



The effect of facial stubble on RPE fit

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Mike Clayton

PPE Technical Team Lead

Shirley Frost and Rhiannon Mogridge

Health and Safety Laboratory

Health and Safety Executive

Background

- Tight-fitting facepieces rely on an effective faceseal
- RPE guidance/user instructions
 - Wearer to be clean-shaven
- Studies have shown effectiveness of full facemasks is significantly reduced if the wearer has facial hair
 - (Bolsover, 1992; Stobbe *et al*, 1988; Skretvedt and Loschiavo, 1984; Hyatt *et al*, 1973)
- Little data on disposable facepieces and half masks



Comments from RPE wearers.....



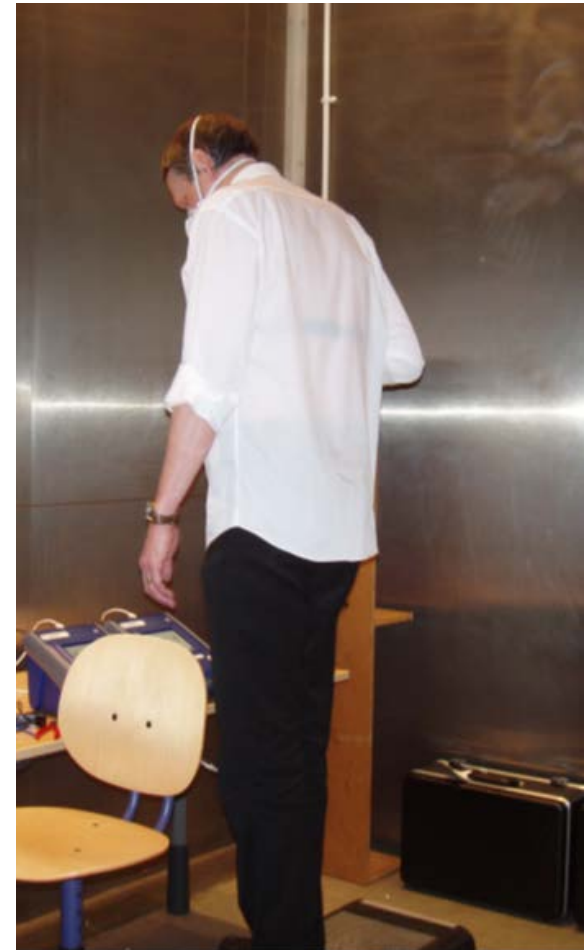
“I shave for my wife not my boss!”

Research objective

- To understand how the quality of fit changes over time due to facial hair growth

Methodology

- 15 male volunteers
- 7 FFP3, 2 half masks
- Fit tested from clean-shaven to 7 days of stubble growth
- Fit tested using Portacount model 8030
- Each volunteer tested with 3 FFP3 and 1 half mask



