

Overcoming barriers to integrating hepatitis C testing, linkage to care and treatment into existing services: success stories from LMICs

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Disclosures

- Research funding from:
 - Gilead Sciences, Inc
 - Abbott Diagnostics

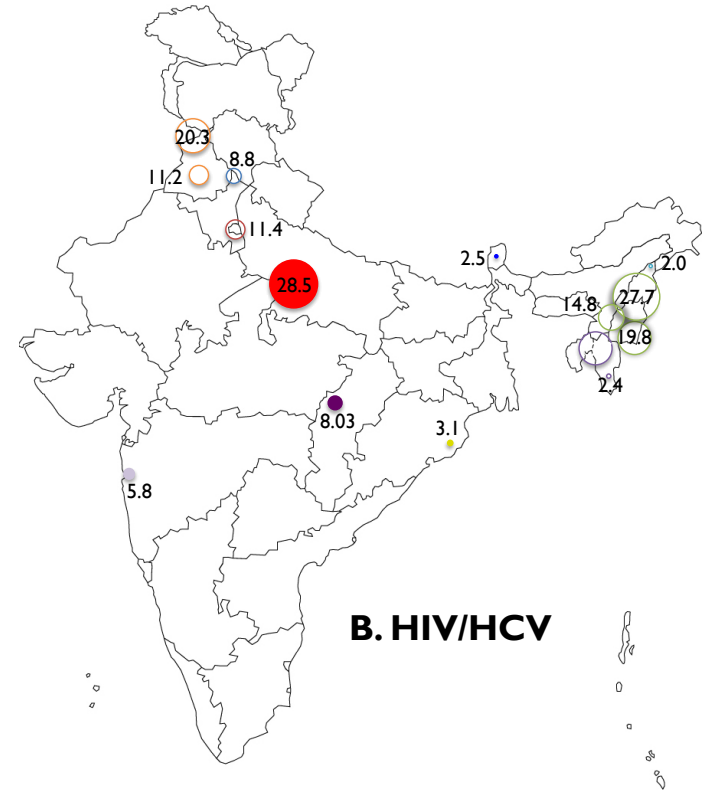
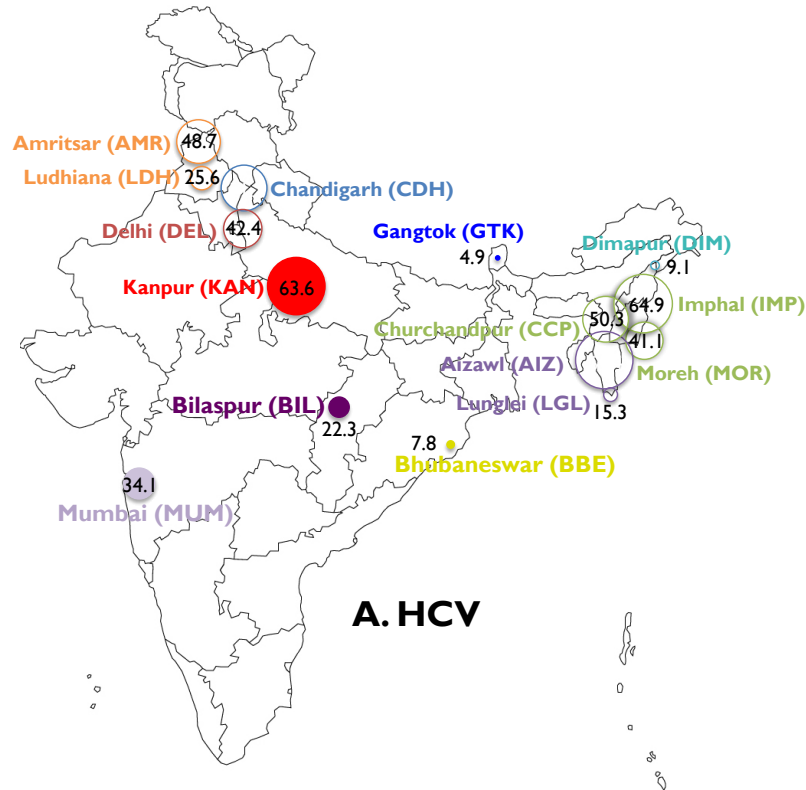
(Sunil's) Steps to optimize HCV care in LMICs

- For Hepatitis C elimination, we need to begin with **Data**, *Education*, **Government buy-in**, *Harm reduction*

Why (D)ata?

- Every epidemic is different!
 - Prevalence
 - Demographics (age, gender, etc.)
 - Types of drugs (heroin vs. pharmaceutical)
 - Other co-morbidities (HIV, HBV, TB, etc)
 - Setting (home-based vs. shooting galleries)
 - Availability/access to services

Example: Variable HCV epidemics among PWID in India..



..and even more diverse drug use epidemics...

2013

	Historical Imphal	Emerging Amritsar	Exploding Kanpur
Median age	35	27	34
% Female	12.5	1.2	0.7
Drugs injected prior 6 mths			
- Heroin	98.1	35.1	14.9
- Prescription opioid	1.8	64.6	88.9
Shared needle prior 6 mths	71.1	40.0	69.1
History of ever HIV test	58.6	57.2	7.9
Used MAT in prior 6 mths	15.3	36.8	1.6

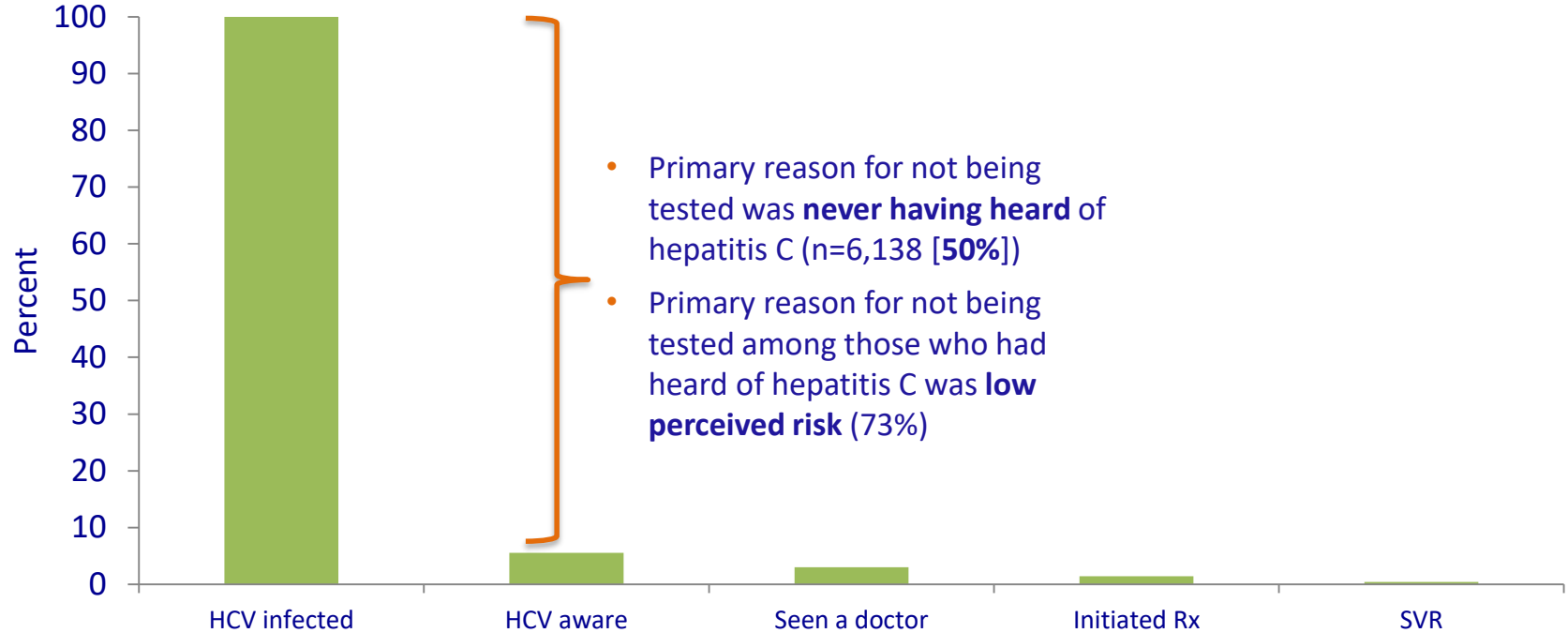
...that have been evolving over time!

