

# Smoking Cessation in Chinese – Reducing Health Disparity Locally and Globally



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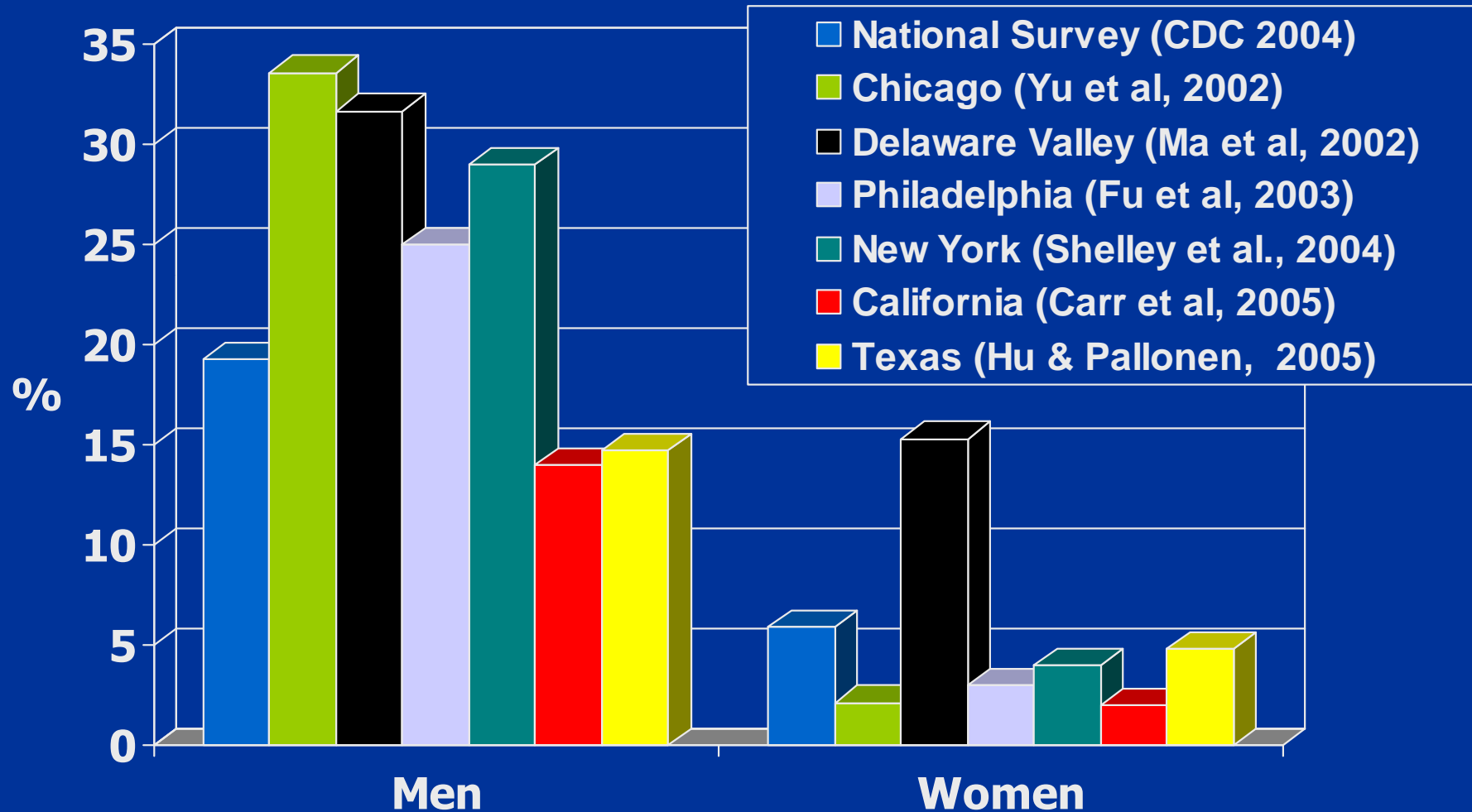
## **Background: Global Significance**

- ❑ 1.1 billion smokers worldwide**
- ❑ 300 million Chinese smokers world wide**
- ❑ One out of three cigarettes in the world are consumed in China**
- ❑ 61% of Chinese men in China smoke (4% of women)**

# Background

- ❑ Empirical data on effective smoking cessation strategies targeting Chinese American smokers, especially new immigrants, are scarce.
- ❑ Almost 70% of Chinese Americans are first generation immigrants with over 90% originating from China where smoking prevalence among men is high (e.g. Gu et al., 2004).
- ❑ The prevalence rates of smoking ranged from 9.7% among English-speaking Chinese (Chen, Cruz, Unger, & Johnson, 1998) to 34% among Chinese men residing in Chicago (Yu, Chen, Kim, & Abdulrahim, 2002).