FFP3 filtering facepieces

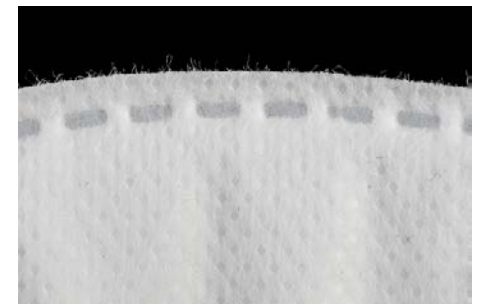
Type 1: Smooth surfaced foam material



Type 2: Knitted fabric covering a smooth material



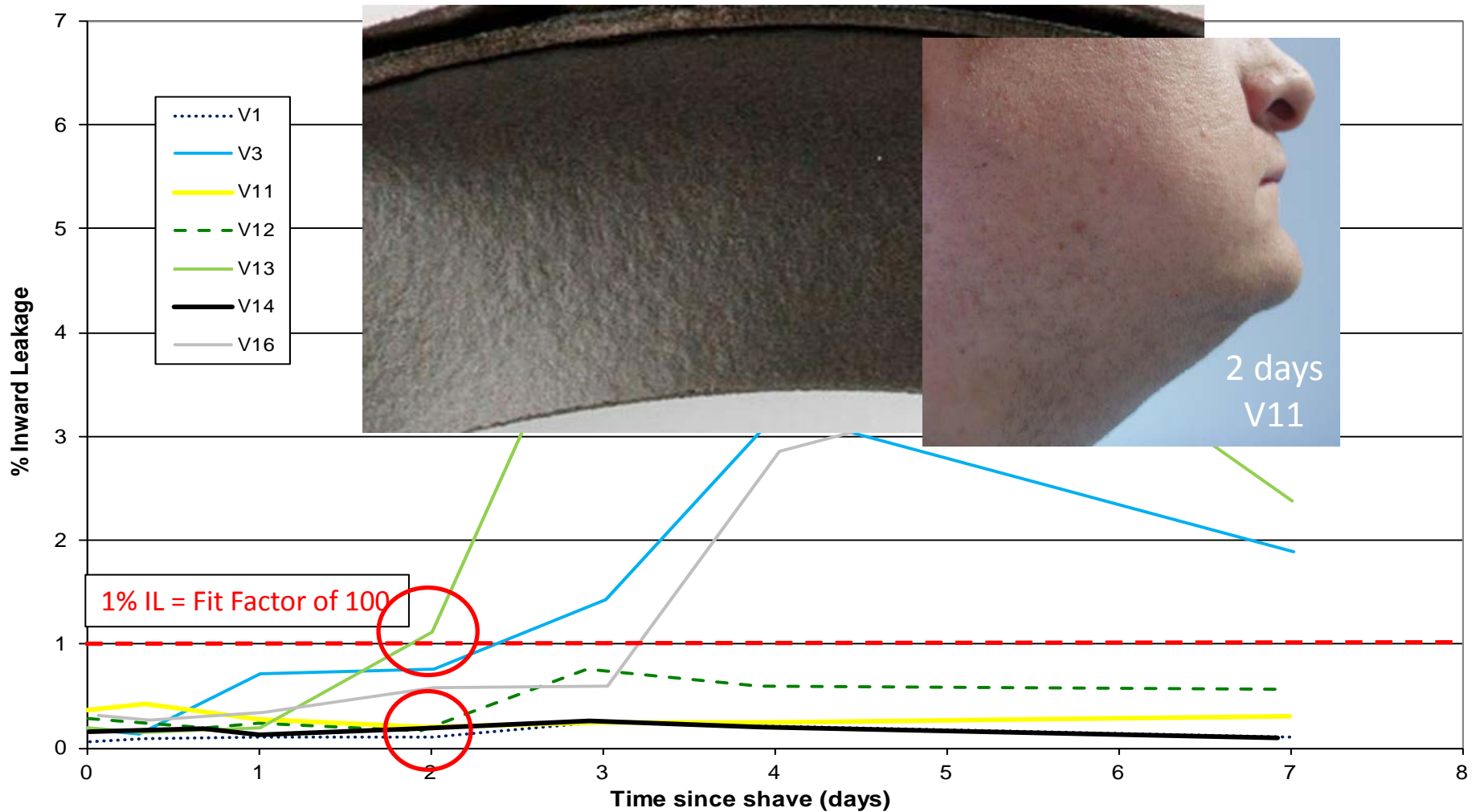
Type 3: The edge of the filtering material forms the face seal



