

Syringe Exchange, HIV, HBC, HCV: the first 20 years

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20 YEARS OF SYRINGE EXCHANGE

WHAT HAVE WE LEARNED?
WHAT DO WE STILL NEED TO
LEARN?

Conventional Wisdom circa 1984

- Drug Users are inherently self-destructive
- Will not/cannot change their behavior to avoid HIV infection
- Accepted by experts, policy makers and general public

What were we thinking 20 years ago?

- Would IDUs change their behavior sufficiently to avoid HIV?
- Would syringe exchange lead more people to start injecting drugs?
- Would syringe exchange keep drug users out of drug abuse treatment?

Would syringe exchange lead more people to start injecting drugs?

- Areas with very large increases in injecting drug use over last 20 years:
- Asia and Eastern Europe
- Estimate 10 out of 13 million IDUs are in transitional and developing countries
- Little or no syringe exchange, lots of HIV

Would Syringe Exchange keep drug users out of treatment?

- SEPs have become important referral to treatment sources
- No evidence of empty treatment program slots in areas with SEPs

Is it possible to prevent HIV epidemics among IDUs?

- By 1992, stable low HIV prevalence (under 5%) among IDUs in Tacoma, WA, Sydney, Aus., Glasgow, Scot., Lund, Swe., Toronto, Can.
- Begin prevention early
- Large scale access to sterile injecting equipment
- Trusted communication between health workers and IDUs

Continuation of Prevented Epidemics

- Through 2004, stable low HIV prevalence (under 5%) among IDUs in Tacoma, WA, Sydney, Aus., Glasgow, Scot., Lund, Swe., Toronto, Can.

Need for additional learning about preventing epidemics

- How to rapidly adapt to changes in drug use patterns--cocaine, methamphetamine?
- Possible problems with treatment optimism and prevention fatigue

Need for additional learning about preventing epidemics

- How to motivate policy makers before the epidemic occurs--particularly in developing and transitional countries
- What degree of coverage is needed?

Need for additional learning about preventing epidemics

- How much “sharing” can occur and still keep HIV under control?
 - 30% of IDUs sharing?
 - “partner restriction”
 - “informed altruism”

Can ongoing large HIV epidemics be stopped?

