

**ELIMINATING BARRIERS TO TOBACCO CONTROL INTERVENTIONS**  
**IN A MEDICAL OFFICE SETTING**

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## **Introduction**

Despite significant advances in pharmacological treatments for tobacco dependence, the general medical community as has been less than enthusiastic in addressing the largest public health problem in America. It seems clear that unless these barriers can be overcome, eliminating tobacco dependence and smoking-related diseases will be an uphill battle.

The issue of reimbursement for tobacco dependence treatment has been widely discussed. Inadequate insurance reimbursement is often cited as a major barrier to clinical interventions for nicotine addiction services (1,2). Conversely, insurance coverage has been shown to increase rates of service utilization and therefore increase rates of quitting (3).

Other barriers include lack of training, time constraints and a belief that interventions are ineffective (4). An argument can be made that these barriers are synergistic. That is the absence of reimbursement precipitates a disinterest in expending valuable office time for a problem that is perceived as unmanageable with poor outcomes. Conversely, third party reimbursement for nicotine addiction interventions increases the probability that the clinician will increase the time available to address tobacco dependence. Similarly, an argument can be made that reimbursement would increase the intensity and frequency of tobacco control interventions.

The resulting increase in clinical effectiveness could precipitate more clinician involvement in tobacco dependence interventions. Directly diagnosing tobacco related diseases will afford the clinician the opportunity to address the patient's tobacco dependence, improving the effectiveness of these interventions, while generating insurance reimbursement.

This "medical biofeedback" of reversible smoking caused harm and motivational interviewing strengthens the motivation to quit. Using medical biofeedback has almost tripled quit rates (5). Further, "medicalizing" tobacco dependence provides a frame of reference in which the clinician can feel comfortable. New medications and new products including Bupropion SR, new nicotine replacement products, quantitative pulmonary sputum cytology, in-office nicotine metabolite assays and the AHCPR guidelines offer new opportunities to engage the medical community in tobacco control. These strategies are discussed.

## Overview

It should come as no surprise that the utilization of current pharmacotherapies for tobacco dependence have been less than optimal. While many explanations for these barriers have been offered, few practical solutions for general medical practices have been attempted.

We propose that tobacco dependence treatments be performed in a context in which the general clinician can feel comfortable, that is, the context of disease management. While it is widely recognized that smoking effects virtually all organ systems, the earliest effects involve the cardiopulmonary system. Virtually all smokers present with some degree of pulmonary pathology (6). The consensus of opinion in pulmonary medicine is that all smokers should receive annual pulmonary function testing otherwise known as spirometry. Indeed, the National Lung Health Education Program (NLHEP) has launched a nationwide campaign to encourage all primary care providers to perform spirometric measurements in all smokers (7).

Petty (1997) recommends that high risk smokers defined as significant smoking history, symptomology (cough, wheeze, dyspnea, hemoptysis), airflow obstruction, environmental toxin exposure, or family history of lung cancer) have a chest x-ray. He further advises that smokers with a normal chest film have a sputum cytology (7). Cytology can identify radiologically occult lung cancers at a stage where they are up to 70% curable. Petty concludes that every visit to a physician's office is an opportunity to emphasize the importance of smoking cessation and that airflow obstruction may provide the motivation to quit smoking. This protocol is consistent with the recommendations of the AHCPR Smoking Cessation Guidelines (8).

AHCPR General strategy 6 describes the components of clinical interventions designed to enhance motivation to quit smoking as the "4 Rs". These are defined as Relevance, Risks, Rewards, and Repetition. Motivational information given to a patient has the greatest impact if it is relevant to a patient's individual situation such as disease status or health concerns (8). Clinician-Patient discussion of risks and the rewards of cessation can easily be incorporated into any discussion involving diagnostic test results. AHCPR describes specialized patient assessments that can be useful in tailoring treatment. These include carbon monoxide, nicotine/cotinine levels and/or pulmonary function.

Risser and Belcher (1990) found that smokers receiving motivational information about the effects of smoking on spirometry, carbon monoxide, and pulmonary symptoms were almost three times as likely to have achieved biochemically confirmed abstinence than smokers not receiving the motivational intervention (9). Kilburn and Warshaw (1990) used the biofeedback of abnormal lung function tests and carboxyhemoglobin levels to motivate smokers to quit. These researchers reported that 1-year self reported quit rates for smokers receiving the medical biofeedback was much higher than predicted for a pretreatment baseline period. Similarly, Orleans and Hutchinson (1993) used carbon monoxide biofeedback to enhance the decision to quit among precontemplative smokers (11).