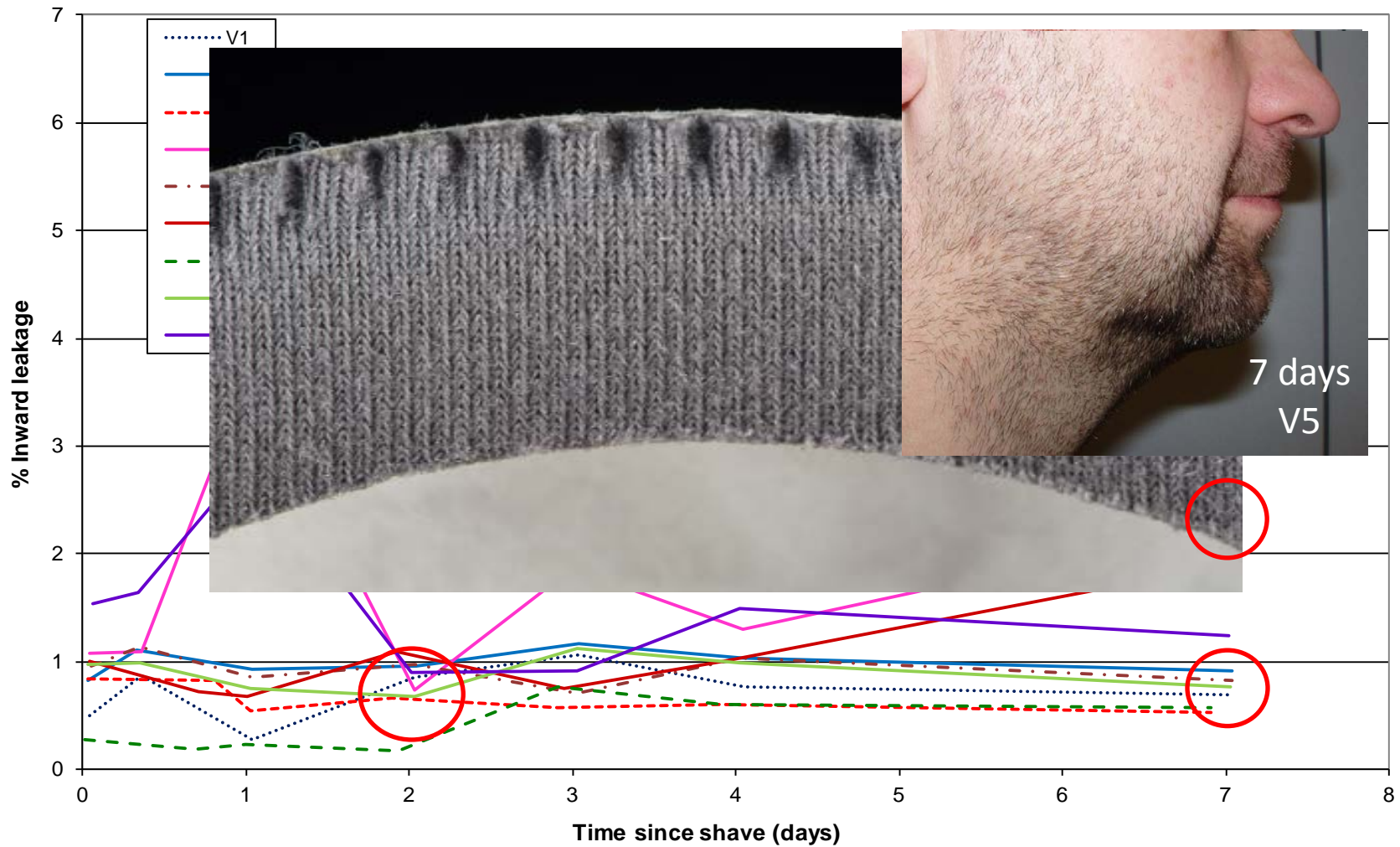
Elastomeric half mask



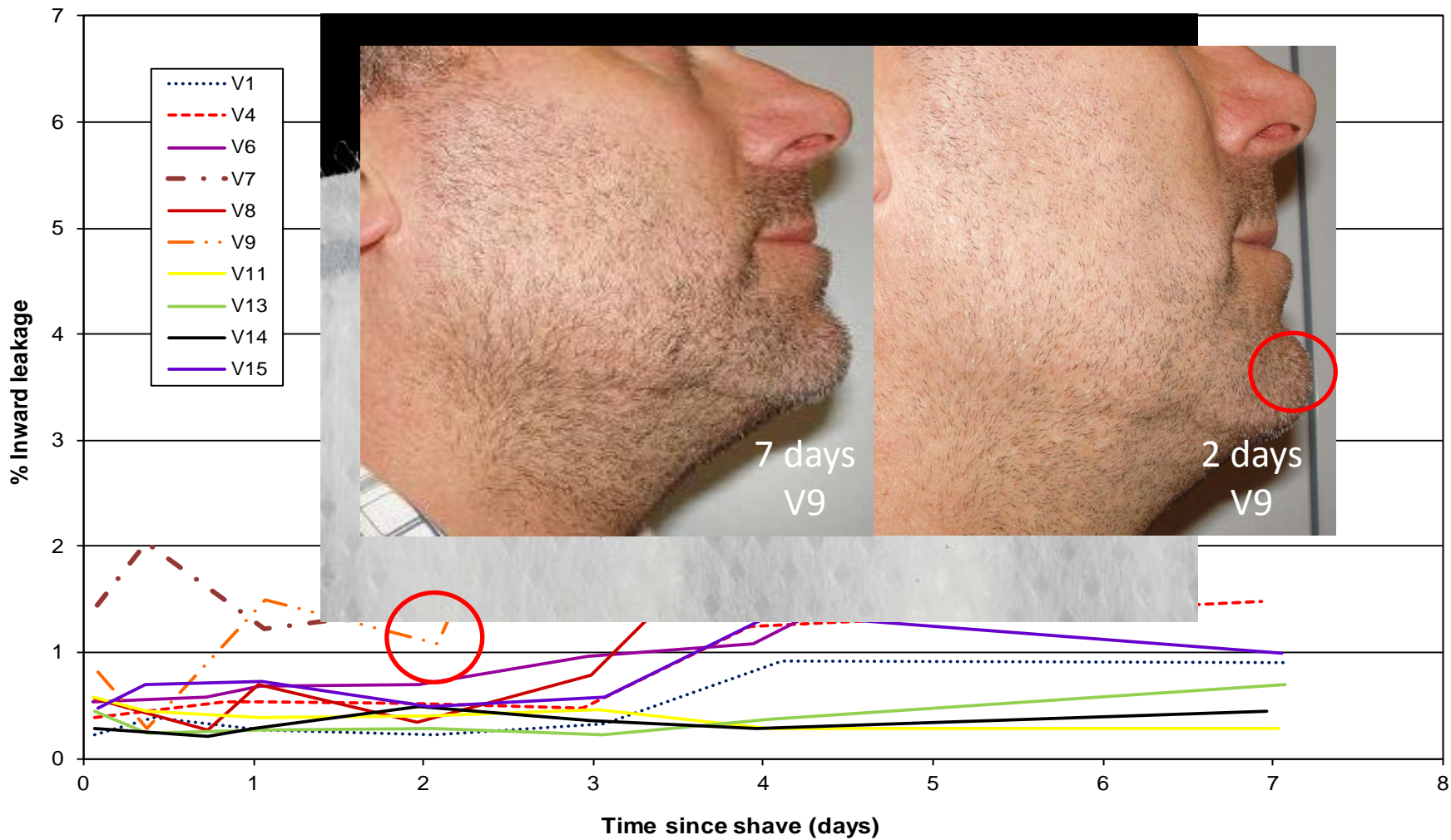
Smooth surfaced foam material



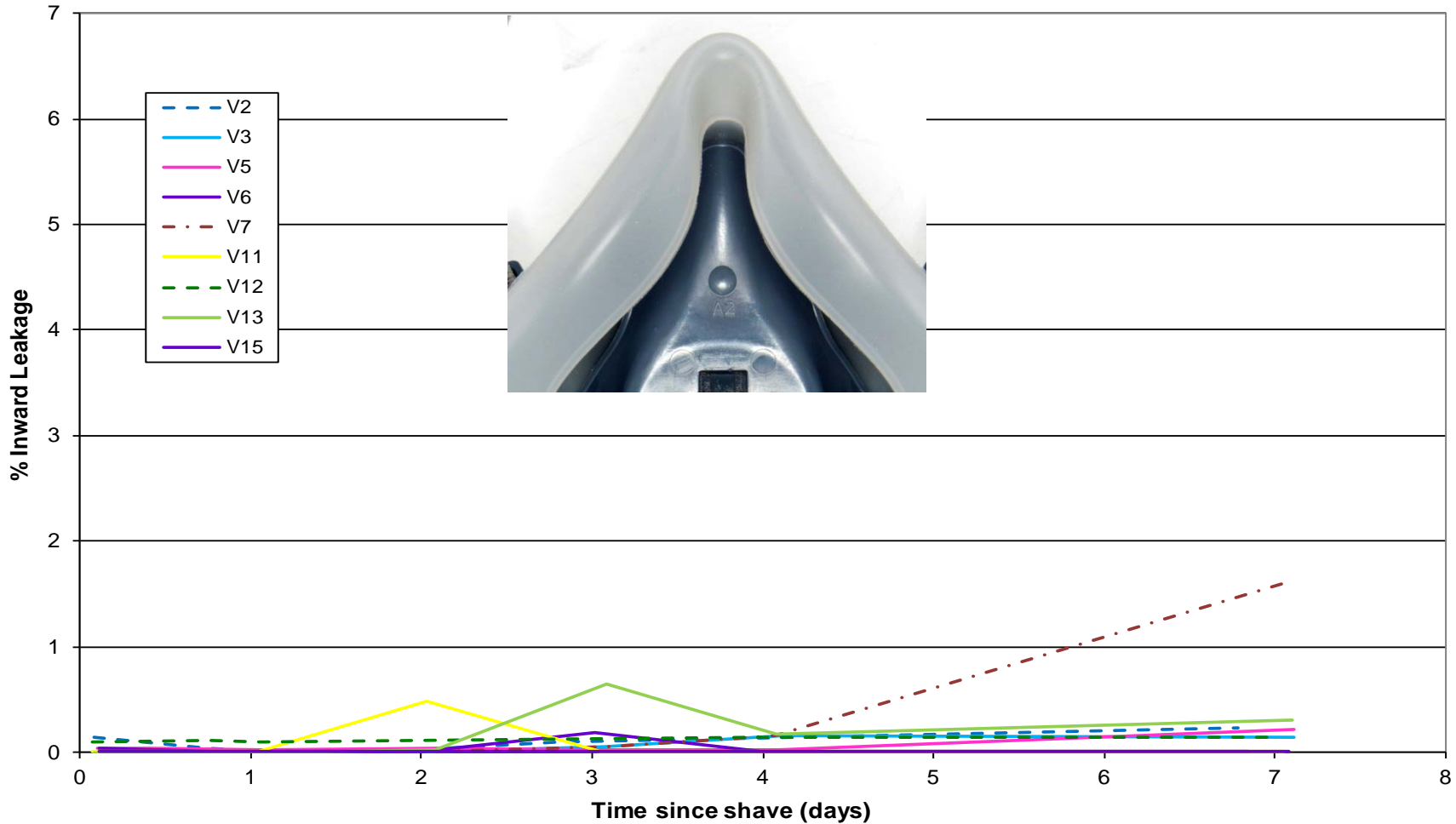
