

RURAL CHINA: EXPLORING HIV/AIDS SURVEILLANCE AND PREVENTION IN A DEVELOPING REGION

Master of Public Health Capstone Project
Kansas State University

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Overview



- Purpose
- History of HIV
- Structure
- Program Designs
- Methods
- Results
- Conclusions

Purpose

- In-depth public health experience
 - Developing region
 - Cross-cultural
- Identify community vulnerabilities
- Develop strategies
- Implementation
- Evaluation

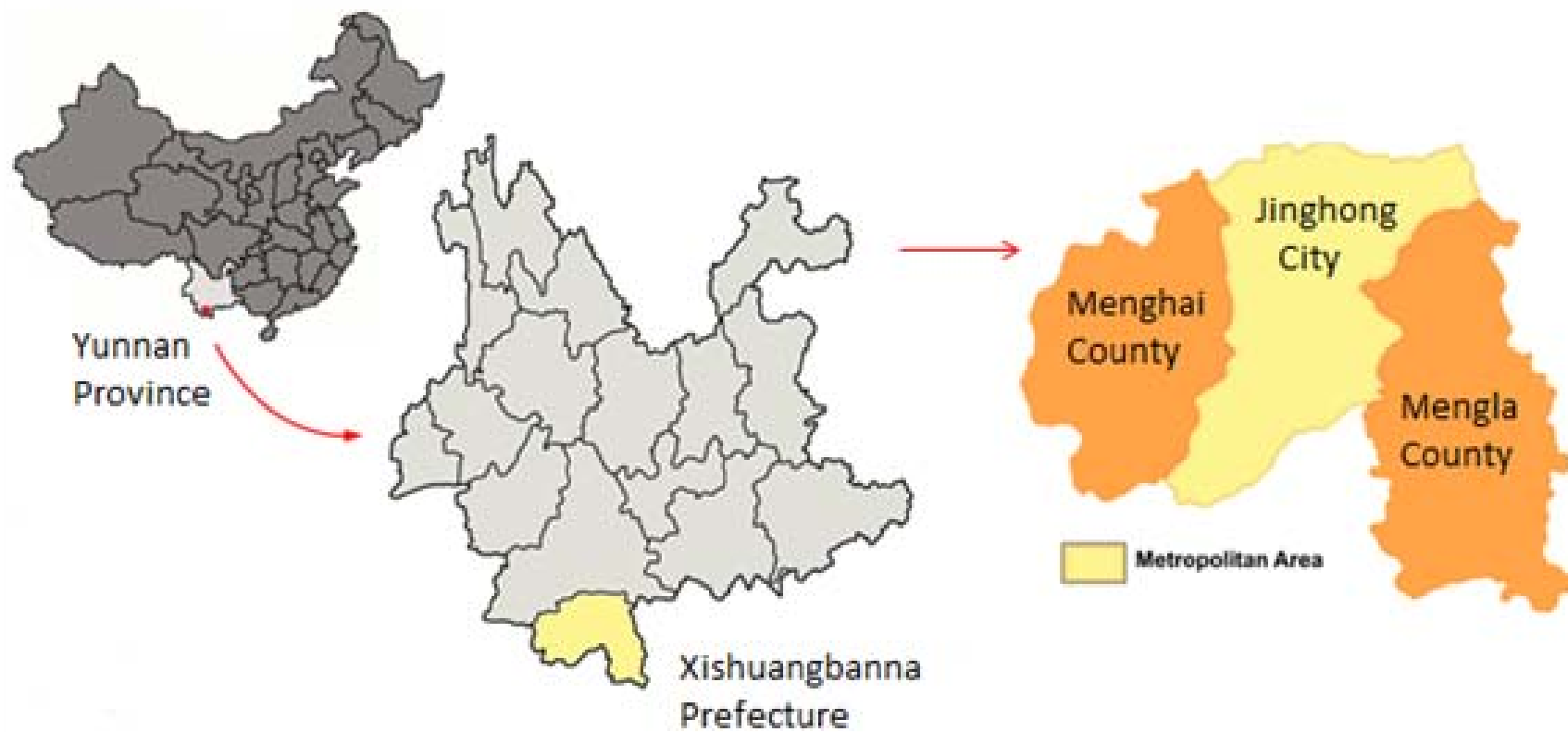


Project Overview

- June 1 to July 17, 2010
- Yunnan Province, China
- Bless China International
- HIV/AIDS prevention projects
- Full access
 - Planning
 - Implementation
 - Evaluation
 - Data



