

Can You Believe Your Patients If They Say They Have Quit Smoking?*Paul E. Matuszewski, MD; Katherine Ordonio, BA¹; Robert V. O'Toole, MD**¹University of Maryland, Baltimore, Maryland, USA*

Purpose: Smoking is associated with increased complications in fracture care including poor wound healing, nonunion, and infection. Patients undergoing elective nonunion surgery are often encouraged to quit secondary to increased complication risk. Some surgeons will delay surgery until a patient has quit smoking, typically relying on a patient's self-reported smoking status to make treatment decisions. However, it is unknown how reliable self-reported smoking status is in the orthopaedic trauma population. Exhaled carbon monoxide (CO) is a useful tool to assess recent smoking. The purpose of this study is to determine how reliable self-reported smoking status is in the orthopaedic trauma population. We hypothesize that self-reported smoking status is accurate.

Methods: As part of a prospective investigation we surveyed patients with a history of smoking defined as having smoked some days or every day within the last 6 months. As part of the survey patients were queried "Have you used tobacco in the last 7 days?" Following survey administration, patients underwent an exhaled CO evaluation by a research coordinator using a CO monitor. Treating providers were unaware of the exhaled CO monitor results, and participants were not incentivized to quit smoking as part of the investigation. A value of 10 ppm was selected as a cut-off for not smoking.

Results: 389 total surveys were administered. 25% of smokers (96 of 389) stated they had not smoked within 7 days, and had a negative exhaled CO reading. 71% (276 of 389) stated that they were still smoking. 4% (17 of 389) stated they had not smoked within 7 days and had a positive exhaled CO reading. Of the 113 smokers who reported not having smoked within 7 days, 85% (95% confidence interval [CI] .770-.905), 96 of 113 had confirmed negative exhaled CO readings.

Conclusion: Self-reported smoking status is a reasonably reliable indicator in most orthopaedic trauma patients. However, in our study, 15% (95% CI .095-.230) of patients falsely reported smoking status, despite no obvious incentive to falsely report smoking status, and knowledge that they were about to have CO testing to determine if they were smoking. Clinicians should be aware that the rate of incorrect reporting may be higher in a clinical situation where the patient had an incentive to falsely report smoking status. Exhaled CO can be a useful point of care screening tool to immediately confirm nonsmoking status in orthopaedic trauma patients and may be important if clinicians want to be certain that the patient has not smoked.