Development of an outcome framework for SAOR screening and brief intervention for substance use as part of the health diversion programme

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1 Executive Summary

1.1 Background

Brief interventions can help reduce harm from substance use among those who are at risk of, or are experiencing substance-related problems but are not seeking treatment. They measure and provide feedback on consumption, offer advice, attempt to increase motivation to change, and provide support to change substance use behaviour. We can use brief interventions in a range of different settings, including primary care, other healthcare settings, in schools, Universities, and workplaces, and in the criminal justice system.

One such brief intervention, developed in Ireland, is Support, Ask and Assess, Offer Assistance, Refer or SAOR for short. It is part of the Health Service Executive (HSE) National Screening and Brief Intervention (SBI) Programme to improve outcomes for people who use alcohol and drugs. As part of the current drug strategy *Reducing Harm, Supporting Recovery: A health-led response to drug and alcohol use in Ireland 2017-2025,* the Government has agreed to implement a health diversion approach (SAOR) for the personal possession of drugs under certain circumstances (see Section 2.3 for details).

The purpose of developing an Outcomes Framework is to provide a structure for the ongoing monitoring of the SAOR health intervention. The Outcomes Framework incorporates the following elements:

- The policy and strategic context of the SAOR intervention as it relates to the Health Diversion Programme
- Knowledge and learning from other systems and models
- Identifying available data and desirable data
- Key performance indicators (outputs)
- Behavioural determinants (outcomes)
- Transferability of the Outcomes Framework to monitor the SAOR intervention in other settings.

1.2 Method

There were three parts to this project.

Part 1: Desk-based research to summarise recommended evaluation frameworks of health-led diversion schemes or for alcohol or drug brief interventions.

Part 2: A consultation process with people who have experience of substance use, or who may benefit from a health-led diversion scheme in Ireland.

Part 3: Consensus meeting to discuss parts 1 and 2; to support and evidence choices for the SAOR outcome framework.

1.3 Prioritised SAOR outcomes from review and consultation

Based on the desk research and the consultation with stakeholders (Parts 1 and 2) the following outcomes were recommended:

1. Recent consumption
2. Average consumption
3. A measure of consequences of drug use including a question on meeting role responsibilities at work or at home
4. Knowledge around drug use
5. Quality of life.

Decisions on what to measure aimed to be informed by HSE priorities, not duplicate any information in the SAOR intervention, and minimise burden on both SAOR providers and those receiving the intervention. One month follow up after baseline was recommended, although it may be helpful to do longer-term follow up at 3, 6, and 12 months depending on HSE priorities and resources for data collection.

Suggestions for measures discussed at the consensus meeting arising from Parts 1 and 2 included the National Health Service Treatment Outcomes Profile (recent use), Drug Use Disorders Identification Test (average consumption and drug related consequences); a week timeline-follow back style diary (recent consumption); Substance Use Recovery Evaluator (drug related consequences and quality of life), PROMIS Substance Use (drug related consequences); PROMIS Global Health 1.2 (quality of life). We held a consensus meeting (Part 3) in August 2022 with nine delegates to complete these outcomes into a single outcome framework.

1.4 SAOR outcomes framework

The following outcomes and their measures are recommended.

1.4.1 Recent consumption

We recommend three outcomes relating to the primary drug of use (and the named drug an individual was found in possession for those in health diversion). The first outcome is the percentage using the named drug. The second is the number of days in the recent week that the named drug was used, and third is the number of times in the past week the named drug was used. The recent week is defined as the past week from the time of questioning, however, should it be appropriate it may be reasonable to measure the week prior to contact with An Garda Síochána for those in health diversion. This adapts principles from Timeline Follow-back [1] and [2].

1.4.2 Average consumption

For average consumption the recommendation is to use the Drug Use Disorders Identification Test – consumption questions [3]. Responses to all four questions are summed into a total score between 0-16. Reference time-point is past 30 days.

