



BY JARROD SHAPIRO,
DPM

Should Docs Shave Their Beards for Better Mask Fit and Performance?

Here's some good and bad news about facial hair.

Practice Perfect is a continuing every-issue column in which Dr. Shapiro offers his unique personal perspective on the ins and outs of running a podiatric practice.

The N95 mask is one of the best and most sought-after pieces of personal protective equipment (PPE) around. Today, all clinical encounters occur with an N95 mask, and that PPE is becoming as much a part of the daily clinical dress as scrubs. In fact, you can almost get used to that upper respiratory infection feeling in the sense that the mask squishes one's nose, making you an obligate mouth-breather. As such, you can't help but think more about the mask. Obviously, facial hair is very common in healthcare providers, and you have to wonder if this presents a problem. Should male healthcare workers be clean-shaven, or is a beard safe? What about versions of beards? Is a goatee safer than a full beard? Let's take a look at the evidence.

Looking way back to 1984, Skretved and Loschiavo¹ performed qualitative and quantitative fit testing in 370 males. They found a 330-fold decrease in protection in those individuals with beards. Moving a little



en and fit-tested, creating 285 total tests.³ They found beard length and density decreased mask fit. It's looking pretty bad for beards.

Cleanliness of Beards

Let's take a slight detour and consider how clean all this facial hair is. Wakeam and associates looked at this in 2014 when they examined bacterial colonization rates in 408 male healthcare workers, 199 with facial hair and 209 without.⁴ They performed swab cultures of this predominantly hospital-based population and found no significant difference in bacterial colonization rates between those

Those with facial hair had LESS of staph species than those who were clean shaven. Microtrauma from shaving may promote growth of Staph.

forward in time to 1988, a literature review of 14 studies found the presence of facial hair increased mask leakage by 20-1,000 times.²

More recently in 2017, Floyd, et al. performed quantitative fit testing on 19 subjects with beards 0.5 inches long who were then shaved to 0.25, 0.125, 0.063 inches, and clean-shav-


with or without facial hair. They did find a difference in the organisms that colonized these different populations with a *decrease* in *Staphylococcus aureus* and methicillin resistant *Staph epidermidis*. Let's say that again: those with facial hair had LESS of these staph species than

Continued on page 50

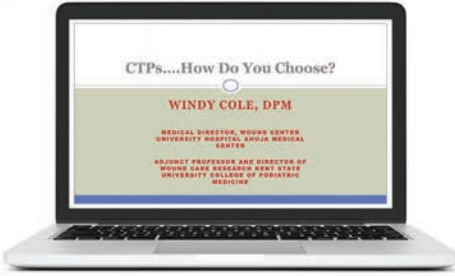
PRESENT Podiatry

PRESENT Podiatry (podiatry.com) is a podiatrist-owned-and-run company that proudly serves as the largest provider of online CME to the podiatry profession. One of the key lectures in their online CME collection is highlighted below.

Featured Lecture




CTPs-How Do You Choose?



In this Lecture...

Windy Cole, DPM discusses complications that cause wound healing to stall. Dr Cole also reviews the treatment of chronic wounds using cellular and tissue products (CTPs) as well as distinguishing between the variety of commercially available CTPs and when to best use each type.



Windy Cole, DPM
Adjunct Professor and Director of Wound Care Research
Kent State University College of Podiatric Medicine
Kent, OH

Lecture Link - <https://prsnte.com/105>

0.75 CECHs

50

Beards (from page 49)

those who were clean shaven! The authors explain this as resulting from the skin microtrauma that occurs as a result of shaving with a razor in much the same way that surgical site infections increase after pre-operative skin shaving. Both clean-shaven and those with facial hair increased the rate of bacterial shedding after touching their faces. Moral of this

the facial hair, and they then performed quantitative fit testing (the kind all healthcare workers have to undergo now). They found a fit factor for each person, requiring a score of 100 to pass. Overall, only 34 of 105 people (32%) achieved an adequate fit and none of those with a full beard achieved adequate fit. They found the length of hair inversely correlated with quality of mask fit5. It's very interesting that

er than being clean-shaven (ironic choice of terms, huh?), it reduces the protection your mask provides. Maybe we should bring back the mustache? **PM**

References

- ¹ Skretvedt OT, Loschiavo JG. Effect of facial hair on the face seal of negative-pressure respirators. *Am Ind Hyg Assoc J.* 1984 Jan;45(1):63-66.
- ² Stobbe TJ, daRoza RA, Watkins MA. Facial hair and respirator fit: a review of the literature. *Am Ind Hyg Assoc J.* 1988 Apr;49(4):199-204.
- ³ Floyd EL, Henry JB, Johnson DL. Influence of facial hair length, coarseness, and areal density on seal leakage of a tight-fitting half-face respirator tight-fitting half-face respirator. *J Occup Environ Hyg.* 2018 Apr;15(4):334-340.
- ⁴ Wakeam E, Hernandez RA, Rivera Morales D, Finlayson SR, Klompas M, Zinner MJ. Bacterial ecology of hospital workers' facial hair: a cross-sectional study. *J Hosp Infect.* 2014 May;87(1):63-67.
- ⁵ Sandaradura I, Goeman E, Pontivo G, Fine E, Gray H, et al. A close shave? Performance of P2/N95 respirators in healthcare workers with facial hair: results of the BEARDS (BENchmarking Adequate Respiratory DefenceS) study. *J Hosp Infect.* 2020 Apr;104(4):529-533.

Only 47% of the clean-shaven subjects achieved adequate fit. It's not just the beard. It's the mismatch between the face shape and the mask.

story: beards have less staph, but don't touch your face!

Getting back to our original question, just this year, Sandaradura and colleagues, out of Australia, performed a study to evaluate the fit of N95 respirators on 105 male healthcare workers. I can't help but point out that the study is named the "BEARDS" trial (BENchmarking Adequate Respiratory DefenceS). How creative is that?

These researchers categorized facial hair by amount, from clean-shaven to stubble to goatee, all the way to a full beard. Two reviewers classified

only 47% of the clean-shaven subjects achieved adequate fit, which tells us something about the fit of these masks overall. Not the best news to report.

The verdict? If you want to increase the chance that your N95 mask actually fits you well, and subsequently protect you the way you think it does, you're better off without a beard. If you must have facial hair, then a short goatee appears better than a beard. If it fits within your N95 mask, then it will likely create the best seal. Sorry, men. Although a beard appears to be clean-

Dr. Shapiro is editor of PRESENT Practice Perfect. He joined the faculty of Western University of Health Sciences, College of Podiatric Medicine, Pomona, CA in 2010.