

# Tobacco Dependence in Youths

## Les jeunes et la dépendance au tabac

Joseph R. DiFranza, M.D.

University of Massachusetts Medical School

Presented at the 9<sup>th</sup> Annual Public Health Day

Québec

## The DANDY Study

The Development and Assessment  
of Nicotine Dependence in Youths

A longitudinal study of the natural  
history of nicotine dependence

Cette présentation a été effectuée le 14 novembre 2005, au cours de la journée « Abandon du tabac : les femmes enceintes et les jeunes d'abord! » dans le cadre des Journées annuelles de santé publique (JASP) 2005. L'ensemble des présentations est disponible sur le site Web des JASP, à l'adresse <http://www.inspq.qc.ca/jasp/archives/>.

## Objective

To determine how much one has to smoke to become dependent.

## Design

- 679 12-year-old youths were followed over 3 years.
- Three interviews per year
- The Hooked on Nicotine Checklist was used to assess addiction

Autonomy over tobacco is lost when quitting requires an effort or produces discomfort.

### **The Hooked on Nicotine Checklist**

- Have you ever tried to quit, but couldn't?
- Do you smoke now because it is really hard to quit?
- Have you ever felt like you were addicted to tobacco?
- Do you ever have strong cravings to smoke?
- Have you ever felt like you really needed a cigarette?
- Is it hard to keep from smoking in places where you are not supposed to, like school?

## **The Hooked on Nicotine Checklist**

- When you tried to stop smoking...(or, when you haven't used tobacco for a while...)
  - did you find it hard to concentrate because you couldn't smoke?
  - did you feel more irritable because you couldn't smoke?
  - did you feel a strong need or urge to smoke?
  - did you feel nervous, restless or anxious because you couldn't smoke?

## **Results**

- Among 332 subjects who had used tobacco, 40% reported symptoms

## Results

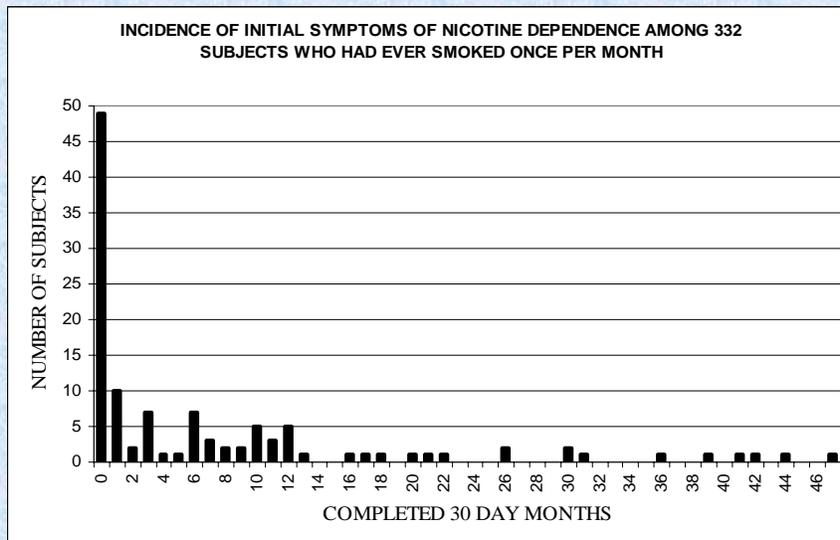
- Among 332 subjects who had used tobacco, 40% reported symptoms
- Symptoms surrounding the first use of tobacco were common