1.4.3 Drug related consequences

Drug related consequences are measured by the PROMIS Severity of Substance Use measure [4]. These are available on www.healthmeasures.net. The reference time point is past 30 days.

1.4.4 Knowledge

The knowledge question related to whether participants in SAOR felt they were better able to make informed choices about their drug use. The response categories were on a 0-5 Likert scale from strongly disagree to strongly agree.

1.4.5 Quality of life

Based on the readiness ruler [5] using anchors reflecting confidence and importance, two statements are given with participants scoring from 0-10 with anchors at 0 for 'not; 5 for somewhat; and 10 for very (confident and important). The two statements are 'quality of life as I define it is important to me' and 'I am confident I can improve my quality of life (as I define it)'.

1.5 Conclusion

The suggested SAOR outcome framework reflects a combination of information from the published, peer-reviewed literature on substance use and health-led pre-arrest interventions, the views of people with relevant lived or living experience, all of which was condensed to a useable framework by a consensus panel experienced in policy, research, and practice. Measurements should be taken at baseline before SAOR use, and a minimum of one month later. Where possible longer follow up such as 3, 6, and 12 months should be considered. The outcome framework is balanced, reflecting a range of indicators to support the implementation of SAOR and its evaluation in people who use drugs.

2 Introduction

2.1 Effectiveness of brief interventions in substance use

Brief interventions are recommended to help reduce harm from alcohol, drug, or polydrug use among those who are at risk of, or are experiencing, substance-related problems but are not seeking treatment [2, 6-9]. Brief interventions measure and provide feedback on consumption, offer advice, attempt to increase intrinsic motivation to change, and provide support to change substance use behaviour [10]. They can be brief or extended and delivered by healthcare staff, websites or via apps, laypersons, or other professionals including those allied to, or working in the criminal justice system [11].

That some brief interventions are effective is not in debate; many well-designed effective brief interventions exist for substance use [7, 12-15]. Determining the efficacy or effectiveness of brief interventions (BIs) depends on which outcomes are selected to identify change [16-20]. Part of the gaps in the evidence base are a function of the variation of outcomes used in reviews which aim to summarise the efficacy or effectiveness of brief interventions [11]. Many high-quality studies are being excluded from meta-analyses and reviews because of the diversity of outcomes [21]. The outcomes selected for brief intervention evaluations should have relevance for potential beneficiaries of brief interventions, health professionals, researchers, and policymakers. The selection of which outcomes to include in an outcome framework is therefore a crucial part of getting evaluation right [17]; so too the consultation process which should engage those who are most likely to benefit from brief interventions [16]. Therefore, an integral component of any brief intervention evaluation is an appropriate outcomes framework which can enable and facilitate ongoing monitoring to an appropriate standard of psychometric evaluation and stakeholder acceptance. An evaluation must be robust, and transparent, and the decisions on which outcomes to include should be clearly outlined in advance with Key Performance Indicators appropriate to the delivery setting and the service user population. An appropriate outcome framework can contribute to the development and iteration of high-quality brief interventions such as SAOR ensuring that effectiveness is measured to established standards, and that brief interventions can make a difference to those they aim to help.

2.2 SAOR© Training in Screening and Brief Intervention for Alcohol and Substance Use

The SAOR (Support, Ask and Assess, Offer Assistance and Referral) model [22] is the agreed Health Service Executive (HSE) national model for screening and brief intervention in alcohol and drug use. It takes a person-centred, motivational interviewing approach. The SAOR model was updated in 2017 to SAOR II, reflecting a wider application of the SAOR model beyond acute care and emergency departments to mental health services, child and family

services, community-based drugs services, homeless agencies, primary care services, third-level colleges, criminal justice, youth, and sporting organisations.

There needs to be a strong, well-justified outcome framework for SAOR implementation as this is an intervention which is designed for a broad range of settings with diverse populations addressing a multitude of presentations. This outcome framework must also be pragmatic; it is important the outcomes selected are suitable to measure change over time, are neither too long nor difficult to complete nor too short for conclusive evidence, are psychometrically sound, are suitable for delivery in the criminal justice setting, and are acceptable to key stakeholders.