# Smoking Prevalence of Chinese Residing in U.S. (published data since 2000)



# Abstinence Rates x Interventions

Intervention Type	# of Studies	Odds Ratio	Abstinence Rate (95% CI)
<b>Structure and Intensity</b>			
MD Advice to Quit	7	1.3 (1.1, 1.6)	10.2 ( 8.5, 12.0)
High Intensity Counseling (>10 min)	45	2.3 (2.0, 2.7)	22.1 (19.4, 24.7)
Total Contact Time (31-90 min)	35	3.0 (2.3, 3.8)	26.5 (21.5, 31.4)
Number of sessions (4-8)	45	1.9 (1.6, 2.2)	20.9 (18.1, 23.6)
Telephone counseling	58	1.2 (1.1, 1.4)	13.1 (11.4, 14.8)
<b>Behavioral Counseling</b>			
Problem solving & Skill Training	62	1.5 (1.3, 1.8)	16.2 (14.0, 18.5)
Intra-treatment social support	62	1.3 (1.1, 1.6)	14.4 (12.3, 16.5)
Extra-treatment social support	62	1.5 (1.1, 2.1)	16.2 (11.8, 20.6)
<b>Pharmacotherapy</b>			
Nicotine patch	32	1.9 (1.7, 2.2)	17.7 (16.0, 19.5)
Nicotine gum	18	1.5 (1.3, 1.8)	23.7 (20.6, 26.7)

# Chinese Community Smoking Cessation Project

5-Year Prospective study:

To test the efficacy of a multi-component, smoking cessation and relapse prevention intervention

Randomized clinical trial to compare:

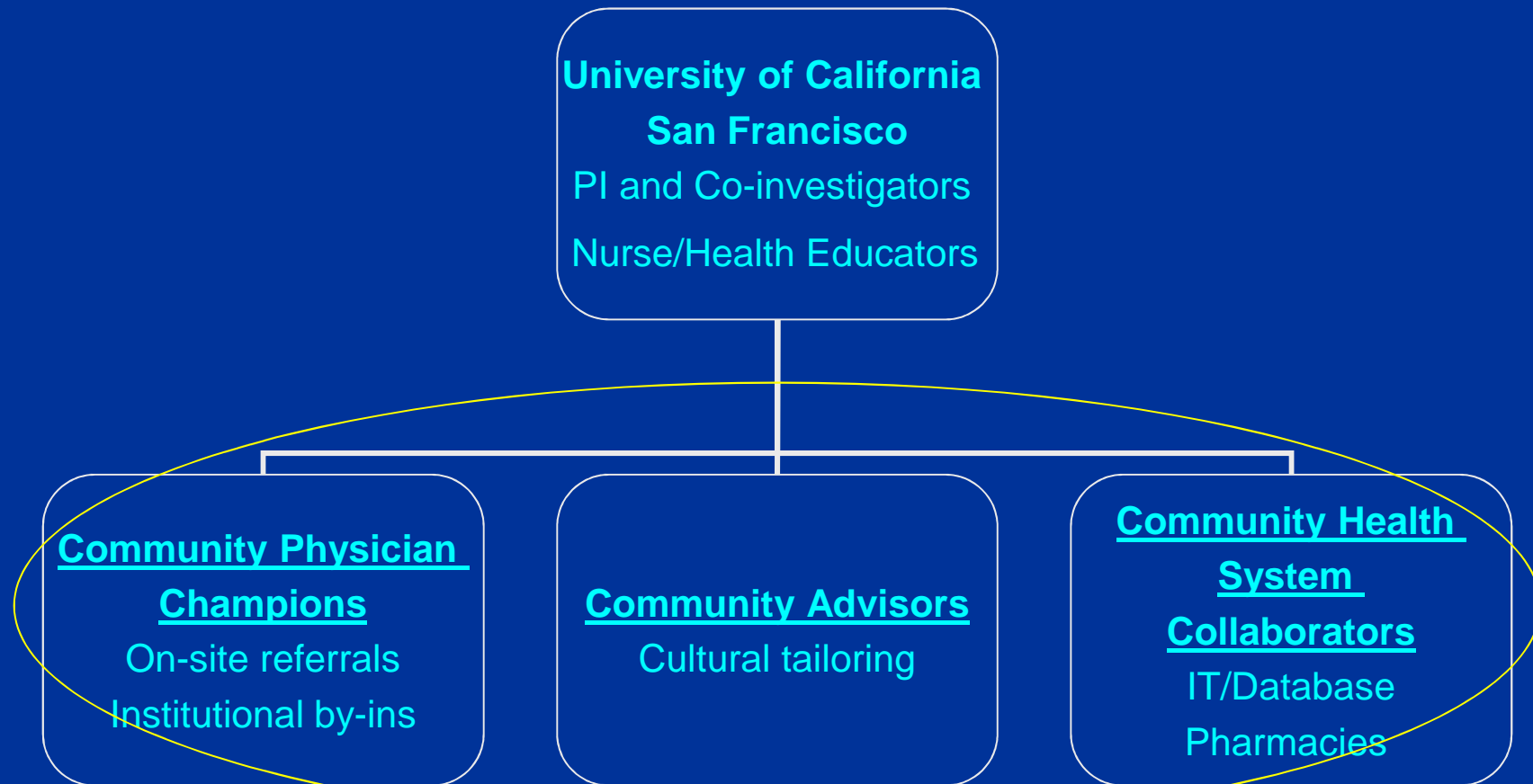
Minimal vs. Intensive interventions

Follow-up to assess smoking status:

6- and 12-month assessments

# Chinese Community Smoking Cessation Project

## Organization Diagram



# Community Advisors

**Physician** - Chinese Hospital, Chief of Staff

**Physician** - Medical Director, Chinese  
Community Health Plan

**Health Educator** - Chinatown Health Center/  
Department of Public Health

**Social Work** - Director of Chinese Community  
Health Resource Center

**Pharmacist** - Director of Clinical Affairs,  
Chinese Hospital

**Nurse** - Tobacco Prevention Specialist



# Community Health System Collaborators

- Chinese Community Health Plan
- Chinese Community Health Care Association
- Chinese Hospital
- Chinatown Public Health Center
- Kaiser Permanente Medical Center, San Francisco and Oakland
- Sunset Health Clinic

# Study Sample

- A convenience sample of adult Chinese smokers who have smoked in the last 3 months
- San Francisco Bay Area
- Willing to quit smoking
- Have a medical condition

# Minimal Intervention

- Scripted MD advice
- Nurse/health educator strong message
- *Victory over Smoking* self-help manual
- Smoking cessation medication supplement
- Community resources for smoking cessation programs

# Intensive Intervention

- Scripted MD advice
- Nurse/health educator strong message
- *Victory over Smoking* self-help manual
- Smoking cessation medication supplement
- Community resources for smoking cessation
- 45-min counseling and skill-building session
- Nicotine replacement therapy for high-risk patients

# Intensive Intervention

- *Victory over Smoking* videotape
- Relaxation audiotape
- Five 15-minutes telephone calls at 2, 7, 21, 45, and 90 days
- For slipper/relapser  
one additional intervention phone call



# Proportions of Disease Distribution

<u>Primary Diagnosis</u>	<u>%</u>
CVD & risk factors	44.8
Pulmonary disease	26.6
GI	7.0
Diabetes mellitus	6.9
Renal	2.0
Cancer (other than lung)	2.0
Other diseases	8.0

# Demographic Profile By Patient

## Status

	In-Pt	Out-Pt	<i>p</i> value
	n=175	n=289	
Mean Age (yrs)	66.7	53.2	0.000
Acculturation score	1.9	2.4	0.000
<b>Education</b>			0.000
< high school	77.7	57.9	
High school/some college	15.4	39.8	
Bachelor and above	6.9	14.2	
<b>Employment</b>			0.000
Full time/part time	22.9	52.2	
Unemployed	7.4	15.6	
Retired/other	69.7	32.2	