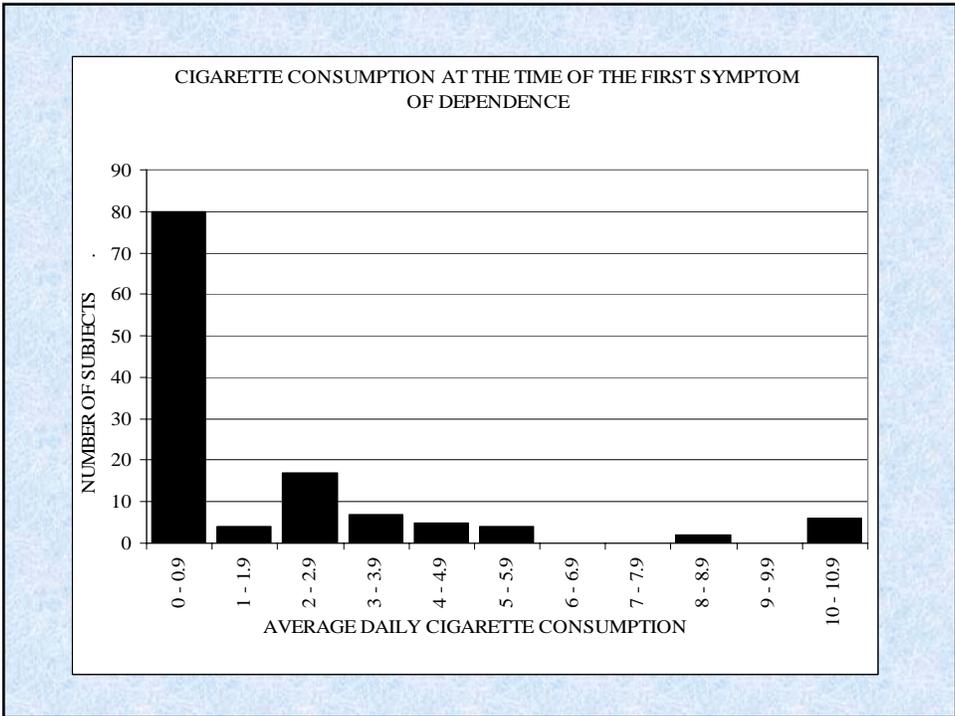
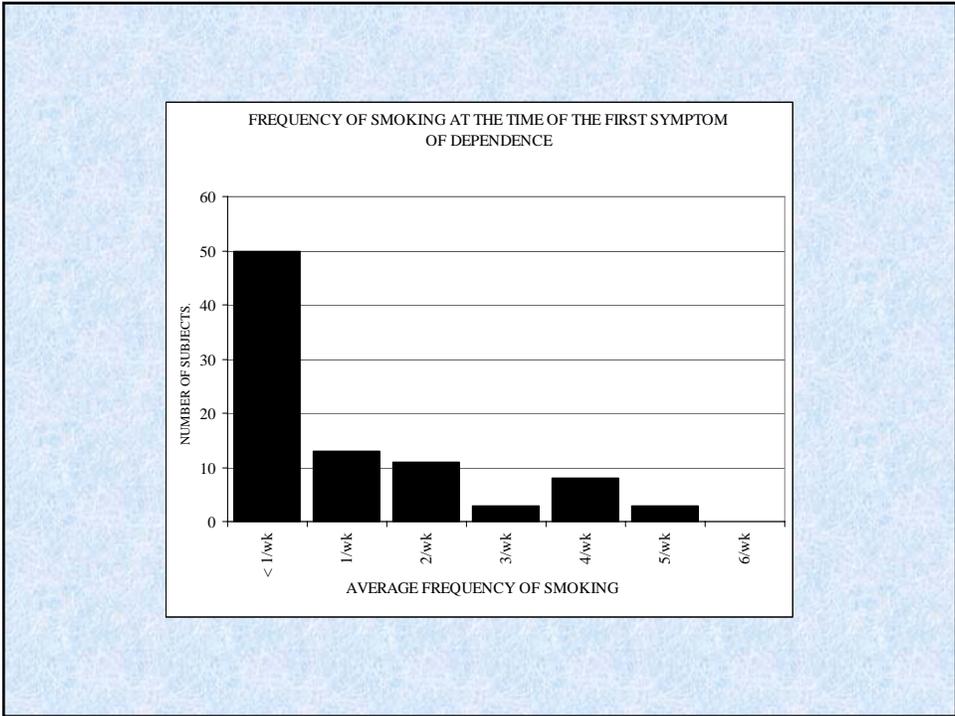
## Results

