Needle exchange programs

What science tells us about needle exchange programs

Kerstin Käll, MD, PhD

University of Linköping, Sweden

Klas Rönnbäck, Ulrich Hermansson, Sten Rönnberg

HIV and Injecting Drug Use (IDU)

- Two parallel world wide epidemics:
  - an epidemic of IDU, starting in the developed world after WW II, now spreading in producing countries and along transit lines
  - an epidemic of HIV among IDUs, also starting in the developed world in late 1970:s, now hitting hardest in the developing countries and former Soviet Union

WHO strategy to fight HIV among IDUs

- Preventing drug abuse
- Facilitating entry into drug treatment
- Establishing effective outreach to engage IDUs in HIV/AIDS prevention strategies that protect them and their partners and families from exposure to HIV and encourage the uptake of drug dependence treatment and health care.

WHO strategy to fight HIV among IDUs

- Furthermore it is stated that the national policies should be based local circumstances and
- Policies employed should be evidence based

WHO/UNAIDS guidelines

- E.g. Advocacy guide: HIV/AIDS prevention among injecting drug users
  - ”Unfortunately, certain effective but controversial elements are neglected in many countries. … Important service elements that tend to be neglected include drug dependence treatment, outreach activities and needle and syringe programmes.”
  - In this document HIV-testing and counselling is not even mentioned in any

WHO/UNAIDS guidelines

- In fact, NEP and substitution treatment are the main elements suggested to combat HIV among IDUs in all WHO/UNAIDS documents, suggesting that these are indeed evidence based methods to do this.
- All successful examples mentioned include either or both but rarely anything else.
- Is it true that NEP is an evidence based method to prevent HIV among IDUs?

The Swedish example

- In 1985 HIV prevalence among iv heroin users was over 50% in Stockholm
- The debate on how to meet the epidemic of HIV among IDUs resulted in: Continued fight against drugs; HIV testing, counselling and education to fight HIV among drug users
- The fight against drugs should have priority as a means to minimise the vulnerable population

The Swedish example, cont.

- If HIV-prevention policy comes in conflict with anti-drug policy it should not be implemented.
- Needle-exchange was seen as coming into conflict with the policy to discourage young people from trying drugs and particularly injecting drugs

The Swedish example, cont.

- Thus it was not implemented on a national basis and particularly not in Stockholm, where the majority of the HIV infected IDUs lived.
- This was in conflict with WHO recommendations and we have been much criticised for this. In Sweden it is still under debate and this spring a law was passed that opens up for NEP.

The Swedish example, cont.

- Many other HIV-prevention policies were however employed:
  - Free HIV testing and counselling in prison, hospitals and treatment units
  - Increased possibilities for methadone maintenance treatment (high threshold) with priority for HIV positive heroin users
  - Special hospital units for drug users with infectious diseases
  - Increased possibilities for drug treatment

