Measuring drug harm in New Zealand: a stocktake of current data sources

Rose Crossin, Lana Cleland, Marta Rychert, Chris Wilkins, Joseph M Boden

ABSTRACT

AIMS: The availability of legal and illegal drugs is widespread across New Zealand. All drugs have the potential to cause harm to those who use them, and to others. Understanding the nature and extent of these harms depends upon the ongoing and systematic collection of relevant data, which is crucial in achieving the current national policy goal of minimising drug harm. Thus, we aim to describe how information on drug harm is currently collected and measured in New Zealand.

METHODS: This article maps and evaluates harm data within New Zealand, explores data collection methods and timing, and identifies the drugs and types of harm assessed to date. We review large and predominantly administrative datasets that provide a measure of harm, which are collected more than once and/or are updated periodically.

RESULTS: We highlight a number of key gaps and limitations that exist within the current data landscape, and outline barriers to ensuring greater utilisation. We recommend more frequent data collection, including improved data on harms to others, and inclusion of a wider range of drugs.

CONCLUSIONS: Implementation of these recommendations will improve the understanding of comprehensive drug harm in New Zealand, to guide effective local harm reduction policies and interventions.

A wide range of legal and illegal psychoactive substances (“drugs”; includes alcohol) are available in New Zealand, all of which have the potential to cause harm. Nationally, the annual cost of harm arising from the use of illegal psychoactive drugs, excluding alcohol and tobacco, has been estimated at $1.9 billion. Harm from alcohol has further been estimated at $7 billion, while the tangible costs of tobacco were most recently estimated at $2.5 billion. The harm resulting from a drug is complex, can be acute or chronic, and depends upon factors including pharmacological properties, purity, the population who use it, consumption patterns, context of use and administration practices, and policy/regulatory settings. Minimising this harm forms the current overarching goal for New Zealand drug policy; to minimise alcohol and other drug (AOD)-related harm and promote and protect health and wellbeing.

The systematic collection of data on drug harm in New Zealand is important to achieve the goal of harm minimisation and measure progress towards achieving this policy objective. Timely data are needed to inform evidence-based policies, and can further aid the Government in prioritising resources and making policy decisions. Adequately measuring harm can help to ensure that health promotion campaigns are both effective and appropriate for the communities in which they are implemented. Furthermore, relevant data can influence public education and discourse, which may help to destigmatise particular drugs and the people who use them. Lastly, when gathered regularly and consistently, this data can provide the means for evaluating policy and harm minimisation initiatives.

Despite its importance, the measurement of drug harm may be overlooked, or is equated with prevalence of use. While “use” is a simpler metric than “harm”, the policy implications of focussing on measuring use are problematic, in that it perpetuates a view that all drug use is implicitly harmful. Different methods exist for quantifying drug harms—both harms to self and harms to others. In New Zealand, a Drug Harms Index (NZDHI) has been updated and published three times, which has quantified harms arising from use of the most widely used illegal drugs. The multi-criteria decision analysis (MCDA) method has also been used to compare and rank harms from different drugs. Using these methods, data on use and harm can further be combined to develop a more comprehensive picture of harm prevalence within a given population. Importantly, both the NZDHI and MCDA methods are strengthened by having appropriate New Zealand-specific data available.
including administrative datasets and individual research projects. We aim to describe how information on drug harm (including legal drugs such as alcohol and tobacco) is currently collected and measured in New Zealand, and to highlight relevant gaps and challenges of measuring drug harms. Robust policy should be developed based upon a combination of many different kinds of data; thus, this stocktake provides a resource for understanding the current data landscape for measuring drug harm in New Zealand.

**Mapping the harm data available in New Zealand**

Table 1 provides an overview of the current drug harm data in New Zealand. For each data source, it includes information on the type of data available, the frequency and timing of data collection, and some of the types of harm it addresses, using previous harm classifications. Information was extracted from previous reports and publications on the dataset, and protocols or data dictionaries, but did not include information gained directly from project teams or researchers that was not readily available. We have highlighted key strengths and limitations of each individual dataset. However, we note that the main strength lies in the capacity to triangulate using multiple data sources to build a more reliable picture of drug harm, rather than relying on a single data source; our aim was to focus on the overall data landscape rather than details of individual datasets. We focussed on large and predominantly administrative datasets that are collected more than once and/or are updated periodically. Datasets that estimate use only (e.g., wastewater testing) have not been included, though those that measure both use and harm are included. This data landscape has been assessed, paying particular attention to scope, coverage and representativeness. Based upon the datasets identified, there are areas in which the available data are not sufficient for contemporary understandings of drug harm within New Zealand. A number of gaps and limitations are discussed below, themed into key issues.