2.3 The Health Diversion Programme

In 2017, the government established a Working Group to consider alternative approaches to the possession of drugs for personal use. The working group report (2019) alternative approaches to the possession of drugs for personal use report (2019) considered a range of approaches from depenalisation to decriminalisation

Considering the Working Group recommendations [23], the programme for government includes the implementation of a health diversion approach. As part of this approach, when a person is found in possession of drugs:

- on the first occasion, An Garda Síochána will refer them to the HSE for a health screening and brief intervention
- on the second occasion, An Garda Síochána may issue an Adult Caution.

This work is in the context of Community Justice Interventions outlined in the strategy *Reducing Harm, Supporting Recovery: A health-led response to drug and alcohol use in Ireland 2017-2025* [24]. This outlines the role of a Justice and Health Sector working group to examine ways to address offending behaviour through diversion in low-level adult offenders (i.e., those committing relatively minor offences in specific offence categories). This would have the potential to reduce the burden on An Garda Síochána and the courts system to respond more effectively to one-off, repeat, low level offending, increasing processing time and reducing the risk of re-offending. It would also limit the impact on health, wellbeing, and opportunities of a criminal conviction, and provide swift referral to necessary services for those that need them.

2.4 Brief interventions in drug diversion schemes

Out-of-court drug diversion schemes are interventions, typically involving the police, that provide an alternative to entering the criminal justice system [25]. Those caught committing minor offences such as possession of drugs for personal use are provided other options such as targeted support as brief interventions which aim to assess and provide education and support based on the assessment of their drug use. This is an alternative to arrest, prosecution, or formal caution. As a result, the key to the success of diversion is avoiding

harming someone's life chances via the significant collateral consequences of a criminal conviction, even when the conviction is for a minor offence. Such consequences can impact employment, housing, education, travel, or other opportunities and/or potentially increase the risk of future reoffending [26, 27]. These schemes are also in line with international drug control conventions [28].

Drug diversion schemes can vary in when they are applied [29, 30]. For example, some schemes may operate:

- Pre-arrest, before any formal contact with the criminal justice system,
- Post-arrest, the charge may be dropped on successful completion of intervention,
- Following court proceedings, where the sentencing may be non-custodial based on successful engagement.

These are often mapped to the seriousness of the offence [28]. The aims of any diversionary intervention can also vary, including anticipated outcomes such as deterrence, rehabilitation, restoration, or reparation [31].

Street, pre-arrest diversion has been helpful in reducing likelihood of re-contact with law enforcement [32]. It has also been argued that Police custody suites provide a valuable 'teachable moment' for the assessment and provision of brief intervention in relation to substance use, however the evidence base is limited [33, 34].

Those who participate in drug diversion schemes may vary in relation to their motivation to change their drug use. The primary motivation for some to engage with a diversionary brief intervention could be to avoid the consequences of possession charges rather than to improve health or change their drug use [29]. These consequences can be wide ranging and long lasting from damage to future ambitions to labelling or stigma [35]. However, others argue that the first instance of contact with police for a drug-related crime may motivate reflection on drug use [36].

2.5 Overall Aim of this Project

To determine and justify an evidence-based, pragmatic outcomes framework to evaluate the SAOR programme suitable for a health diversion scheme.

To achieve the aim, the work had three parts:

1. Identify existing outcomes and frameworks to find candidate outcomes suitable for SAOR evaluation (for alcohol and drug brief interventions and in the criminal justice setting) – see Section 3
2. Consult with potential service users on which outcomes in the outcome framework represent meaningful change in the behavioural determinants of health – see Section 4
3. Integrate 1, 2 into recommendations for a SAOR outcomes framework with input from a range of stakeholders in a consensus meeting– see Section 5.