Photo courtesy of www.topnews.in



History of HIV/AIDS in China

- 1989: First discovered in Yunnan Province
 - 146 male injectable drug users (needle sharing)
- 1995: Spreading through geographically divergent IDU groups
- 1996: 50,000 to 100,000 cases nationwide
- 1999: Cases reported in all 16 prefectures in Yunnan
 - IDU peak prevalence: 74.5%
 - Commercial sex worker peak prevalence: 10%

History of HIV/AIDS in China



Photo courtesy of www.avert.org

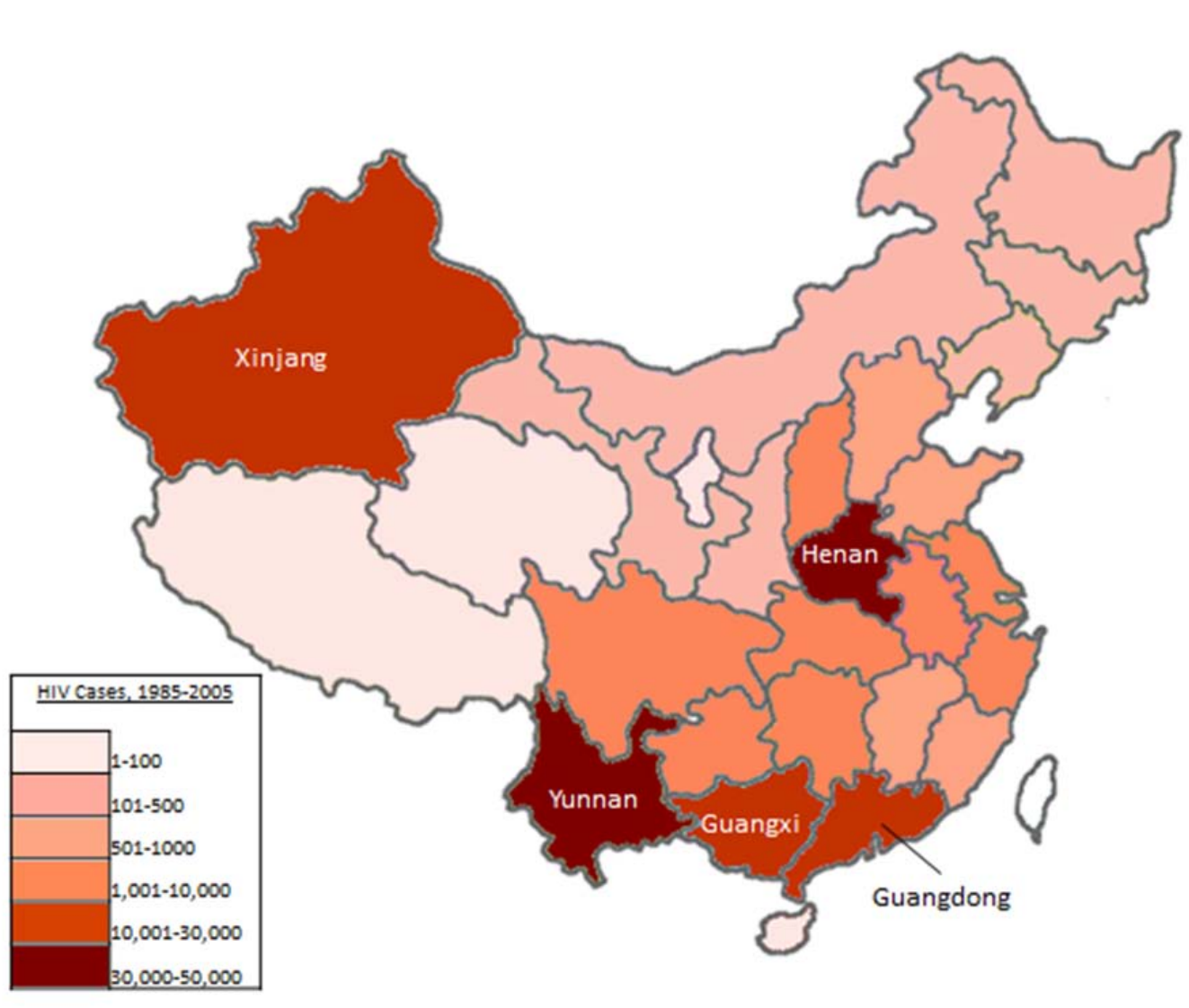
- 1990's: Illegal blood bank operations
- 1999: 60-70% of cases due to needle-sharing
- 7% of cases due to heterosexual transmission

History of HIV/AIDS in Yunnan

- Culturally diverse: at least 26 of 51 ethnic minorities
 - Dai: 70.89%
 - Akha and Lahu
- Epicenter for HIV activity since introduction in 1989
 - Migrant populations (adjacent borders with Myanmar and Laos)
 - Injectable drug use
 - Commercial Sex workers
 - 1999: Accounted for 34.8% of HIV cases in China
 - 3% of the population of China