	2013			2016		
	Historical Imphal	Emerging Amritsar	Exploding Kanpur	Historical Imphal	Emerging Amritsar	Exploding Kanpur
Median age	35	27	34	35	29	35
% Female	12.5	1.2	0.7	3.6	0	0.5
Drugs injected prior 6 mths						
- Heroin	98.1	35.1	14.9	82.7	87.6	28.4
- Prescription opioid	1.8	64.6	88.9	0	36.4	72.4
Shared needle prior 6 mths	71.1	40.0	69.1	26.0	56.9	32.7
History of ever HIV test	58.6	57.2	7.9	70.2	55.0	16.6
Used MAT in prior 6 mths	15.3	36.8	1.6	37.5	36.9	3.1

Importance of Data

- Every epidemic is different!
 - Demographics (age, gender, etc.)
 - Types of drugs (heroin vs. pharmaceutical)
 - Prevalence
 - Other co-morbidities (HIV, HBV, TB, etc.)
 - Setting (home-based vs. shooting galleries)
 - Availability/access to services
- We need to know where we started to measure progress!

Why (E)ducation?



5,777 HCV-infected PWID from 15 cities across India (community-based sample)

Why (G)overnment buy-in?



- We need to learn from HIV





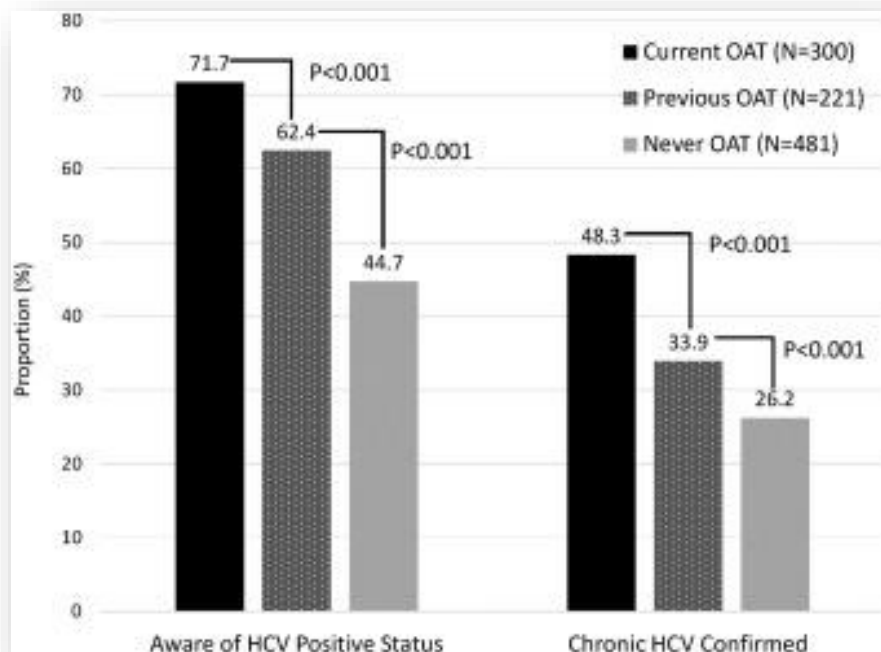
What should we pushing governments for?

- Every PWID in every country should have access to harm-reduction services!
 - At optimal dosing!
- All DAAs should be made available in LMICs
- WHO targets and #NOHEP are achievable only if: **“No one is left behind!”**

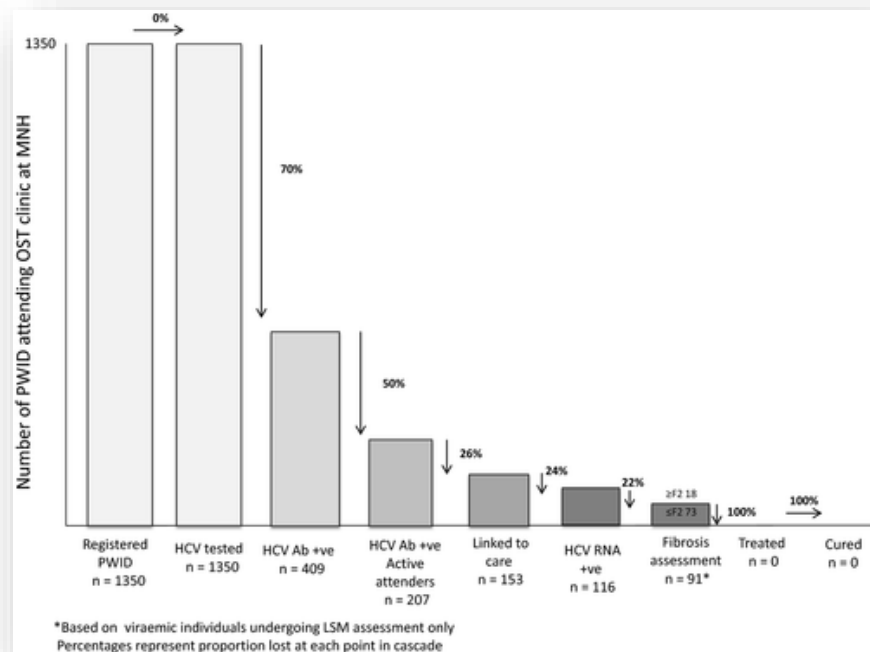
(H)arm reduction: The “crux” of HCV programs

- MAT and SSP are critical for both primary prevention and prevention of re-infection of HCV
 - In 2015, needles/syringes distributed per PWID/year = 27
 - To eliminate by 2030, this needs to be 300*
- Prevent overdose/mortality:
 - Mortality among PWID in India (2018): 18.3 per 100 p-y**
- They also provide an optimal venue for delivery of HCV services