**Gaps and limitations in the available drug harm data**

*Missing or sparse data*

Relevant data are sparse or unavailable for some forms of drug-related harm, particularly in the case of harm to others. For instance, there are little data on family adversities that may arise from drug use, such as divorces, child neglect, or the loss of child custody. In addition, there is no routinely reported information on injury, such as acts of physical or sexual violence, that are related to drug use beyond alcohol. Aside from the Methadone in Pregnancy study, there is inadequate information surrounding fetal exposure to different substances within New Zealand, which limits the extent to which outcomes such as fetal alcohol spectrum disorder can be targeted. Finally, there does not appear to be regularly collected data on the extent of community harms, such as a decline in social cohesion.

**Novel substances and routes of administration**

There is little insight into some newer substances and routes of administration, with one example the increased prevalence of vaping. While the harms of tobacco containing cigarettes are well defined, there are comparatively less data in New Zealand, or even internationally, on the consequences of nicotine vaping. This is partly due to the relative novelty of vaping, which also limits the extent to which longer-term harms can be identified at this point in time. Data pertaining to new psychoactive substances (NPS) are also sparse or otherwise poorly defined in many local datasets, or may be inconsistently collected such that it hinders interpretation of harm. In part, this is due to the wide range of such substances, in addition to the rapid pace at which new synthetic drugs have historically been developed and introduced. While this lag in information is inevitable for such substances, it does increase the likelihood of overestimating or underestimating their harm.

**Dated or irregularly collected data**

Some of the available data on use and harm are outdated or have been collected in an irregular manner. Because harm measurement is generally intended to inform contemporary interventions, older information could pose a threat to the validity of studies in this area. For example, one of the country’s largest datasets that evaluated substance use disorder, Te Rau Hinengaro, is over 14 years old, limiting its relevance. Some regular studies of drug harm among frequent drug users and police arrestees have had their funding discontinued (e.g., IDMS, NZ-ADUM).

**Non-representative data**

Insights gathered from at-risk groups of people who use drugs cannot always be generalised to the wider population, or to specific demographic groups. Firstly, in many cases the only available data are collected from a subsection of people who use drugs, such as those who have been convicted of drug-related crimes or who are receiving...
Table 1: Currently available data on drug-related harm within New Zealand.

