



Needle syringe programmes and opioid substitution therapy for prevention HCV transmission among people who inject drugs: Cochrane Systematic Review

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Acknowledgements & Disclosure/Col

- NIHR (HS&DR) (12/3070/13) - Assessing the impact and cost-effectiveness of NSP
- NIHR Health Protection Research Unit in Evaluation of Interventions
- European Commission Drug Prevention and Information Programme (DIPP) "Treatment as Prevention in Europe: Model Projections [JUST/2013/DPIP/AG/4812]
- MH received honoraria from Abbvie, MSD, Janssen, Gilead.

The views expressed are those of the author(s) and not necessarily those of the NHS, the NIHR or the Department of Health.

- NSP review level evidence:-
 - sufficient that reduce injecting related risk behaviour
 - insufficient that prevent HCV transmission;
 - tentative that prevent HIV transmission;
- OST associated with reduce risk of HIV transmission


 Published by Oxford University
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 BMJ 2012;345:e5945 doi: 10.1136/bmj.e5945 (Published 4 October 2012) Page 1 of 16

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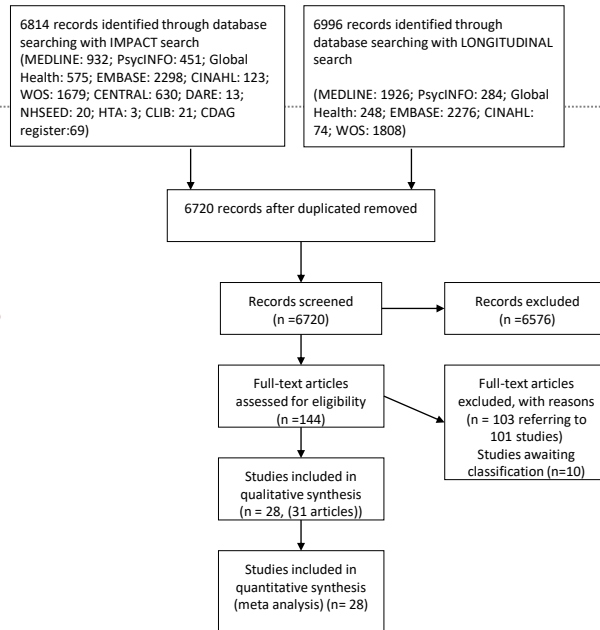
Opiate substitution treatment and HIV transmission in people who inject drugs: systematic review and meta-analysis

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- Search
 - Medline, PsycInfo, Embase, Cochrane and Web of Science up to July 2014 ; Reference lists; Grey literature
- Inclusion
 - observational and intervention studies measuring exposure to NSP and/or OST (compared to no intervention) among PWID and HCV incidence
- Risk of bias: www.riskofbias.info/
 - Studies classified as Low, Moderate, Serious, Critical risk according to 7 domains
 - Critical confounders: duration of injection or age; injecting frequency
- Analyses
 - Meta-analysis using random effects models & heterogeneity explored
 - Separate analyses for adjusted and unadjusted, exclusion of studies classified as 'critical' and subgroup analyses, geographical region, recruitment site, type of drug injected, frequency of injecting

Flow Chart – Included studies



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Description of studies - I

- 28 studies
 - 21 published, 7 unpublished
 - 13 North America, 5 UK, 4 other Europe, 5 Australia and 1 China
- 1817 HCV infections 8806.95py follow-up.
 - HCV incidence - 0.09 to 42 cases per 100 py
- Risk of Bias
 - Only 2 at moderate overall risk of bias, 17 at serious risk, 7 at critical risk; 2 unpublished studies no RoB
- No RCT intervention effects – so typically evidence quality categorised as low.