Integration of HCV and MAT

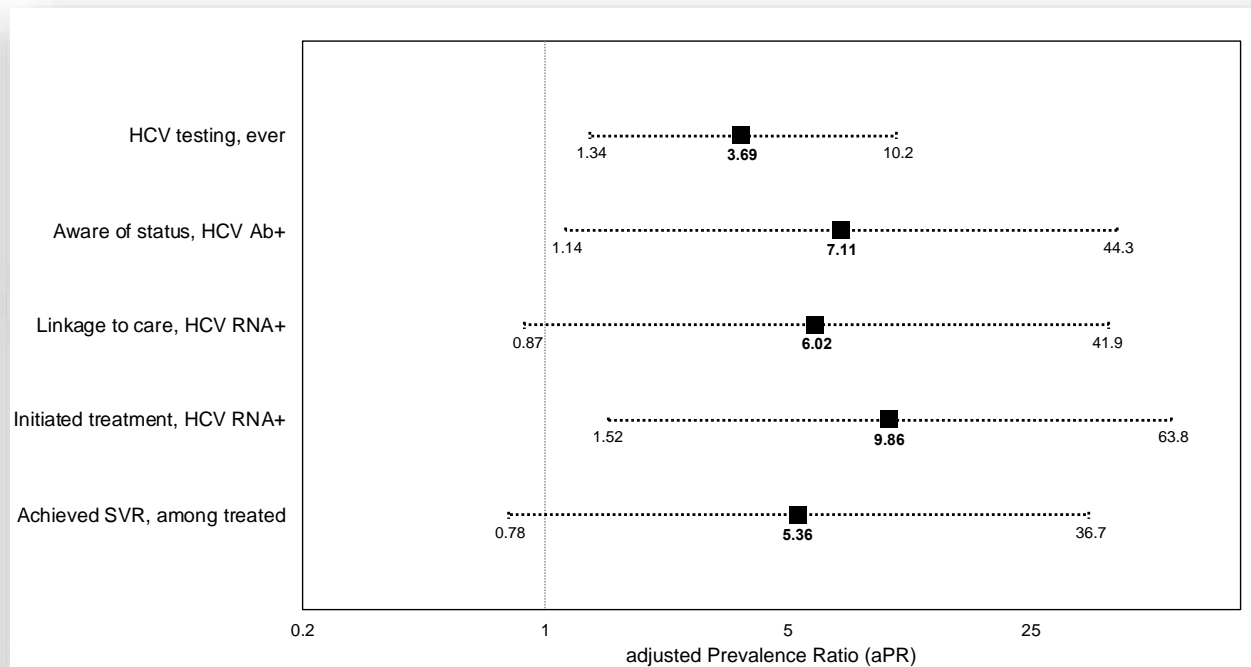
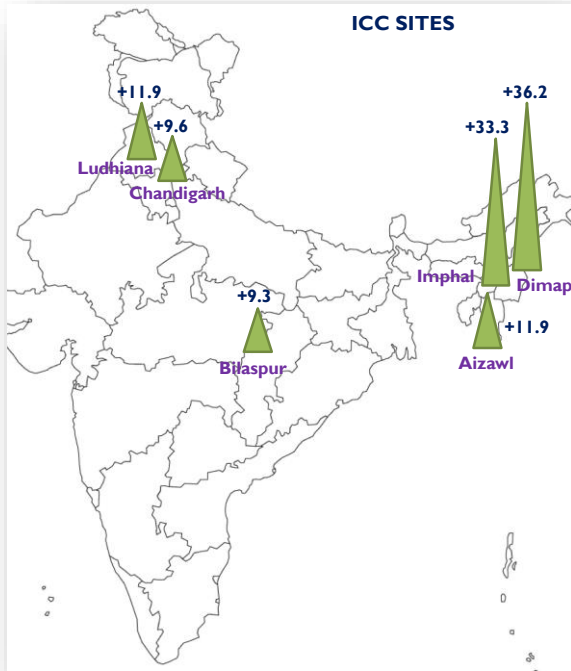


Integrated model of OAT, HIV, and HCV testing in Ukraine



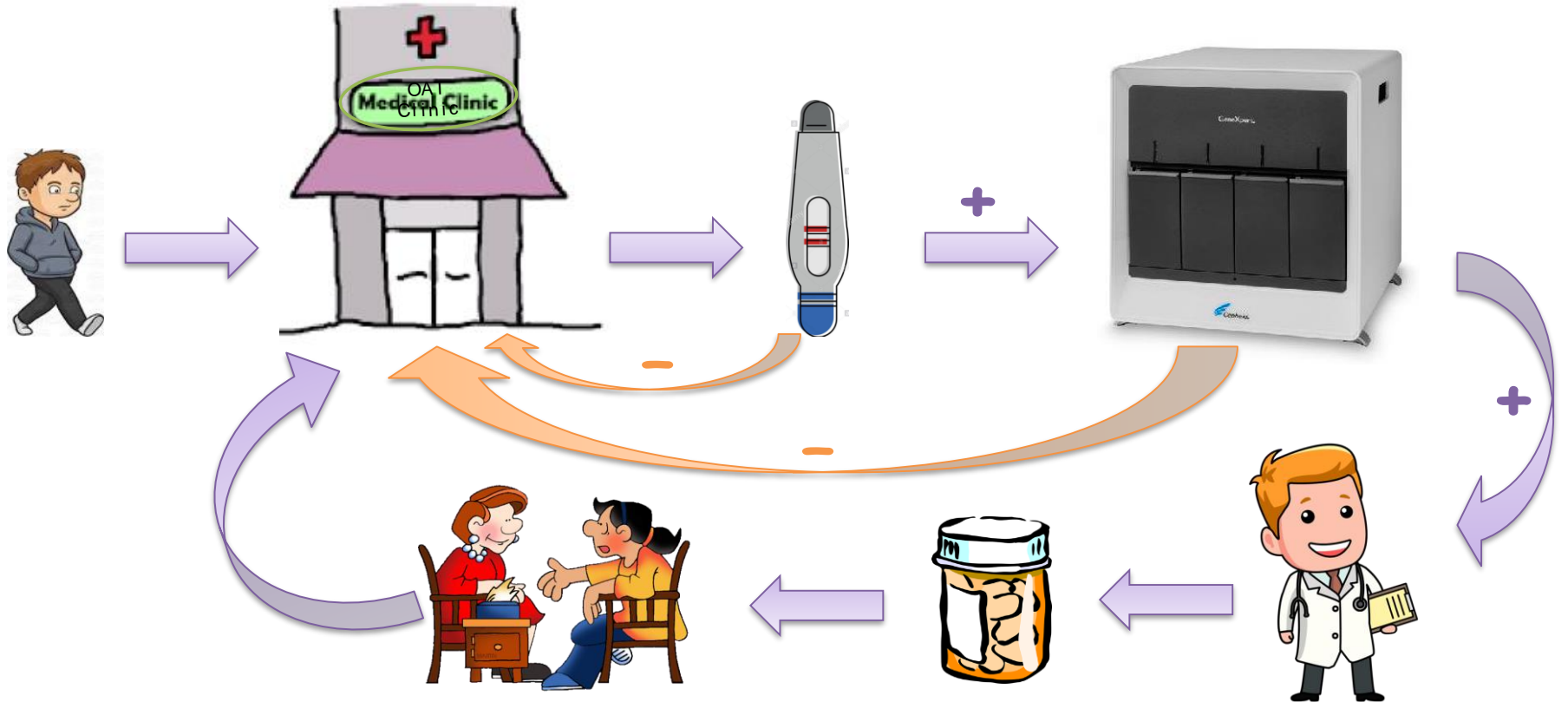
1350 PWID attending OST program in Dar-es-Salaam

