



Review

A systematic review of injecting-related injury and disease among people who inject drugs



Sarah Larney^{a,b,*}, Amy Peacock^{a,c}, Bradley M. Mathers^d, Matthew Hickman^e,
Louisa Degenhardt^{a,f,g,h}

^a National Drug and Alcohol Research Centre, UNSW Australia, Sydney, Australia

^b Alpert Medical School, Brown University, Providence, RI, USA

^c School of Medicine, University of Tasmania, Hobart, TAS, Australia

^d The Kirby Institute, UNSW Australia, Sydney, Australia

^e School of Social and Community Medicine, University of Bristol, UK

^f School of Population and Global Health, University of Melbourne, Melbourne, VIC, Australia

^g Murdoch Children's Research Institute, Melbourne, VIC, Australia

^h Department of Global Health, School of Public Health, University of Washington, Seattle, WA, USA

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ABSTRACT

Background: Non-viral injecting-related injuries and diseases (IRID), such as abscesses and vascular damage, can result in significant morbidity and mortality if untreated. There has been no systematic assessment of the prevalence of non-viral IRID among people who inject drugs; this review aimed to address this gap, as well as identify risk factors for experience of specific IRID.

Methods: We searched MEDLINE, Embase and CINAHL databases to identify studies on the prevalence of, or risk factors for, IRID directly linked to injecting in samples of people who inject illicit drugs.

Results: We included 33 studies: 29 reported IRID prevalence in people who inject drugs, and 17 provided data on IRID risk factors. Skin and soft tissue infections at injecting sites were the most commonly reported IRID, with wide variation in lifetime prevalence (6–69%). Female sex, more frequent injecting, and intramuscular and subcutaneous injecting appear to be associated with skin and soft tissue infections at injecting sites. Cleaning injecting sites was protective against skin infections. Other IRID included infective endocarditis (lifetime prevalence ranging from 0.5–12%); sepsis (2–10%); bone and joint infections (0.5–2%); and thrombosis and emboli (3–27%).

Conclusions: There were significant gaps in the data, including a dearth of research on prevalence of IRID in low- and middle-income countries, and potential risk and protective factors for IRID. A consistent approach to measurement, including standardised definitions of IRID, is required for future research.

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1. Introduction

Although the transmission of blood-borne viral infections such as HIV and hepatitis C virus among people who inject drugs has garnered substantial attention, there has been less focus on other injecting-related injuries and diseases (IRID) in this population. These commonly include soft tissue infections such as abscesses and cellulitis, which occur as a result of micro-organisms (i.e., bacteria and fungi) in the injecting environment. Other infections may include bone and joint infections, infective endocarditis, and sep-

sis; these can arise as a result of direct introduction of bacteria to the bloodstream, or as complications of untreated soft tissue infections (Salmon et al., 2009).

In addition to infections, repeated injecting and poor injecting technique may lead to vascular injury and poor venous access; furthermore, drug solutions may contain inactive ingredients that are not water soluble, leading to particles in the vasculature that can cause inflammation and clot formation (Darke et al., 2015; McLean et al., 2009). The likelihood of vascular injury can be further exacerbated by the delivery method (e.g., intravenous versus intramuscular injection), injecting site (e.g., subcutaneous tissue and muscle, major vessels), and type of equipment used (Darke et al., 2001).

Some IRID necessitate urgent medical care, and all can result in poorer health outcomes for people who inject drugs, includ-

* Corresponding author at: NDARC, University of New South Wales, Sydney, NSW, 2052, Australia.

E-mail address: s.larney@unsw.edu.au (S. Larney).