3 Existing outcomes and frameworks to inform the SAOR outcome framework

3.1 Summary

The aim of this section was to understand what existing outcomes and frameworks might exist that could inform the SAOR outcome framework. We conducted a rapid review which took two parts. The first was a search for core outcome sets (COS). A COS is a consensus based agreed minimum set of outcomes that should be measured and reported in all trials of a specific condition or trial population. We searched three sources, the COMET Initiative database, the National Institutes of Health Common Data Elements Repository, and search databases (Pubmed, Web of Science and OVID). These were searched for core outcome sets for all alcohol and other substance use recommendations to inform the SAOR outcomes framework. In this search 16 core outcome sets were identified as potentially relevant. These were refined according to the project scope; that this should relate to drug use and be suitable for pre-arrest drug diversion schemes. From this, five were used to inform materials presented to our patient and public involvement panels.

The second element of this rapid review was a search of existing reviews which evaluate pre-arrest drug diversion schemes. Three databases were searched using terms associated with police diversion, substance use, and reviews (Web of Science, PubMed, and Ovid). From these, nine reviews were identified. Outcomes were also refined according to project scope; that this should relate to drug use and be suitable for pre-arrest drug diversion.

Finally, outcomes were collated from the relevant sources, summarised into similar measures, and presented as 46 candidate outcomes. Of these 28 had potential to meet the scope for the SAOR outcome framework and were progressed to discussions with the stakeholders in Section 4.

3.2 Methods

This section describes the methods used to search the COMET Initiative Database, the National Institutes of Health Common Data Elements Repository, the Web of Science, PubMed and Ovid databases, and the search for reviews of pre-arrest diversion schemes. Each of these searches and their approaches will be described below.

3.2.1 COMET Initiative database for core outcome set studies (COS)

The COMET Initiative is a collective of researchers which aim to develop core outcome sets or minimum data standards for healthcare areas. Their method for developing core outcome sets is considered a gold standard practice, with stakeholder involvement, robust methods, and continual evaluation and updating of best practice through methodological improvements to the approach [16, 17, 37-40]. They maintain a regularly updated list of core outcome sets by research area and host registration of core outcome set development

to reduce overlap in researcher activity e.g. [41]. This comprehensive database of core outcome sets is an easily searchable key resource for outcome selection in health. The database can be searched at https://www.comet-initiative.org/Studies

Only one search term was used, which was searching under the disease category or disease name "Tobacco, drugs, and alcohol dependence".

All records were downloaded to the Open Science Framework and are available https://osf.io/etd6y/. The following steps were taken to identify whether a record was suitable to inform the SAOR outcome framework. The first of these was to check the registration related to areas covered by SAOR (e.g. alcohol or drug use). If a record was found not to cover alcohol or drugs it was excluded based on topic area. If it related to alcohol and drugs, it was checked whether it had a linked, complete Core Outcome Set. Those which did were included, and those which did not were investigated further to find any linked papers or reports to that registration. Aligned papers were identified linked to the record by searching for the COMET Registration number, links to the registration page, and a search of at least two authors from the original record using PubMed and Google Scholar under that author name. If a Core Outcome Set was found, this was included, if not, any aligned papers which had recommendations (e.g. outcomes identified by qualitative interviews or Delphi consensus work) were included in the summary of outcomes to inform SAOR outcomes framework. The summary of decision making and how each record was processed is given in Table 1.

Table 1: How the COMET Initiative database search was processed

Step	Decision	Exclude Reason
1. Check if registration relates to alcohol or drugs or was withdrawn after registration	Yes (go to 2) No ->	 TOPIC (Step 1) WITHDRAWN (Step 1)
2. Contains a complete COS	Yes (INCLUDE) No (go to 3)	
3. Check if has aligned papers with recommended outcomes	Yes (INCLUDE) No ->	 NO OUTCOMES (Step 3)

3.2.2 National Institutes of Health (NIH) Common Data Elements repository for recommended outcomes

The NIH Common Data Elements (CDE) repository summarised human and machine-readable data elements that have been recommended by National Institutes of Health, Centers, or other organisations for research or clinical purposes. They are standardised measures and defined concepts established for clinical research or studies to improve data quality [42]. It can be accessed through https://www.nlm.nih.gov/cde CDEs support cross-study comparisons, meta-analyses, improve efficiency, improve interoperability across and between systems, and improve the quality of data collection [43]. Unlike the COMET initiative, CDEs are single units, rather than collections, although where CDEs are commonly collected alongside one another this is noted in the database.