Integration of HIV and HCV in India



Integrated care model of OAT, HIV, and HCV testing in India

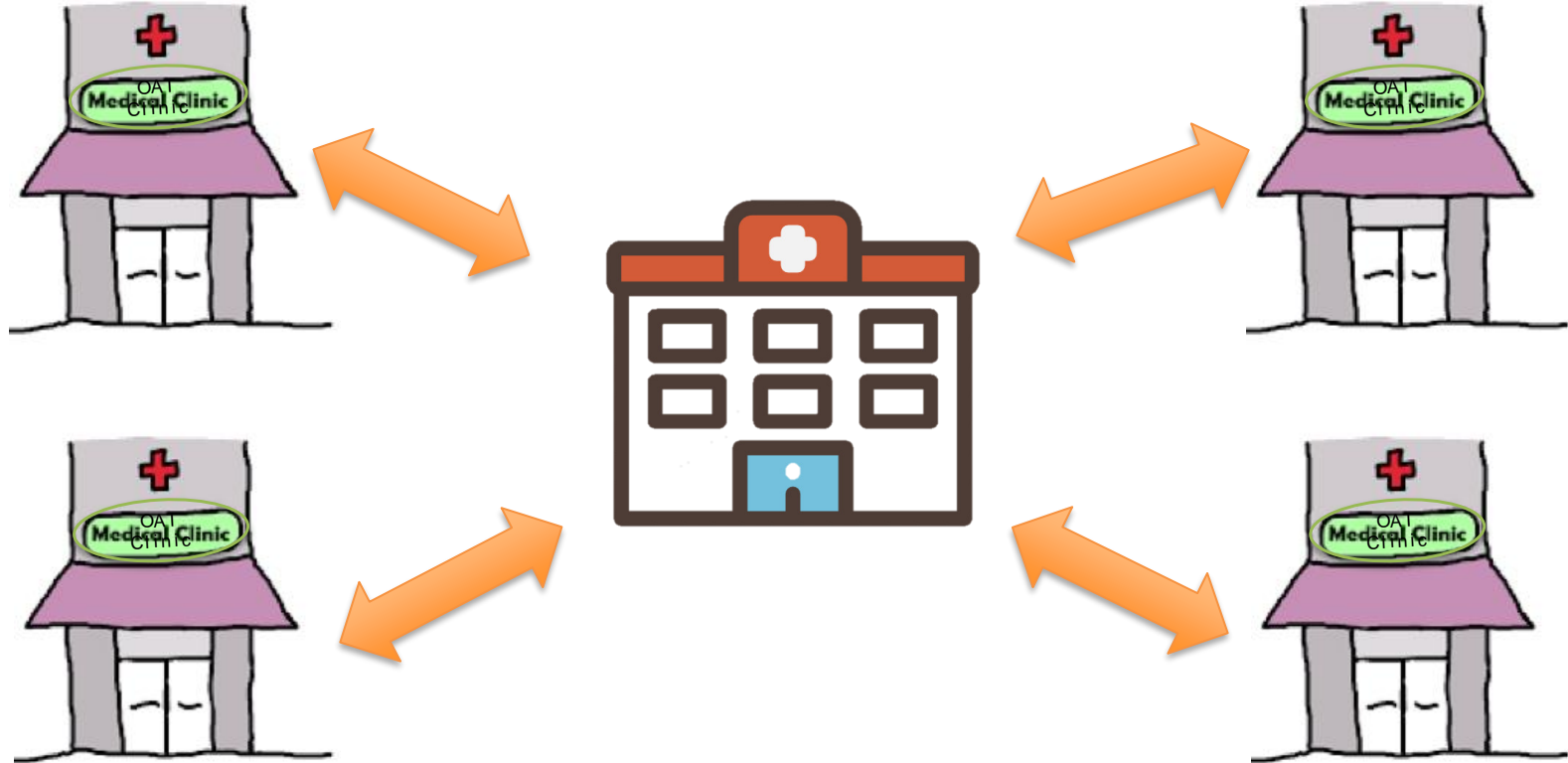
MAT and HCV Care Model



Manipur, India: Hepatitis C Elimination through Access to Diagnostics (HEAD Start)

- Funded by UNITAID/FIND
- Implemented by YRGCARE
- Initiated on January 1, 2019

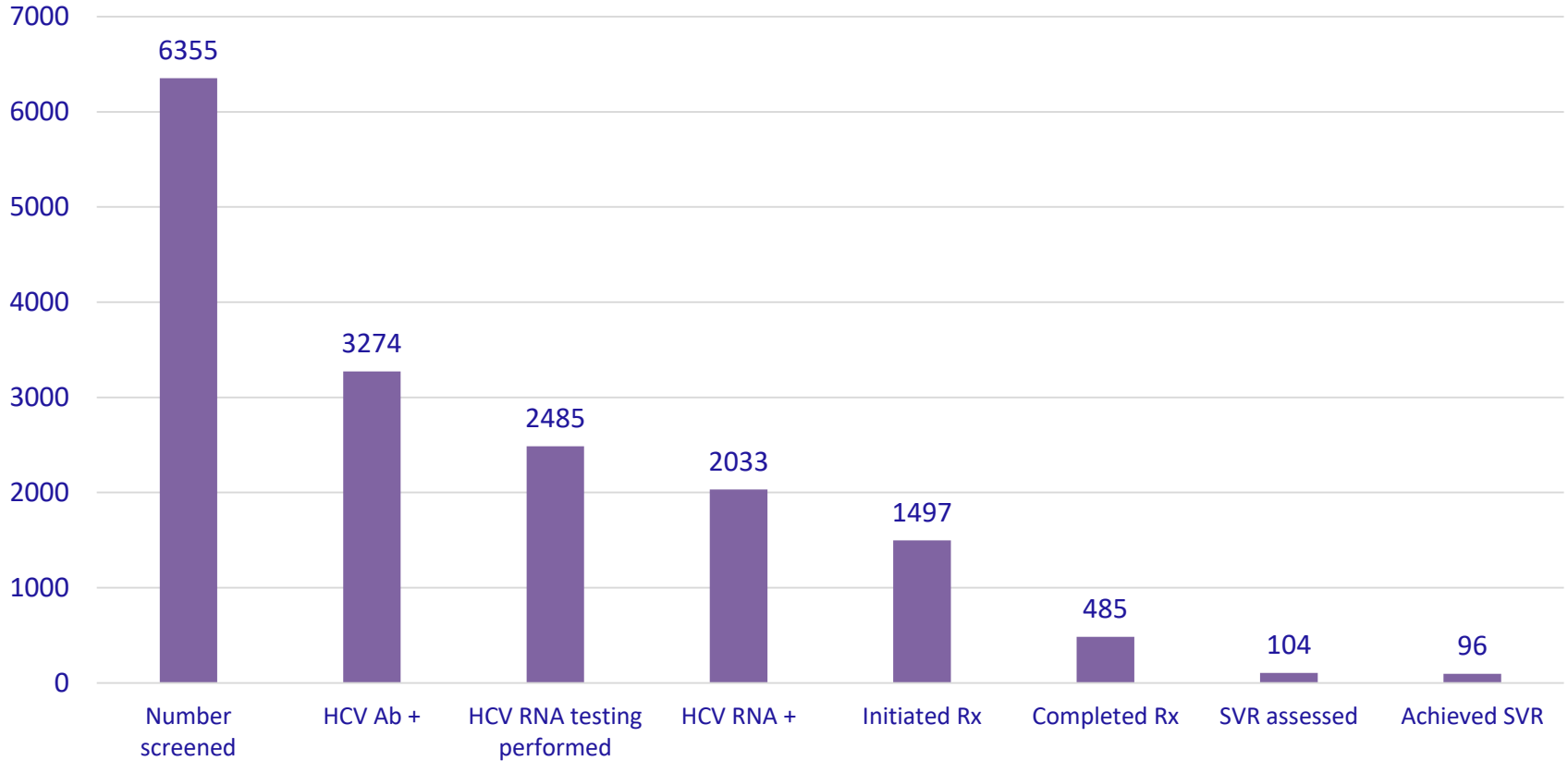
Manipur, India: Hepatitis C Elimination through Access to Diagnostics (HEAD Start)



