# STATISTICS HELPS QUITTING SMOKING

## STATISTICAL SIGNIFICANCE

***Statistics helps analyzing, interpreting, and understanding smoking cessation behaviors.***
***Statistics provides patient-centered approaches by partnership with outcomes research.***
***Statistics contributes significantly towards solutions of critical global health problems.***

## Modeling of Smoking Cessation

### Smoking Cessation

- The Surgeon General's Report in 2010 stated that: Nicotine is the key chemical compound that causes and sustains the powerful addictive effects of commercial tobacco products.
- Evidence has been consistent that individual differences in smoking histories and severity of withdrawal symptoms are related to successful recovery from nicotine addiction.
- Various therapies were compared in terms of smoking abstinence rates (Volpp, 2009, NEJM).
- Increasing the rate of successful smoking cessation is one of the most effective global public health strategies for improving the health of the general population (Levy et al, 2000, AJPH).

### Patient-Reported Outcome (PRO) Analysis

- The FDA's (2009) guidance stated: a PRO is any report of the status of a patient's health condition that comes directly from the patient, without interpretation of the patient's response by a clinician or anyone else. Patient-centered care is key.
- Bivariate probit modeling of a PRO and weekly abstinence on a set of covariates is conducted in our work.

### Longitudinal Analysis of the Quitting Process

- Longitudinal studies use repeated measurement of subjects over time and play a prominent role in the health and medical sciences as well as in pharmaceutical studies.
- An important strategy in modern clinical research, they provide valuable insights into both the development and persistence of disease and those factors that can alter the course of disease development (Fitzmaurice et al, 2004, "*Applied Longitudinal Analysis*.").
- Longitudinal studies of population-based samples are one of the best ways to examine the process of change in smoking behaviors (Biener et al, 2009, AJPH).

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