of instruments. Special requirements have been reported for the wrapping of kits during the COVID-19 pandemic

HEPA filters

High-efficiency particulate air (HEPA) is an efficiency standard of air filter. European standards11 dictate that a HEPA filter must remove at least 99.95% of particles whose diameter is equal to 0.3 μm. The diameter of droplet (>5 μm) and aerosol (<5 μm) thought to be important in the spread of COVID-191 fall within the diameter of that captured by a HEPA filter.
The evidence behind the use of HEPA filters in a healthcare setting is inconclusive, but it is thought to help prevent infection in a hospital setting where they are employed in theatres and isolation rooms.\textsuperscript{12,13}

It has been hypothesised that air filtration could be employed to reduce the severity and spread of COVID-19\textsuperscript{14}. There is no evidence to support or refute their use to prevent transmission of COVID-19 in a dental setting. As such, they may play a role in the decontamination of Clinical and non-Clinical areas during the current pandemic.

If air filtration with a HEPA filter is being considered for use in a non-clinical environment, the size and efficiency of any unit should be tailored to the size of the room it is used in.

**Dental impressions/lab work**

No specific guidance currently exists with respect to covid - 19. As such, decontamination would follow HTM01-05\textsuperscript{6}.

The use of disinfecting agent that is appropriately virucidal for Covid-19 is recommended.

All disinfecting agents should be used strictly in accordance with manufacturer’s instructions. Preference should be given to immersion of impressions in disinfectant as this is less technique sensitive than spray disinfectant.

Writing lab prescriptions and packaging of impressions should take place in a clean environment.

Consider the use of digital impressions where possible.

**Orthodontic Laboratories**

Impressions should be disinfected prior to being sent to an orthodontic laboratory as per HTM 01-05\textsuperscript{6} and as such, normal management in transfer would be appropriate.

Where local or individual concerns exist, consideration should be given to:

- Disinfection of packaging/lab bags on arrival as a 2\textsuperscript{nd} procedure
- Handling the lab work with gloves
- Use of high volume suction for all trimming
- The use of masks/face shields when trimming acrylic *this is an AGP in the clinical setting*
- Disinfection of burs/equipment, in particular the slurry for polishing acrylic should be changed regularly
- Disinfection of benches once jobs completed

All lab work should be disinfected before leaving the laboratory.

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For further information please visit [www.bos.org.uk](http://www.bos.org.uk)
References


   https://doi.org/10.1080/15459624.2019.1628350


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10. WHO continues to recommend droplet and contact precautions for those people caring for COVID-19 patients, 29th March 2020, Accessed 10 May 2020


## Appendix A

### Understanding Mask Types

<table>
<thead>
<tr>
<th></th>
<th>Surgical mask type IIR</th>
<th>FFP2 respirator N95</th>
<th>FFP3 respirator N99</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Sizing /fit type</strong></td>
<td>No</td>
<td>Yes</td>
<td>yes</td>
</tr>
<tr>
<td><strong>Intended use and purpose</strong></td>
<td>Fluid resistant</td>
<td>Reduces wearers</td>
<td>Reduces wearers</td>
</tr>
<tr>
<td></td>
<td>Protects against</td>
<td>exposure to particles</td>
<td>exposure to particles</td>
</tr>
<tr>
<td></td>
<td>large droplets, splashes or sprays of bodily fluids.</td>
<td>including small particle aerosols and large droplets @ &gt;94% filtration rate</td>
<td>including small particle aerosols and large droplets @ &gt;99% filtration rate</td>
</tr>
<tr>
<td></td>
<td>Protects patient from wearers exhalation emissions</td>
<td>Protects patient from wearers exhalation emissions</td>
<td>Protects patient from wearers exhalation emissions</td>
</tr>
<tr>
<td><strong>Face seal fit</strong></td>
<td>Loose</td>
<td>Tight fitting *</td>
<td>Tight fitting *</td>
</tr>
<tr>
<td><strong>Fit testing requirement</strong></td>
<td>no</td>
<td>yes</td>
<td>yes</td>
</tr>
<tr>
<td><strong>User seal check requirement</strong></td>
<td>No</td>
<td>Yes each time donned</td>
<td>Yes each time donned</td>
</tr>
<tr>
<td><strong>Use limitations</strong></td>
<td>Discard after each patient use</td>
<td>Ideally discard after each aerosol generated procedure.</td>
<td>Ideally discard after each aerosol generated procedure.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>If using for a session** (with additional protective measures) discard if becomes damaged or contaminated, seal is broken or breathing becomes difficult.</td>
<td>If using for a session** (with additional protective measures) discard if becomes damaged or contaminated, seal is broken or breathing becomes difficult.</td>
</tr>
</tbody>
</table>

*Correct Respirator mask fit must be fit tested and depends on facial type as to which manufactured mask provides safe cover for healthcare workers.

In some instances all masks cannot achieve a good seal, and a hood or full face respirator must then be worn.

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