Cumulative HIV cases, 1989-2005



Current Trends in Yunnan

- Shift in modes of transmission
 - 1989: 100% IDU
 - 2007: 42.5% IDU, 47.4% Heterosexual
- Male to Female Ratio
 - 1989: 40:1 (IDU)
 - 2007: 1.7:1 (CSW)



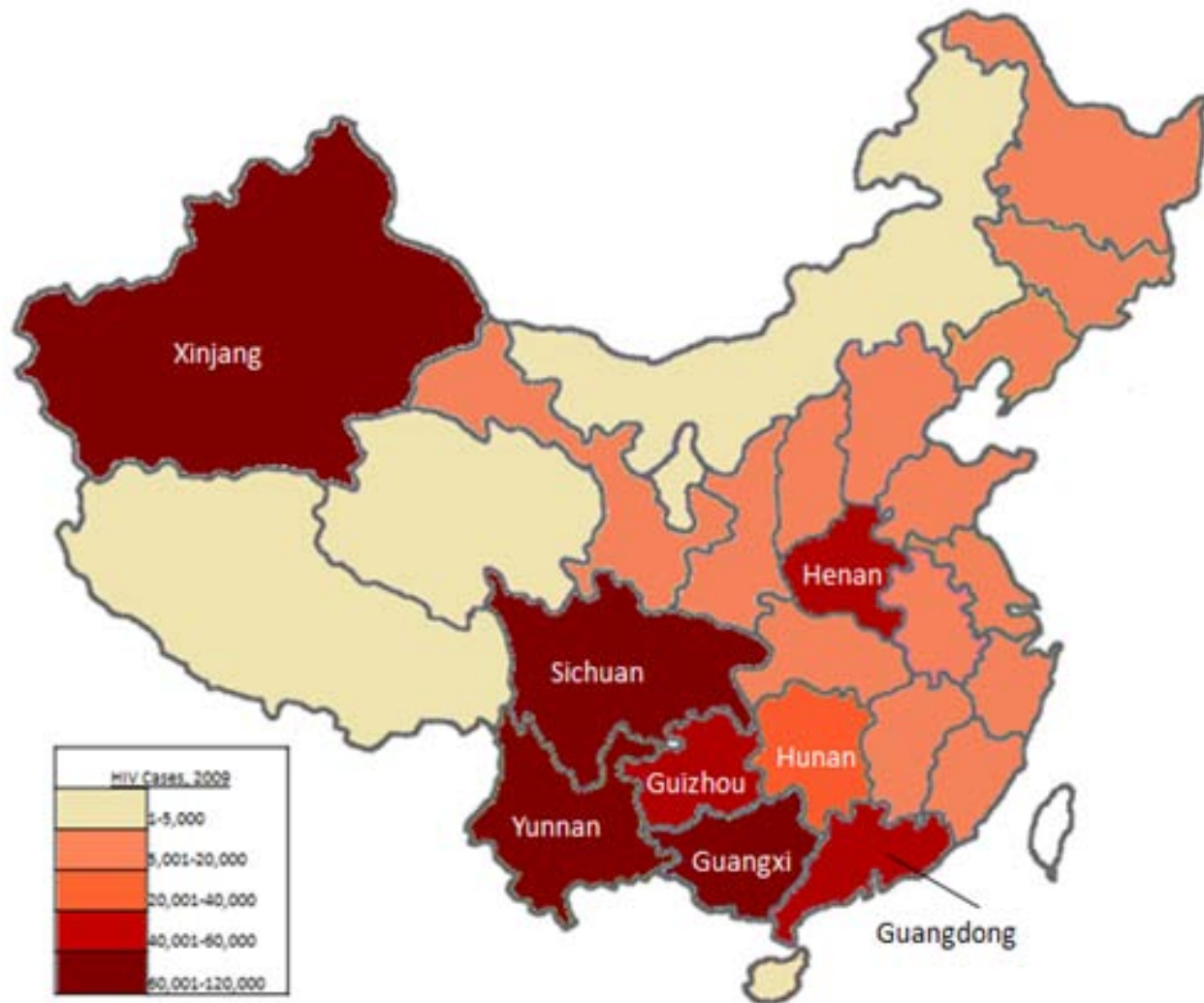
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Ethnic Minorities and HIV



- HIV cases in China
 - 740,000 (540,000 to 1,000,000)
- Yunnan HIV cases:
 - 50,000 to 100,000 (10%)
- HIV-positive minorities in Yunnan (2004)
 - 9% HIV cases
 - 0.3% population (30:1)

