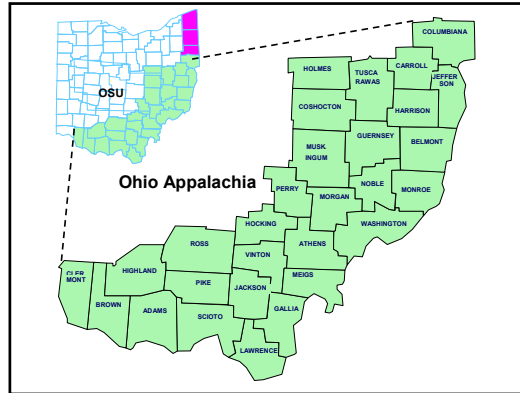


Tobacco Use and Cessation in Appalachian Populations

Mary Ellen Wewers, PhD, MPH
Professor
College of Public Health

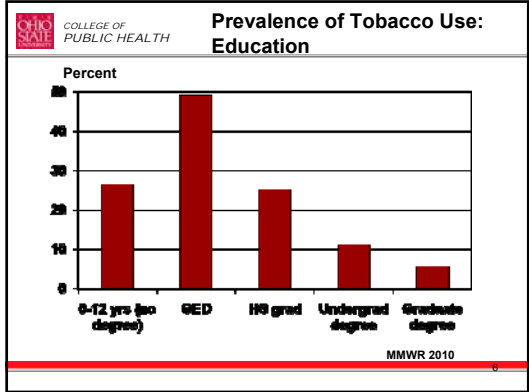
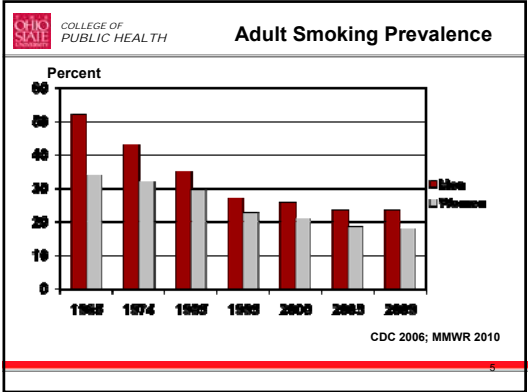


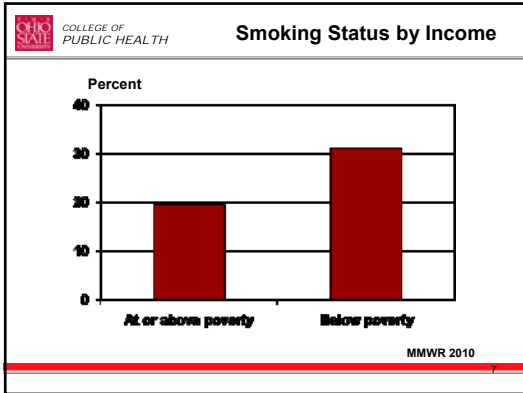
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Ohio Appalachia

- **Characterized by**
 - Low socioeconomic status
 - High unemployment
 - Low paying jobs
 - Lack of urbanization
 - Deficits in education
 - Less access to health services

Appalachian Regional Commission 2008





OHIO STATE COLLEGE OF PUBLIC HEALTH

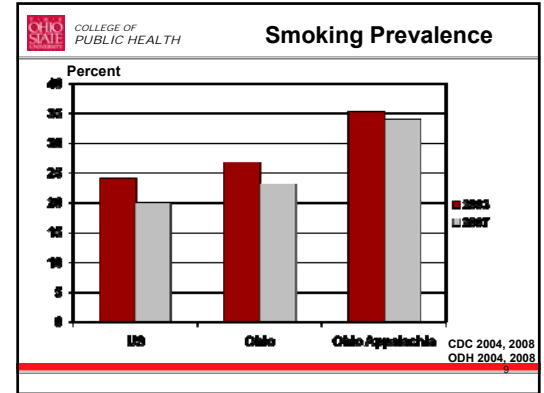
Adult Smoking Prevalence by State (%)

- **Highest**

	Total	Men	Women
- Kentucky	25.6	27.1	24.2
- West Virginia	25.6	27.7	23.6
- Oklahoma	25.5	27.1	24.0
- **Lowest**

- Utah	9.8	11.9	7.7
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CDC 2009

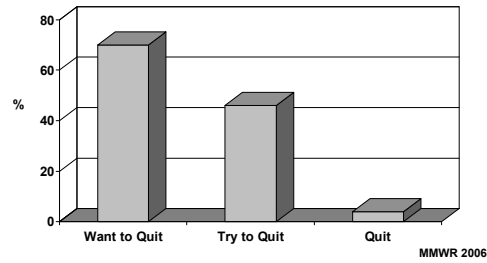


Ohio Appalachia

- No smoke free ordinances until 2006
- Focused tobacco industry marketing
 - Smokeless products
- Rural farm-based economy
 - Tobacco growing state

