Tobacco Use Cessation and At-Risk Youth

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Prevention or Cessation

- **Prevention**
  - Future-oriented, such that consequences don’t happen
  - To maintain high functioning
  - For general populations or for targeted groups

- **Cessation**
  - Arrest-consequences-oriented
  - Recovery of functioning
  - Only for targeted groups
    - This presentation pertains primarily to cessation

Who are “At-Risk Youth?”

- Lower socio-economic status
- High social environmental tobacco use
- Not mainstreaming (e.g., sensation seekers, poor grades, problem behaviors such as regular cigarette smoking)
Most Project EX work - Alternative High Schools in California

- Continuation high schools-1919: California Educational Code (Section 48432)
  - Mandates part-time education for all California youth until 18 years of age
  - Districts with more than 100 students are required to provide continuation education

Continuation high school youth

<table>
<thead>
<tr>
<th>Continuation High School Context</th>
</tr>
</thead>
<tbody>
<tr>
<td>A random selection of the persons involved in deciding that the student should be admitted to a continuation high school shall be made among students and staff. Students and their parents, along with a school counselor, were primarily responsible for making the decision. Behavioral problems or drug use were the most frequently cited reasons by both parents and school counselors for transferring to continuation high school. The two remaining reasons for transferring to continuation high school are provided in Table 1.</td>
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<table>
<thead>
<tr>
<th>Continuation High School Youth</th>
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<tbody>
<tr>
<td>Student Drug Use</td>
</tr>
<tr>
<td>Student drug use reports were quite similar to another recent study which concluded that all continuation high schools do not have drug problems. The number of high school students who reported having used drugs in the last 30 days was no higher than those districts where drug use was deemed not a problem. The continuation high school youth report use rates two to five times higher.</td>
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</tbody>
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**Table 1.** Student versus Staff Estimates of Mean Percentages of Students that Attend Continuation School for Different Reasons

<table>
<thead>
<tr>
<th>Reason</th>
<th>Students</th>
<th>Staff</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alcohol dependence</td>
<td>12.8</td>
<td>10.5</td>
</tr>
<tr>
<td>Drug use</td>
<td>10.1</td>
<td>8.4</td>
</tr>
<tr>
<td>Depression</td>
<td>9.8</td>
<td>9.2</td>
</tr>
<tr>
<td>Learning difficulties</td>
<td>7.2</td>
<td>6.0</td>
</tr>
<tr>
<td>Physical/psychological problems</td>
<td>6.0</td>
<td>4.0</td>
</tr>
<tr>
<td>Reproductive problems</td>
<td>5.6</td>
<td>4.8</td>
</tr>
<tr>
<td>Reasons that neither nor father</td>
<td>4.0</td>
<td>3.4</td>
</tr>
<tr>
<td>To get more credits</td>
<td>3.2</td>
<td>2.8</td>
</tr>
<tr>
<td>Violence</td>
<td>2.0</td>
<td>1.6</td>
</tr>
<tr>
<td>Non-compliance</td>
<td></td>
<td>1.0</td>
</tr>
<tr>
<td>Total students</td>
<td></td>
<td>100.0</td>
</tr>
</tbody>
</table>

Notes: no data was collected regarding this item; percentage data to the nearest decimal point.
### Students’ plans after leaving school

- **Asked of students:** What do you plan to do after leaving school (within one year)?
  - **Responses** | **Percentage (n=144)**
  - Go to college | 23.6
  - Go to junior college | 38.2
  - Go to a trade school | 16.0
  - Get a job | 20.1
  - Get married | 2.1
  - Have children | 0.0
  - Hang out | 0.7
  - Gang activities | 0.7
  - Go to jail | n/a
  - Other | 20.1
  - I don’t know | 3.5