The CDE repository was searched using the term "drug use" and all records were downloaded with the decisions to include or exclude saved on the Open Science Framework https://osf.io/etd6y

3.2.3 Electronic and online databases for other core outcome sets for alcohol and other substance use

The following databases were searched for relevant literature: Web of Science, MEDLINE and OVID. A robust search string was developed (see below). Searches were undertaken between 28/10/2021 and 24/11/2021.

SEARCH strategy

"Core outcome set*" OR "Minimum Data Standard*" OR "consensus outcome*"
AND
"alcohol" OR "drug" OR "substance" OR "addiction"

3.2.4 Electronic and online databases for existing reviews which evaluate existing pre-court drug diversion schemes

The following databases were searched for relevant literature: Web of Science, PubMed, and OVID (MEDLINE(R), PsycINFO, Embase, and Social Policy and Practice). A robust search string was developed (see below). Searches were undertaken between 28/10/2021 and 24/11/2021.

SEARCH strategy
(((*police* OR *arrest* OR *caution* OR *conviction*)
AND (*diversion** OR *referral* OR *"harm reduction"*)
AND (*drug* OR *review* OR *substance* OR *illicit* OR *addiction*)
AND (*systematic* OR "*meta-analysis*"))
NOT *court*)

3.3 Results

3.3.1 COMET Initiative database for core outcome set studies (COS)

From the search on the COMET initiative database, there were 16 records. The nature of these records is discussed in Table 2. Eleven were out of scope. Of these, seven were ruled out at initial sifting as they did not cover the scope of SAOR interventions, three were inspected in more detail to determine if there were any useful linked papers with outcomes included and then rejected as no papers were found, and one project was withdrawn.

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Table 2: Papers found in the search for core outcome sets from the COMET Initiative database

Authors/year of submission	Topic area	Nature of paper	Link to any publications	Further investigation (Yes/No) Outcome of investigation	Included in Table 3
Karnik (2021)	Opioid use Disorder Treatment	Registration Protocol	https://www.comet-initiative.org/Studies/Details/1579 [44]	Yes NO OUTCOMES (Step 3)	No
Hutton et al., 2019	Cannabis use disorder	Registration Withdrawal	https://www.comet-initiative.org/Studies/Details/1232	No WITHDRAWN (Step 1)	No
Dennis et al., 2018	Opioid use Disorder Treatment	Registration	https://www.comet-initiative.org/Studies/Details/1128	Yes Review with recommendations [45] - INCLUDE	[45]
ICHOM	Addiction	Registration Complete COS	https://www.comet-initiative.org/Studies/Details/1185 https://www.ichom.org/portfolio/addiction/	No Complete COS published - INCLUDE	[46]
Shorter et al., 2019	Alcohol Brief Interventions	Registration Protocol Review Delphi Complete COS Methodological paper	https://www.comet-initiative.org/Studies/Details/957 [10] [11] [47] [2] [48]	No Complete COS published - INCLUDE	[2]
Donovan et al., 2009	Drug Dependence Treatment	Registration Complete COS	https://www.comet-initiative.org/Studies/Details/476 [49]	No Complete COS published – INCLUDE	[49]
Del Boca et al., 2007	Addiction Treatment	Methods paper	https://www.comet-initiative.org/Studies/Details/443 [50]	No Methodological paper – NO OUTCOMES (Step 3)	No
Walker et al, 2006	Gambling Treatment	Complete COS	https://www.comet-initiative.org/Studies/Details/444 [51]	No TOPIC (Step 1)	No