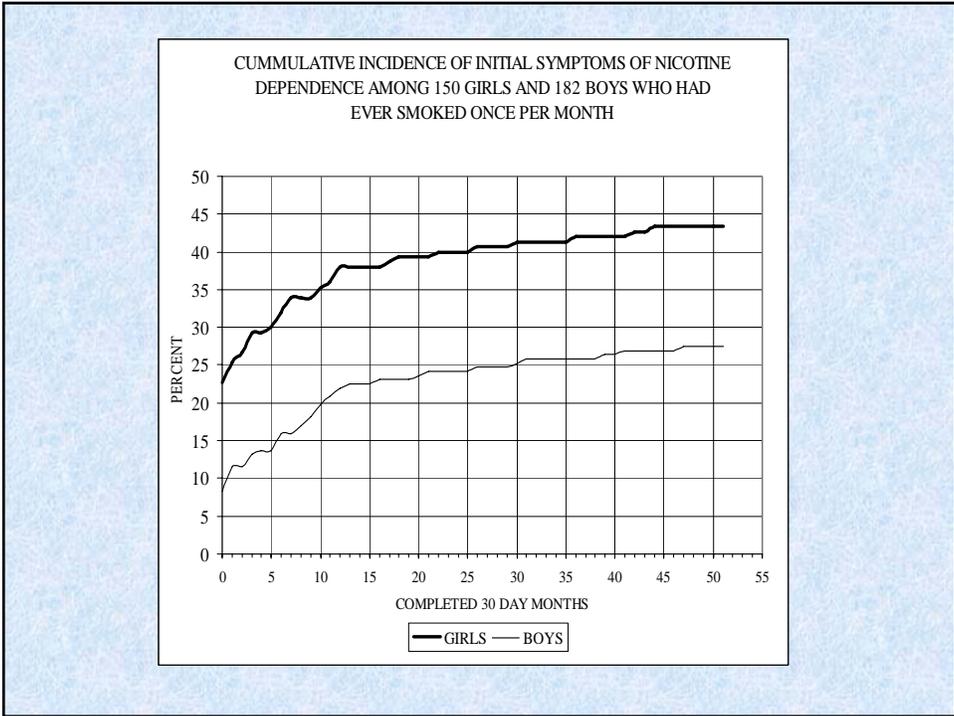
- Among 332 subjects who had used tobacco, 40% reported symptoms
- Symptoms surrounding the first use of tobacco were common
- Many novice smokers experience withdrawal symptoms while smoking only occasionally, although it may take days between cigarettes for symptoms to appear

## Results

- The median frequency of use at the onset of symptoms was 2 cigarettes, one day per week







## Results

- Youths who had one or more HONC symptoms were:
  - **29** times more likely to have failed at a quit attempt

## Results

- Youths who had one or more HONC symptoms were:
  - **29** times more likely to have failed at a quit attempt
  - **44** times more likely to still be smoking at the end of follow up

## Results

- Youths who had one or more HONC symptoms were:
  - **29** times more likely to have failed at a quit attempt
  - **44** times more likely to still be smoking at the end of follow up
  - **58** times more likely to be daily smokers by the end of follow up

## The “NDIT” Study

The Natural History of Nicotine  
Dependence (O’Loughlin et al.)

