

Dope at Discount:
Public Health Consequences of
Historically Low-cost and Pure Heroin in
the US,
1990 – 2002

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Objectives

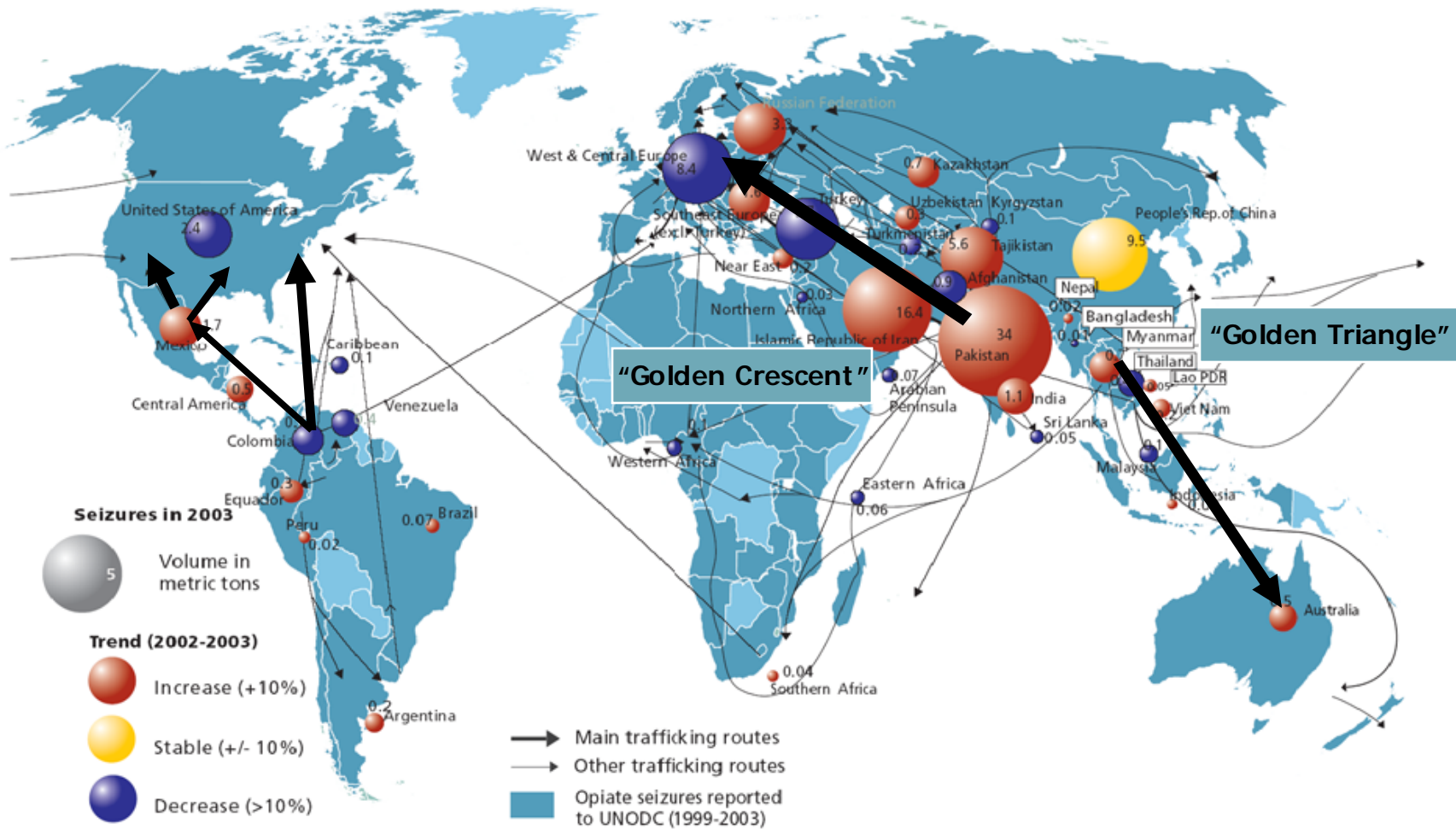
- ▶ Characterize trends in US retail heroin markets from 1990 – 2002
- ▶ Examine effects of heroin price and purity on heroin-related deaths nationally