NicoMeter is an FDA approved simple urine test for the detection of nicotine and its metabolites. NicoMeter can help assess the severity of nicotine dependence and can be useful in titrating pharmacotherapy (12).

The U.S. Department of Health and Human Services describes many clinical opportunities to address smoking related diseases and the benefits of quitting with patients (13). These opportunities include:

- Electrocardiography
- Pulmonary function tests
- Total leukocytes counts
- Blood pressure measurements
- Hematocrit
- Auscultation of the heart and lungs
- Blood lipid studies
- Blood coagulation studies

Serum alpha antiprotease determination  
Pregnancy tests  
Carboxyhemoglobin determinations

Lerman, Orleans, and Engstrom (1993) recommend the use of biological markers of tobacco exposure such as carbon monoxide, cotinine, pulmonary function testing and quantifying histopathological changes. These authors hypothesize that personalized feedback from biological markers might double quit-rates (14).

Swan, Hodgekin, Roby and their colleagues (1992) evaluated the effect of cytologic feedback on abstinence rates of smokers participating in a smoking cessation program compared to smokers who received no biologic feedback (15). Sputum samples were analyzed through a quantitative sputum cytology methodology, referred to as LungPATH, described elsewhere (16). Specifically, 7 indicators of pulmonary pathology were rated on a scale from 0-10. Zero indicated no measurable level of a particular component while a value of 10 signified the highest level. The pulmonary indicators were: alveolar macrophages, pigmented macrophages, neutrophils, columnar cells, mucus, mucous spirals and metaplastic cells. Dysplasia was evaluated through traditional qualitative morphologic criteria. Subjects in the intervention group were shown these reports ( see Figure 1 ) and educated on their clinical significance by a physician. At 9 month followup the motivational aspects of pulmonary cytologic feedback was shown to decrease recidivism 64 percent from 59% to 38% biochemically confirmed (16).

Petty (1995) recommends annual chest radiographs and sputum cytology examinations for smokers with 20 or more pack years (17). Auerbach and co-workers found some type of bronchial epithelial abnormality in 98 percent of histologic sections from current smokers (6). Consequently, qualitative sputum cytology provides a diagnosis and ICD-9 codes for virtually every smoking patient.

While most health insurance policies do not reimburse for nicotine addiction treatments, coverage is mandated for services related to the management of smoking related medical conditions. Glynn and Manley in a U.S. Department of Health and Human Services Monograph pointedly state that many smokers have smoking related diagnoses (e.g., bronchitis) that permit third party insurance reimbursement (18).

Ms. Kathleen Buto, Acting Director, Bureau of Eligibility, Reimbursement, and Coverage of the Health Care Financing Administration (HCFA) has discussed the appropriateness of insurance coverage for smoking cessation services incidental to physician services. Indeed, HCFA encourages physician counseling and medically appropriate services for smoking cessation and provides insurance coverage for these services (19).

**Medical procedures, CPT codes, and New Jersey Medicare allowable fees\*, rounded to the nearest dollar amount, which are related to smoking co-morbidity (20):**

Consultation	99244	\$131.00
Hemoglobin	85018	\$15.00
Spirometry-Pre & post with bronchodilators	94060	\$62.00
Spirometry	94010	\$33.00
Respiratory flow volume loop	94375	\$37.00
Aerosol inhalation	94664	\$21.00
Carbon monoxide diffusion capacity (DLCO)	94720	\$50.00
Pulse oximetry	94760	\$10.00
carboxyhemoglobin	94250	\$15.00
End tidal carbon dioxide	94770	\$23.00

**\* Commerical private insurers generally reimburse at higher rates.**

NicoMeter Drug screen, single	80101	\$20.00
Chest X-ray (PA & LL)	71020	\$35.00
Electrocardiogram	93000	\$29.00
Lipid Profile		
Total Cholesterol	82465	\$6.00
HDL	83718	\$12.00
LDL	83721	\$13.00
VLDL	83719	\$17.00

#### **Examples of smoking-related diseases and ICD-9 codes (21):**

Metaplasia of the Tracheobronchial tree	519.1
Carcinoma in situ-bronchus and lung	231.2
Reduced Vital Capacity	794.2
Chronic obstructive pulmonary disease	491.2
Emphysema-obstructive	492.8
Upper airway infection	465.9
Dyspnea	786.0
Hypercholesterolemia	272.0
Cough	786.2
Chest pain	786.50
Bronchiolitis	506.00
Asthma	493.00
Chronic airway obstruction	496.00

#### **Motivational interviewing and medical testing**

Clinicians can use the information obtained from diagnostic tests to motivate a quit attempt. For example:

"Your lung function tests show that the small airways in your lungs are obstructed. This is the first step toward serious lung damage caused by your smoking. Your body is telling you it's time to quit. Can you set a quit date?"