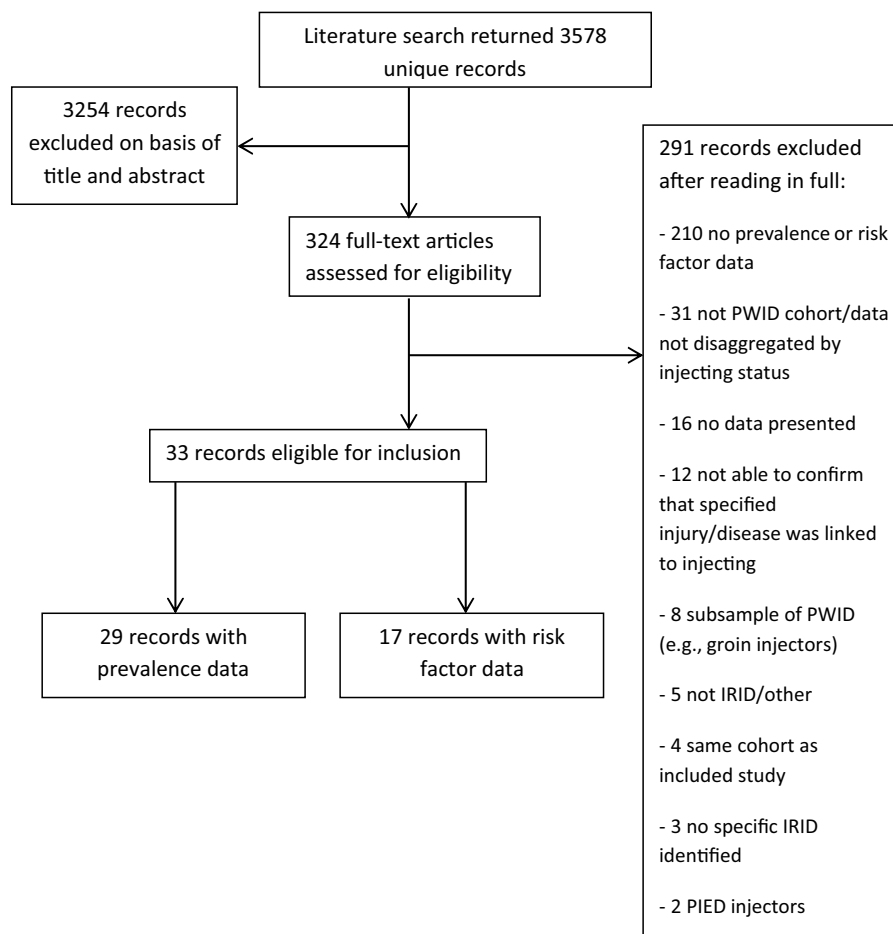


Fig. 1. Study flow diagram.

ing risk of mortality, if untreated (Dwyer et al., 2009). From an economic perspective, the costs of hospital care for IRID can be substantial (Sweeney et al., 2009; Tookes et al., 2015). A clearer understanding of the prevalence of IRID is needed to determine the scale of the problem and guide the development of evidence-informed responses. This review aimed to assess prevalence of, and risk factors for, non-viral IRID among people who inject drugs.

2. Method

This review is reported in line with the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) checklist (Moher et al., 2009).

2.1. Search strategy and selection criteria

We searched MEDLINE, Embase and CINAHL for relevant literature using search strings developed in consultation with a specialist drug and alcohol librarian (see Supplementary Materials). Searches were undertaken in February, 2014 and updated in July, 2015. Titles and abstracts were independently screened by SL and a research assistant to produce a shortlist of potentially relevant reports. The full text of each shortlisted report was retrieved and read to determine eligibility for inclusion in the review. For articles in languages other than English, eligibility for the review was determined based on information available in English translations of abstracts.

Reports were eligible for inclusion in the study if they included data on the prevalence of, and/or risk factors for, any non-viral IRID in a sample of people who injected illicit drugs. Reports could

include data on any non-viral IRID, but data were required to be specific to a named infection, injury or disease, rather than a combination of different types of IRID. Where there was clearly overlap between reports in terms of the study sample (e.g., multiple reports from one study, sometimes using sub-samples of a larger sample) and types of IRID reported, we included only the study with the largest sample size. If multiple reports from the same study reported the same IRID over different periods of time, all reports were included.

Articles that reported on specific sub-groups of people who inject drugs, such as samples containing only HIV-positive people who inject drugs, or only people who injected in the groin, were excluded. Reports based on samples of people who exclusively injected performance and image-enhancing drugs were excluded, as this group is distinct from people who inject illicit drugs in terms of frequency of injecting, intravenous versus intramuscular injecting, and the environmental and social contexts of injecting. Reports that included only data on pathology among people who inject drugs, which was not directly linked to injecting (including bacteriological studies), were excluded.

2.2. Data extraction

Data were independently extracted by SL and a research assistant, with discrepancies resolved through discussion and consultation with BM. Data extracted from each article included sampling approach; demographic characteristics of the sample; types of IRID assessed; whether IRID ascertainment was based on self-report, clinical examination, and/or medical records; denom-

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