Vocci and de Wit, 1999	Substance use pharmacotherapy	Registration	https://www.comet-initiative.org/Studies/Details/543	No TOPIC (Step 1)	No
CDER & FDA (2018)	Opioid Use Disorder Treatment	Patient and Public Involvement	https://www.comet-initiative.org/Studies/Details/1770 [52]	Yes Patient consultation with some recommendations	[52]
Horton et al., 2015	Alcohol related brain damage	Review with some recommendations	https://www.comet-initiative.org/Studies/Details/702 [53]	No TOPIC (Step 1)	No
Havard et al., 2008	Alcohol use	Review of outcomes	https://www.comet-initiative.org/Studies/Details/343 [54]	No No recommendations - NO OUTCOMES (Step 3)	No
West et al., 2005	Smoking cessation	Proposal for outcome set	https://www.comet-initiative.org/Studies/Details/212,[55]	No TOPIC (Step 1)	No
Gutmann et al., 2004	Smoking cessation	Review with some recommendations	https://www.comet-initiative.org/Studies/Details/342 [56]	No TOPIC (Step 1)	No
Hughes et al., 2003	Smoking cessation	Summary with some recommendations	https://www.comet-initiative.org/Studies/Details/210 [57]	No TOPIC (Step 1)	No
SRNT Sub-committee on Biochemical verification	Smoking cessation	Summary with some recommendations	https://www.comet-initiative.org/Studies/Details/211 [58]	No TOPIC (Step 1)	No

Of those included from Table 2, three were complete core outcome sets, one was a review with recommendations for measurement, and the final paper was a patient consultation with recommendations for outcomes. The details of the outcomes from these papers are given in Table 3. We were also aware of an additional core outcome set which could inform future SAOR direction, from a charitable organisation, the Transform Drug Policy Foundation [32], which is a registered non-profit charity based in the United Kingdom working in drug policy reform. These are not published in a peer reviewed journal article. We would like to note their inclusion with caution and be explicit to the reader they were not part of the planned searches of the COMET database, nor our protocol, but are noted below to ensure completeness in core outcome exploration.

Table 3: Details of core outcome sets in alcohol and drug use which may inform SAOR outcomes framework

Paper and type of recommendations	Topic area	Measure domain	Measure	How measured
ICHOM [46]	Addiction	Symptoms	Alcohol/Substance use disorder symptoms	PROMIS Alcohol [59] or Substance Use [4]
Full COS	Treatment	Quantity and Frequency of substance use	Quantity and Frequency of substance use	TOP [60]
		Global Functioning/Quality of Life	Mental Functioning	All from PROMIS Global Health [61], WHODAS [62], SURE [63]
			Physical Functioning	
			Social Functioning	
Shorter et al [2]	Alcohol Brief	Consumption (average)	Typical quantity	AUDIT-C [64]
Full COS	Interventions	Consumption (average)	Typical frequency	AUDIT-C [64]
		Consumption (average)	Heavy episodic drinking	AUDIT-C [64]
		Consumption (average)	Alcohol consumption	AUDIT-C [64]
		Consumption (average)	Hazardous drinking	AUDIT-C [64]
		Consumption (recent)	Weekly drinks	TLFB [65]
		Quality of life	Quality of Life	WHOQOL Bref [66]/ PROMIS GH v1.2 [61]
		Healthcare	Hospitalisations	Modified Form 90 [67]
		Problems	Alcohol related problems	SIP [68]
		Problems	Injuries	Modified SIP question [68]
Donovan et al. [49]	Drug	Consumption	Target drug as primary outcome	Self-report and biological marker where appropriate
Complete COS	Dependence Treatment	Consumption	Other drugs/alcohol as secondary	Self-report and biological marker where appropriate to identify any substitution
		Quality of life	Behavioural functioning/quality of life	No measures recommended
CDER & FDA [52]	Opioid Use	Consumption	Opioid use	No measures recommended
Patient consultation with recommendations	Disorder Treatment	Consumption	Risky use/safety	No measures recommended
		Quality of life	Functioning	No measures recommended
		Psychological factors	Wellbeing	No measures recommended