Knitted fabric face seal



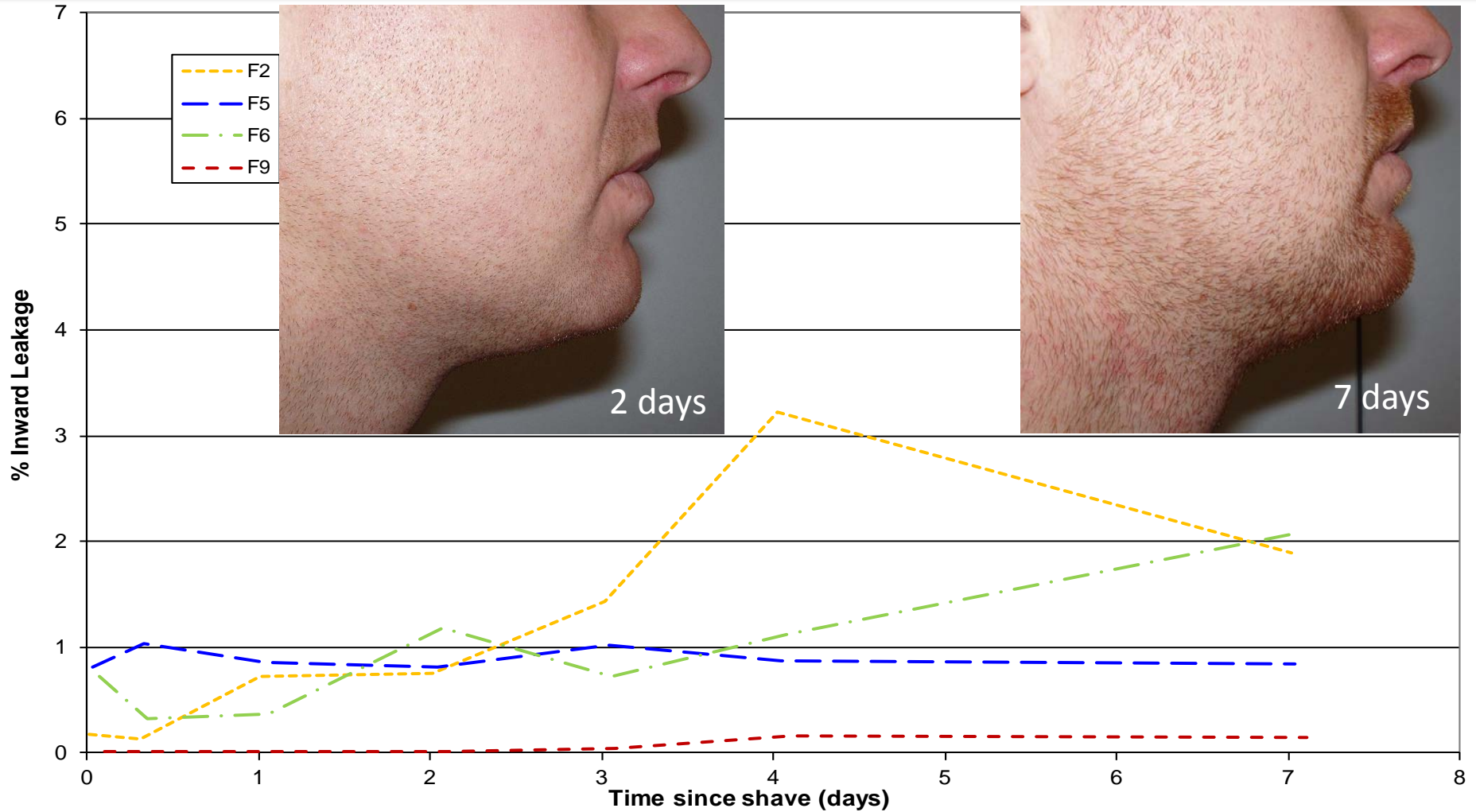
Filtering material face seal



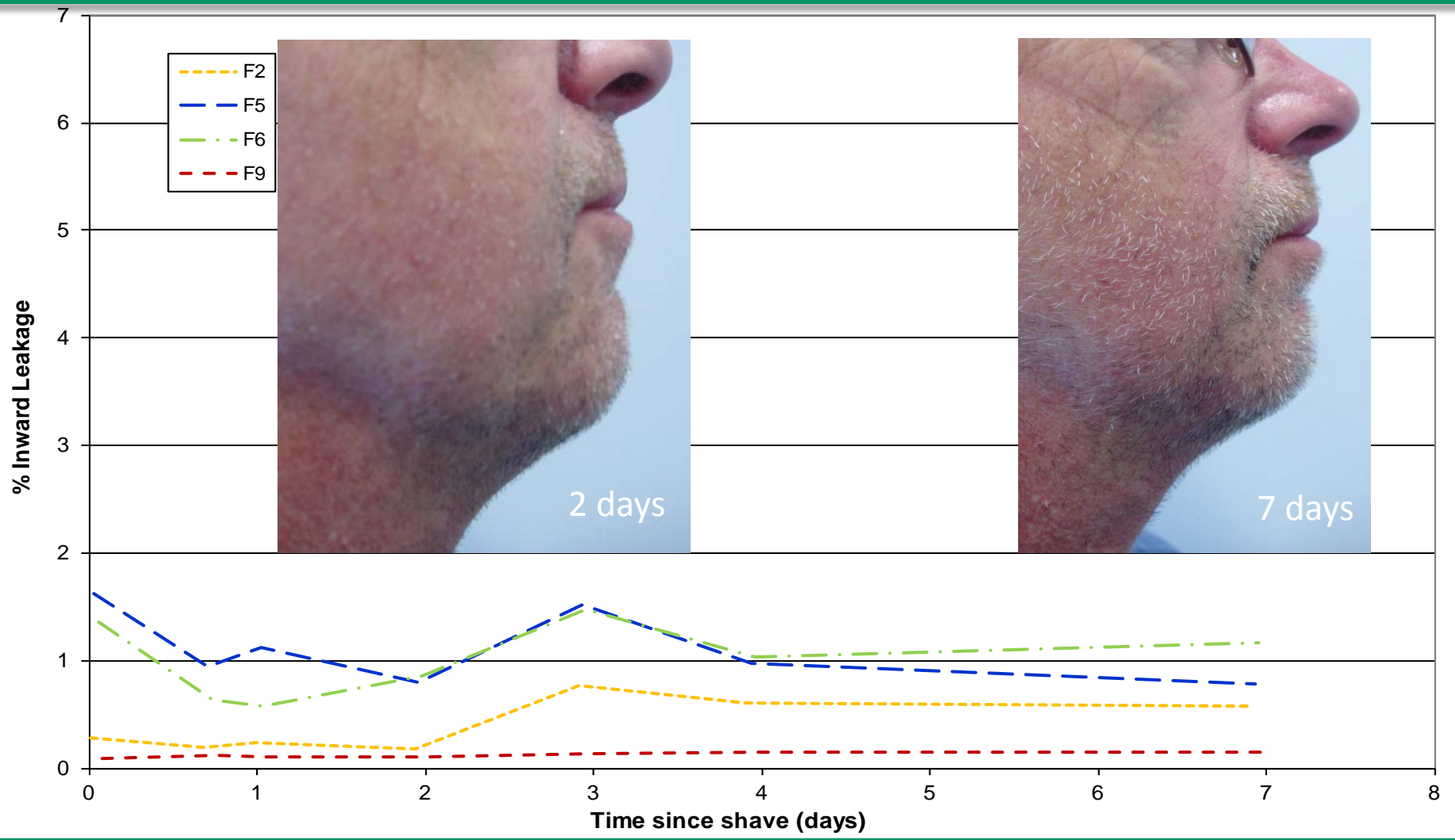
Elastomeric half mask



