

# Response to a Mobile Health Decision-Support System for Screening and Management of Tobacco Use

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Smoking is the most preventable cause of death in the United States (Jamal, Dube, Malarcher, Shaw, & Engstrom, 2012). About 443,000 premature deaths are attributed to cigarette smoke annually (Jamal et al., 2012). African Americans and Hispanics die from smoking-related cancers at much higher rates than Caucasians (Haiman et al., 2006). In addition, African Americans are diagnosed at later stages and die at higher rates from smoking-related cancers than their Caucasian counterparts (Haiman et al., 2006).

Consistently screening for and treating tobacco use and dependence is crucial to reducing tobacco use and dependence (Fiore et al., 2008). More than 50% of smokers have contact with a healthcare provider annually, providing important opportunities for counseling and treatment (Jamal et al., 2012). The 2008 update to the U.S. Public Health Service (PHS) Clinical Practice Guideline: Treating Tobacco Use and Dependence recommended that clinicians and healthcare delivery systems consistently identify and document tobacco use status and treat every tobacco user seen in a healthcare setting using the 5 A's model: (1) Ask—identify tobacco users at every visit, (2) Advise—strongly suggest that tobacco users quit, (3) Assess—determine willingness to attempt quitting, (4) Assist—aid in quitting by providing counseling and medication, and (5) Arrange—make sure patient follow-up occurs (Fiore et al., 2008). The PHS guideline also recommended individual, group, and telephone counseling, as well as provision of first-line medications approved by the U.S. Food and Drug Administration as methods for increasing successful cessation attempts (Fiore et al., 2008). Despite the PHS recommendations, clinicians and healthcare systems often do not screen for or treat tobacco use consistently and effectively (Doolan & Froelicher, 2006; Jamal et al., 2012; Schnoll, Rukstalis, Wileyto, & Shields, 2006).

Numerous studies reported that computer-based approaches may assist evidence-based practice at the point of care (Bakken et al., 2008; Lobach et al., 2007; Wells et al., 2008). In particular, computer-based systems have influenced healthcare provider adherence to clinical

**Purpose/Objectives:** To describe the predictors of nurse actions in response to a mobile health decision-support system (mHealth DSS) for guideline-based screening and management of tobacco use.

**Design:** Observational design focused on an experimental arm of a randomized, controlled trial.

**Setting:** Acute and ambulatory care settings in the New York City metropolitan area.

**Sample:** 14,115 patient encounters in which 185 RNs enrolled in advanced practice nurse (APN) training were prompted by an mHealth DSS to screen for tobacco use and select guideline-based treatment recommendations.

**Methods:** Data were entered and stored during nurse documentation in the mHealth DSS and subsequently stored in the study database where they were retrieved for analysis using descriptive statistics and logistic regressions.

**Main Research Variables:** Predictor variables included patient gender, patient race or ethnicity, patient payer source, APN specialty, and predominant payer source in clinical site. Dependent variables included the number of patient encounters in which the nurse screened for tobacco use, provided smoking cessation teaching and counseling, or referred patients for smoking cessation for patients who indicated a willingness to quit.

**Findings:** Screening was more likely to occur in encounters where patients were female, African American, and received care from a nurse in the adult nurse practitioner specialty or in a clinical site in which the predominant payer source was Medicare, Medicaid, or State Children's Health Insurance Program. In encounters where the patient payer source was other, nurses were less likely to provide tobacco cessation teaching and counseling.

**Conclusions:** mHealth DSS has the potential to affect nurse provision of guideline-based care. However, patient, nurse, and setting factors influence nurse actions in response to an mHealth DSS for tobacco cessation.

**Implications for Nursing:** The combination of a reminder to screen and integration of guideline-based recommendations into the mHealth DSS may reduce racial or ethnic disparities to screening, as well as clinician barriers related to time, training, and familiarity with resources.

**Key Words:** nursing informatics; quantitative nursing research; care of the medically underserved; prevention and detection; ambulatory care/office nursing

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