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Research Paper

Measuring individual-level needle and syringe coverage among people who inject drugs in Myanmar

Daniel O'Keefe[a,b,*], Soe Moe Aung[c], Naanki Pasricha[a], Thu Wun[c], Soe Khaing Linn[c], Nay Lin[c], Campbell Aitken[a,b], Chad Hughes[a,b], Paul Dietze[a,b]

[a] Burnet Institute, 85 Commercial Rd, Melbourne, VIC, 3004, Australia
[b] School of Public Health and Preventive Medicine, Monash University, 99 Commercial Rd, Melbourne, VIC, 3004, Australia
[c] Burnet Institute Myanmar, Second floor, 226 U Wisara Road, Wizaya Plaza, Bahan Township, Yangon, Myanmar

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ABSTRACT

Background: Myanmar has prioritised people who inject drugs (PWID) as a key population for HIV mitigation efforts, with targets for needle and syringe distribution set at a population level. However, individual-level coverage, defined as the percentage of an individual's injecting episodes covered by a sterile syringe, is a more sensitive measure of intervention coverage. We sought to examine individual-level coverage in a sample of PWID in Myanmar.

Methods: We recruited 512 PWID through urban drop-in-centres in Yangon, Mandalay and Pyin Oo Lwin. Participants were administered a quantitative questionnaire covering five domains: demographics, drug use, treatment and coverage, and injecting risk behaviour.

We calculated past fortnight individual-level syringe coverage, estimating levels of sufficient (≥100% of injecting episodes covered by a sterile syringe) and insufficient (< 100%) coverage, and examined associations between key variables and insufficient coverage via logistic regression.

Results: Our sample was predominately male (97%), employed (76%), and living in stable accommodation (96%), with a median age of 27. All participants reported heroin as the drug most frequently injected, and injected a median of 27 times in the past two weeks.

Nineteen per cent of participants had insufficient coverage in the two weeks before interview. Insufficient coverage was positively associated with syringe re-use (AOR: 5.19, 95% CIs: 2.57, 10.48) and acquiring sterile syringes from a location other than a formal drop-in-centre (AOR: 2.04, 95% CIs: 1.08, 3.82). Participants recruited in Mandalay (AOR: 0.30, 95% CIs: 0.11, 0.80) and Pyin Oo Lwin (AOR: 0.39, 95% CIs: 0.18, 0.87) had lower odds of insufficient coverage than those recruited in Yangon.

Conclusion: Our study shows coverage in selected areas of Myanmar was comparable with studies in other countries. Our results inform the delivery of harm reduction services for PWID, specifically by encouraging the use of formal drop-in-centres, over other sources of syringe distribution, such as pharmacies.

Introduction

The Government of Myanmar estimates there are 83,000 people who inject drugs (PWID) within the country (0.23% of the population aged between 15 and 64 years) (Ministry of Health & Sports, 2016; O'Keefe, Stoove, Doyle, Dietze, & Hellard, 2017), although other sources estimate population size of PWID of 90,000–150,000 (Yu Mon Saw et al., 2013). Myanmar has historically seen high levels of HIV among its population of PWID and has previously identified PWID as a priority population for HIV mitigation efforts (Ministry of Health & Sports, 2014a; UNODC, 2010). Recent targeted responses have dramatically increased harm reduction services across the country. Myanmar's National Strategic Plan for HIV specified increased access to needle and syringe programs (NSPs) via drop-in centres (DICs) and outreach programs, and a significant increase in national sterile needle and syringe (hereafter "syringe/s") distribution (to 360 sterile syringes per PWID per year) and methadone opioid substitution therapy (OST) treatment (to 32,000 PWID receiving methadone) (Ministry of Health &

* Corresponding author at: Behaviours and Health Risks Program, Burnet Institute, 85 Commercial Rd, Melbourne, VIC, 3004, Australia.
E-mail addresses: daniel.okeefe@burnet.edu.au (D. O'Keefe), soemoe.aung@burnet.edu.au (Soe Moe Aung), naanki.pasricha@burnet.edu.au (N. Pasricha), thu.wun@burnet.edu.au (Thu Wun), soekhaing.linn@burnet.edu.au (Soe Khaing Linn), nay.lin@burnet.edu.au (Nay Lin), campbell.aitken@burnet.edu.au (C. Aitken), chad.hughes@burnet.edu.au (C. Hughes), paul.dietze@burnet.edu.au (P. Dietze).