<table>
<thead>
<tr>
<th>Data source</th>
<th>Method of collection</th>
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<th>Limitations &amp; Strengths</th>
</tr>
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<tbody>
<tr>
<td>Programme for the Integration of Mental Health Data (PRIMHD) Ministry of Health</td>
<td>Clinical data (including treatment episodes) from district health boards and non-government organisations.</td>
<td>Alcohol, cannabis, amphetamine-type stimulants, opioids, and sedatives/tranquilisers.</td>
<td>Annually from 2008, more services reporting from 2011.</td>
<td>Harm to person using drug: drug-specific morbidity, plus lifestyle and wellbeing questions related to social and psychological harm.</td>
<td>Limitations: only treatment episodes (known barriers to treatment exist). Only includes a limited number of substance types. Strengths: integrates harm data from a wide range of sources across NZ.</td>
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<td>The Institute of Environmental Science and Research (ESR) publication</td>
<td>Toxicology profile (blood, urine, hair, surface of the skin, intimate swabs) from</td>
<td>Psychoactive drugs present in toxicology assessments.</td>
<td>Between 2015–2018.</td>
<td>Harm to person using drug: drug-related morbidity.</td>
<td>Limitations: many sexual assaults not reported immediately (or at all), limiting the utility of toxicology. Strengths: provides information on drug-facilitated sexual assault.</td>
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<td>New Zealand Crown Research Institute</td>
<td>toxicology assessments of sexual assault survivors.</td>
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<tr>
<td>New Zealand National Poisons Centre (NZNPC) University of Otago</td>
<td>Data on enquiries to call centre.</td>
<td>Includes data on calls made due to drugs such as methamphetamine, LSD, GHB, cannabis,</td>
<td>Help line service commenced in 1964.</td>
<td>Harm to users: drug-specific morbidity.</td>
<td></td>
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<tr>
<td>New Zealand Transport Agency (NZTA) reports</td>
<td>New Zealand Police reports to NZTA on motor vehicle accidents involving drugs, includes</td>
<td>Alcohol and “other drugs”.</td>
<td>Annually from 1990–2019.</td>
<td>Harm to person using drug: drug-related mortality, drug-related morbidity, loss of</td>
<td>Limitations: drug types are broadly grouped. Strengths: extensive data on the impact of alcohol in particular.</td>
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<tr>
<td>Ministry of Transport</td>
<td>resulting fatalities, injury, and charges.</td>
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<td>tangibles (criminal record).</td>
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<td>Multiple New Zealand universities</td>
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<td>Ministry of Justice</td>
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<td>Strengths: demographic breakdown. Data on type of drug offence (eg possession).</td>
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<td>drug offences</td>
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<tr>
<td>The Centre for Adverse Reactions Monitoring (CARM) New Zealand Pharmacovigilance Centre</td>
<td>Reporting by New Zealand health professionals and pharmaceutical companies on adverse drug reactions.</td>
<td>Pharmaceutical drugs, including psychoactive drugs.</td>
<td>2000 till present.</td>
<td>Harm to person using drug: drug-specific morbidity.</td>
<td>Limitations: only pharmaceutical drugs. Not designed for extra-medical drug use, which limits reporting. Strengths: Information is reported by those with considerable knowledge of adverse drug reactions. Previous data collection included “legal high” products, including synthetic cannabinoids.</td>
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<td>Estimates from the New Zealand Drug Harm Index</td>
<td>Summarises wide range of data (both national and international) to estimate economic costs of different psychoactive substances.</td>
<td>Alcohol, heroin, cocaine, synthetic cannabinoids, GHB/GBL, cannabis, MDMA.</td>
<td>Three releases, most recently 2022.</td>
<td>Harm to person using drug: premature death and reduced quality of life. Harm to others: economic cost, crime.</td>
<td>Limitations: narrow description of harm. Scope only a limited number of illegal drugs. Strengths: cost estimates of drug harm. Includes harm to both self and others.</td>
</tr>
<tr>
<td>New Zealand Crime and Safety Survey (NZCASS)</td>
<td>Questionnaires and interviews of randomly selected people in NZ. Includes questions about suspected perpetrator drug use.</td>
<td>Alcohol, other drugs do not appear to be separated into different categories.</td>
<td>2006, 2009, 2014.</td>
<td>Harm to others: crime.</td>
<td>Limitations: Does not include victimless crimes (drug offences). Not always evidence that perpetrator was under the influence of drugs. Strengths: Indication of harm to others.</td>
</tr>
</tbody>
</table>
treatment for drug dependence. In reality, most people who use drugs do not develop substance use disorders and are therefore unlikely to experience drug-related harm in the same way. As such, this information says little about drug harm in the wider New Zealand population.

**General challenges for harm measurement**

*Measuring patterns of use and consumption*

An initial challenge is estimating drug use or consumption, which needs to be combined with harm data in order to understand the distribution of harm. Challenges exist in measuring drug use; self-reported data are prone to recall bias and people may modify their responses based on social acceptability, and population-level monitoring such as wastewater detection can only quantify how much of a drug is being consumed by a particular population utilising a wastewater treatment plant. Consumption estimates are known to be particularly difficult to make, partially due to large variances in how a drug is used. For example, while a large proportion of the population use alcohol, drinking motives and behaviours vary from person to person; these motivations and behaviours then affect harm.

**Heterogeneity of drug use**

Another key issue is the large degree of heterogeneity in factors such as potency, purity, and route of administration, all of which can have a considerable influence on the overall harm attributed to a particular drug. This is true in the case of factors including lethality, medical consequences and potential for abuse.

**Unintentional drug use**

It can often be difficult to make estimates about drugs which tend to be ingested unwittingly. For instance, drugs sold as MDMA in New Zealand are routinely cut with substances such as creatine, which may alter their overall risk and also limits the utility of self-reported drug use by substance. More harmful substances, such as synthetic cathinones, are also known to be sold as MDMA in some cases. In addition, the fact that substances such as GHB can be unknowingly ingested, and not subsequently reported, means that their harm is difficult to accurately quantify.

**Poly-drug use**

Many substances are not used in isolation within a given period of time; poly-drug use is not always detailed in the available datasets, but is an important factor to account for when measuring harm. For example, concurrent use of two or more drugs such as benzodiazepines, opiates and alcohol can increase the risk of death by overdose when compared to the use of just one of these substances.