### Staff reports of what students actually do

- **Asked of staff:** What percentage of students do the following after leaving school (within one year)?
  - **Responses** | **Percentage (n=96)**
  - Go to college | 5.7
  - Go to junior college | 17.6
  - Go to a trade school | 11.3
  - Get a job | 54.3
  - Get married | 15.4
  - Have children | 22.6
  - Hang out | 25.0
  - Gang activities | 22.8
  - Go to jail | 9.3
  - Other | 10.1
  - I don’t know | n/a
Monthly cigarette use

- CHS Youth: 46.5%
- RHS Youth: 14.7%

Initial Project EX Goals:

- Could we use scientific program development methods to create a teen school-based tobacco use cessation (clinic) program that would be well-received by high risk teens during implementation?
- Could we test rigorously (true experiment) teen tobacco use cessation programming in the school-based (clinic) context?
- **FIRST LET’S LOOK AT PROJECT EX THEORY, AND CONTENTS, THEN LET’S LOOK AT ITS EVALUATION.**
Theory of Project EX

- *Motivation-coping skills-personal commitment model of teen cessation*. To: enhance one’s motivation to quit immediately and sustain a quit attempt, provide coping skills to encourage and support quit efforts, to elicit a personal commitment to quit smoking.

- Tailor the program to a teen age group through use of games and talk show skits.

Motivation Enhancement:

- (a) generate reasons to quit tobacco use
  - (e.g., physical dangers of tobacco use on self and others, social effects of tobacco use on others, increases one’s stress level time);

- (b) the longer one sustains a quit attempt the easier it is to stay stopped; and

- (c) it is easier and less hazardous to quit now rather than wait until one is older.
Coping Skills:

- (a) selecting a quit approach,
- (b) getting through withdrawal symptoms,
- (c) coping with stress,
- (d) surmounting cognitive barriers to quitting (e.g., self-forgiveness),
- (e) relaxation (healthy breathing exercise, floating relaxation exercise, yoga),
- (f) achieving good nutrition,
- (g) anger management (assertiveness training and meditation), and
- (h) avoiding relapse.

Commitment

- Making a personal commitment to quit and reviewing the commitment.
Project EX Curriculum

Order of Sessions

- 1. Reasons to quit – social
- 2. Reasons to quit – stress
- 3. Reasons to quit – physical
- 4. Deciding to quit
- 5. Managing withdrawal symptoms
- 6. Managing withdrawal and recovery
- 7. Affect management
- 8. Quit maintenance

Novel Material Based on Program Development Work

- Four talk shows
- Four alternative medicine activities
- One game activity
- One experiment

Session 1: Orientation

- Prior to This Session—Clinic Pretest Questionnaire
- Reasons people use tobacco
- Dealing with life without tobacco – the experiment (don’t smoke in smoking situation)
- Reasons to quit tobacco use
- Talk Show: “Family and Friends Confront the Smokers About their Habit” (Smoker, Smoker’s parents, Smoker’s grandfather or grandmother, Smoker’s girlfriend/boyfriend)
Session 2: Tobacco Affects Your Life

- How did the experiment go?
- Talk Show: “Your Cigarettes May Be Stressing You Out” (Medical doctor, Psychologist, Ex-smoker)
- Coping with Stress-COPE
- Healthy Breathing Exercise

Session 3: Health Dangers of Tobacco Use

- How does tobacco kill you?
  - Chemicals in tobacco, diseases, interaction with other substances, conditions, by population
- Game: “Is Smoking on the Menu?”
  - Harmful effects of second-hand smoke
Session 4: Quitting: Step 1-Making a Commitment

- What Does It Take to Break an Addiction?
  - Commitment, Courage, Persistence, Strategies
- Methods of Quitting
  - e.g., Picking a Quit Day, Tapering versus Cold Turkey and Making a “Personal Statement of Commitment” to keep in pocket (write down quit approach, quit date, personal commitment—I am quitting because of x motivation, # cig. smoked today, today’s date)
- Withdrawal Symptoms
- Making Excuses
- Talk Show: “Quitting Smoking: I’ve Been There and it Does Get Better” (People thinking about quitting, Just quit yesterday, Quit one week ago, Quit one month ago)