A longitudinal study

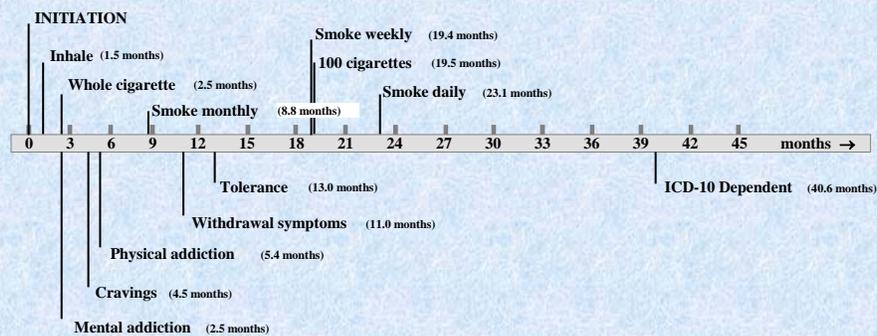
## Design

- 1293 students surveyed every 3 to 4 months over a 5 year period

## Design

- 1293 students surveyed every 3 to 4 months over a 5 year period
- 331 new smokers were followed for 31 months after initiation

## Timeline of Smoking Initiation



## DANDY II

- Objective: to identify factors that cause dependence to develop more quickly in some youths than others

## DANDY II

- Objective: to identify factors that cause dependence to develop more quickly in some youths than others
- > 1200 11-year-olds

## DANDY II

- Objective: to identify factors that cause dependence to develop more quickly in some youths than others
- > 1200 11-year-olds
- 10 interviews over 4 years, from 6<sup>th</sup> to 9<sup>th</sup> grades

## DANDY II Preliminary Results

- 67% of subjects who met ICD-10 criteria for nicotine dependence did so before smoking daily

## DANDY II Preliminary Results

- 67% of subjects who met ICD-10 criteria for nicotine dependence did so before smoking daily
- Girls were 3 times as likely as boys to develop ICD-10 dependence

## DANDY II Preliminary Results

- 67% of subjects who met ICD-10 criteria for nicotine dependence did so before smoking daily
- Girls were 3 times as likely as boys to develop ICD-10 dependence
- Girls were ~ 4 times more likely than boys to develop dependence quickly

## DANDY II Preliminary Results

- Progression from never smoking to inhaling was predicted by:

## DANDY II Preliminary Results

- Progression from never smoking to inhaling was predicted by:
  - Poor coping skills & problem solving (good coping was protective)

## DANDY II Preliminary Results

- Progression from never smoking to inhaling was predicted by:
  - Poor coping skills & problem solving (good coping was protective)
  - Impulsivity, risk-taking and novelty seeking

## DANDY II Preliminary Results

- Progression from never smoking to inhaling was predicted by:
  - Poor coping skills & problem solving (good coping was protective)
  - Impulsivity, risk-taking and novelty seeking
  - Negative self-esteem

## DANDY II Preliminary Results

- Progression from never smoking to inhaling was predicted by:
  - Poor coping skills & problem solving (good coping was protective)
  - Impulsivity, risk-taking and novelty seeking
  - Negative self-esteem
  - Distractibility

## DANDY II Preliminary Results

- Progression from never smoking to inhaling was predicted by:
  - Poor coping skills & problem solving (good coping was protective)
  - Impulsivity, risk-taking and novelty seeking
  - Negative self-esteem
  - Distractibility
  - Availability of tobacco

## DANDY II Preliminary Results

- Progression from never smoking to inhaling was predicted by:
  - Poor coping skills & problem solving (good coping was protective)
  - Impulsivity, risk-taking and novelty seeking
  - Negative self-esteem
  - Distractibility
  - Availability of tobacco
  - Parental, peer & sibling smoking

## DANDY II Preliminary Results

- Among youths who had inhaled, loss of autonomy over tobacco and development of ICD-10 dependence were predicted by:

## DANDY II Preliminary Results

- Among youths who had inhaled, loss of autonomy over tobacco and development of ICD-10 dependence were predicted by:
  - Experience of relaxation on first inhalation

## DANDY II Preliminary Results

- Among youths who had inhaled, loss of autonomy over tobacco and development of ICD-10 dependence were predicted by:
  - Experience of relaxation on first inhalation
  - Anxiety