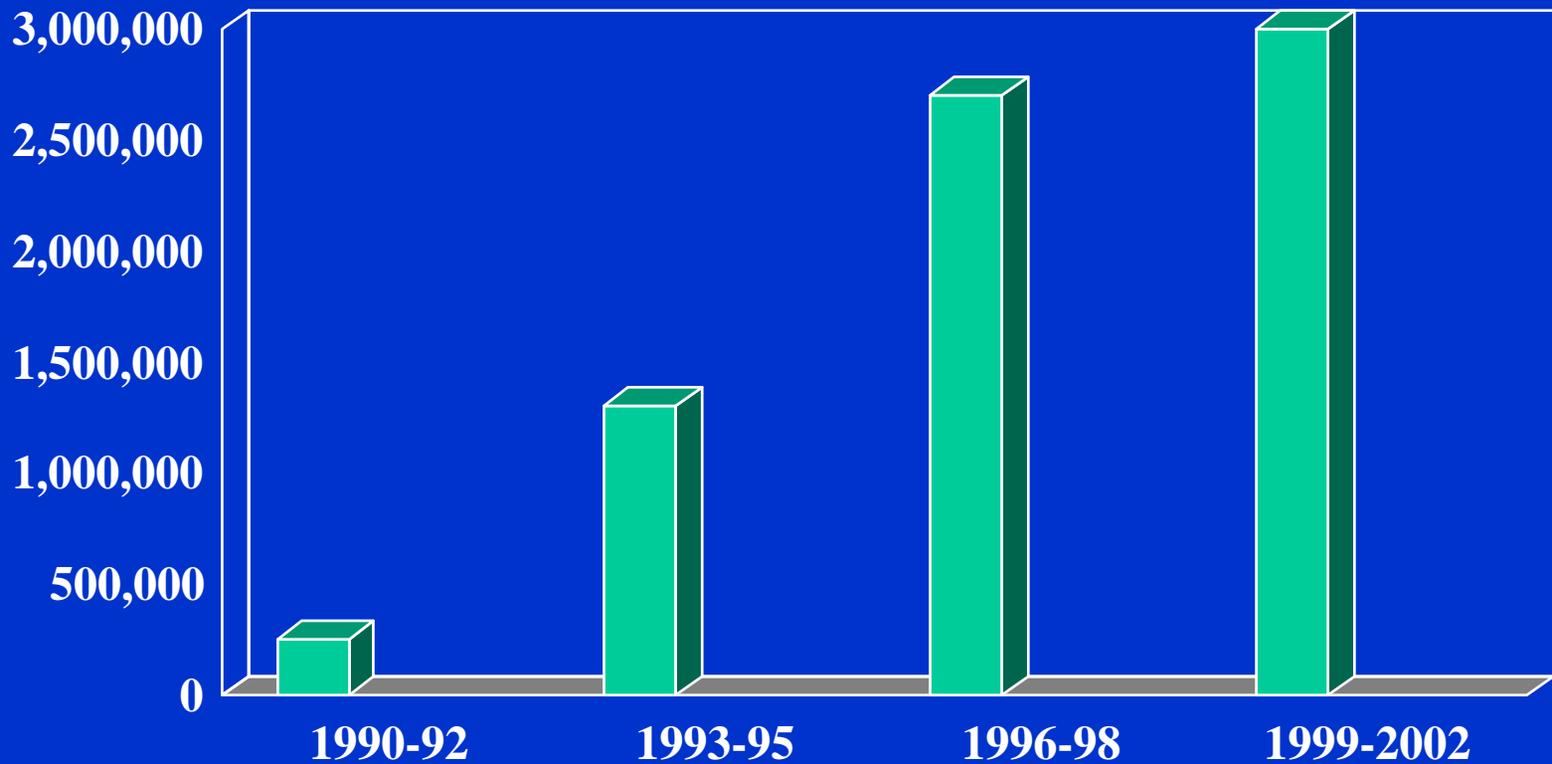
- Large numbers of HIV- IDUs at risk for becoming infected
- Large numbers of IDUs at risk to transmit to others
- Much more difficult than preventing an epidemic

Historical Reconstruction of HIV-1 Seroprevalence among Active Intravenous Drug Users in Manhattan, New York City*