"The LungPATH test shows that the cells in your lungs are precancerous. As your doctor I need you to know that it's very important to stop smoking now. There are new medications available to help you. What do you say?"

"The carbon monoxide in your blood from smoking cigarettes is robbing your blood of oxygen. Your oxygen saturation should be around 97 percent. Because of the carbon monoxide it is only 89 percent. Are you ready to stop smoking?"

#### **Conclusions**

New pharmacologic agents such as Bupropion SR, Nicotine Nasal Spray and oral inhalers, directly diagnosing smoking-related diseases, motivational interviewing and third party insurance reimbursement provides clinicians and smokers new opportunities for freedom from the addiction to tobacco.

Only 14-28 percent of all smokers are at the Preparation and/or Action stage at any given time (5). We have observed that Bupropion SR, diagnostic testing and motivational counseling can move smokers through the Stages of Change to an Action stage. Bupropion, a non-nicotine medication, with a unique mechanism of action allows the patient to continue smoking while therapy is initiated. Simply stated, Bupropion SR can be administered prior to cessation. This medication can therefore engage more smokers in tobacco control interventions. Furthermore, Bupropion can be used in combination with nicotine replacement therapies.

These medications and combination therapies offer new hope for the severely recalcitrant, heavily dependent smoker and the disappointed clinician alike. Diagnostic medical tests and insurance reimbursement for the management of

smoking-related diseases can eliminate several barriers to tobacco interventions in medical office settings. The active involvement of the private practice physician is essential to successfully combating tobacco dependence on a national scale.

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**FIGURE 1**

LungPATH

Al Veolar, MD  
123 Main Street  
Anytown, NJ

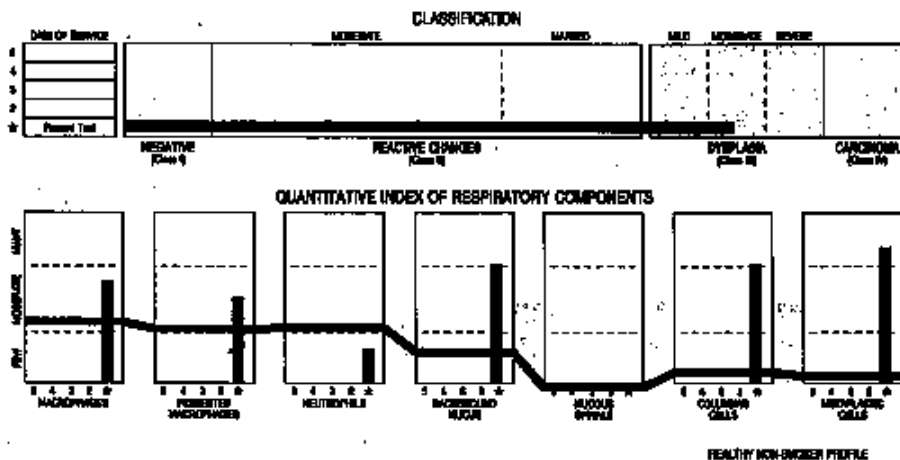
Specimen#: L37 205  
Sample: SPUTUM  
Method: Sputumex  
Date Serv: 05 / 27 / 1987  
Received: 05 / 28 / 1987  
Reported: 05 / 28 / 1987

**PULMONARY CYTOLOGY REPORT**

**PATIENT INFORMATION:**

Female DOB: 01/08/32 55 years of age  
Cigarette Smoker for 41 years  
Passive Smoker  
Symptoms: Productive Cough, Shortness of Breath, Wheezing, Chest Tightness

**TREND CYTOGRAM™ :**



**INTERPRETATION:**

**Microscopic Description:**  
Smears contain elevated levels of respiratory components associated with marked irritation of the bronchial mucosa. Atypical cells are also present, consistent with Moderate Dysplasia.

**Findings:**  
MODERATE DYSPLASIA (Class III)

**Comments:**  
A repeat sputum cytology in 3 months is recommended.  
Moderate Dysplasia has been shown to regress over time in a significant number of cases upon removal of the irritant.  
Marked levels of metaplastic cells indicate a chronic exposure to inhaled toxins and may precede dysplastic transformation.  
High levels of several pulmonary cellular components may be associated with COPD.  
Due to the given smoking history, this patient is in an elevated risk group for lung disease. Smoking cessation is recommended.

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Pathologist: Jon V. Eyzenda M.D.  
Pathologist: Warren Gillette, M.D.  
*Warren Gillette*