

Resource Summary Report

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Is Expired Air Carbon Monoxide Testing Effective for Screening of Cigarette Use in Orthopaedic Patients?

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Protocol Information

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Group: Smokerlyzer Study, PVAMC

Summary: Background: Tobacco use is associated with increased post-operative complications and is often underreported by patients. Traditional biochemical testing methods, including serum and urine cotinine assays, do not differentiate active smoking from nicotine replacement therapy (NRT). This study intends to evaluate the effectiveness of a novel point-of-care carbon monoxide (CO) breath test to verify smoking status and differentiate active smoking from NRT pre-operatively in a cohort of veteran orthopaedic patients. Methods: This is a single-institution, prospective cohort study of adult orthopaedic patients at the Portland VA Medical Center to implement and evaluate a point-of-care CO breath test, the Smokerlyzer® Micro EC50, for pre-operative smoking status verification. Patients who are indicated for orthopaedic surgery in the pre-operative clinic will be offered inclusion. Self-reported smoking status will be obtained pre-operatively to categorize patients as non-smoker, quitters, or active smokers. Exhaled CO and serum cotinine levels will be obtained at the initial clinic visit, pre-operative visit, and day of surgery. Primary endpoints are concordance between self-reported smoking status and CO levels, and concordance between exhaled CO and serum cotinine levels. Discussion: Pre-operative smoking cessation interventions have been shown to decrease smoking rates on the day of surgery and promote abstinence 30 days post-operatively. NRTs are commonly used to promote smoking cessation, however their effect on surgical outcomes are not known. This study aims to validate the use of point-of-care testing that differentiates active smoking from NRT, and identify patients at risk for smoking status

misclassification. Results would provide preliminary data to directly test NRT use, separate from tobacco use, and surgical outcomes. Specific Aims: 1. To determine if expired air CO levels can be used to identify patients that are at risk of smoking status misclassification pre-operatively, including patients that are on nicotine replacement therapy. 2. To evaluate the concordance between self-reported smoking and expired air CO levels in the veteran orthopedic population. 3. To evaluate the concordance between pre-operative expired air CO and typical serum levels in the orthopedic population. Hypotheses: 1. Expired air CO testing will allow for differentiation between active smokers and those on nicotine replacement therapy compared to serum cotinine testing. 2. Self-reported “quitters” will have lower agreement between self-reported smoking status and biological testing compared to self-reported “non-smokers” and “active smokers.” 3. Compared to serum cotinine testing, expired air CO testing will allow for non-inferior accuracy in verifying smoking status.

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External URL: <https://www.bedfont.com/shop/smokerlyzer/micro>

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