Current HIV Cases in China



Current Trends

- National campaign since 2001
 - Testing sites: sentinel sites, hospitals, pregnancy clinics, incarceration centers (involuntary)
 - Condom and anti-drug campaigns
- Local government may not cooperate
 - High stigma in traditional populations
 - Allowing the epidemic to continue

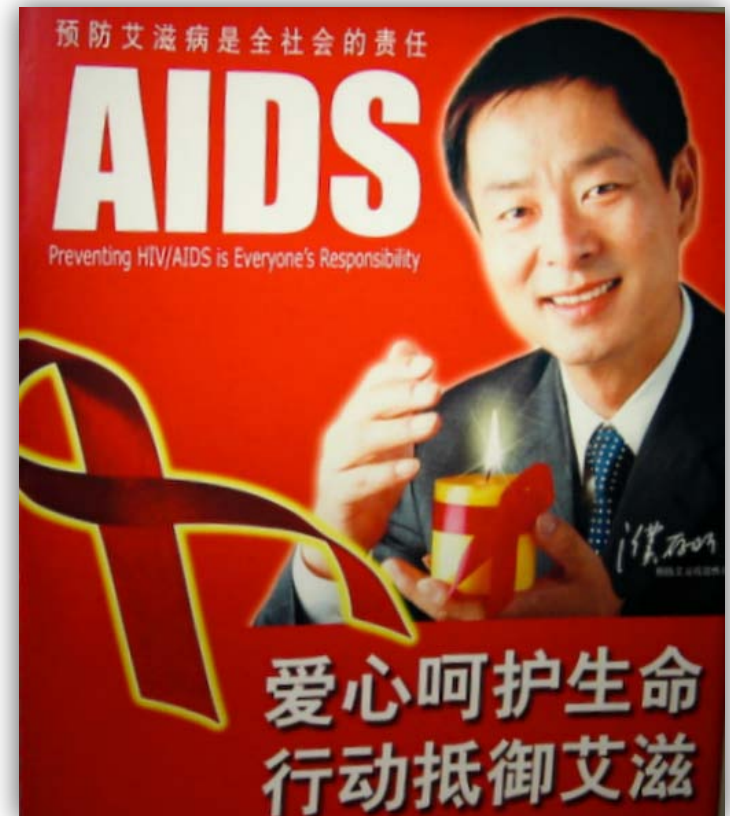
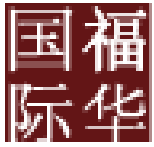


Photo courtesy of blog.socialventuregroup.com



Bless China International

- NGO founded in 1995
- Overall objective: “Caring for the poor, sharing knowledge, loving people”
- Eight locations in Yunnan Province
- HIV/AIDS emphasis in Xishuangbanna Prefecture
 - Recently completed 3-year pilot project on Village Prevention
 - Commercial Sex Worker Prevention
 - (HIV Patient Care)

Dr. Chee Hsiang Liow



- B. Med, M. Med (PH)
- HIV Program Director
- 5 Sites in Yunnan
 - University education
 - Hospital patient care
 - Village prevention
 - CSW prevention
 - Biochemical surveillance

BCI Structure

- Headquarters in Kunming
- 8 satellite sites across Yunnan
 - Each has a distinct set of objectives, relative to the region in which they work
- Xishuangbanna
 - Orphanage for disabled children
 - Leprosy unit
 - HIV/AIDS unit



BCI Structure

- Xishuangbanna HIV/AIDS Unit
 - Led by Dr. Liow
 - 3 Teams of Chinese (ethnic minorities)
 - 2 Teams: Village Prevention
 - 1 Team: Commercial Sex Workers



Commercial Sex Worker Project

Objectives

1. Increasing testing and treatment seeking behavior
2. Training select CSWs to become peer-educators
3. Increasing HIV knowledge of brothel managers
4. Providing high-quality condoms
5. Finding alternative vocations for girls, offering training

CSW Project Design

- Began in 2007 with baseline survey
 - All brothel-based CSWs included
 - Information used to shape CSW intervention curriculum
- Intervention Objectives
 - Increase HIV/AIDS knowledge among CSWs
 - Maintain high rate of condom use
 - Build relationships



CSW Project Design

- CSW team split into 4 groups
 - 1 group per zone
 - Visit CSWs 2x per week 9:30 p.m. to 1 a.m.
 - Build relationships
 - Free condom distribution
- Trainings to increase HIV/AIDS knowledge
 - Real-life problems: CSWs are territorial, don't like each other
- Alternative income-generating activities
 - Have met with sustainability problems
- Evaluations are held every 6 months, compare to baseline survey