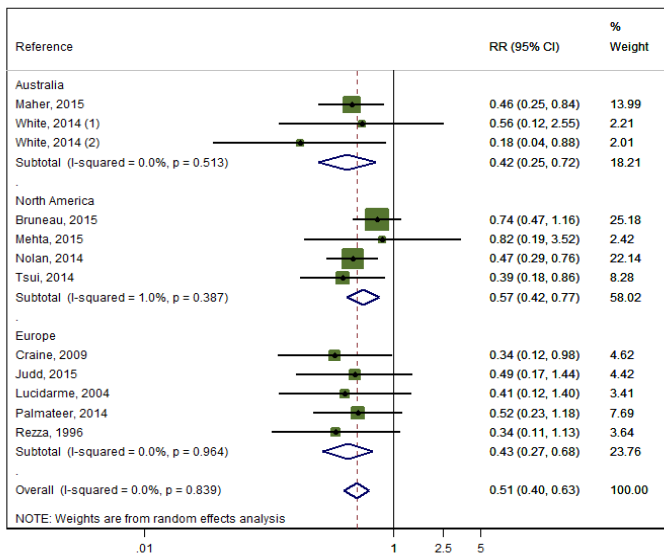
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Description of studies - II

- Interventions
 - current OST (within last 3-6 months)
 - High NSP coverage (regular NSP attendance/ all injections covered by a new needle/syringe)
- Variation across studies:
 - Sample size (range 46-2788)
 - Method of recruitment: street outreach; RDS; snowball sampling; service users
 - Study design: Prospective cohort (20); Cross-sectional (3); case-control studies (2); 2 retrospective cohort, 1 serial cross-sectional
 - Published 1995-2014
 - Follow-up time 1 and 22 years

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Impact of current OST exposure (adjusted estimates)



- 12 studies:
- 6361 participants
- 1030 HCV cases
- **50% reduction** in risk of HCV
- Little heterogeneity
- GRADE: Low Evidence.

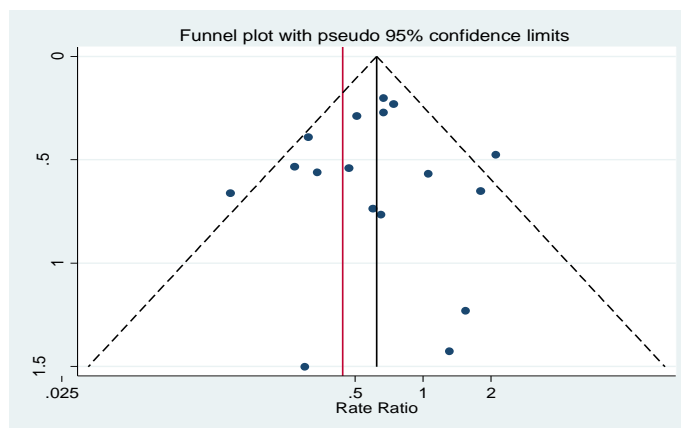
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Impact of current OST

- Effect maintained if exclude unpublished estimates, studies at critical or no information on risk of bias, cross-sectional studies
 - Effect strengthened if exclude unpublished estimates and weakened slightly if pool unadjusted studies (10,647 participants, RR =0.57, $I^2=32.4$)
- No evidence that effectiveness varied by geographic region or site of recruitment.
 - Intervention effect reduced with 10% increase in sample of PWID who were women

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No evidence of publication bias

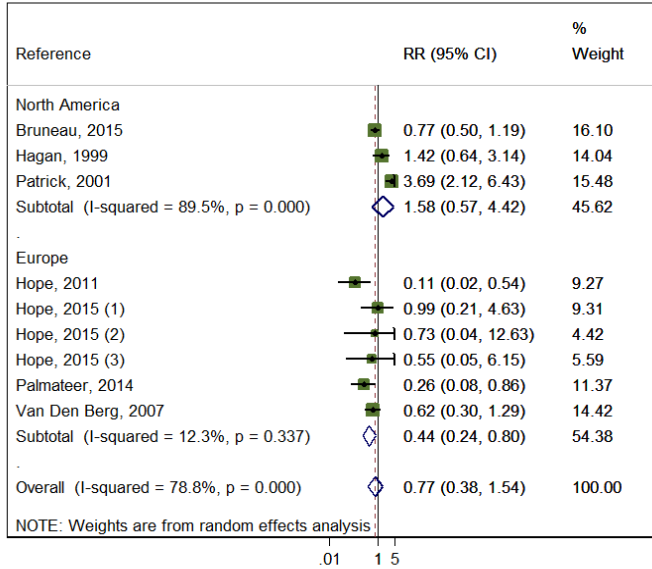


Funnel plot – OST meta-analysis - Egger's bias coefficient (-0.87 p=0.106)