Dennis et al, [45] Review with recommendations	Opioid Use Disorder Treatment	Consumption	Illicit opioid use	Self-report, ASI, toxicology report (urine/hair), Opioid treatment index, weekly activity summary, visual analogue scale, money spent
		Consumption	Other drug use inc alcohol or tobacco	Self-report, other person report, weekly activity summary, visual analogue scale, toxicology report (urine/hair), breathalyser, global severity of problems, Fagerström Test, Risk Behaviour Survey.
		Problems	Injecting drug use behaviour	Self-report, AIDS risk inventory, Opiate Treatment Index, Risk Assessment Battery, Maudsley Addiction Profile
		Physical Health	Drug Craving	Subjective Opiate Withdrawal Scale, Visual Analog Scale for Heroin Craving, Craving Visual Analogue Scale, Tiffany Heroin Craving Questionnaire
		Physical Health	Overdose	Self-report, Medical chart review
		Physical Health	Withdrawal symptoms	The Withdrawal Symptoms Checklist, Self-reported euphoric feelings, The Addiction Severity Index, Subjective Opiate Withdrawal Scale (German version: SOES), Self-report, The Wang Scale, Addiction Research Centre Inventory
		Physical Health	General physical health	Opioid Treatment Index, Quality of Life scale (SF-12), Self reported health measured assessing symptoms, overdoses, and mortality, Maudsley Addiction Profile, Short Form 36-item Health Survey
		Physical Health	Physicians perception of disease	Clinical Global Impressions Scale
		Physical Health	Immune system functioning	Plasma concentrations of TNF-alpha, IL-2 beta, IL-1beta and CD14 lymphocyte
		Physical Health	Cardiac function	Electrocardiographic analysis
		Psychological factors	Depression, anxiety and other psychiatric systems	Mental health symptoms measured using the SF-12, Symptom checklist-90 (SCL-90), Short Form 36-item, Self-rating Depression (SRD) questionnaire, Minnesota Multifactorial

		Personality Inventory (MMPI), Symptom checklist (SCL-5), The Beck Depression Inventory, State Trait Anxiety Inventory (STAI), Sensation Seeking Scale (SSS), Addiction Severity Index, Maudsley Addiction Profile, Scale of Anhedonia syndrome, Self-reported assessments (somatization, depression, hostility, anxiety, paranoid ideation, interpersonal sensitivity)
Psychological factors	Psychological and social adjustment	Addiction Severity Index (family and social relations scores), Opiate Treatment Index (social functioning scores), Clinical Global Impression as assessed by the Brief Psychiatric Rating Scale
Psychological factors	Addiction severity assessments incorporating functioning	Composite International Diagnostic Interview, European Addiction Severity Index, Addiction Severity Index
Global quality of life	Global quality of life	SCL-90-R subscales, SCL-90-R global scores, General Symptomatic Index, Positive Symptom Total, Positive Symptom Distress Index, Lancashire Quality of Life Profile, Visual analog scale (10 = very bad, 0 = very well) and with the temporal satisfaction with life scale (TSLS)
Criminal justice factors	Involvement in illegal activity	Self-reported days involved in illegal activities, Self-reported time spent with people still abusing substances, selling drugs, engaging in illegal activity, Lifestyle Changes Questionnaire (patients indicated whether they had engaged in any of nine activities to stop, reduce, or avoid cocaine/heroin use during the past week and whether they had committed crimes), Weekly Activity Summary (WAS 42)
		Self-reported changes in vocational and social rehabilitation, Self-reported consumption of meals, type of accommodation, and current employment activities, Weekly Activity