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Sports, 2016). In 2014, HIV prevalence among PWID was reported at 28.5% (Ministry of Health & Sports, 2016) (though HIV prevalence differs greatly across national regions (Ministry of Health & Sports, 2014b)), representing a substantial decline from its 1990s peak of over 70% (UNODC, 2010), but still a prevalence typical of the highly endemic Asia region (HRI, 2016).

Minimal descriptive research has been performed amongst PWID in Myanmar. Both Yu Mon Saw et al. (2013) and Lin Aung Swe, Nyo, & Rashid (2010) described samples of predominately (> 96%) male, young (< 35 years old), single and employed PWID (Yu Mon Saw et al., 2013; Lin Aung Swe, Nyo, & Rashid, 2010). Most participants reported primarily injecting heroin and injecting at least daily (Yu Mon Saw et al., 2013; Lin Aung Swe, et al., 2010). Approximately half of participants in the Yu Mon Saw et al. study reported recent unsafe injecting practices (Yu Mon Saw et al. (2013)). These samples were, however, drawn from border areas in the remote parts of Shan state, outside of central government control, reflecting the importance border areas play in blood-borne virus (BBV) transmission (Williams, Liu, & Levy, 2011). Similar work on both sides of the Myanmar-Chinese border has also been conducted (Li, Assanangkornchai, Duo, McNeil, & Li, 2014; Williams, et al., 2011; Zhou, et al., 2011). These studies highlight the differential geographical risk in areas of heroin production and little governmental control (Zhou, et al., 2011), but also exemplify the lack of research among PWID in Myanmar's urban centres.

The World Health Organization (WHO) has previously set population-level targets for sterile syringe distribution to PWID, measured by dividing the total number of sterile syringes distributed by an estimate of the population of PWID. To reduce HIV transmission, WHO recommends that nationwide programs distribute 200 syringes per PWID per annum (WHO, 2012b), deemed "high coverage" (WHO, 2012b). An increase to 300 syringes per PWID per annum was recently recommended to eliminate hepatitis C virus (HCV) (WHO, 2016) which has a higher transmission potential than HIV (Kwon, Iversen, Maher, Law, & Wilson, 2009).

Population-level coverage measurements are important for evaluating and comparing public health programs within and between countries. However, population-level measures and recommended levels of coverage, such as those devised by the WHO, assume the population of PWID exhibits homogenous injecting and syringe acquisition behaviours. Yet these behaviours are highly variable (O'Keefe, Scott, Aitken, & Dietze, 2016). For example, some PWID may need many more or fewer sterile syringes than the WHO recommended 200–300 per year. Population-level coverage measurements are also ill-equipped to describe the reasons why particular sub-groups of PWID experience deficiencies in coverage. Coverage is influenced by many context-specific factors, such as drug use preferences (O'Keefe, Scott, Aitken, & Dietze, 2017), and geographic access to services (Cooper, et al., 2011). To better identify these barriers to sufficient coverage, coverage measurement can be performed at the individual level. Broadly defined as the percentage of an individual's injecting episodes that are "covered" by a sterile syringe (Bluthenthal, Anderson, Flynn, & Kral, 2007), research measuring individual-level coverage has shown that even in countries with high population-level coverage, substantial coverage shortfalls are experienced at the individual level (McCormack, Aitken, Burns, Cogger, & Dietze, 2016; O'Keefe et al., 2016). PWID without current OST (O'Keefe, Scott, et al., 2017), low engagement with NSPs (Bryant, Paquette, & Wilson, 2012; Iversen, Topp, Wand, & Maher, 2012; O'Keefe, Scott, et al., 2017), higher injecting frequencies (Bluthenthal, Anderson, et al., 2007; Bryant, et al., 2012) and HCV positivity (O'Keefe, Scott, et al., 2017) have greater odds of reporting experiencing insufficient coverage. Insufficient individual-level coverage has also been associated with injecting risk behaviours, such as receptive syringe sharing and syringe reuse (Bluthenthal, Anderson, et al., 2007; Iversen, Wand, Topp, Kaldor, & Maher, 2013; Noroozi, et al., 2015; O'Keefe, McCormack, et al., 2017). These coverage variations in subgroups of PWID can only be understood by measuring coverage at the individual level.