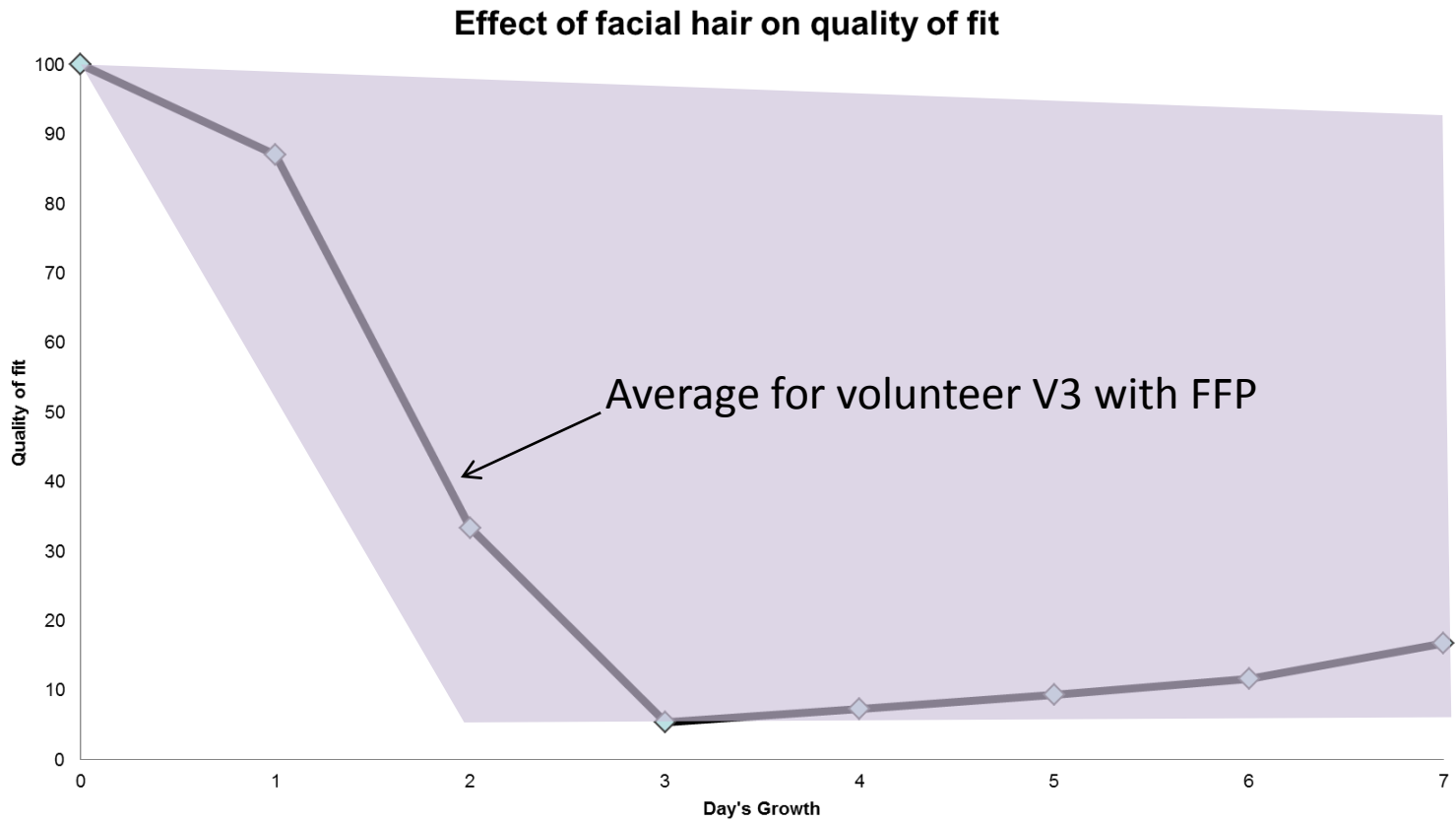
Volunteer 3



Volunteer 12



Overall effect



Findings

- Quality of fit is reduced where stubble is present
- May begin within 24 hours from shaving
- Increases as facial hair grows
- Specific to the facepiece/wearer combination
 - Elastomeric facepieces more forgiving
- Is unpredictable

Conclusion

- Facial hair can reduce the quality of fit
- Guidance on wearers being clean shaven should be followed
.... hair which has not been shaved within the previous 8 hour period (BSEN529)



Questions?

Mike Clayton

PPE Technical Team Lead

Health and Safety Laboratory

Health and Safety Executive

email: mike.clayton@hsl.gsi.gov.uk

Phone: +44 (0)1298 218332

*Widest science base of any equivalent
laboratory*