Village Prevention Project

Objectives

1. Increasing HIV/AIDS knowledge
2. Reducing stigma associated with HIV/AIDS
3. Increasing awareness of self-risk
4. Reduce amount of HIV-related risk behavior
5. Evaluate the effectiveness of the program

Village Prevention Project Design

- Began in 2006 with the Xishuangbanna and Menghai County Health Bureaus requesting a study
 - Chose target (Menzhe) and control (Menghun) townships
- Baseline needs assessment/survey
 - Population information and HIV statistics from Health Bureaus
 - Qualitative and quantitative data
 - Assess HIV/AIDS knowledge
 - Comparability of target and control townships
 - Help shape intervention curriculum

Baseline Survey

- Qualitative data
 - Focus Group Discussions and Causal Diagrams in select villages
 - 7 villages in each township



Village Selection

- Using knowledge from quantitative data on HIV-related risk behaviors, sample size was calculated
- 46 villages were selected in target township
 - Each village in township weighted on continuous scale by pop. size to ensure large villages were more likely to be selected.
 - Stratified by ethnicity: Dai (30), Akha (8), Lahu (8).
- Control was significantly different from target township, so villages were selected purposefully to match one-on-one with target villages

Baseline Survey

- Quantitative Data: Questionnaire
 - BCI mapped each village, assigned numbers to each house
 - 14 households per village were selected using a random number generator
 - Once in the house, a die was rolled to determine whether a male or female (age 15-49) would be the respondent for the household.
 - Staff was blinded to the study



Village Intervention

- Interventions were built to address issues found to be significant in the baseline survey.
- BCI staff spent 1 month in each village
 - Began with randomly surveying 15 people (same questions)
 - Participatory Learning in Action
 - Skits, songs, discussions, etc.
 - Ended with randomly surveying 30 people (same questions)
 - Not required to attend any of the intervention
 - Question added to determine if respondent had participated in any intervention activities

- Post-intervention questionnaire was modified to include differences of opinion by gender
 - Extra questions to elucidate differences in attitudes
- Is premarital abstinence achievable for men?
- Is premarital abstinence achievable for women?
- Is marital faithfulness achievable for men?
- Is marital faithfulness achievable for women?



Village Prevention Project Results

- The baseline survey was analyzed using SPSS 15 and STATA 10 software
 - Univariate and bivariate descriptive analysis
 - Logistic regression to produce chi-square values and odds ratios for interpretation.
- Gender
- Age
- Ethnicity
- Education Level
- Alcohol Consumption



Demographics

- 1,139 Men (50.2%)
- 1,130 Women (49.8%)
- Ethnicities
 - Dai (70.38%)
 - Akha (18.82%)
 - Lahu (9.92%)
 - Han Chinese (0.62%)
 - Other (0.26%)



Education Level

Higher education level positively associated with Han Chinese (p-value=0.000)

Respondents Reporting on Education Level and Ethnicity						
	Ethnic Group (%)					
Education Level	Dai	Akha	Lahu	Han	Others	Total
None	213(13.4)	122(28.6)	56(24.9)	0	1(16.7)	392(17.3)
Primary	1139(71.4)	241(56.4)	142(63.1)	8(61.5)	4(66.7)	1534(67.7)
Secondary	212(13.3)	54(12.6)	27(12.0)	5(38.5)	1(16.7)	299(3.0)
High School	4(0.3)	3(0.7)	0	0	0	7(0.3)
Technical School	1(0.1)	0	0	0	0	1(0.0)
Diploma	1(0.1)	0	0	0	0	1(0.0)
Higher Diploma	0	2(0.5)	0	0	0	2(0.0)
Others	25(1.6)	5(1.2)	0	0	0	30(1.3)
Total	1595	427	225	13	6	2266

Alcohol Consumption

No association between ethnicity and alcohol consumption (p-value=0.054)

Respondents Reporting on Alcohol Consumption and Ethnicity

	Ethnic Group (%)					
Alcohol Consumption	Dai	Akha	Lahu	Han	Others	Total
Everyday	122(8.0)	44(11.3)	30(13.3)	1(8.3)	1(20.0)	198(9.2)
At least once a week	414(27.2)	112(28.7)	45(20.0)	1(8.3)	3(60.0)	575(26.7)
Less than once a week or never	976(64.2)	232(59.5)	149(66.2)	10(83.3)	1(20.0)	1368(63.6)
Don't know	8(0.5)	2(0.05)	1(0.4)	0	0	11(0.5)
Total	1520	390	225	12	5	2152

HIV-related Risk Behaviors

- Two HIV-related risk behaviors were surveyed
- Past 12 months
 - Patronizing CSWs
 - 0,1,2,3,4,5,10,100, don't know
 - Injectable Drug Use
 - Yes, no, don't know



Risk Behavior Indicators



- Alcohol Consumption
 - Patronizing CSWs (p-value=0.000)
 - Injectable drug use (p-value=0.000)
- Not living in the village
 - Patronizing CSWs (p-value=0.003)
- Higher education level
 - Negatively associated with patronizing CSWs (p-value0.000)

Differences of Opinion by Gender

- The differences of opinion by gender questions were analyzed using STATA10 software.
 - Logistic regression (xtlogit), accounting for the variability of:
 - Gender
 - Age (20-29), (30-39), (40-44), (45-49)
 - Education level
 - Ethnicity
 - Alcohol consumption
 - Village cluster effect



Is premarital abstinence achievable for men?