Background: Heroin Sources

- ▶ Global heroin sources:
 - South West Asia (Afghanistan/Pakistan)
 - South East Asia (Golden triangle: Myanmar, Thailand, Laos)
 - Columbia (5% of world's opium/heroin)
 - Mexico (2% of world's opium/heroin)
- ▶ US heroin

Heroin Trafficking Routes

Map 4: Heroin and morphine seizures 2002 - 2003 : extent and trends (countries reporting seizures of more than 0.01 mt (10 kg.))



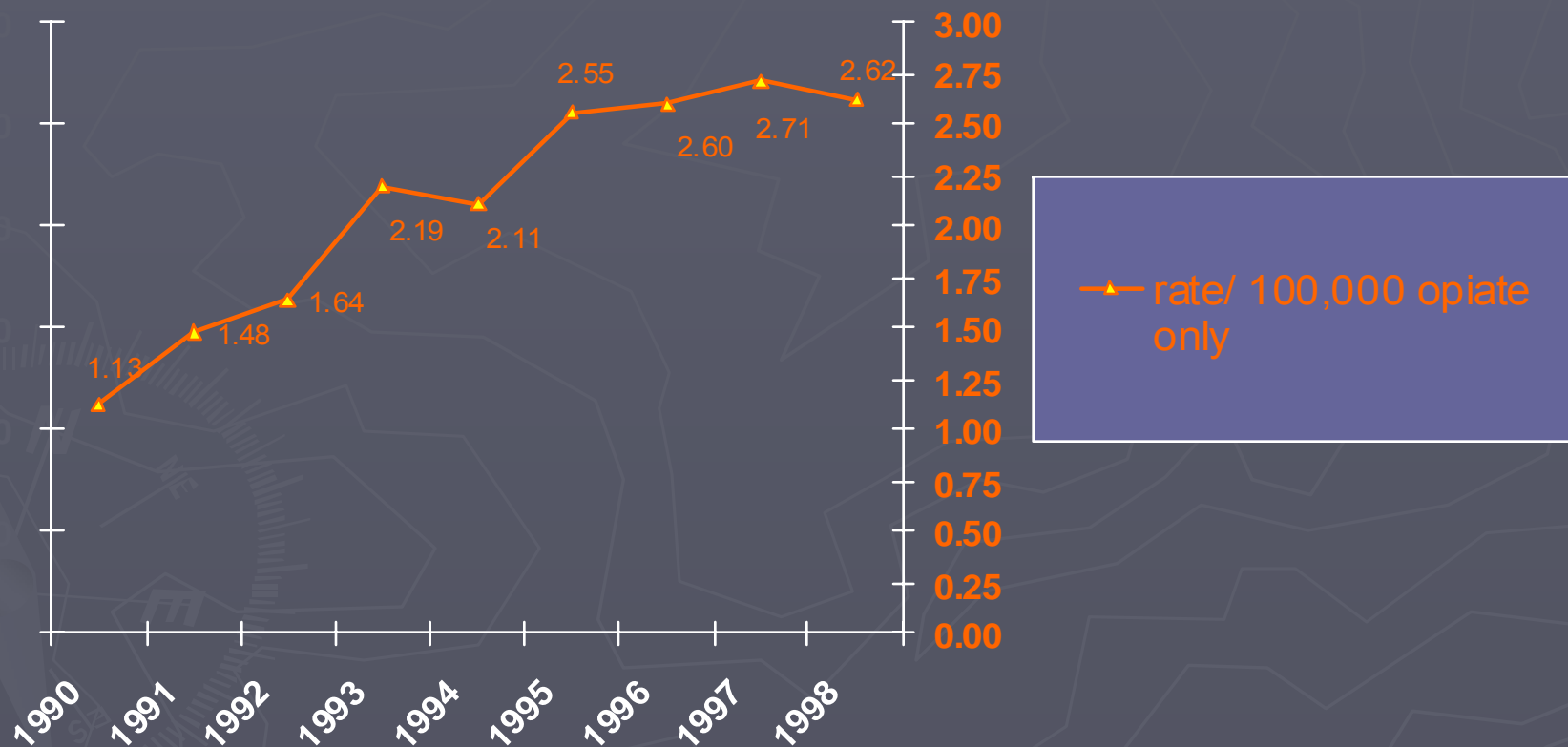
Note: Routes shown are not necessarily documented actual routes, but are rather general indications of the directions of illicit drug flows.