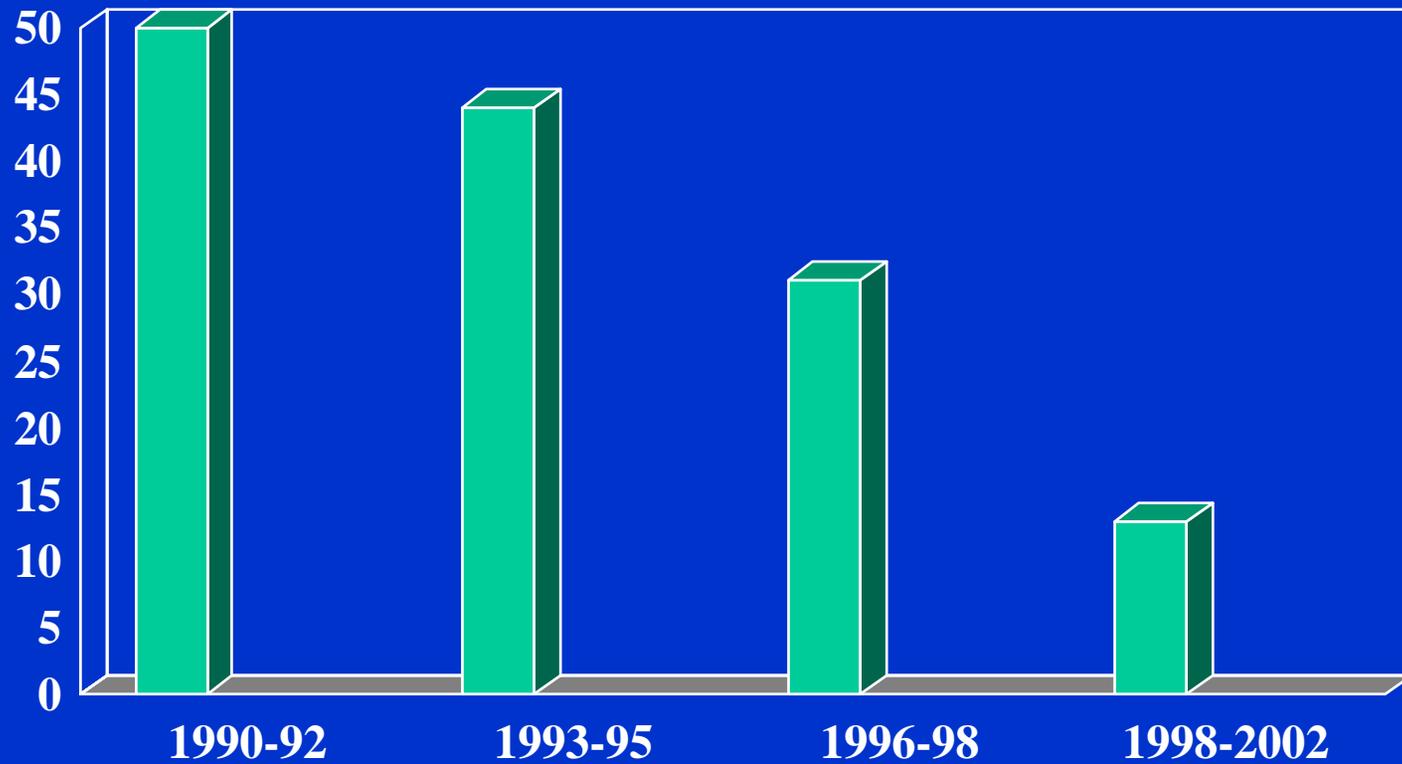


reconstruction is based on seroprevalence data for 1978-84, and 1986-87, with AIDS case data used to estimate seroprevalence for the other years. The curve has been smoothed for 1984-1987.