- Men vs. Women
 - OR=1.88, p-value=0.000, 95% CI=(1.327, 2.670)
- Age
 - OR=1.03, p-value=0.003, 95% CI=(1.011, 1.051)
 - Compared to 20-29 year olds,
 - 30-39 yo's responded similarly [OR=1.122, p-value=0.730, 95% CI=(0.582, 2.165)]
 - 40-45 yo's responded less likely [OR=3.123, p-value=0.001, 95% CI=(1.76, 6.06)]
 - 45-49yo's responded similarly to 40-45yo's [OR=1.920, p-value=0.001, 95% CI=(1.644, 5.981)]
- Ethnicity (Dai vs. Akha)
 - OR=0.53, p-value=0.001, 95% CI=(0.365, 0.768)
- Education level and alcohol consumption were not significant
- Variance at the village level: p-value=0.094

Is premarital abstinence achievable for women?

- Men vs. Women
 - OR=3.99, p-value=0.000, 95% CI=(2.713, 5.712)
- Ethnicity (Dai vs. Akha)
 - OR=0.703, p-value=0.007, 95% CI=(0.544, 0.910)
- Age, education level, and alcohol consumption were not significant
- Village cluster effect on variance was not significant (p-value=0.201)

Is marital faithfulness achievable for men?

- Men vs. Women
 - OR=0.61, p-value=0.027, 95% CI=(0.397, 0.974)
- Age
 - OR=1.04, p-value=0.000, 95% CI=(1.021, 1.062)
 - Compared to 20-29 year olds,
 - 30-39 yo's responded similarly (OR=1.723, p-value=0.074, 95% CI=[0.949, 3.135])
 - 40-44 yo's responded less likely (OR=3.268, p-value=0.000, 95% CI=[1.761, 6.065])
 - 45-49yo's responded similarly to 40-44 yo's (OR3.137, p-value=0.001, 95% CI=[1.645, 6.981])
- Alcohol Consumption (Everyday vs. Once weekly or less)
 - OR=1.69, p-value=0.003, 95% CI=(1.200, 2.370)
- Education level and ethnicity were not significant
- Variance at the village level was significant (p-value=0.008)

Is marital faithfulness achievable for women?

- Alcohol consumption (everyday vs. once weekly or less)
 - OR=1.90, p-value=0.004, 95% CI=(1.234, 2.927)
- Gender, age, education level, and ethnicity were not significant
- Variance at the village level was not significant (p-value=0.425)