Session 5: Quitting: Step 2-Managing Withdrawal Symptoms

- Addiction and Nicotine
- Strategies for Managing Physical Symptoms (Detoxification)
- Relaxation Exercises (e.g., Floating)
- Strategies for Managing Psychological Symptoms
- Fill Out Withdrawal Coping Worksheet (physical, psychological, social)
Session 6: Taking Care of a Healthy Body

- Avoiding Weight Gain
  - Reasons for Gain, Exercise, Nutrition
- Yoga to Relieve Withdrawal Symptoms (10 Poses)

Session 7: Taking Care of Your Peace of Mind

- Assertiveness Training and Dealing With Smoking Situations
- Anger Management
- “Letting Feelings Pass” (Meditation)
Session 8: Avoiding Relapse

- Use of Withdrawal Strategies Review
- **Talk Show:** “Warning: Waiting to Quit Smoking May Be Hazardous to Your Peace of Mind” (People at different ages trying to quit—17, 25, 37, and 50 years old)
- Quit Maintenance Strategies
- Application to Other Drugs
- Conclusion
  - Certificate of Achievement, Post-Clinic Questionnaire

Appendices in the Teacher’s Manual

- Front of Manual—Awards, Theory, Audience, Objectives, Research, Materials
- Appendix A: Teaching Methods—Socratic Method, Psychodrama, Alternative Medicine Activities
- Appendix B: Tobacco Facts
- **Appendix C: Marijuana Use Consequences**
- Appendix D: Acknowledgments
- Appendix E: Selected Project EX References
Project EX: Four trials so far

EX-1: Initial program development and school-based clinic trial (Steve Sussman, Clyde W. Dent, Kara Lichtman)

EX-2: Pilot study of clinic program in Wuhan, China (Cindy Zheng, Xinguang Chen, C. Anderson Johnson, Steve Sussman, Jennifer Unger, Jianguo Shan, Yuanhong Wang, Jiang Xia, Jie Gong, and Chunhong Liu)

EX-3: NRT trial built on EX clinic program (Clyde W. Dent, Steve Sussman, Yvonne Pfingston)

EX-4: Classroom prevention/cessation trial (Steve Sussman, Clyde W. Dent, James Miyano)

Extensive Program Development: EX-1

- Focus groups (total n=233)
- Theme study (total n=420)
- Component study (total n=270)
- Pilot studies (total n=50)
  - Talking and rating concept development, part and complete program feasibility
  - Involved 973 CHS youth; 55% smokers
EX-1 Field Trial

- 18 schools randomly assigned to 3 conditions (clinic+sac, clinic-only, control)
- Total n=335; 64% male, 47% Latino; 27% Anglo
- Both program conditions did equally well and doubled cessation rates at follow-up relative to a standard care control condition (17% versus 8% at 3-months post-clinic, 5 months post-quit day; controlling for dropouts and biochemical measure).

EX-2: Wuhan Pilot Replication: Participants and Recruitment

- School-based screening; multiple baseline design (A-A-B)
  - Among 622 10th graders
  - Measured past 30 day smoking behavior
  - Contacted eligible students; naturally occurring quitting was 3% (A-A-B design used)
- N=46
  - 10th grade students attending either a regular high school (51%) or a vocational school (49%)
  - Mean age: 16.2 (SD=0.4) years
  - Forty three boys and 3 girls
  - 100% Han ethnicity
- Curriculum translation, slight adaptation (e.g., policy knowledge)
Quit rates and percentage reduction of daily cigarette use at posttest and 4-month follow-up

EX-3: Subjects: N=180; true experiment; two “program” conditions

Gender:
- Female - 66%
- Male - 33%

Grade:
- 9th – 23%
- 10th – 30%
- 11th – 32%
- 12th – 16%

Ethnicity:
- White – 72%
- Native American – 12%
- Hispanic – 3%
- Black – 2%
- Mixed/Other – 12%