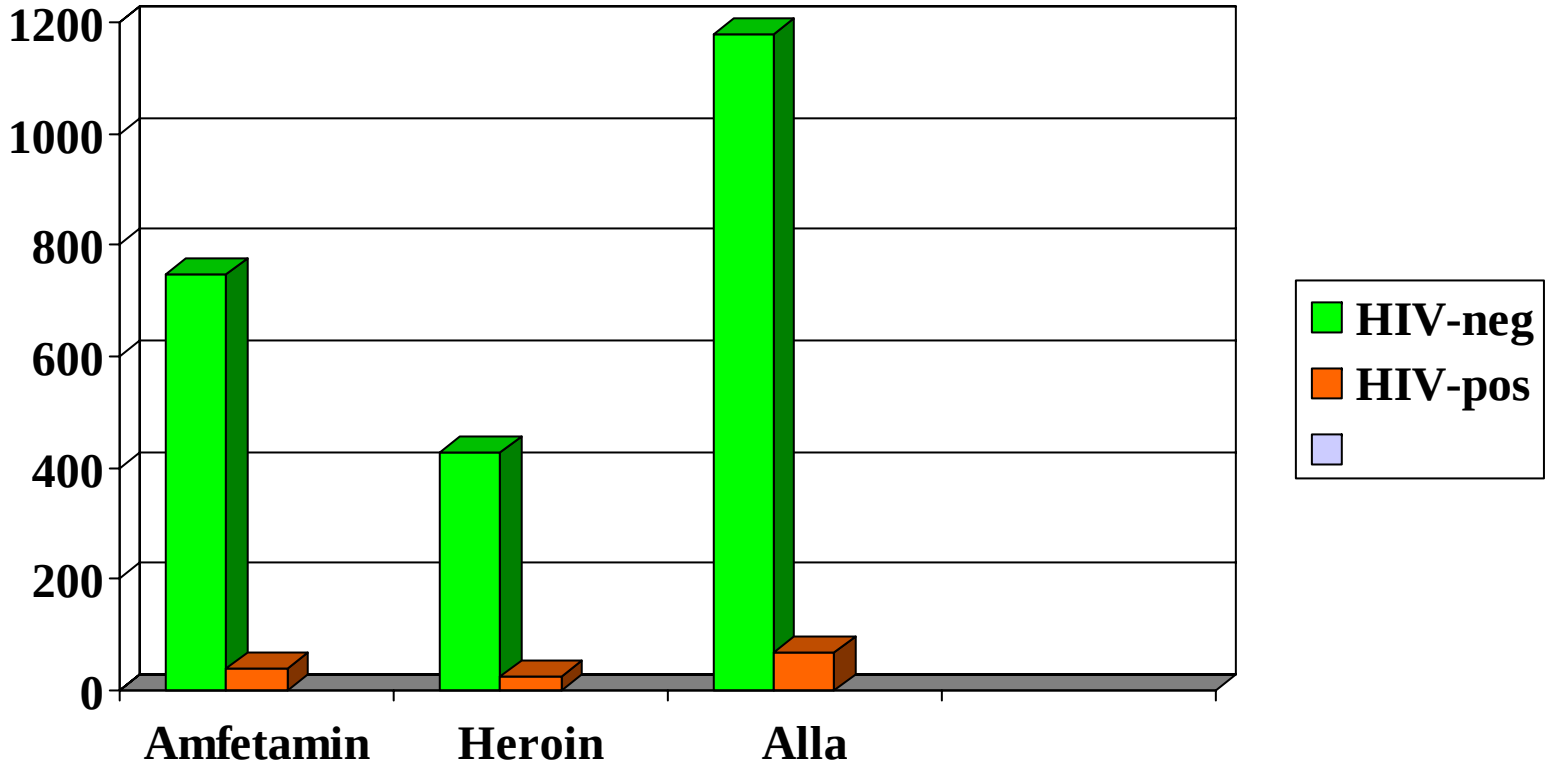
The Remand Prison Study

- In 1987 a study of HIV and HIV risk behaviour of IDUs was initiated in Stockholm. It closed in 1998 and then reopened in March 2002.
- An independent team performs a structured interview of risk behaviour and takes an HIV test of IDUs entering Remand Prison in Stockholm

Yearly incidence (%) of HIV among IDUs at Remand Prisons in Stockholm

	All participants	**Amph. users**	**Heroin users**
1988	1.2 (0-3)	0.9 (0-2)	4 (0-6)
2005	0,9(0,1-1,7)	0,8 (0-1,8)	1,0 (0-2,4)

IDUs participating 2002-2005. N=1246



Amf.:41/790 (5,2%) Heroin 26/456

The Remand Prison Study

- The new HIV cases in recent years are mainly older, heavy, male IDUs, often homeless with multiple problems
- No indication of spread among young new IDUs. Exception 2005: two young IDUs
- The willingness to test is high as well as the interest in information about HIV and hepatitis

The Remand Prison Study, conclusion

- Paradox of continued high risk behaviour but decreased HIV spread
- The most important factor in the reduction of HIV incidence seems to have been the testing and counselling among IDUs in combination with
- The openness of IDUs among themselves about HIV status. They avoid sharing with HIV positive users.

The Swedish experience

- Since the strategy had been relatively successful there was no good reason to change it
- Since the discussion on needle exchange had again come up we decided to look at the scientific data collected on needle exchange programmes (NEP)

A NEP a literature review

- A total of 143 articles were found by data base searching and reference lists
- 2 criteria: some effect measure of NEP and some sort of control/comparison group
- 69 articles met these criteria and were included

NEP - Randomised Controlled Studies (RCS)

- Only two randomised controlled studies were found, both from Anchorage, Alaska (2002 and 2003)
- The first study looked at needle sharing and cleaning the other at injection frequency

NEP - RCS

- No significant difference between study and control groups were detected, but both groups in each study improved their habits
- The authors concluded that the initial HIV information given to all was the effective measure