Gender Opinion Differences

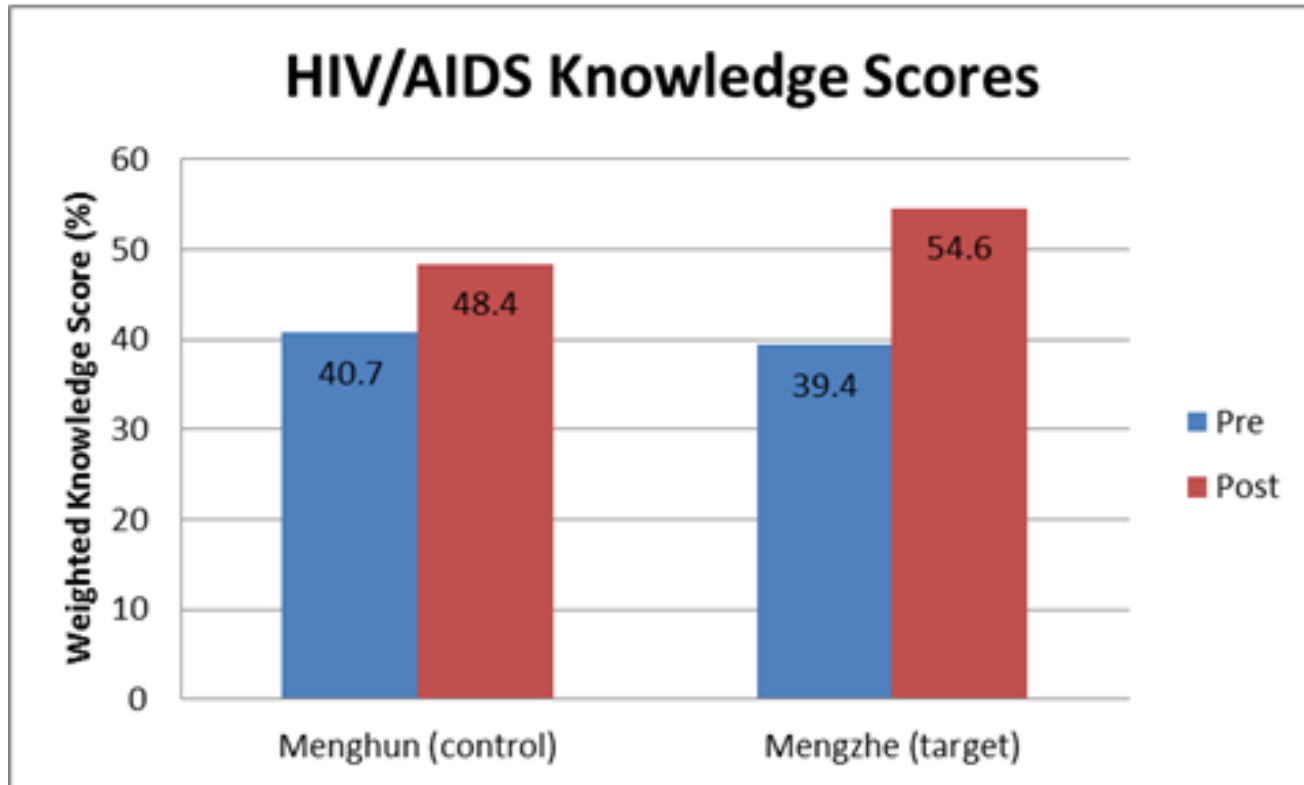
	<u>Significant Belief Indicators</u>				
<u>Belief in</u> <u>achievability</u>	Gender	Age	Education Level	Ethnicity	Alcohol Consumption
Premarital, men	X	X		X	
Premarital, women	X			X	
Marital, men	X	X			X
Marital, women					X

Intervention Outcomes

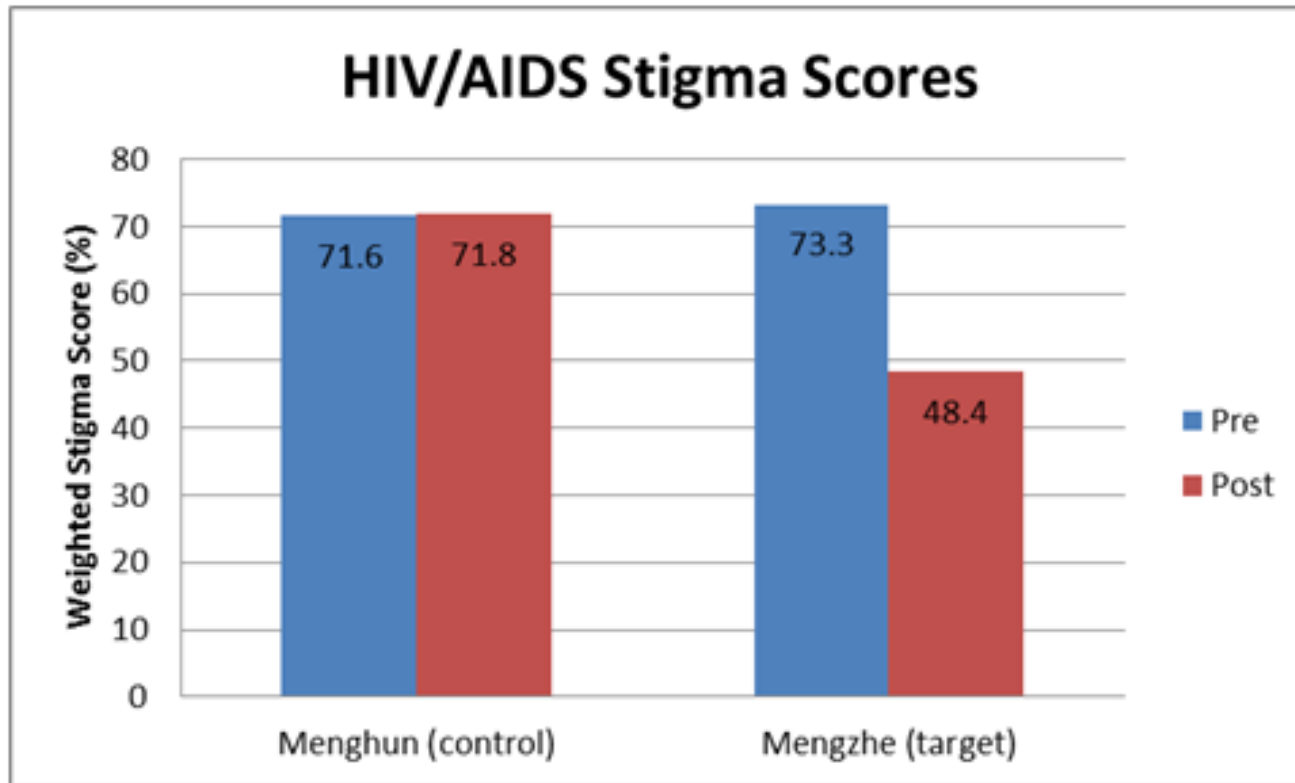
- HIV/AIDS knowledge and stigma were measured during pre- and post-intervention surveying
 - Respondents were asked questions relating to knowledge and stigma
 - Each responded was assigned a nominal score based on correct/incorrect answers
 - Analyzed in linear regression, adjusting for
 - Gender
 - Age
 - Education level
 - Ethnicity
 - Village cluster variance
 - All p-values<0.001