Background: Heroin Overdose

- ▶ Heroin-related overdose
 - ▶ Number one cause of death among heroin users
 - Seventh leading cause of YLL among men in SF
- ▶ Evidence of rising heroin overdose
 - Papers: NYC, Seattle, Portland
 - Anecdotal reports
 - Harm reduction conference in 2000
- ▶ Separate evidence of rising heroin purity and declining price

New York City Opiate Overdose



Source: Coffin et al 2003

Methods: Data Sources

▶ Heroin data

- U.S. Drug Enforcement Administration (DEA), Domestic Monitoring Program (DMP)
 - ▶ 1990-2002
 - ▶ 19 US cities
 - ▶ Street (retail) samples of heroin, N= 4803
 - DEA lab analyzed for heroin purity
 - Chemical “signature” of source country
 - Retail price recorded; standardized for price/mg pure heroin

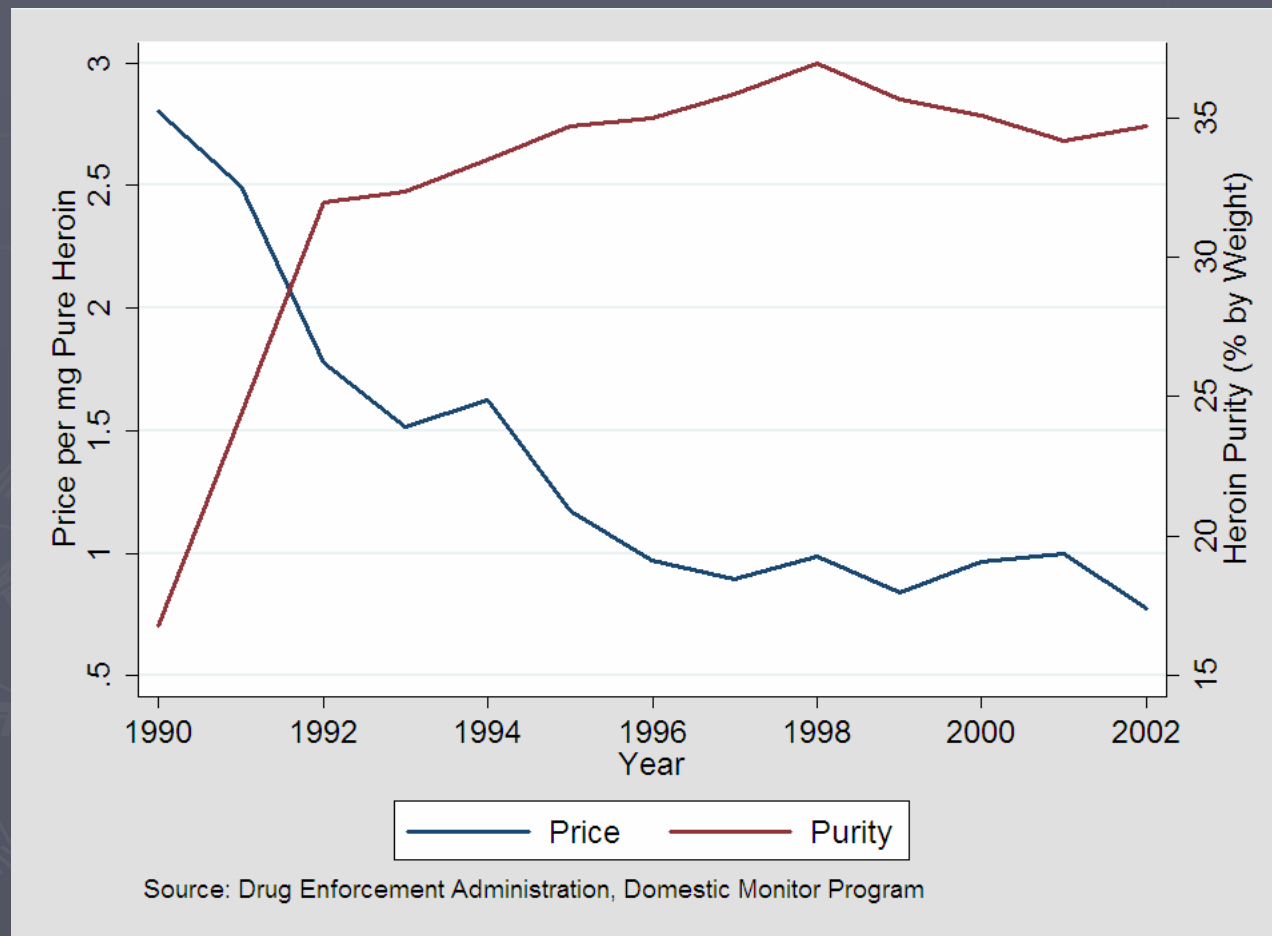
Methods: Data Sources

- ▶ Medical examiner data
 - Drug Abuse Warning Network (DAWN)
 - All reported drug-induced deaths
 - Heroin/morphine documented by lab testing
 - ▶ Includes heroin-related deaths with multiple causes; multiple drugs
 - ▶ Excludes: HIV/AIDS, violent deaths

Methods: Analysis

- ▶ Collapsed all data in a given year and in a given Metropolitan Statistical Area (MSA).
 - 19 MSAs
 - Years 1990-2002
- ▶ Used bootstrap resampling to account for skewed OD data and random effects to account for clustering within MSA.