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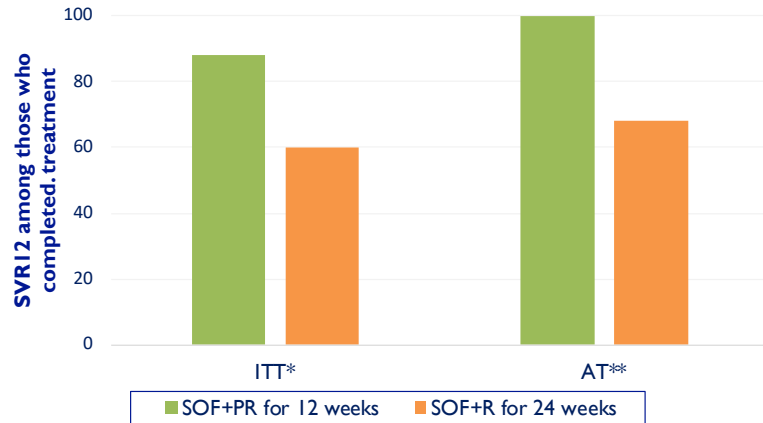
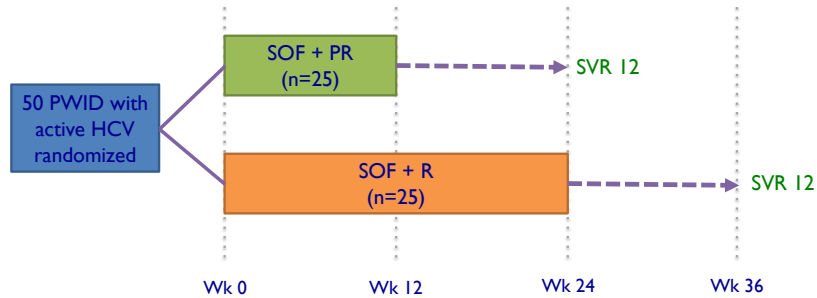
HEAD Start: Progress to date



Steps to optimize HCV care in LMICs

- For Hepatitis C elimination, we need to begin with **Data**, *Education*, **Government buy-in**, *Harm reduction*
- If PWID don't come to the clinic, take the clinic to them

Field-based treatment (DOT)



*p=0.05; **p<0.01



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- Leverage networks – a little money can go a long way!

RDS in Kanpur



RDS in Kanpur

● HIV/HCV negative

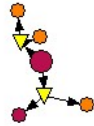
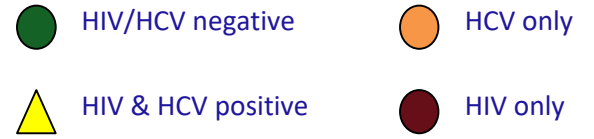
● HCV only

▲ HIV & HCV positive

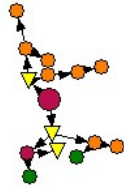
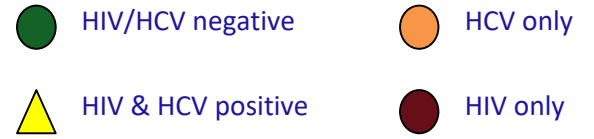
● HIV only



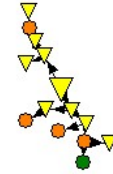
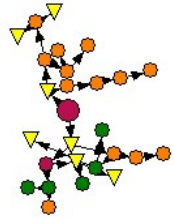
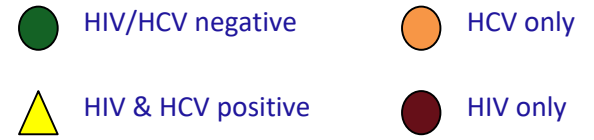
RDS in Kanpur



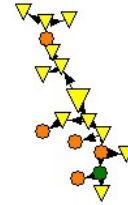
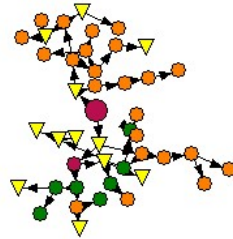
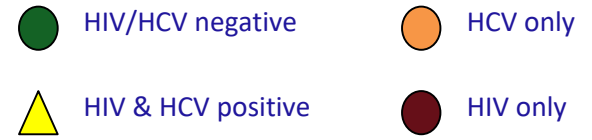
RDS in Kanpur



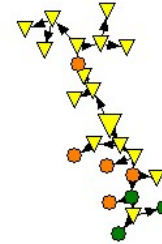
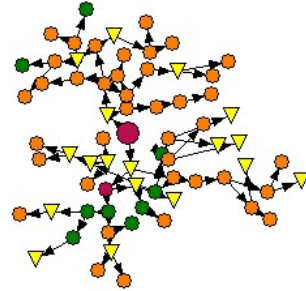
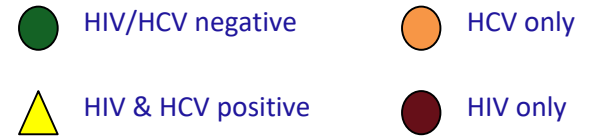
RDS in Kanpur



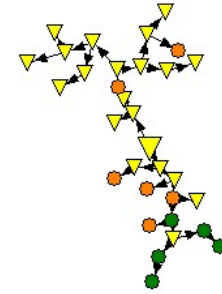
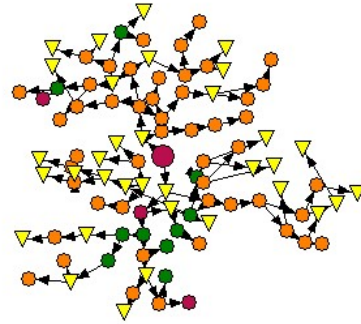
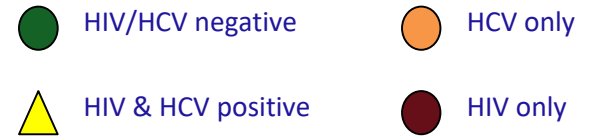
RDS in Kanpur



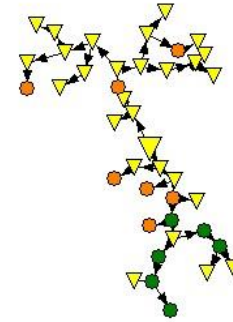
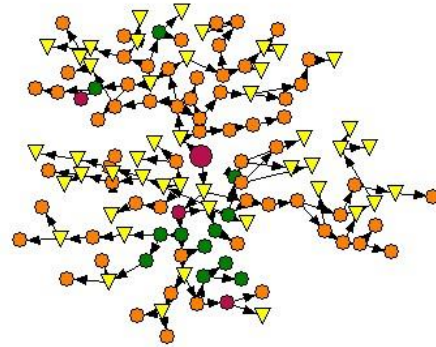
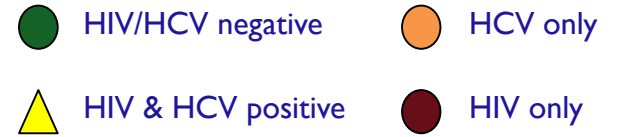
RDS in Kanpur