NEP - non-randomised studies

- The majority of the reviewed studies used self reported change of behaviour - e.g. “needle sharing” or “treatment seeking” as outcome variables without any measure of actual effect on HIV incidence or prevalence. Contradictory and confused picture.
- Focus on studies of HIV incidence and prevalence - 13 studies

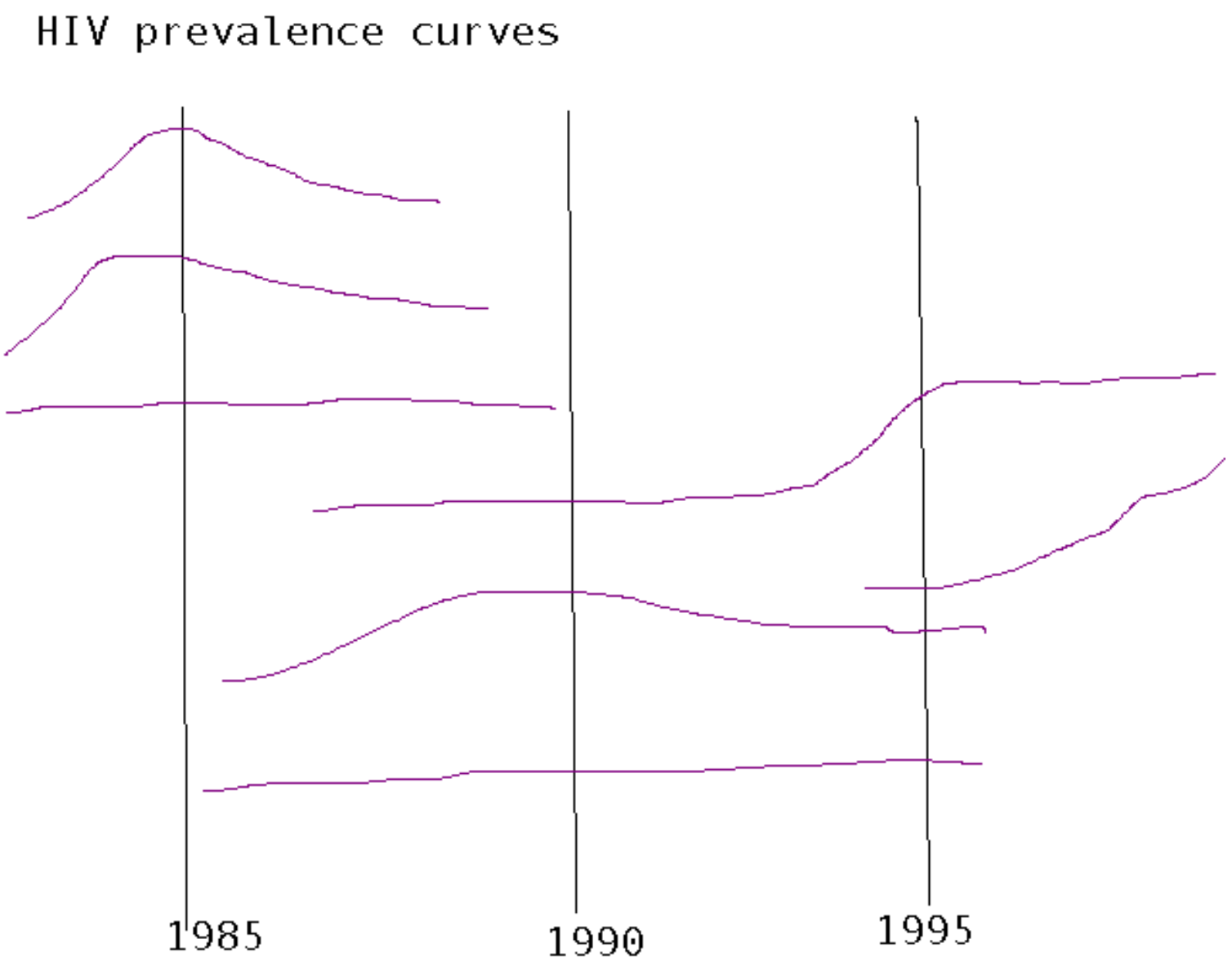
Table 1. Effect of Needle Exchange Programs (NEPs) on HIV seroprevalence and incidence in 13 studies.
(NS=not significant)