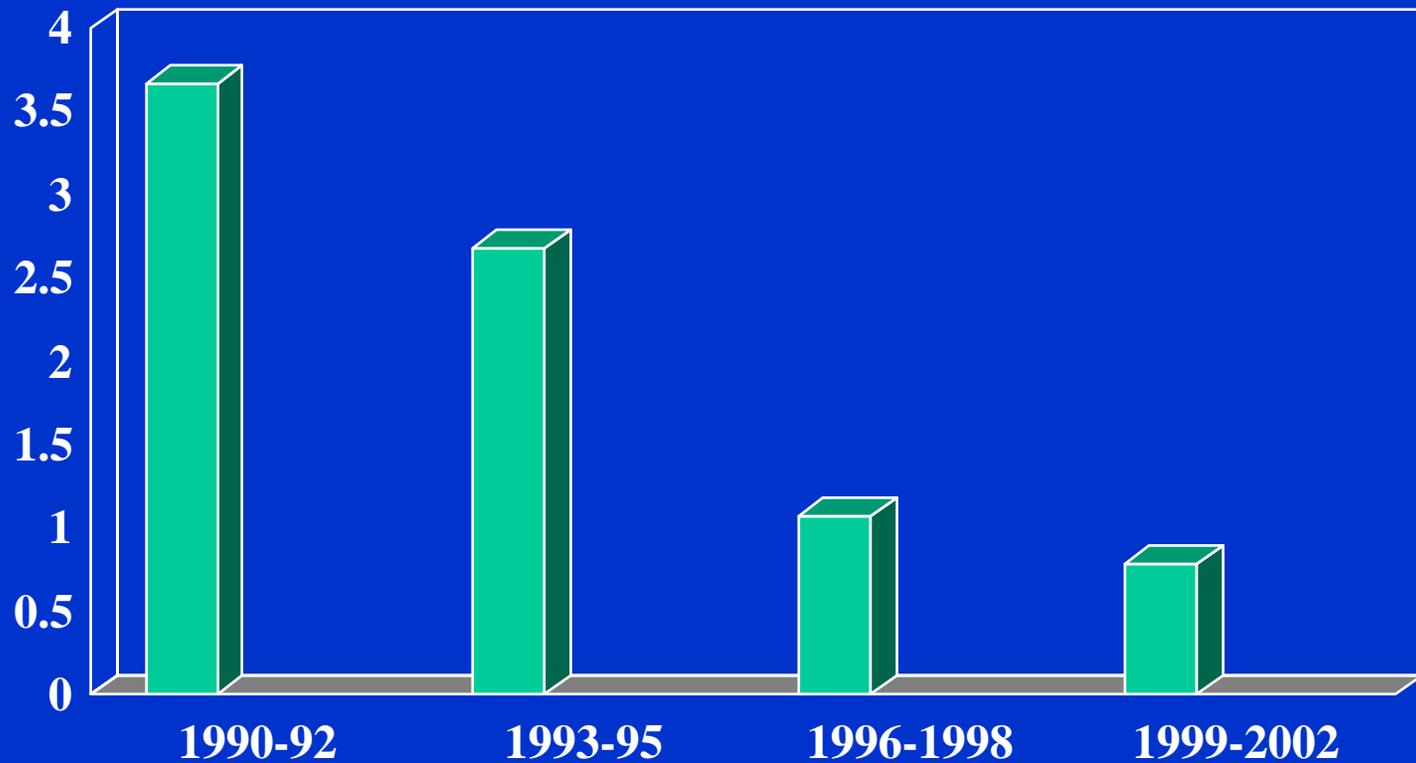
Annual Numbers of Syringes Exchanged



HIV Seroprevalence



HIV incidence from STARHS



Need to learn about stopping large HIV epidemics

- Can this be done on a consistent basis?
- What coverage is needed?
- What mix of programs is needed?
 - Access to clean syringes, Community Outreach, Drug treatment, HIV treatment

Need to learn about stopping large HIV epidemics

- What amount of sharing/risk behavior can be tolerated?
 - Partner restriction, informed altruism
- Can this be done in developing/transitional countries?

Syringe Exchange and Hepatitis B Virus

- Initial Tacoma study found strong protective effect against recent HBV infection, OR = .20 (Hagan et al.)
- But recent outbreak of HBV and hepatitis delta in Tacoma

Syringe Exchange and Hepatitis B Virus

- Vaccination !!!
- 34% of US SEPs provide HAV/HBV vaccination
- Up to 83% completion rates

Can ongoing large HCV epidemics be stopped?

- HCV much more efficiently transmitted, through rinse water, cottons, cookers
- More complexity and confusion about HCV
- Less fearful a disease

Individual Level Studies of Syringe Exchange and Risk for HCV Infection

| Study | Design | HCV seroconversion rate | Risk (95% Confidence Interval) |
|---------------------------------|-------------------------|-------------------------|--|
| Hagan et al, 1995 (Tacoma) | Case control 46 IDUs | -- | AOR (non-use of SEP) = 7.3 (1.6-32.8) |
| Hagan et al, 1999 (Seattle) | Cohort 187 IDUs | SEP use | AOR |
| | | None | 15/100 1.0 |
| | | Sporadic | 26/100 2.6 (0.8-8.5) |
| Regular | 25/100 1.3 (0.8-2.2) | | |
| Patrick et al, 2001 (Vancouver) | Cohort 155 IDUs | SEP use | AHR |
| | | < weekly | 26/100 1.0 |
| ≥ weekly | 55/100 2.6 (1.4-4.8) | | |

Individual Level Studies

- Inconsistent Results
- SEPs likely to attract higher risk injectors
- Use of an SEP provides far from perfect protection against HCV to the individual

Community Level Studies of Syringe Exchange and HCV Prevalence in New Injectors

| City | Early HCV prev | Later HCV prev |
|--------------------------------|----------------|----------------|
| Edinburgh Goldberg et al | 1989 - 69% | 1997 - 13% |
| Glasgow Hope et al. | 1990 - 91% | 1997 - 43% |
| Australia Patrick et al. | 1991 - 71% | 1995 - 50% |
| Seattle Hagan et al. | 1994 - 68% | 2003 - 27% |
| New York Des Jarlais et al. | 1990 - 71% | 2001 - 39% |

Community Level Studies

- Fairly consistent results among new injectors, prevalence reduced by half?
- Prevalence still too high among new injectors
- Prevalence among long-term injectors still approaches 90%
- Slowing but not ending of HCV transmission

Conclusions

- Amazing progress over the last 20 years
- Continued struggle to fund and implement programs, period of rapid growth may be over in US
- Need for more HBV vaccination
- Need for more effective tools for HCV prevention

THANK YOU