“A prickly question”

Beards in aviation

IATA Aviation Health
London
3 Oct 2017

“Plus ça change, plus c’est la même chose”
Biases/Disclaimers
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Considerations

Freedom of choice
Religious/cultural considerations

vs.

Grooming standards
Safety equipment
Masks

Low cabin pressure – inboard or outboard

Fire/smoke – inboard
Early US studies

USN study 1972: 16-67% inboard leak

FAA CAMI 1980’s - Tested 3 types of TSO approved mask with mask-mounted regulators and all three demonstrated significant leakage in subjects with facial hair
It is important that crew members are made aware that the presence of beards, heavy facial hair or long hair can have an adverse effect on the efficiency of masks or smoke hoods provided on board.

Air operators should take the content of this CBAAC into consideration …..
MAG responses

- Most allow beards if neatly trimmed
- Qantas – requires clean shaven
Other mask wearers

- Engineers
- Firefighters
- Divers
- Military personnel
- Police officers
- Anaesthesia patients

In all cases concerns about facial hair – mostly Inboard leaks
<table>
<thead>
<tr>
<th></th>
<th>Bearded (67)</th>
<th>Non-bearded (303)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Half-mask</td>
<td>Fit Factor 12</td>
<td>Fit factor 2950</td>
</tr>
<tr>
<td></td>
<td>= 8% leakage</td>
<td>0.03% leakage</td>
</tr>
<tr>
<td></td>
<td></td>
<td>= 246-fold drop in protection</td>
</tr>
<tr>
<td>Full facepiece</td>
<td>Fit Factor 30</td>
<td>Fit Factor &gt;10000</td>
</tr>
<tr>
<td></td>
<td>= 3% leakage</td>
<td>0.01% leakage</td>
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<tr>
<td></td>
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<td>= 330-fold drop in protection</td>
</tr>
</tbody>
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12 of 14 studies reviewed found that in the presence of facial hair, face seal leakage increases from 20 to 1000 times.

Inter-subject and inter-respirator face seal leakage variability increased when facial hair was present. In the other two studies... no statistically significant leakage differences were found.

Bag-mask ventilation (BMV) might be challenging because of the difficulty of achieving a good seal between the mask and the facial hair.

If you suspect that airway management might be difficult...there is no harm in politely asking if the patient would consider shaving or at least trimming the beard.
Community Use of N95 Respirators

- FDA has cleared the following N95 respirators for use by the general public
  - 3M™ Particulate Respirator 8670F
  - 3M™ Particulate Respirator 8612F
  - Pasture™ F550G Respirator
  - Pasture™ A520G Respirator

  - N95 respirators are not designed for people with facial hair or children.
  - People with chronic respiratory, cardiac, or other medical conditions that make it harder to breathe should check with their healthcare provider.
....beards present serious problems for tight-fitting facepiece respirators because their texture and density vary daily, causing unreliable respirator fit and present a higher potential for leakage.

However, some other types of respirators do not require a face seal, and thus, usually can be worn with facial hair, such as loose fitting and hooded powered air-purifying respirators.
Any respirator manufacturer making false claims such as advertising a tight fitting, full facepiece or hooded SCBA unit that is configured with a nose cup, for users with facial hair, may be subject to rescission of NIOSH approval.
OSHA (29 CFR 1910.134)

...prohibits tight fitting respirators to be worn by workers who have facial hair that comes between the sealing surface of the facepiece and the face of the wearer.
Facial hair is allowed as long as it does not protrude under the respirator seal, or extend far enough to interfere with the device's valve function.

Short mustaches, sideburns, and small goatees that are neatly trimmed so that no hair compromises the seal of the respirator usually do not present a hazard and, therefore, do not violate ….
We are in full agreement with OSHA that facial hair should not be permitted in the sealing area of a tight-fitting respirator or allowed to interfere with respirator valve function and that respirator fit testing should not be conducted on these people……
Facial hair that lies along the sealing area of a respirator, such as beards, sideburns, or mustaches will interfere with respirators that rely on a tight facepiece fit to achieve maximum protection. The areas of the skin, which contact the face or neck seal and nose cup seal, must be free of any hair.
FAA vs Ronald Macko

30 Nov 1999  NTSB Hearing


15 day suspension of ATPL certificate

Overturned by NTSB
Summing up
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