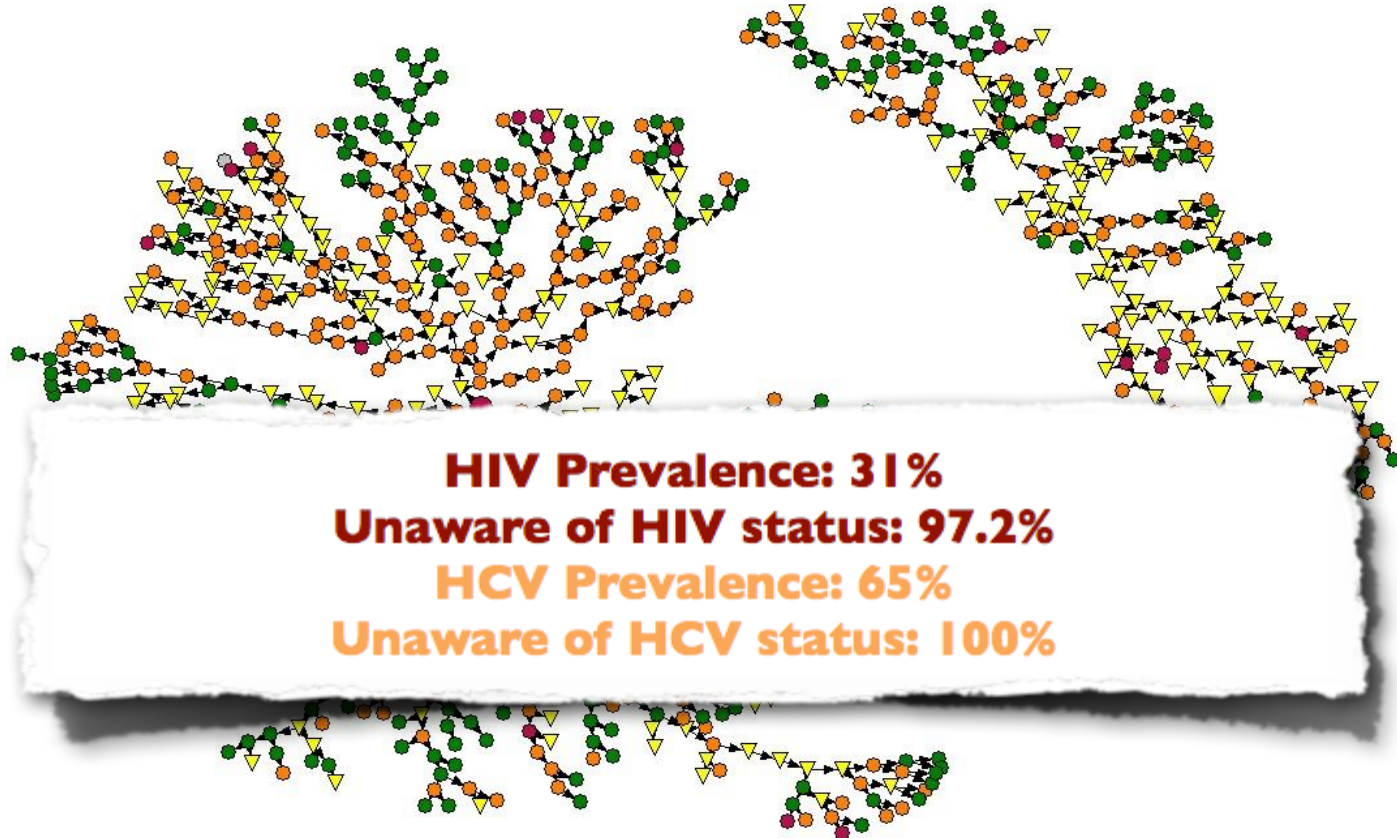
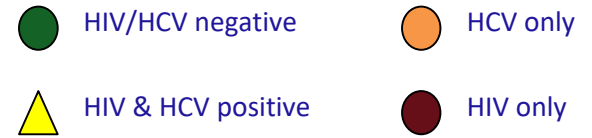
RDS in Kanpur



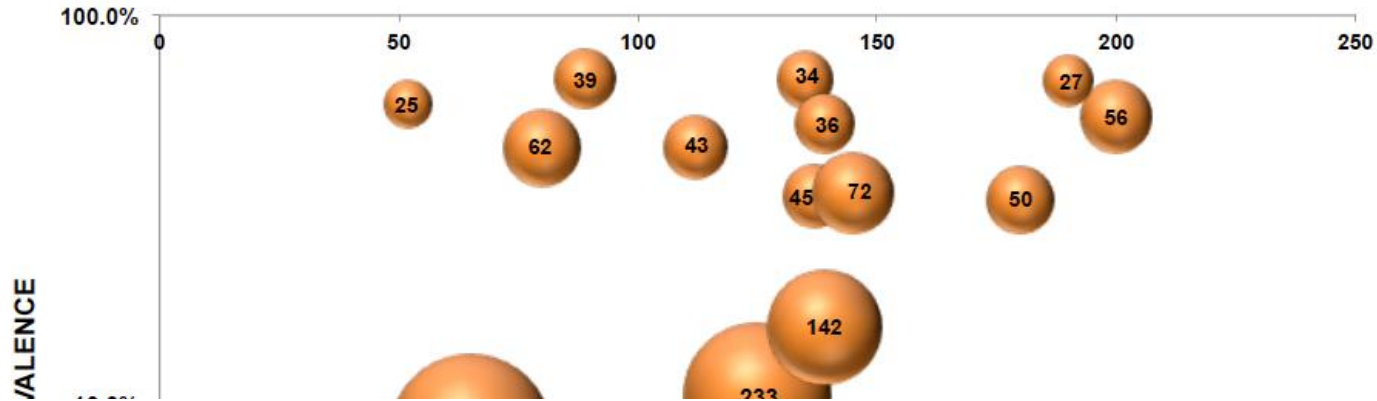
RDS in Kanpur



RDS in Kanpur



Cost of RDS to identify HCV infections



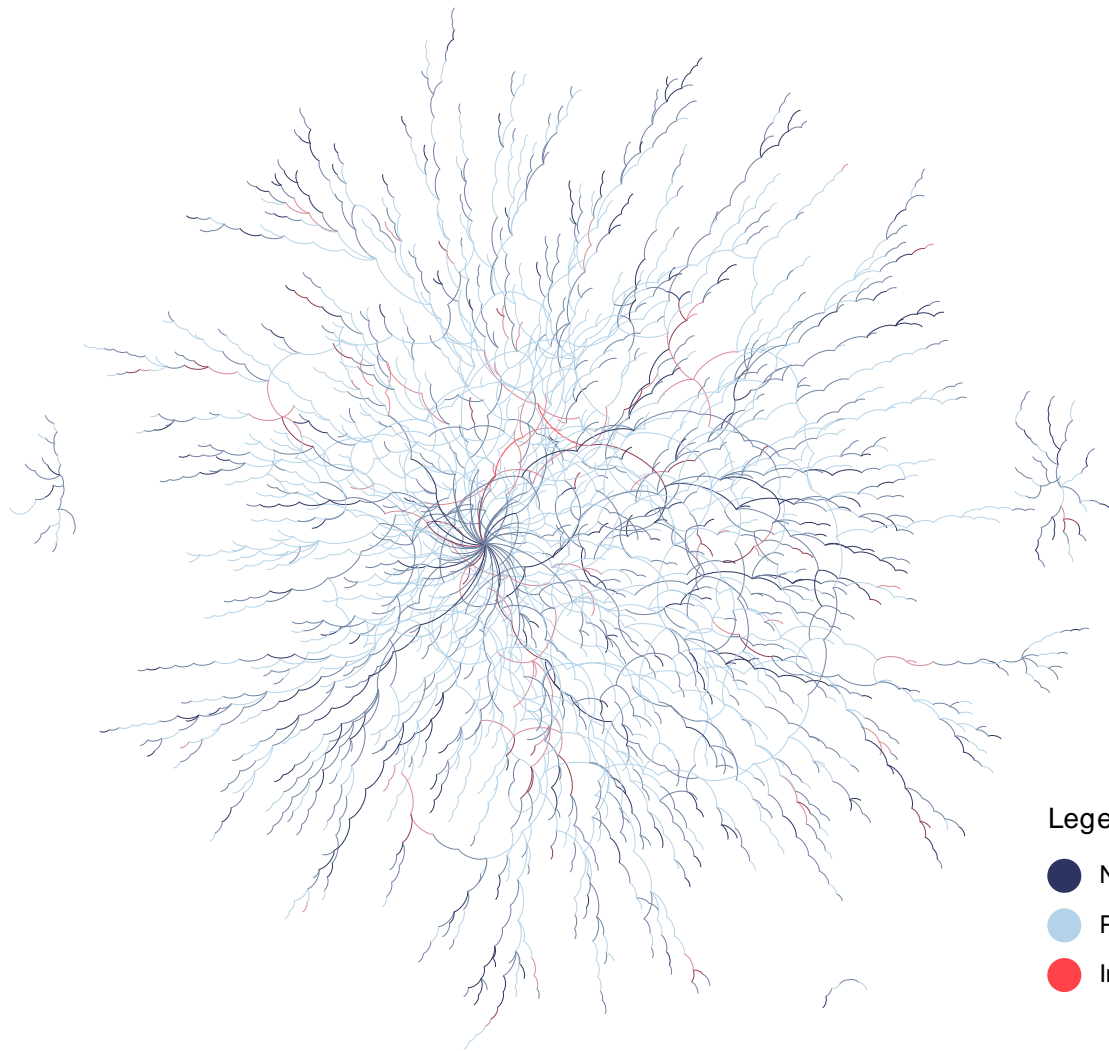
If integrated with HIV, it would only cost an additional USD 10 to find one HCV unaware PWID!