## DANDY II Preliminary Results

- Among youths who had inhaled, loss of autonomy over tobacco and development of ICD-10 dependence were predicted by:
  - Experience of relaxation on first inhalation
  - Anxiety
  - Depression

## DANDY II Preliminary Results

- Among youths who had inhaled, loss of autonomy over tobacco and development of ICD-10 dependence were predicted by:
  - Experience of relaxation on first inhalation
  - Anxiety
  - Depression
  - Negative self-esteem

- Many personality and social factors increase or decrease the likelihood of experimentation, but do not influence the development of dependence once smoking has started

The Stepwise  
Progression  
Model

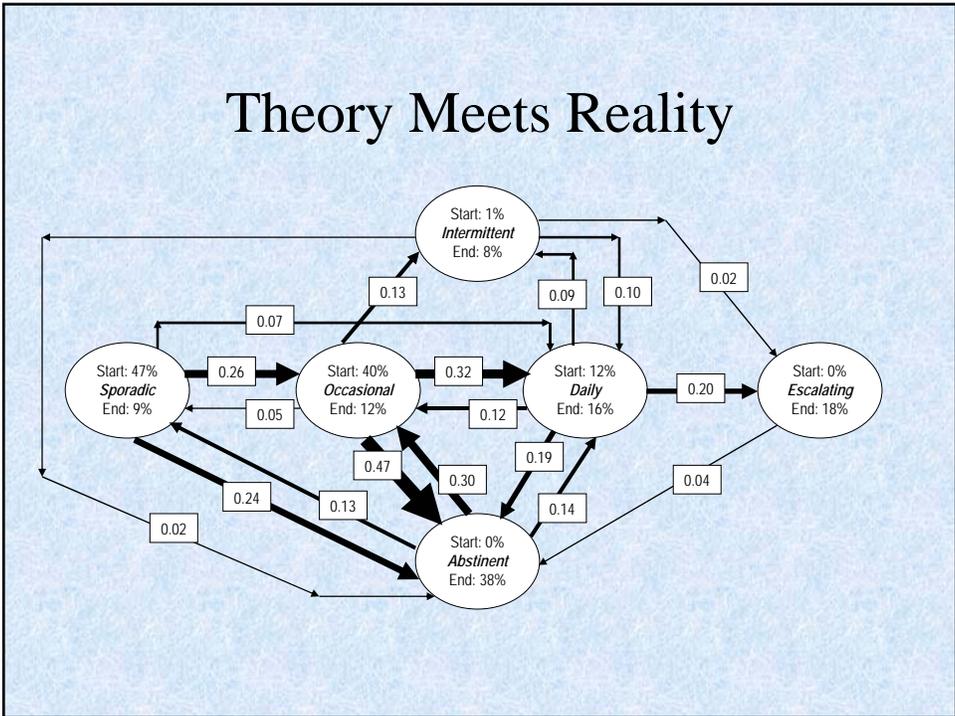
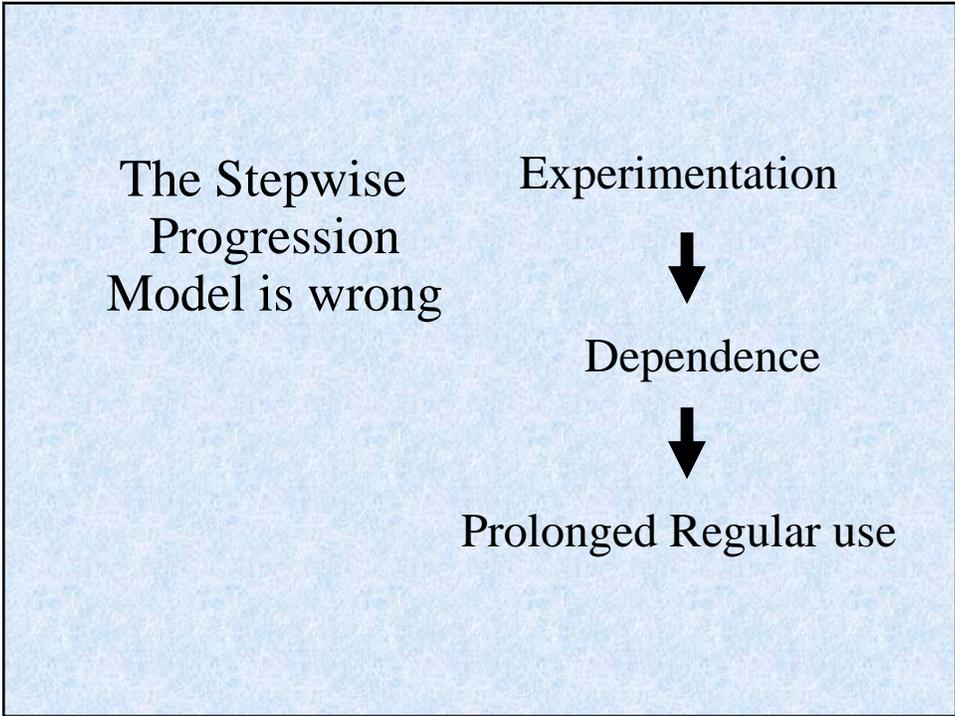
Experimentation