Study	**IDU population studied**	**Effect on incidence**	**Effect on prevalence**
Van Ameijden et al 1992, Amsterdam, case control study in a cohort followed 1985-1991	Cases: 22 Controls: 202	NS	
Des Jarlais et al 1996, New York City, meta-analytic study combining results from 3 different studies 1988-95	1630 participants from 3 didfferent studies	Positive	
Schoenbaum et al 1996, Bronx, New York City, 1985-1993	904 methadone patients	NS	Negative (baseline)
Strathdee et al 1997,Vancouver, 1996-97	1006		Negative (baseline)
Patrick et al 1997, Vancouver, case-control study	Cases: 89 Controls: 192	NS	

Study	Pop. Studied	Effect on incidence	Effect on prevalence
Schechter et al 1999, Vancouver, prospective cohort study 1996-98	694	NS	
Bruneau et al 1997, Montreal, baseline, seroconversion and case control study	1599	Negative	Negative (baseline)
Hurley et al 1997 (50), world wide study of data on seroprevalence	52 cities without and 29 cities with NEP		Positive (change)
MacDonald et al 2003 (51), world wide study of data on seroprevalence	63 cities without and 36 cities with NEP		Positive (change)
Monterosso et al 2000 (25), USA	3773 from 6 US cities	NS	
Valente et al 2001 (32), Baltimore	2574	NS	
Millson et al 2003 (41), Ontario	551 from 9 Ontario cities		Negative (baseline)
Amundsen et al 2003 (44), Scandinavia	Official data from 3 countires	NS	

Summary of table

- Incidence: 1 pos, 1 negative, 7 inconclusive
- Prevalence: 4 negative (baseline measure) 2 positive (change of prevalence)


HIV prevalence curves
1985
1990
1995

Incidence & prevalence studies

- The Vancouver studies
- NEP established in 1988 when prevalence was 1-2%
- Rapid phase of epidemic started 1994
- None of the studies showed any protective effect of NEP

Incidence & prevalence studies

- The Montreal study 1988 to 1995: 1599 IDUs enrolled
- Baseline prevalence: NEP-users 16% non-users 5.8% (sign. diff.)
- 974 HIV-neg IDUs followed
- Incidence: 7.9 for NEP-users 3.1 for non-users (sign. diff.)

Incidence & prevalence studies

- New York 1996 meta-analytic study 1988-95
- High prevalence, around 50%
- Past peak of epidemic
- Significantly higher incidence among non-NEP users compared to NEP users
- Sex, age and frequency of injection controlled for but not homelessness

Incidence & prevalence studies

- Scandinavian study on population and register data 1991-96 using back calculation
- Similar epidemics in Denmark, Norway and Sweden (mainly in capitals) with peak in mid 1980s
- NEP in Denmark and Norway, not in Sweden