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- If PWID don't come to the clinic, take the clinic to them
- Leverage networks – a little money can go a long way!
- Network-based treatment?

Spatial Network Cohort in New Delhi

- **Objective:** to understand the role of injecting networks in transmission dynamics of HIV and HCV
- **Methods:**
 - Initiated with 11 indexes
 - The indexes brought in their injection networks (ego centric)
 - Their egos were then asked to bring in their injection networks (sociometric of the “index”)
 - Process repeated until no new participants were identified
 - Biometrics were used to establish cross-network links



Legend

- Negative
- Prevalent HCV+
- Incident HCV

Steps to optimize HCV care in LMICs

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- Leverage networks – a little money can go a long way!
- Network-based treatment?
 - Re-think the definition of network...perhaps space??
- Micro-elimination?

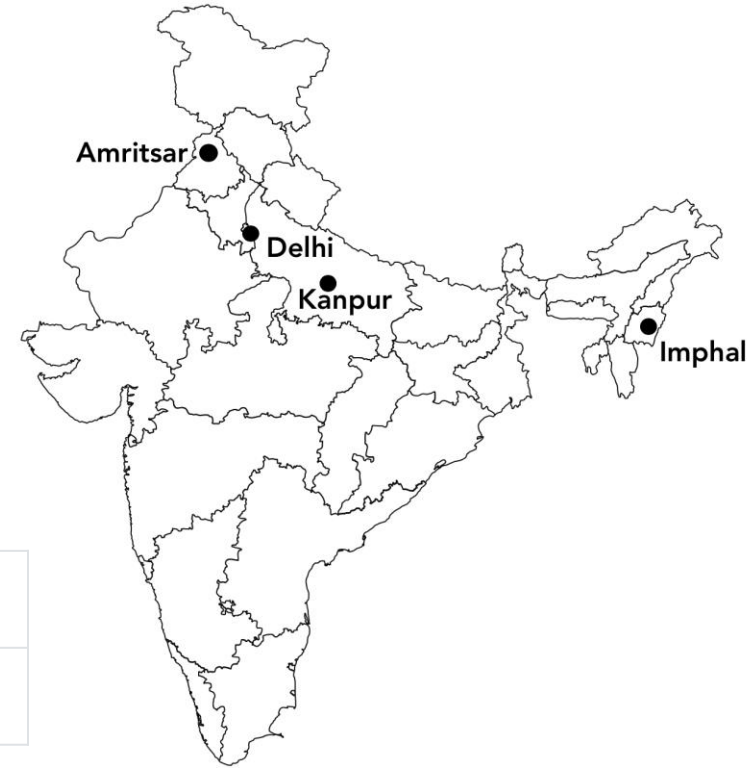
Micro-elimination: is it possible?

Cities:

1. Amritsar (AM)
2. New Delhi (DH)
3. Kanpur (KA)
4. Imphal (IM)

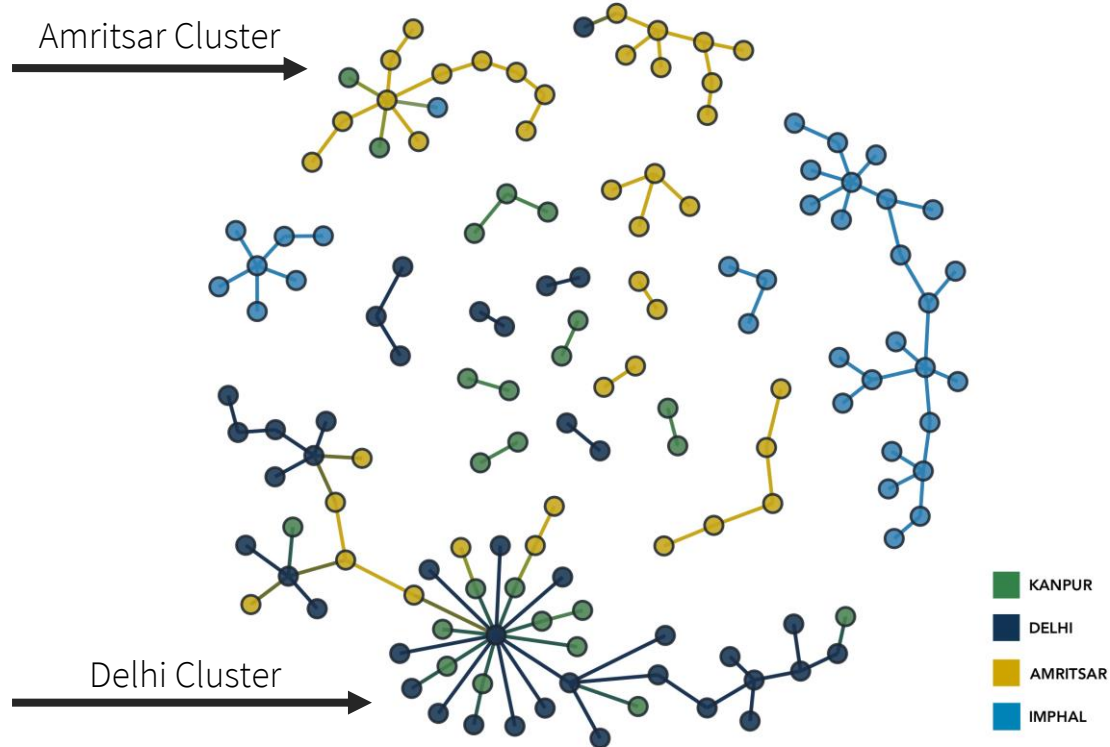
Viral Region:

HCV: Core 5' UTR

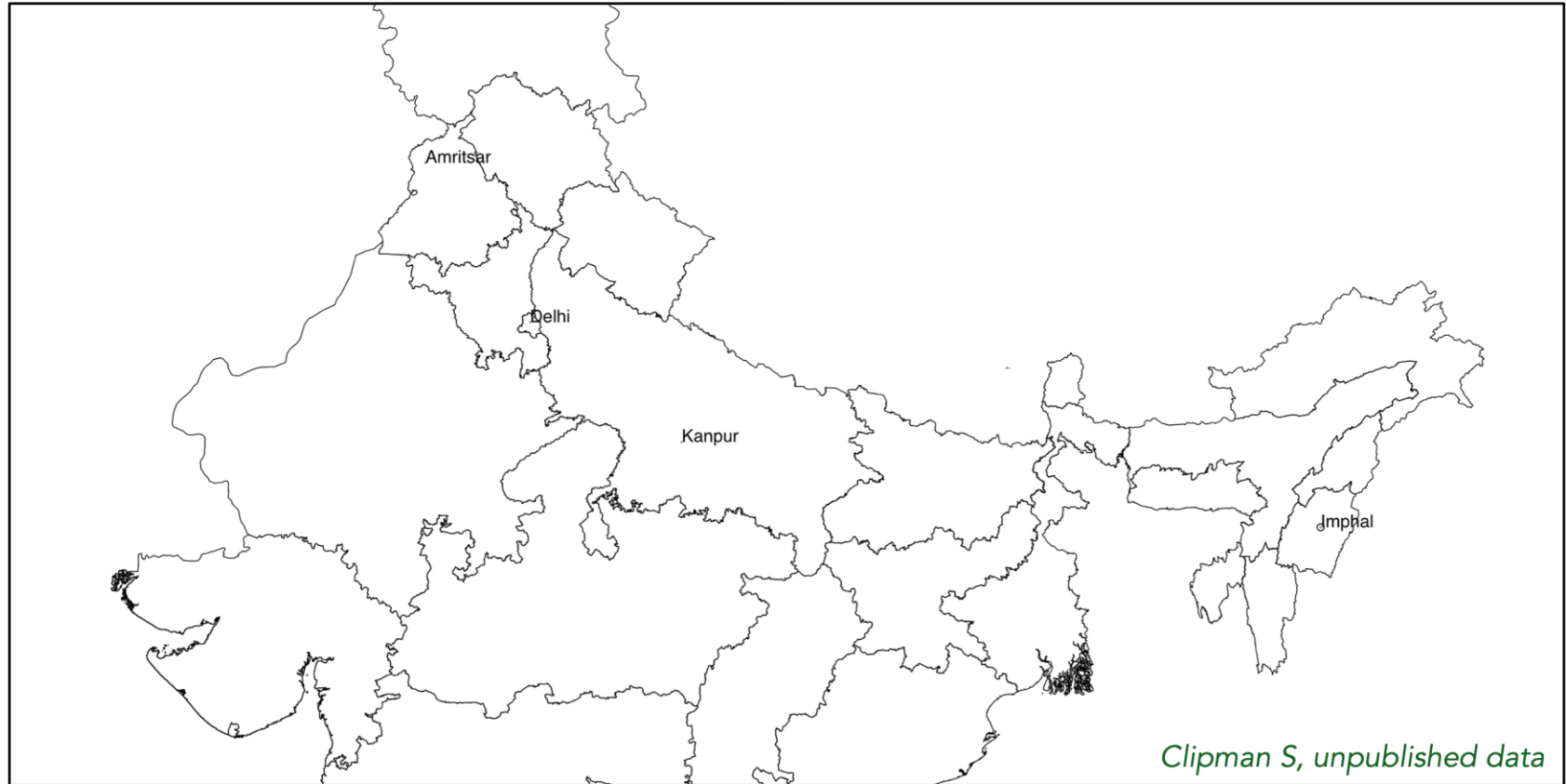


HCV	Total	AM	DH	KA	IM
Sample Size	483	123	128	138	94

Intercity clustering



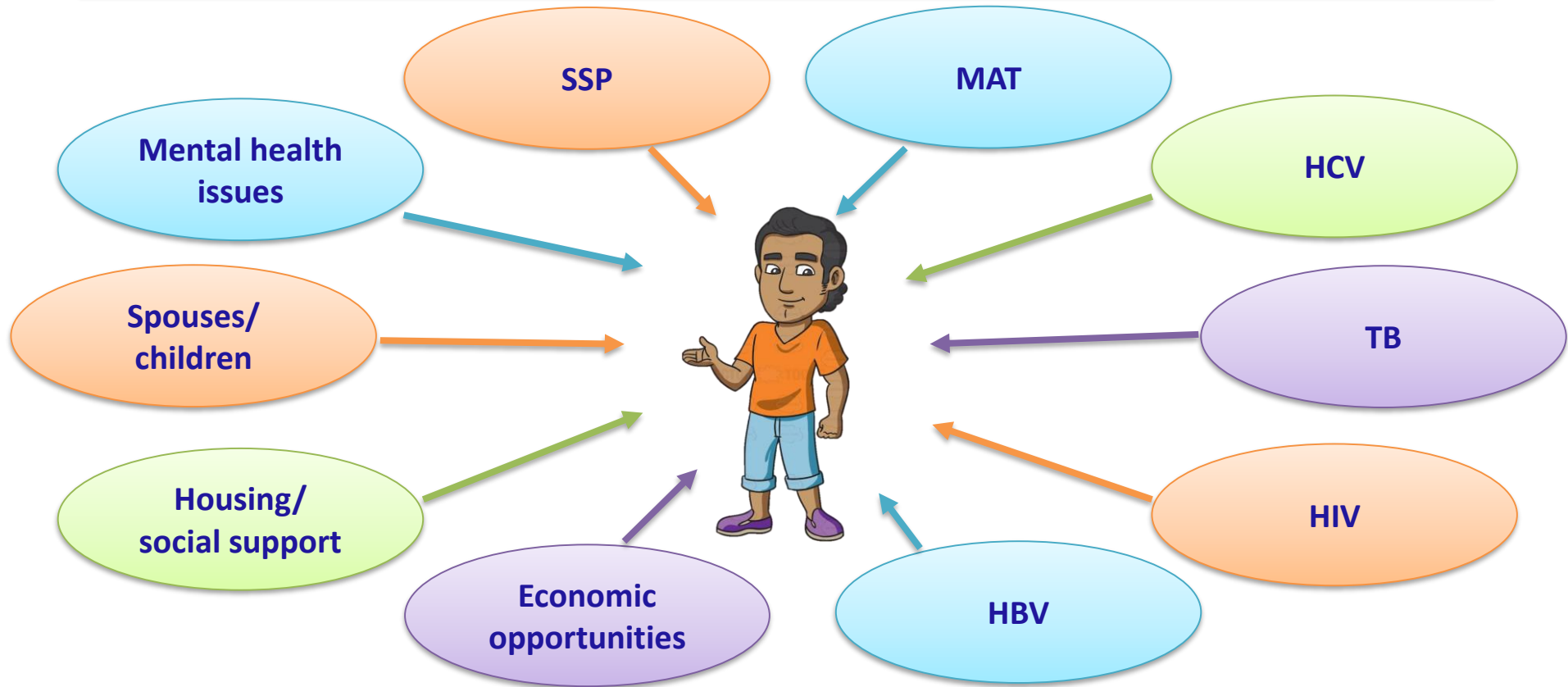
HCV likes to travel too!



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- If PWID don't come to the clinic, take the clinic to them
- Leverage networks – a little money can go a long way!
- Network-based treatment?
 - Re-think the definition of network...perhaps space??
- Micro-elimination?
 - Needs to account for migration, drug trafficking routes, porous borders
- **Treat the individual and not an individual disease!**

The goal of any program should be to improve survival and quality of life



Acknowledgements

- People who inject drugs and people living with viral hepatitis who generously participate in research studies globally
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