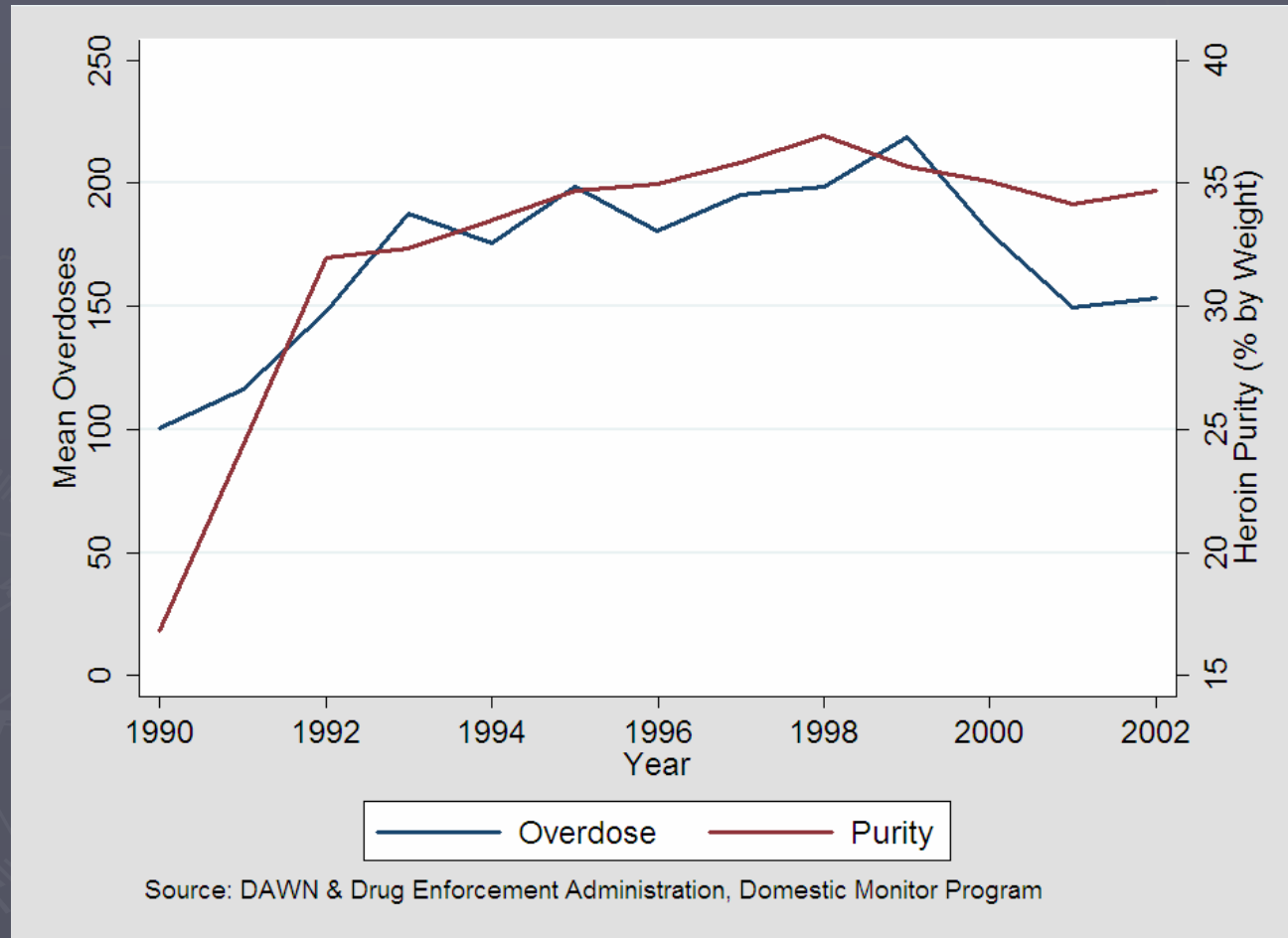
Results: Heroin Price and Purity



Summary

- ▶ Historic changes in heroin supply:
 - Purity: 220% increase between 1990 (min) and 1998 (max)
 - Declines slightly after 1998
 - Price: 73% decline in price to historic lows

Heroin Purity and Overdoses



Overdose and Purity Model

	Coefficient	Standard Error
Year	19.89*	(9.94)
Year ²	-1.11**	(0.42)
Purity	1.15*	(0.59)

Controlling for proportion of MSA male, in middle adulthood, arrested, ethnicity, population size and % in poverty

** $p < 0.01$ * $p < 0.05$

Overdose and Price Model

	Coefficient	Standard Error
Year	18.10 [†]	(10.26)
Year ²	-1.04 [*]	(0.42)
Price	-11.21 [†]	(6.25)

Controlling for proportion of MSA male, in middle adulthood, arrested, white, hispanic, population size and in poverty

** $p < 0.01$ * $p < 0.05$ † $p < 0.10$

Summary

- ▶ Heroin market dynamics correlate with rise in heroin overdose deaths
 - Average overdoses in MSA increased 217% between 1990 (min) and 1999 (max)
 - Statistically significant increase in overdoses associated with heroin purity after controlling for time and MSA characteristics