# Tobacco Use By Patient Status

	In-Pt n=175	Out-Pt n=289	<i>p</i> value
Age of first smoke; M	17.8	18.3	0.438
Years smoke regularly; M	47.5	33.2	0.000
No. quit attempt past year	1.1	1.5	0.077
Average Use (cigs/day); %			0.000
≤ 5	68.0	22.1	
6-10	18.9	33.2	
11-19	7.4	18.0	
≥ 20	5.7	26.6	
<b>Nicotine Dependence</b>			
Hate to give up 1 <sup>st</sup> cigarette	46.9	59.5	0.008
Smoke when ill	12.0	24.2	0.001
Smoke more in AM	50.9	55.7	0.310
Difficulty refraining	20.0	26.6	0.105

# Multiple Regression Assessing the Influence of Health Status on Tobacco Use

	Average Cig. Use	Nicotine Addiction	Quit attempts Past Year
Age	-.063	-.119	.097
Education	.079	.078	-.002
Employment	.205***	.077	-.044
Marital status	-.077	-.080	-.010
Acculturation	.079	-.029	.071
Years of smoking	.110	.200	-.280*
Patient status	-.414***	-.318***	.022

\*p<.05, \*\*\*p<.001

<high school=1, employed=1, married or partnered=1, inpatient=1

# Number (%) Self-reported Abstinence at 6-month Follow up Assessment

	In-Pt n=104	Out-Pt n=229	Total N=332
<b>Intensive Arm</b>	28 (0.54)	32 (0.27)*	60 (0.35)
<b>Minimal Arm</b>	27 (0.52)	18 (0.16)*	45 (0.28)
<b>Total</b>	55 (0.53)	50 (0.22)	105 (0.32)

\*p<.05

# Number (%) Self-reported Abstinence at 12-month Follow up Assessment

	In-Pt n=89	Out-Pt n=196	Total N=285
<b>Intensive</b>	22 (0.46)	34 (0.30)*	56 (0.35)
<b>Minimal</b>	24 (0.48)	27 (0.25)*	51 (0.33)
<b>Total</b>	46 (0.47)	61 (0.28)	107 (0.34)

\*p<.05

# Significant Findings

Compared to in-patient smokers, out-patient smokers:

- Younger age, more educated and more acculturated
- More likely to be employed with higher income
- Less years of smoking but smoked more cigs/day
- Higher nicotine addiction score
- Have lower illness burden (e.g. lower rate of CVD but with higher risk factors)
- More likely to smoke when ill
- Less confident to stay off cigarette
- Goal of abstinence is to “Slowly Cut Down”

# Significant Findings:

- Age, acculturation, education and marital status were not associated with average daily cigarette use, nicotine dependence and quit attempts last year after adjustment for health status.
- Patients who were employed smoke greater amount of cigarettes. Possibly due to socio-environmental factors (e.g. 75% employed in restaurants or construction businesses).
- Patients with worse ill health smoke lower amount of cigarettes and have lower nicotine addiction score.
- Patients who reported longer years of smoking are less likely to make quit attempt past year.

# Significant Findings

The Intensive intervention outperformed the Minimal condition at both 6 and 12-month for OP but not for IP smokers.

In contrast to other smoking cessation treatment studies where abstinence rates decreased over time, the overall abstinence rates appeared to be higher at 12-month compared to 6-month, particularly among OP (28% vs. 20%).

In contrast to prior smoking cessation studies where 1-year abstinence rates were reported ~25%, the self-reported, 1-year abstinence rate in our study is ~35%

# Challenges – An Overview

- Hospitals priorities and requirements
- Staff recruitment issues
- Patient recruitment issues
- Dispensing nicotine replacement therapy
- Cross-cultural issues
- Data management system



# Cross Cultural Issues

- Lack of SS# → alternative form of payment
- Low adherence with nicotine replacement therapy ~ 60% agree to use among those eligible for NRT; ~40% reported actual use, ~25% completed full course of treatment
- Notion of “Quit Date” → total abstinence vs. cut down (44% vs. 25%)
- Importance of MD referral → lower than expected refusal rate (< 10%)
- Minimal loss of follow up at 12- month (~ 8%)