Incidence & prevalence studies

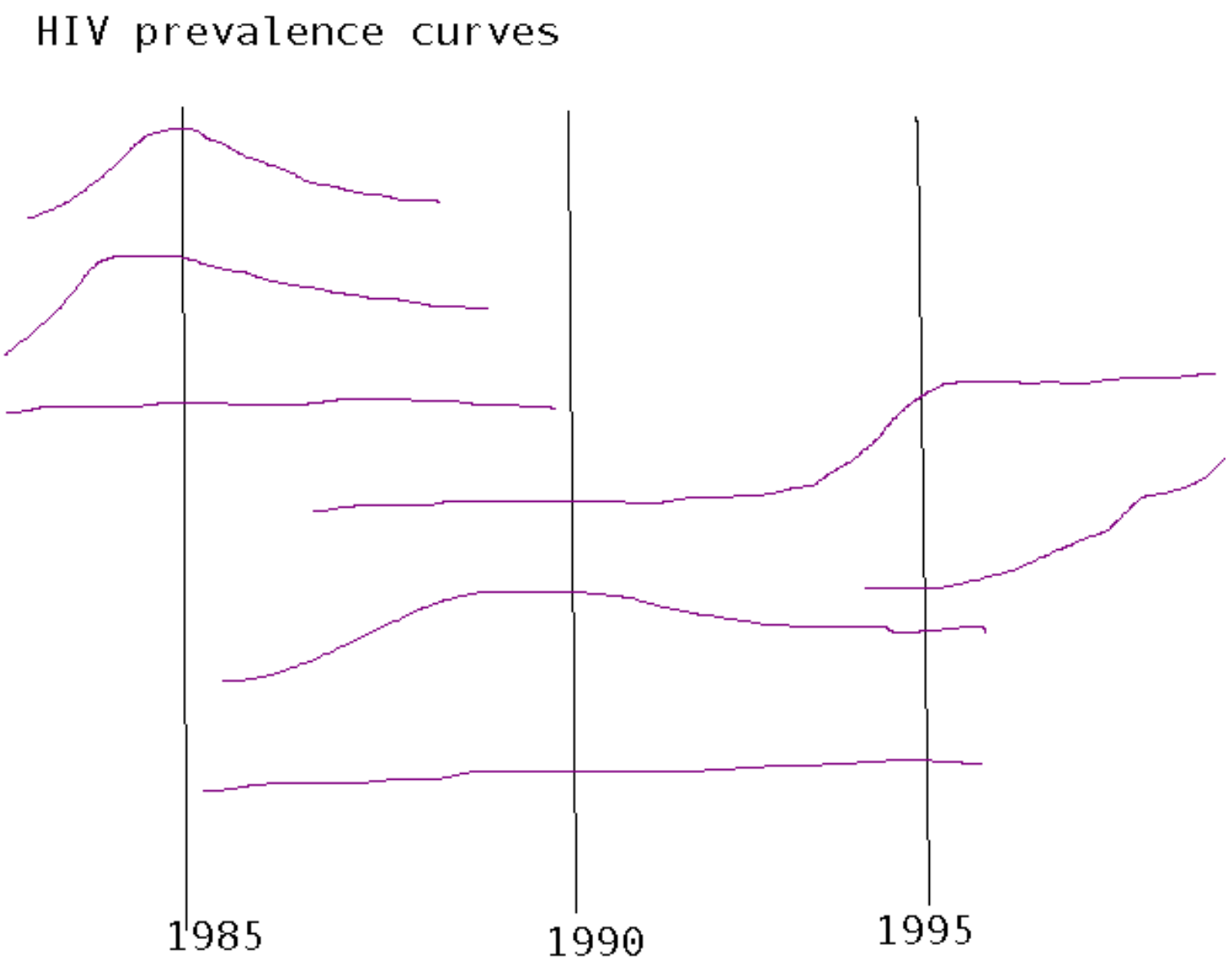
- HIV testing & counselling promoted in Norway and Sweden, but not in Denmark
- Lower incidence in Norway & Sweden compared to Denmark indicating that HIV testing and counselling may be more important than NEP in preventing HIV

Incidence & prevalence studies

- Recurring predictive factors for HIV seroconversion:
- Frequent injection
- Cocaine injection
- Homelessness/unstable housing
- NEP most often not significant - exception: one negative and one positive

Incidence & prevalence studies

- Two studies comparing cities with and without NEP
- using measurements of HIV seroprevalence from at least two calendar years
- Hurley et al: 81 cities and MacDonald et al: 99 cities
- The average change in seroprevalence is lower in NEP cities than in non NEP


HIV prevalence curves
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Incidence & prevalence studies

- Methodological problems:
- The stage of the epidemic in the included cities not stated
- Cities without an epidemic may not have been included unless they had NEP
- NEP often introduced after rapid phase
- Measurements often done during the rapid phase

Incidence & prevalence studies

- Conclusion:
- Of 13 studies on the effectiveness of NEP in preventing the spread of HIV among IDUs
- one showed positive result
- two positive but with questionable methodology
- 10 either negative or inconclusive

Comments on Wodak et al report

- Much the same studies - opposite conclusion
- Incidence and prevalence table 3a-c:
  - 6-5 (positive vs neg/inconclusive)
- Monterosso et al misclassified as positive
- Heimer et al does not measure prevalence in a population of IDUs, but only in returned needles

Comments on Wodak et al report

- Ljungberg et al: compares HIV prevalence in Lund and surrounding areas with NEP introduced in 1987/1988 (without a severe epidemic)
- with Stockholm, without NEP, that had an rapid phase in 1983-85 with a prevalence of around 50% among heroin injectors
- ignoring that by the time of the study HIV incidence was already down to

Comments on Wodak et al report

- With these corrections the case stands
- 3-7 - not a very strong case for NEP

Conclusion

- NEP has not been shown to be very effective in preventing HIV among IDUs
- Well established tools like HIV testing and counselling, contact tracing etc seem to have been neglected in many places
- Perhaps as a result of the overemphasis of NEP