**International examples of measuring harm**

The issue of measuring harm is not confined to New Zealand, though each jurisdiction would need to target its data collection based on the systems available and overarching policy goals. In Australia, it was identified that significant health-related drug harm was occurring in the community, often in parallel with acute mental health issues, which was not being detected in emergency department or admitted patient data. This led to the National Ambulance Surveillance System (NASS), which codes ambulance attendance data where drugs have played a role in the ambulance callout. In Europe, the recently established ESCAPE project has led to improved understanding of harms arising from injecting drug use, by analysing residues from used syringes, which provides an understanding of potential overdose risk through polysubstance use. The utility and practicality of such approaches should be considered in a New Zealand context.

**Recommendations for improving local harm data**

Within New Zealand, there are data measuring drug use (including wastewater testing and surveys); however, a relative lack of data exists surrounding associated harms. This presents a barrier to meeting the policy goal of harm minimisation, thereby necessitating efforts toward collection of both use and harm data. Our review identified a large number of useful information sources; however, it also highlighted substantial gaps. In seeking to improve the data landscape for New Zealand, we make the following recommendations for Government departments responsible for drug policy, policy makers, health boards and other relevant organisations who collect drug harm data.

**Harm to others data**

Within New Zealand, the available information provides little insight into how drugs impact others, such as family, partners and communities. Although there are recent data on alcohol-
related harm to others (Alcohol Use in New Zealand Survey), relevant data on harm to others are scarce for other drugs. This issue has also been identified internationally, with data tending to focus more heavily upon how those who use drugs are affected.\textsuperscript{29} To facilitate the development of policies which target broad categories of harm, surveys and other forms of data should be reviewed and amended to incorporate “harm to others” criteria, based upon established frameworks with inclusion of all harms arising from drug supply and use.\textsuperscript{13,20} This is particularly relevant for agencies that deal directly with families and communities affected by drugs, such as Oranga Tamariki and the New Zealand Police.

**Routine data collection**

Policy development, evaluation and revision necessitates regularly updated information on drug harm. At present, the collection of data covering all harm categories is not routine and has resulted in many sources of information becoming dated. To avoid this issue in future, surveys such as the Te Rau Hinengaro: The New Zealand Mental Health Survey should be repeated more frequently to provide a current picture of substance use disorders within New Zealand, and resourcing of data collection methods that have faster reporting times (eg monitoring of online drug use forums, or High Alert)\textsuperscript{31} should be increased by the responsible Government departments. This will enable swift and appropriately targeted policy amendments.

**Establishing protocols for harm data**

To enable consistent and systematic measurement of drug harm going forward, New Zealand Government departments responsible for drug policy should establish protocols that guide the collection, coding and storage of relevant data in a centralised location. At a minimum, it would be beneficial for links to all the currently available data sources (along with a description of that data) to be collated and made publicly available. Agencies and organisations responsible for data collection should also ensure that future data are collected in a way that allows for separate analysis of information for groups including Māori and youth, and by geographic region where possible. We acknowledge that establishing and maintaining such resources can be costly. However, ultimately, investment in improved data will facilitate more effective and targeted harm reduction policies and interventions.

**Limitations**

This stocktake aimed to consider measurement of drug harms, and does not consider the motivations of individuals for drug use—or any perceived benefits of drug use—by the individuals who use them. While it is acknowledged that this represents a one-sided view of drug use, drug policy is currently framed in a way that is focussed on harm minimisation and, therefore, it is the measurement of harm that should be most influential to current drug policy. In addition, this review also focussed on publicly available data, and it is acknowledged that organisations such as the National Drug Intelligence Bureau, and others, may have access to harms data that are not in the public domain.

**Implications and conclusions**

This study provides a stocktake of the current drug harm data available in New Zealand, which can be used by researchers and policy makers as a resource, when looking for harms data. In addition, recommendations have been made to improve the current data landscape at a systems level. Measuring harm accurately in New Zealand can contribute to a health-based approach to drugs and better inform drug policy. In particular, it will allow resources to be focussed more effectively on those that are experiencing harm, rather than all those who use drugs. This approach would acknowledge that not all those who use drugs are experiencing harm or perpetuating harm on others; therefore, it is not efficient or necessary for those individuals to receive a policy response. While use and harm cannot be equated, it is important for both to be measured effectively and combined, to guide policy responses that are health-based, proportionate and appropriately targeted. This is particularly important to consider in the context of specific populations, for example, more frequent use of a drug may be associated with greater harm in youth populations than in adults. While there are many challenges to measuring drug harm within New Zealand, the current review has identified a number of ways in which measurement can be improved.
COMPETING INTERESTS
Nil.

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REFERENCES