School Type:
- Alternative – 41%
- Regular – 59%
Participating subjects
N=180
(132 with 6 month data)

Ineligible
N=63

Eligible
N=117

Medical -36 Consent- 15 Dropped -12

Received Nicorette - 57

Received CigArrest - 60

completed sessions
N=29
(of 51 - 57%)

completed sessions
N=42
(74%)

completed sessions
N=45
(75%)

Six Month Data
N=36
(of 40 attempted - 90%)

Six Month Data
N=43
(of 51 attempted - 84%)

Quit Rates
(7 day non use)

8 Weeks
Nicorette
11 % (ITT)

CigArrest
13 % (ITT)

24 Weeks (6 months)
Nicorette
16 % (ITT)

CigArrest
15 % (ITT)
## EX-4: Classroom-based prevention and cessation

- Two-condition experimental design; 6 CHSs per condition (prevention, listening ears, cessation)
- N=786
- Collected immediate outcomes, 6-month follow-up, 1-year follow-up data

### EX-4 Outcomes

- Knowledge effect=1% change increase, control, versus 7% change increase, program; p<.001
- Smoking intentions: mean change=.05 increase, control; mean change=-.17 decrease, program; p<.05; no interaction of gender or baseline smoking
- Weekly smoking (%): mean change=1.1 increase, control; mean change=-4.8 decrease, program; p<.05; no interaction of gender or baseline smoking
- 6-month and 1-year follow-up=-5.1% to -7.6% net change program minus control across range of smoking
Summary of Project EX Results to Date

- **EX-1**: 17% program conditions at 4-month follow-up, 8% control condition (southern California)
- **EX-2**: 11% program at 4-month follow-up, 3% multiple-baseline (Wuhan, China)
- **EX-3**: 16% Nicorette condition, 15% CigArrest conditions at 6-month follow-up (northern California)
- **EX-4**: about 6% difference across range of smoking over a variety of measures
  - 30-day smoking or quit rates
  - Intent to treat
  - Biochemical pipeline/validation
  - EX-1, EX-3, and EX-4 are experimental designs
  - Generally, 8% absolute difference between program and control, at least a doubling of quit rate

Limitations and Conclusions

- Component program study trials have not been conducted to determine mediation of effects (though we now have one statistical mediation study; motivation is a notable mediator)
- We have 6-month and 1-year effects
- Results show that it is feasible to implement Project EX in the U.S. and China, at alternative and regular high schools; that NRT does not add anything to the clinic program, that a classroom version may solve the difficulty of recruitment
- The clinic program is a model program at SAMHSA, one of two teen tobacco use cessation programs (along with NOT)
**Dissemination: General**

- Teacher training improves implementation (fidelity, dosage) and program outcomes
- Non-experimental studies show technical assistance improves fidelity and sustainability
- Few studies have manipulated amounts and types of training/TA. We don’t know the ideal approach for training providers to implement EBI’s with fidelity and effectiveness.

**Project EX Dissemination**

- Very little (as opposed to TNT and TND)
- California, Illinois, Florida, Washington trainings
- Israel and neighbors USAID grant
- Proposal for AI
SES: Considerations with Project EX

- SES of youth is a measure of social stratification derived from individual self-report, or neighborhood-level measures that include:
  - parental income or occupation, parental education, and access to resources
  - perceived social class or wealth relative to others
  - cost of housing in an area

The association of SES with adolescent smoking may be moderated by:

- Lack of parental monitoring (involvement)
- White ethnicity (lack of extended family)
- Access to spending money (could reflect vocational orientation because also related to lower parental SES)
- Job loss by parent predicts smoking by children (may be stressful)
  - Bidirectionality—early smoking may lead to later lower SES
    - Project EX does not include parental involvement, generalizes across ethnicity, does not consider lower SES issues...