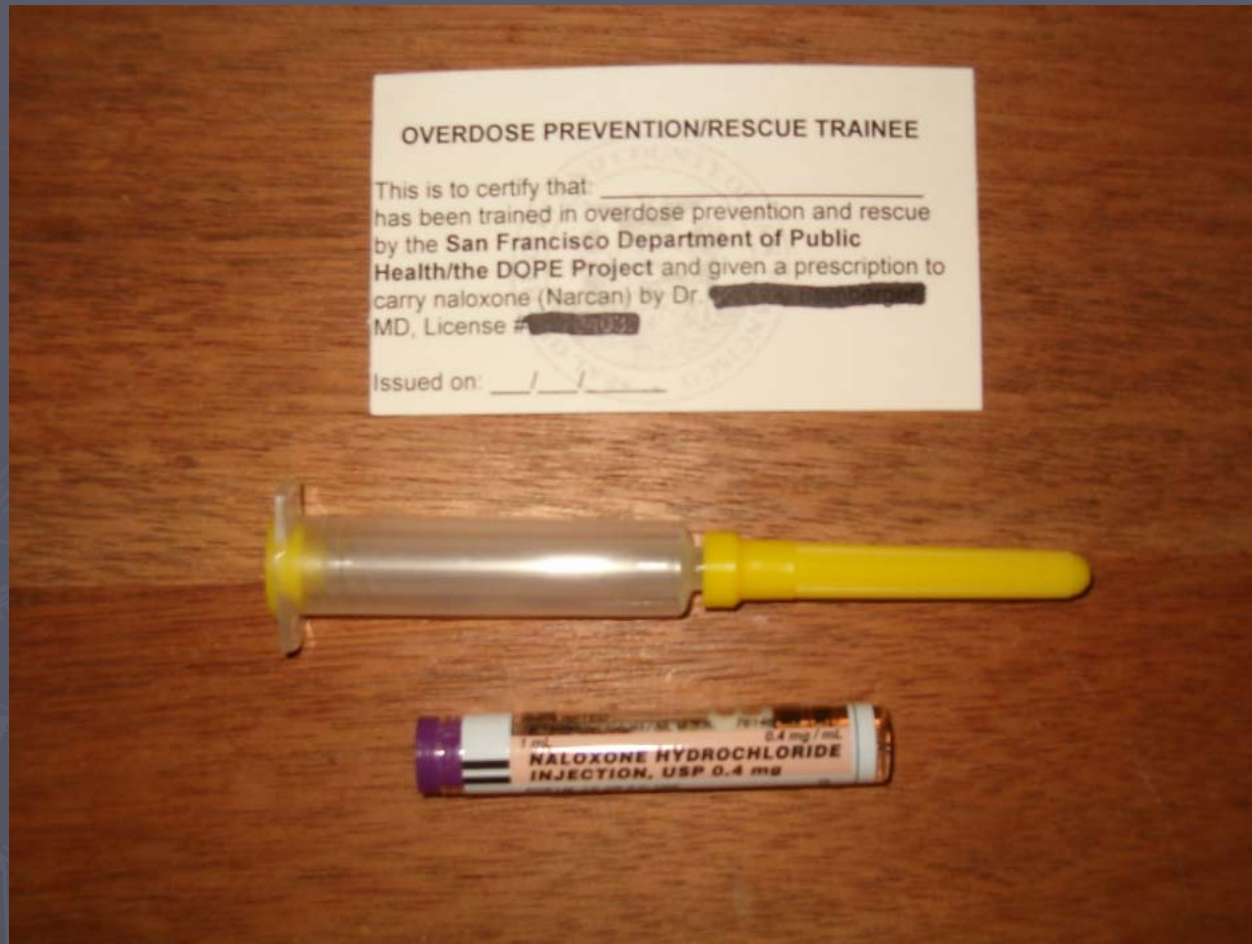
Discussion and Future Directions

- ▶ Did heroin market changes lead to:
 - Increased number of users OR
 - Increased consumption per user?
- ▶ What are the policy implications?
 - Interdiction versus demand reduction
 - Drug treatment is more cost-effective (RAND)