To date, only population-level NSP coverage has been reported for Myanmar. The proposed increases in population-level coverage are promising, but the proportion of PWID experiencing insufficient coverage at an individual level has not been estimated. It is important to determine individual-level coverage, because it is logically associated with risk of transmission and acquisition of serious blood-borne virus infections. Previous research has characterised HIV-positive and HIV-negative PWID in Myanmar: Lin Aung Swe et al. (2010) showed that PWID living rurally (compared to those living in urban locations) had increased odds of HIV positivity (Lin Aung Swe et al., 2010), and similar differences between individuals may impact upon the ability to sufficiently cover one's injecting episodes, thereby increasing the likelihood of BBV transmission. Furthermore, a greater understanding of the barriers to sufficient coverage is needed for countries such as Myanmar, as findings from high-income countries may not be relevant to low and middle income contexts.

We estimated individual-level syringe coverage in a cross-sectional sample of PWID across three urban locations across Myanmar. Specifically, we aimed to:

1. Describe demographic, service utilisation and risk profiles of PWID in major urban centres in Myanmar,
2. Measure individual-level syringe coverage amongst PWID across qualitatively different areas of Myanmar, and
3. Explore associations between demographic, drug use, risk behaviour and service use, and insufficient coverage.

Methods

Setting

Data were collected through the Burnet Institute (BI)-operated harm reduction program in Myanmar, which deliver services to PWID via community-based DICs and outreach at five harm reduction services across three urban locations: two in Yangon (Yangon East and Yangon West), two in Mandalay (Mandalay city and Sagaing city) and one in Pyin Oo Lwin. The Yangon East, Mandalay city and Pyin Oo Lwin services are fixed site DICs that, along with distribution of sterile injecting equipment, offer BBV counselling and testing, STI screening and treatment, condom distribution, health education and referral to antiretroviral therapy (ART), OST and other drug treatment services. Yangon West and Sagaing city are basic services, offering minimal intervention beyond sterile injecting equipment distribution via a small outpost and peer outreach, and referral to more expanded services. Harm reduction services in Myanmar are operated by a number of different organisations. The BI program sought to provide harm reduction in currently underserviced areas of the country. Yangon and Mandalay are the two largest cities in Myanmar, with large populations of PWID, necessitating the establishment of harm reduction services. Pyin Oo Lwin is located near Northern Shan State, an area of high internal conflict and opium cultivation. Recent transitioning to injecting drug use in Pyin Oo Lwin (where opium was traditionally smoked) also required a harm reduction response. The BI program was initiated in 2014 and funded by the Global Fund to Fight AIDS, Malaria and Tuberculosis and the 3 Millennium Development Goals fund.

Ethical approval was obtained from the Alfred Ethics Committee (Australia) and the Department of Medical Research Ethics Committee (Myanmar).

Participant sample

Recruitment was initiated in March 2017 and completed in July 2017. Five hundred and thirteen self-identified PWID were recruited via convenience and snowball sampling. Recruitment was intended to be spread evenly across the five program sites (100 participants at each