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Impact of high NSP by region (unadjusted analyses)

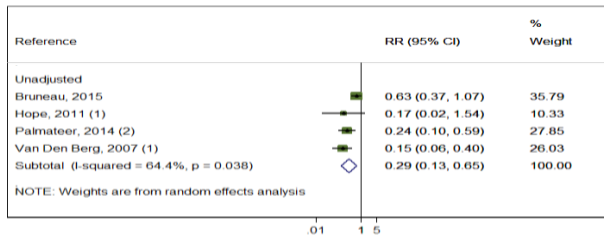


- 7 studies
- High heterogeneity ($I^2=79\%$)
- Weak evidence overall – RR 0.77
- In Europe NSP associated with 66% reduction in HCV
- Grade: very low evidence

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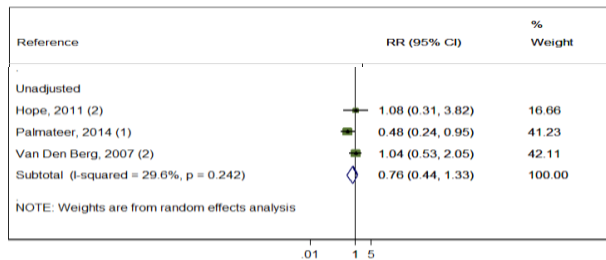


Impact of NSP and OST



High NSP with OST

- 4 studies
- 3356 participants
- 518 HCV cases
- Reduced HCV by 71%
- moderate heterogeneity



Low NSP with OST

- 3 studies
- 3071 participants
- 449 HCV cases,
- Reduced HCV by 24%
- GRADE: low evidence

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Impact of current NSP

- **Meta-regression**
 - differential impact by region N. America vs Europe (Ratio of rate ratios= 3.73, p=0.06).
- **No evidence**
 - publication bias
 - differential impact by proportion of female participants in the sample, homelessness or experience of prison.

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Impact of current NSP: Key limitations & potential explanations

- **heterogeneity in measurement of NSP exposure**
 - In North America – studies had varied definitions of NSP use relating to frequency of attendance at NSPs.
 - In Europe – studies tend to measure 100% NSP coverage “person reports that they receive sufficient or a greater number of sterile syringes per injecting frequency”
- **confounding/ selection bias**
 - lower overall coverage in US may mask intervention effect
 - higher proportion of stimulant injectors in US studies that without OST may contribute to lower impact
 - regular NSP attenders at greater risk of HCV acquisition
 - US studies conducted when incidence was higher

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Implications

- strong consistent evidence that OST reduces HCV transmission
- weaker evidence for high coverage NSP
 - more heterogeneity
 - NSP highly cost effective/ cost saving
 - See Zoe Ward talk
- corroborates importance of combining interventions (NSP and OST)
 - Model evidence that OST/NSP enhance HCV TasP & minimize re-infection

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Implications

- Lack of published data from outside Europe, (Australia) and North America
- Studies with high level of bias
 - No RCT possible
- Global coverage estimates confirm that NSP/OST scale-up needed in most countries
- Improve reporting of observational studies
 - Better natural experiments
 - Strengthen evidence base as improve coverage

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Published 11th Sept

Needle syringe programmes and opioid substitution therapy for preventing hepatitis C transmission in people who inject drugs

Review information

Review type: Intervention

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Cochrane Database of Systematic Reviews DOI: 10.1002/14651858.CD012021

Needle syringe programmes and opioid substitution therapy for preventing HCV transmission among people who inject drugs: findings from a Cochrane Review and meta-analysis

Journal:	<i>Addiction</i>
Manuscript ID:	ADD-17-0355.R1