Discussion and Future Directions


- ▶ Structural problems >> structural solutions
- ▶ Overdose prevention
 - Naloxone distribution
 - Safe injection facilities

Overdose Prevention









FOLLOWING THE LEAD SET BY MCDONALD'S WITH THEIR NEW "HEALTHIER" FRENCH FRIES, THE ORGANIZATION OF WORLDWIDE HEROIN MANUFACTURERS ANNOUNCED THAT A NEW "LOW-CALORIE" VERSION OF THE POPULAR NARCOTIC WOULD HIT THE STREETS BY JANUARY.

A SPOKESPERSON FOR THE ORGANIZATION SAID, "LIKE MCDONALD'S, WE HAVE LEARNED THAT JUST BECAUSE YOUR PRODUCT IS HIGHLY ADDICTIVE AND DEADLY, DOESN'T MEAN YOU HAVE TO KILL YOUR CUSTOMERS OFF **QUICKLY**. HEALTHIER HEROIN IS JUST GOOD FOR BUSINESS!"

Acknowledgements

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- 👉 SAMHSA: DAWN
- 👉 NIH/NIDA: K23DA16165

END



Discussion and Future Directions

- ▶ Heroin Type (Source):
 - Black Tar Heroin use appears inversely correlated to HIV
 - ▶ Further exploration of this hypotheses through modeling and multi-city studies
 - Variation in other outcomes by type/source of heroin?