HIV/AIDS Knowledge



HIV/AIDS Stigma

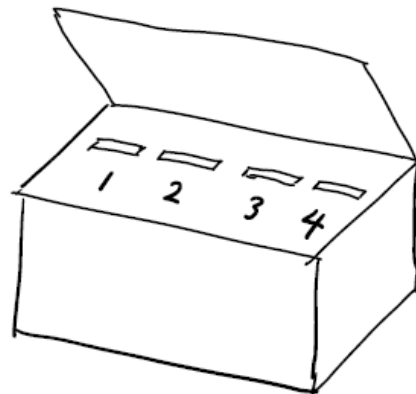


Summary of Conclusions

- Commercial Sex Worker Project
 - Very complex and dynamic population, suspicious of outsiders
 - Bedrock of successful program is RELATIONSHIP
 - Trainings must take place frequently to expose the information to as many CSWs as possible before they leave
 - Time consuming, personnel dependent
- CSW Peer-educators
 - Currently three CSWs, there has been some attrition
 - Act as an inroad to the network of CSWs
 - Can work as powerful allies to BCI
 - Already voices of influence in their community
 - Expanding the number of peer-educators with support from BCI

Summary of Conclusions

- Village Prevention Project
 - Opportunities for Bias
 - **Reporting bias:** Many of the questions were of a sensitive nature. Misinterpretation of the questions is possible.
 - **Volunteer Bias:** Those that partook in the group discussions and causal diagrams may not represent the population well
 - **Post-intervention questionnaire:** Those that were willing to attend the intervention may be different than those not willing to attend in their attitudes toward HIV. May be interpreted as an overall greater impact of the intervention at the community level.



Summary of Conclusions



- Village Prevention Project

- Labor intensive
 - Goal is to find an effective program for the government
- Need for follow-up
 - Over time, knowledge diminishes and stigma increases
 - Labor and time intensive
- Recommendations based on gender opinion differences
 - Gender-specific messages (split up the men and the women)
 - Age specific messages (39 years old and younger, 40 and older)
 - Ethnicity specific messages: Addressing premarital abstinence in the Akha
 - Alcohol consumption affects the perception of female promiscuity. Further research is needed to address underlying issues.

Summary of Conclusions

- The NGO's role in Public Health
 - A healthy, working RELATIONSHIP with the local government is key
 - An NGO's work does not replace or supersede the work of the government.
 - It is meant to be an asset to what the government is already doing
 - Try to develop projects that play off government's strengths
 - Program planning is deferred to government approval/request
 - Creating problem solving and flexibility are needed
 - Governmental goals may be different than NGO goals
 - Project interruptions – how to deal with them?
 - High quality work
 - Goal is to enhance the government's ability to provide high quality services to citizens
 - High quality work ensures future projects
 - Transparency is required

Summary of Conclusions

- Estimations of HIV in China
 - UNAIDS workbook and Spectrum method
 - Relies on estimates for at-risk populations (CSWs and IDUs)
 - 2003 first used in China
 - 194 sentinel sites nationwide
 - Estimate: 840,000 (650,000 to 1,020,000)
 - 2005
 - 749 national and provincial sentinel sites
 - Estimate: 650,000 (540,000 to 760,000)
 - 2007
 - UNAIDS adjusted the model (Spectrum)
 - Estimate: 700,000 (550,000 to 850,000)
 - 2009
 - UNAIDS adjusted the model again
 - Estimate: 740,000 (560,000 to 920,000)

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Questions?