Ohio Tobacco Prevention Foundation 2007

Annual Cessation Patterns



MMWR 2006

National Cancer Institute Project

Five year investigation of cervical disease
2003-2008 (P 50 CA105632)

Aims:

1. Describe social, behavioral and biological factors related to tobacco use among adult Appalachian women smokers
Observational Study
2. Test a scientifically-valid tobacco cessation intervention in adult Appalachian women smokers
Intervention Study

Recruitment & Enrollment: Clinic-based

- 22 Appalachian clinics in 14 Appalachian counties
 - Performed > 200 unique cervical screenings annually
- 14 clinics (63%) provided complete lists of women patients
 - All women seen in past two years by HCP in clinic
- Randomly selected women each month to determine eligibility
 - Invited by phone and mail to participate in health survey

14 Clinics

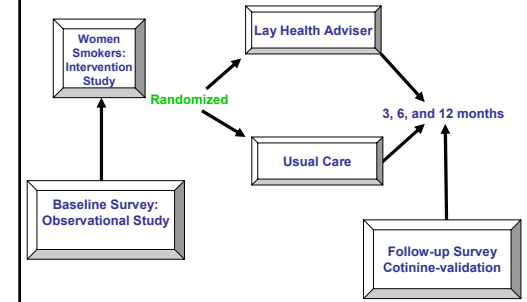
1. Observational Study

Multi-level factors associated with smoking

2. Intervention Study

RCT: Lay health adviser vs. usual care

Study Schema



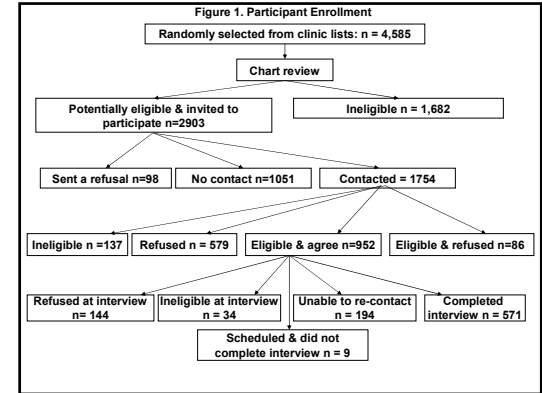
Observational Study

Describe social, behavioral and biological factors related to tobacco use among adult Appalachian women



Who was Eligible?

- Female, age 18 and older
- Seen by clinic HCP within past two years
- Resident of Appalachian county
- English-speaking
- Non-pregnant
- No prior history of invasive cervical cancer



Characteristics of 570 Clinic-based Women
Participants in Ohio Appalachian counties

Variable	Never Smoker	Former Smoker	Current Smoker
# Subjects (%)	297 (52.1)	117 (20.5)	156 (27.4)
% > HS	67.4	45.3	42.3
% Employed as professional	33.8	19.8	11.5
% Married/partnered	67.2	53.0	55.8

Sample Characteristics (n=570)

Variable	Never Smoker	Former Smoker	Current Smoker
% I-P ratio ≥ 3 (higher= affluent)	32.7	30.9	17.2
% no adult man in home (age 14)	5.1	10.3	13.5
% with health insurance	74.8	65.8	41.3
% ban smoking in home	76.3	73.5	21.8
% CES-D ≥ 16	24.2	23.3	48.7
% binge drink	4.4	5.5	20.9

Maternal Characteristics by Smoking Status (%) n=570

Variable	Never Smoker	Former Smoker	Current Smoker
% Pregnancy < age 20 (n=567)	29.0	40.0	52.3
% Live birth < age 20 (n=474)	18.8	31.0	35.1
% Current single mother (n=564)	6.1	12.9	11.9

**Socioeconomic position (SEP)
by Smoking Status (%) n=570**

Variable: Life Course SEP	Never Smoker	Former Smoker	Current Smoker
Low Child/Low Adult	32.1	52.8	64.9
Low Child/High Adult	15.7	11.1	3.3
High Child/Low Adult	22.2	20.4	22.5
High Child, High Adult	30.0	15.7	9.3

High Child: Lived with both parents at age 14; both parents had ≥ HS educ
High Adult: ≥ High school education; insurance; PIR > Median

**Logistic Regression Analysis:
Adjusted odds ratios (OR) and 95% CI for
Current Smokers vs. Non-smokers**

Characteristic	OR (95% CI) of being a Current Smoker vs. non- smoker	p-value
Age		0.0074
18-30	1.0	
31-50	0.74 (0.46-1.18)	
≥ 51	0.34 (0.17-0.68)	
Life course SEP		<0.0001
High child, high adult SEP	1.0	
High child, low adult SEP	2.41 (1.16-5.01)	
Low child, high adult SEP	0.82 (0.27-2.44)	
Low child, low adult SEP	3.97 (2.01-7.88)	
CES-D score		0.0028
< 16	1.0	
≥ 16	1.96 (1.26-3.05)	
First pregnancy		0.0235
≥ age 20 years	1.0	
< age 20 years	1.66 (1.07-2.59)	
Alcohol use		0.0006
No drinks in past month	1.0	
Up to 1 drink/week past month	2.25 (1.42-3.57)	
> 1 drink/week in past month	2.79 (1.30-6.00)	