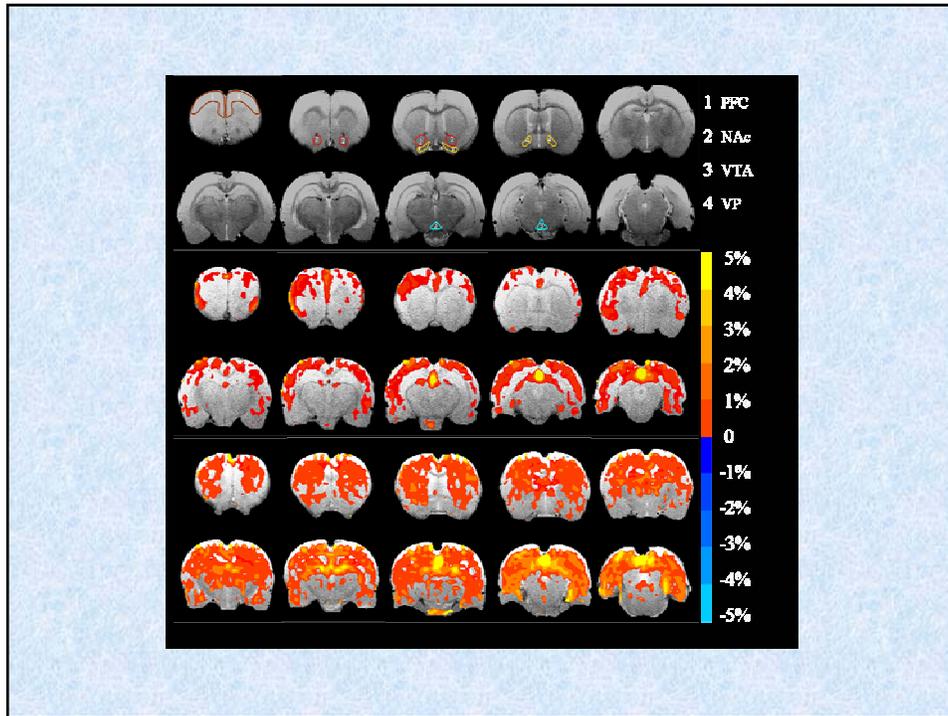


Prolonged Regular use



Dependence





## Clinical Relevance

- Youths who smoke less than one cigarette per month might need help with quitting.
- Youths who believe they can quit at anytime are most likely to progress to regular smoking.
- Stimulate earlier cessation efforts by using the HONC to help youths realize they are addicted