# Future Directions

**Smoking reduction strategy** with the goal of complete abstinence

**Internet-based intervention strategies** - UCSF  
Internet World Health Research Center

**Significant others' involvement** in smoking cessation efforts

**Smoke-free policies at home and work place** – second hand smoke

**Role of CYP2A6 Gene, nicotine metabolism, detoxification** pathways on abstinence and relapse

# Background: Internet Users

- ❑ Since 2008, China has surpassed the U.S. in the number of internet users
- ❑ Chinese is the second most commonly used language on the internet after English
- ❑ Asian Americans have the highest rates of internet users (82%) compared to 75% Whites, 59% Blacks, 55% Hispanics (U.S. Census)
- ❑ Among foreign born Asian Americans, rate of internet users are >90% for those under age 45; 75% between ages 45-64; and 69% of those above 65 (U.S. Census Population Survey)
- ❑ Chinese Community Health Resource Center website: [www.cchrhealth.org](http://www.cchrhealth.org) received >1.2 million hits annually

# Background: SF Chinese Immigrant Community Survey (n=414)

- 62% were internet users
- 57% access health resources on-line
- 71% asked for more health information over the internet
- 52% stated that they would consider participating in an on-line health education program

# Chinese Community Internet Stop Smoking Project

- ❑ A community-academic partnership to build an accessible, evidence-based, and sustainable online self-help resources to promote smoking cessation for Chinese smokers
- ❑ The UCSF- Internet World Health Research Center's Stop Smoking program is the Prototype [www.stopsmoking.ucsf.edu](http://www.stopsmoking.ucsf.edu)
- ❑ The 2-year study has 3 major components:
  - Culturally and linguistically adapt an Internet stop smoking intervention for Chinese smokers
  - Explore innovative outreach methods of recruiting Chinese smokers
  - Conduct a feasibility trial targeting 60 Chinese-speaking daily smokers

**Academic Partners**: Janice Tsoh (PI),  
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**Community Partners**: Chinese Community  
Health Resource Center (Angela Sun – PI),  
Chinese Newcomer Association, Richmond  
Area Multi-Services

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## Socio-Demographic Profile of Participants by Health Status at Baseline

	IP n= 94	OM n= 305	ON n= 304	Total N= 703
Mean Age, y $\pm$ SD	65.3 $\pm$ 15	53.8 $\pm$ 14	37.6 $\pm$ 12	48.3 $\pm$ 17
Gender, % female	5.3	9.8	18.8	13.1
<b>Birthplace, %</b>				
USA	2.1	6.6	3.9	4.8
Taiwan	1.1	3.9	19.4	10.2
Hong Kong	4.3	16.4	17.4	15.2
Mainland China	85.1	62.3	54.9	62.2
Vietnam	5.3	6.9	1.3	4.3
Mean Years in USA $\pm$ SD	21.8 $\pm$ 17	20.2 $\pm$ 14	10.6 $\pm$ 8	17.5 $\pm$ 13
English Fluency, % “Not at all”	58.5	24.3	6.9	21.3
Language Preference, % Chinese	94.7	87.2	83.9	86.7
Health Care Coverage, % “Yes”	97.4	84.9	64.4	77.1

## Socio-Demographic Profile of Participants by Health Status at Baseline (continued)

	<b>IP</b> n= 94	<b>OM</b> n= 305	<b>ON</b> n= 304	<b>Total</b> N= 703
Marital Status, % Married	81.9	78.0	66.4	73.5
Education, %				
Less than high school	50.9	19.7	0.7	13.1
High school, some college	34.5	42.5	37.7	39.4
Bachelors or above	14.5	37.8	61.6	47.4
Employment, % work full/part time	26.6	51.5	65.1	53.9
Income, % below 20K/year	63.8	42.6	29.3	39.7



## Baseline Smoking Behavior among Participants by Health Status

	<b>IP n= 94</b>	<b>OM n= 305</b>	<b>ON n= 304</b>	<b>Total N= 703</b>
Mean age first smoke (yrs)	17.3	18.7	18.9	18.6
Mean years smoke regularly $\pm$ SD	45.2 $\pm$ 16	32.6 $\pm$ 14	17.2 $\pm$ 11	26.6 $\pm$ 16
Mean cigs/day $\pm$ SD (avg 7 d)	7.3 $\pm$ 6	11.7 $\pm$ 8	9.5 $\pm$ 7	10.2 $\pm$ 8
Number of cigs/day				
$\leq$ 5	50.0	24.3	33.6	31.7
6-10	26.6	30.2	31.6	30.3
11-20	23.4	37.4	28.9	31.9
>20	0	8.2	6.0	6.1
At least One 24-hr quit attempt past year, %	29.8	48.5	58.4	50.3