**Test a scientifically-valid tobacco cessation
intervention in adult Appalachian women
smokers**



Intervention Enrollment Procedure

- **Recruitment**
- Post baseline survey administration
- Eligibility was established
 - 566 women were determined as eligible
 - » 152 refused (26.9%)
 - » 112 agreed but did not schedule first interview (19.8%)
 - » 302 agreed, were consented, interviewed and randomized (53.3%)

Who was Eligible?

- Female, age 18 and older
- Seen by clinic HCP within past two years
- Self-reported daily use of tobacco
- Resident of Appalachian county
- English-speaking
- No medical conditions that prevent use of nicotine patch
- Non-pregnant
- No prior history of invasive cervical cancer

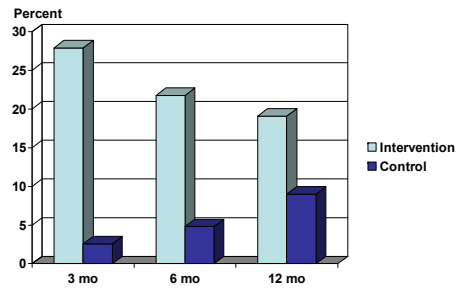
Intervention Conditions

- Intervention
 1. Nurse-managed, lay-health adviser delivered protocol based on USPHS Clinical Practice Guideline (2000)
 - 8 face-to-face visits
 - Behavioral counseling supervised by a clinic nurse
 - 8 weeks 21 mg nicotine patch
 2. Letter from clinic advising to quit tobacco; printed quitting materials and encouragement to contact HCP
You Can Quit Smoking Consumer Guide
USPHS 2000

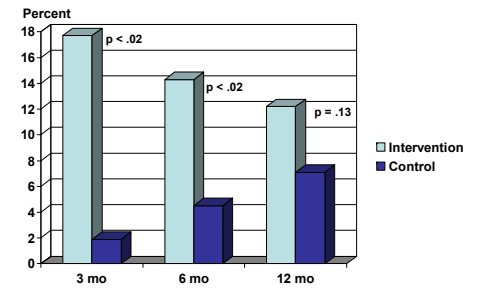
Baseline Sample Characteristics

<u>Tobacco-Related Factors</u>	Intervention	Control	p value
Cotinine concentration (ng/mL)			0.09
Mean ± SD	228.3 ± 187.5	268.6 ± 208	
Range	0-910	0-952	
Fagerström score			0.26
Mean ± SD	4.07 ± 2.46	4.39 ± 2.39	
Range	0-10	0-10	
Heavy Smoking Index			0.09
Mean ± SD	2.7 ± 1.57	3.03 ± 1.60	
Range	0-6	0-6	
Daily cigarette consumption			0.05
Mean ± SD	17.2 ± 9.4	19.4 ± 10.3	
Range	3-70	3-50	
Ever tried to quit smoking (%)	83.7	86.5	0.50

Self-reported quit rates by group



Cotinine-validated quit rates by group



Logistic Regression Analysis

	Unadjusted OR (95% CI) of 7-day point prevalence abstinence at 12 months	Adjusted [†] OR (95% CI) of 7-day point prevalence abstinence at 12 months
Treatment Group		
Control	1.0	1.0
Intervention	1.83 (0.83-4.01)	1.84 (0.89-4.11)
Cigarette consumption per day		0.94 (0.89-0.99)
CES-D score < 16		1.0
≥ 16		0.39 (0.17-0.90)

[†]Adjusted for other variables listed

Use of smoking cessation resource or medication
by group (%)

	Intervention	Control
Any Smoking Cessation Resource		
3 months (n=259)	11.9	14.2
6 months (n=247)	12.3	20.9
12 months (n=193)	20.9	29.4
Any Smoking Cessation Medication		
3 months (n=259)	68.6	9.9
6 months (n=247)	33.6	14.2
12 months (n=245)	19.3	24.4

Discussion

- **First trial of treatment among Appalachian women based on USPHS Clinical Practice Guideline**
- **Intervention was successful at 3 and 6 months but not sustained through 12 months**
 - Intensive – may need to be extended
 - Control group use of resources/medication
- **Sample resembled women in region with exception of education**
 - Disadvantage was evident
- **Depressive symptoms were significant**
 - Treatment could be incorporated into clinic-based care
- **Cotinine validation is essential**

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