



## **Covid 19 Infection control Guide**

In the past few days R A Medical Services have received a growing number of requests for guidance on infection control procedures. The advice below is a suggested guide to dealing with the current situation:

### **Inhalation Sedation (RA) flowmeters**

All dedicated inhalation sedation machines e.g. MDM, DMDM, MXR C2000 or C3000, Accutron Ultra and Digital Ultra are valved. This effectively means that once the fresh gases are titrated, they pass out of the flowmeter fresh gas outlet (Bag tee). This bag tee is uni-directional valved – i.e. some of the gases are directed into the reservoir bag with the remainder passing out and entering the breathing system fresh gas hose.

The valve prevents any reversal of flow, thereby protecting the flowmeter and reservoir bag from any contaminated gases re-entering.

### **Breathing Systems**

All modern active dental breathing systems to include: Porter brown, Accutron Clearview and PIP, Matrx ANS have a dedicated one way flow – if assembled correctly.

With the Porter brown and Accutron Clearview systems, a very similar fresh gas/waste gas flow takes place:

- Fresh titrated gases pass from the flowmeter bag tee into the corrugated 3' fresh gas hose.
- On reaching the large bore fresh gas Y connector, it passes into the larger bore outer tubing of the twin coaxial hose (Porter grey & Accutron white).
- Passing through the larger bore of the hood hose connectors, the fresh gases enter the inner liner – this can be either autoclavable (grey) or white/green disposable for the Porter brown nasal mask assy or coloured/scented in the case of the Accutron Clearview masks.
- The patient inhales – then exhales, allowing the flapper valving of the double masks to open and the waste gases pass into the outer section of the double mask.
- The waste gases are then drawn into the narrower bore of the coaxial hose
- Passing through the narrow vacuum Y connector, the gases enter the vacuum hose. The Porter brown system has a smooth grey 8' hose terminating in a vacuum control block which allows connection to the method of active draw. The Accutron systems are differently arranged; the vacuum hose is corrugated and divided into two sections – these being joined by the vacuum control block mid-section.
- The Matrx ANS is a somewhat different arrangement with single fresh gas hose to the mask and single vacuum hose from the mask – but still a one way arrangement.
- For other breathing systems, advice should be sought from the supplier.

As these flowmeters and breathing systems are a dedicated one way flow, only certain components of the system are contaminated by patient contact:

1. Coaxial hose
2. Hood/Hose connectors
3. Outer mask and inner liner – or Clearview disposable double mask
4. Vacuum Y connector
5. Vacuum hose
6. Vacuum control block

In normal circumstances, the previously perceived 'gold standard' of items changed between patient always consisted of:

Coaxial hose, Outer mask, inner liner and hood/hose connectors, coaxial hose slide adjuster

The fresh gas hose does not become contaminated internally but may suffer external aerosol contamination as will the reservoir bag and surface of the flowmeter/mounting. If necessary, it can be wiped over – although this is difficult due to the corrugations. It could also be washed by holding both ends and 'swishing' through hot, soapy water and then drying by hanging up with end down to 'drip/dry'.

Alternatively, an autoclavable fresh gas hose can be used.

The vacuum hose and vacuum control block will also be contaminated – but traditionally has always been treated as a 'contaminated' item and merely replaced on a regular basis. It can also be wiped over externally – the vacuum hose is capable of autoclaving – but not the vacuum control block.

### **IPC Risk Levels for Dental Scavenger Breathing System Components**

The Porter brown system was introduced to the UK marketplace by R A Medical in 1996 and has proved extremely popular, although a comprehensive selection of other breathing systems/masks are available. There do not appear to be any reported infection issues associated with it in the last 20+ years and certainly a very low level of risk if the system is used and cleaned/sterilised according to Manufacturer instructions.

From an IPC risk level, each component of the system is documented below including the reservoir bag, which technically does not form part of the breathing system, but is nevertheless a vital component:

- Reservoir bag – 2 litre or 3 litre (the former the most popular and frequently used). Whilst these are technically an autoclavable item, they do not need to be so used and autoclaving will considerably shorten the product life. The exterior will become contaminated by aerosol spray but can be rinsed. Wiping over with a pre-moistened wipe – such as Clinell or similar type for example, will cause the material of the bag to discolour. The interior will never be contaminated, due to the one way valving in the fresh gas outlet of the sedation flowmeter – an example of such is the MDM. The titrated fresh gases pass through the bag tee valve, allowing some gas to pass into and fill the reservoir bag, with some passing through and immediately out of the 22mm outlet into the breathing system. The patient cannot 'rebreath' into the fresh gas hose or reservoir bag. **IPC Risk level - low**

- 3' or 6' fresh gas hose – the normal hose is non-autoclavable although an alternative autoclavable hose is available. Most people are quite happy to use the former. Again, the interior will never be contaminated, but similar to the reservoir bag, there will be some aerosol contamination. It can be washed or wiped. **IPC Risk level - low**
- Fresh Gas Y connector – this can be washed or autoclaved – as above, never contaminated internally due to dedicated fresh gas flow. **IPC Risk level - low**
- Coaxial hose – grey – Manufacturer recommendation is to wash in warm water with a mild detergent or use a washer disinfectant. They can then be autoclaved at 134 to 137 degrees Celsius – once per week Manufacturer recommendation **IPC risk level - medium**
- Vacuum Y connector – this can be washed or autoclaved **IPC Risk level - low**
- 8' vacuum hose – can be autoclaved but most people treat it as a contaminated item. **IPC Risk level - low**
- Vacuum Control Block – not autoclavable. **IPC Risk level - low**
- Porter brown autoclavable outer hood, inner liner and pair hood/hose connectors – adult & paediatric. Remove inner liner from outer mask and wash in water and mild detergent. A Thermal washer disinfectant can be used but care must be taken with the liner flapper valve. Cold sterilisation not recommended. The masks, liners and hood/hose connectors can be autoclaved. **IPC Risk level - high**

As a rule of thumb, all components should be regularly inspected and replaced, if worn or damaged. Particular attention should be given to the vacuum hose – this is thick walled to prevent occlusion and an easy test is 'pinch' between thumb and forefinger – if nicely resistant then the hose is safe to continue in use. If easily compressed, then the hose should be replaced immediately. The life expectancy of all breathing system components is approximately 12-18 months. However, if damaged or exhibiting signs of wear, they should be replaced.

Further guidance on Infection Control and Care may be referenced in our document ***Infection Control Guide to Care of Inhalation Sedation Flowmeters and Scavenger Breathing System Components.***

This explanation is considered as a guide only and if there are any further detailed queries, then these should be directed to Mrs Janet Pickles [janet@ramedical.com](mailto:janet@ramedical.com) or tel: 01535 652444.

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