

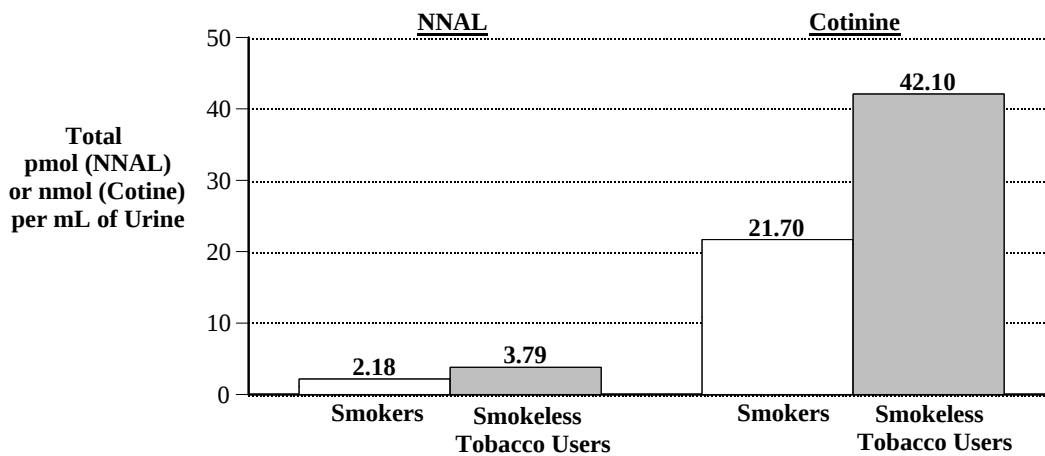
A Weekly FAX from the Center for Substance Abuse Research

University of Maryland, College Park

Smokeless Tobacco Use Not a Safe Substitute for Smoking

Smokeless tobacco use is often considered to be less toxic and carcinogenic than cigarette smoking. However, a recent study of persons seeking treatment for tobacco dependence found that smokeless tobacco users were exposed to higher levels of the carcinogen NNK than smokers. Smokeless tobacco users had 3.79 pmol per milliliter of urine of NNAL (a measure of NNK exposure), compared to 2.18 for cigarette smokers. In addition, smokeless tobacco users had higher levels of cotinine, a biomarker of nicotine exposure, which may be because “smokeless tobacco users strive to achieve similar nicotine levels as do cigarette smokers in order to satisfy their craving” (p. 1571). While the authors acknowledge that “cigarette smoke contains, in addition to NNK, multiple carcinogenic combustion products which are not present, or present in only low amounts, in smokeless tobacco,” they emphasize that “the data presented here show that smokeless tobacco use is far from safe” (p. 1571) and thus is not an acceptable substitute for cigarette smoking.

Total NNAL and Cotinine Levels (per mL of urine) of Smokers and Smokeless Tobacco Users Seeking Treatment for Tobacco Dependence
(n=420 smokers and 182 smokeless tobacco users)



NOTES: NNK stands for 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone. NNAL is a measure of NNK levels and its glucuronides and is a biomarker of NNK exposure. A pmol is one trillionth of a mole.

SOURCE: Adapted by CESAR from Hecht, S.S., Carmella, S.G., Murphy, S.E., Riley, W.T., Le, C., Luo, X., Mooney, M., and Hatsukami, D.K. “Similar Exposure to a Tobacco-Specific Carcinogen in Smokeless Tobacco Users and Cigarette Smokers,” *Cancer Epidemiology Biomarkers and Prevention* 16(8):1657-1572, 2007.

•• 301-405-9770 (voice) •• 301-403-8342 (fax) •• CESAR@cesar.umd.edu •• www.cesar.umd.edu ••
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