Heroin Types: Sources

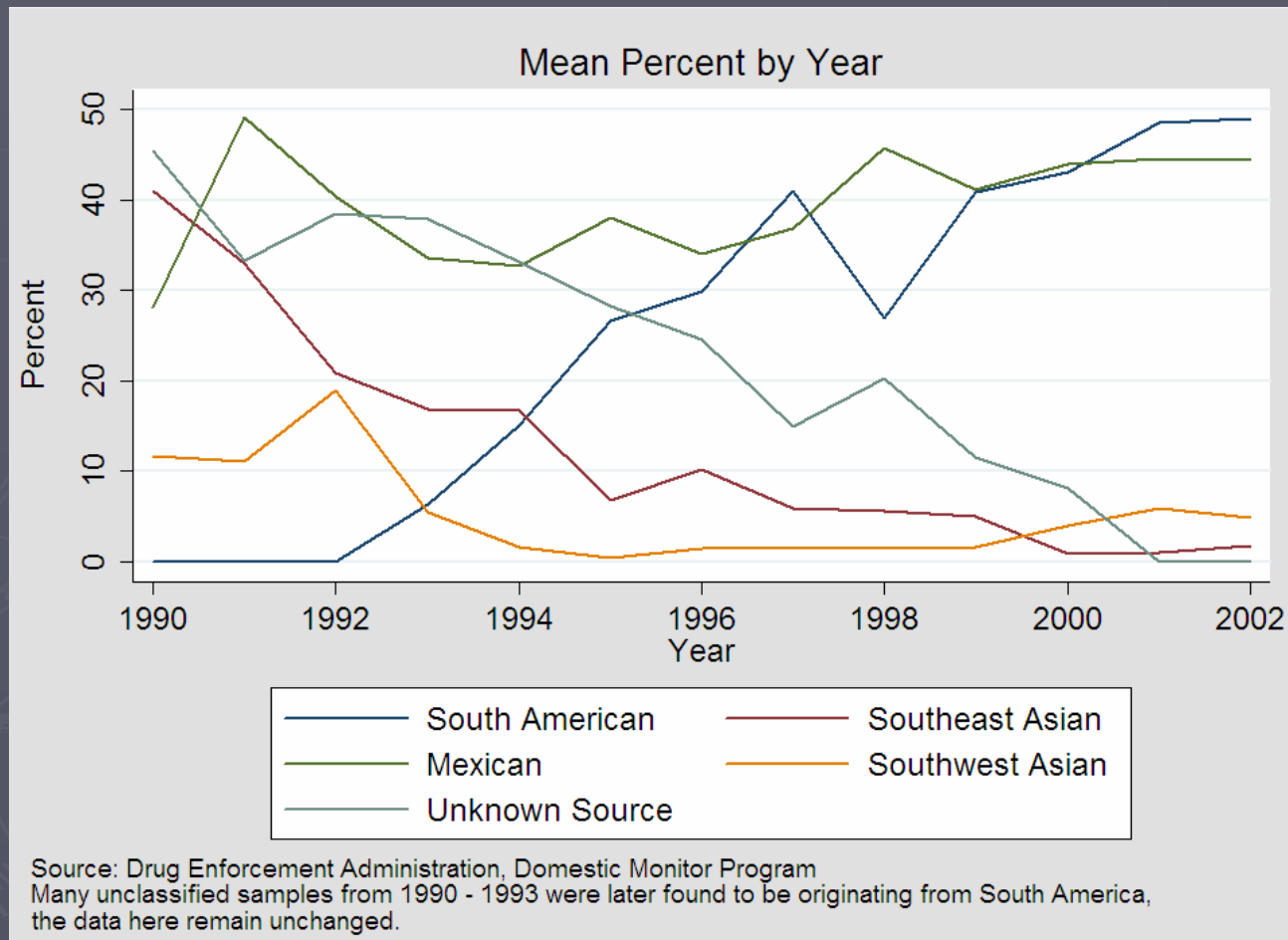
Black Tar Heroin: Mexican



Brown powder Heroin:
Colombian/SWA

White powder Heroin: SEA

Geographic Origin of Heroin



Colombia

- ▶ Brief political history
 - Internal conflicts
 - ▶ Separation from Ecuador and Venezuela in 1830
 - ▶ > 8 civil wars over next 70 years
 - ▶ Help establish the twin traditions of violence and distrust of the government
 - ▶ Intertwined conflicts over political rule, geography and drug trade
 - 2nd worldwide in internally displaced people
 - ▶ Drug trade fuels conflict and conflict fuels drug trade

Colombian Drugs

- ▶ Marijuana trade > US; flourished 1960s
 - Trade route through Caribbean
 - Preliminary instruction in drug trafficking
- ▶ Cocaine
 - Demand rises in US, 1970s
 - More lucrative than marijuana
 - ▶ Savvier and more powerful organizations
 - ▶ Industry embraced by the local populace
 - Provided otherwise scarce opportunities for social mobility
 - Cartels provided basic infrastructure – schools and healthcare – that the government had not

Colombian Heroin

▶ 1980s

- Medellin & Cali cartels ran the enormous US cocaine market
 - ▶ Weaken government control
- 1986: first poppy plants detected in Colombia
- Late 1980s: US demand for cocaine was flattening

▶ Early 1990s

- The big cartels were significantly weakened
 - ▶ "Cartelitos," smaller low profile drug organizations, flourish
 - ▶ Political rebel groups also take advantage
 - ▶ Size was conducive to the heroin trade: smaller US demand by volume; higher selling price / weight
 - ▶ **1992: Colombian gangs used Puerto Rico as a test heroin market for the U.S.**

▶ Mid - late 1990s

- The big cartels had dissolved
- Cooperation with Mexican org: routes and product
- Colombia becomes biggest heroin supplier to the US

Paradoxes of Interdiction

- ▶ Interdiction of coca from Bolivia and Peru concentrated cocaine production and power in Colombia
- ▶ Governments ignored early poppy crops
- ▶ Weakening the major cocaine cartels allowed smaller players to promote a new drug (drug diversification)
- ▶ Interruption of Caribbean trade routes leads Colombian and Mexican smugglers to cooperate (trade route diversification)
 - NAFTA (1994)?