Personal and social functioning	Social stability assessed using current employment, volunteer, or social activities	Summary (WAS 42), Behavioural observation where the research assistant recorded (yes/no) if patients had initiated new activities or increased the amount of time spent in any of three activity categories: (1) employment; (2) family/social; and (3) personal (spiritual, counseling or psychotherapy, physical fitness), Participation in non-study related addiction treatment programs (Narcotics Anonymous, etc.)
Personal and social functioning	Relationships	Personal and social functioning domain of the Maudsley Addiction Profile, Social functioning measured using SF-36 health survey, Personal and social function measured by self-reported time spent with people still abusing substances, selling drugs, engaging in illegal activity
		Self-reported consumption of meals and type of accommodation
		Days patients seen by counsellors, total clinic attendance
Personal and social functioning Service use		Adjudicated by the trial research staff, treatment attended, involvement of significant other in treatment, time to withdrawal from intervention, assessment of counselling visits in length and contact.
	Housing and food	
Intervention factors		
	Service use	
		Counting drugs, inspecting urine, medication recall at random
	Intervention adherence	
		Self-reported
Medication factors		The Helping Alliance Questionnaire II (HAq-II; patient version), a 19-question self-administered instrument that measures the quality of therapeutic alliance between patients and therapists from the point of view of the patients, The Client Satisfaction Questionnaire (CSQ), a self-administered questionnaire that
Intervention factors Medication factors	Medication adherence	
	Intervention preference	
	Medication preference	

				assesses overall satisfaction with treatment, Measured using a visual analogue questionnaire of drug properties which required them to "rate each drug on six different factors: is the drug holding (suppressing withdrawal); how much buzz do you get from the drug; do you experience side effects; do the side effects bother you; do you like the drug; and do you feel more normal?"
Recommendations for a core outcome set not found on COMET Initiative, but included as relevant to SAOR outcome framework				
Transform recommendations [32]	Drug Diversion Schemes	Demographic information	Program use	Program penetration, numbers diverted compared to those eligible by demographic
		Cost	Diversion costs	Cost of diversion compared to criminal justice response for criminal justice partners
		Cost	Other costs	Including health costs
		Reoffending	Re-offending rates	For those who comply, those who drop out, and those who refuse diversion
		Substance use knowledge	Client knowledge of substance use risk	No measures recommended
		Quality of life	Quality of life measures	No measures recommended but suggests it should include mental health, employment, etc
		Intervention factors	Engagement with services	No measures recommended but thought to be net-widening and net-deepening
		Criminal justice factors	Attitudes to police	Attitudes to policing pre and post diversion and any related impacts (e.g. increased intelligence to police reported following diversion in Bristol)
		Consumption	Drug use	Drug use and in particular high risk drug use amongst treatment completers and non-treatment completers

3.3.2 National Institutes of Health (NIH) Common Data Elements repository for recommended outcomes

A search was performed in September 2021 on the Common Data Elements repository hosted by the National Institutes of Health using the term “drug use”. The search produced 383 records, most of which were discounted based on alternative health conditions (e.g. epilepsy). A breakdown of deselection reasons are given in Table 4. Note the primary reason was selected; over one exclusion reason may apply. The predominant reason for exclusion was based on health condition. More information on reasons are hosted on the Open Science Framework https://osf.io/etd6y/.

Table 4: Reasons common data elements outcomes were selected or deselected as relevant to the SAOR outcomes framework

Reason for exclusion	Count
Health condition (e.g. related to epilepsy, Parkinson’s disease etc)	201
Population (e.g. treatment population, relevant to youth)	128
Administrative (e.g. date or coding from an established database)	35
Potential	19
Grand Total	383

Of those with potential, they were predominantly a list of drugs used. This may include the frequency (how often) a drug is used, the number of drugs used, the timeline follow-back questionnaire, duration of drug use history, and the impact of drugs used on a person’s role or personal functioning. Specific drugs were mentioned, so too there were indicators relating to any drugs used.

3.3.3 Electronic and online databases for other core outcome sets for alcohol and other substance use

The search query yielded 78 records. Once duplicates were removed this reduced down to 54 records. After we screened the titles no additional references were found with a core outcome set that could inform the recommendations (Figure 1). The two already included papers were [2, 47].

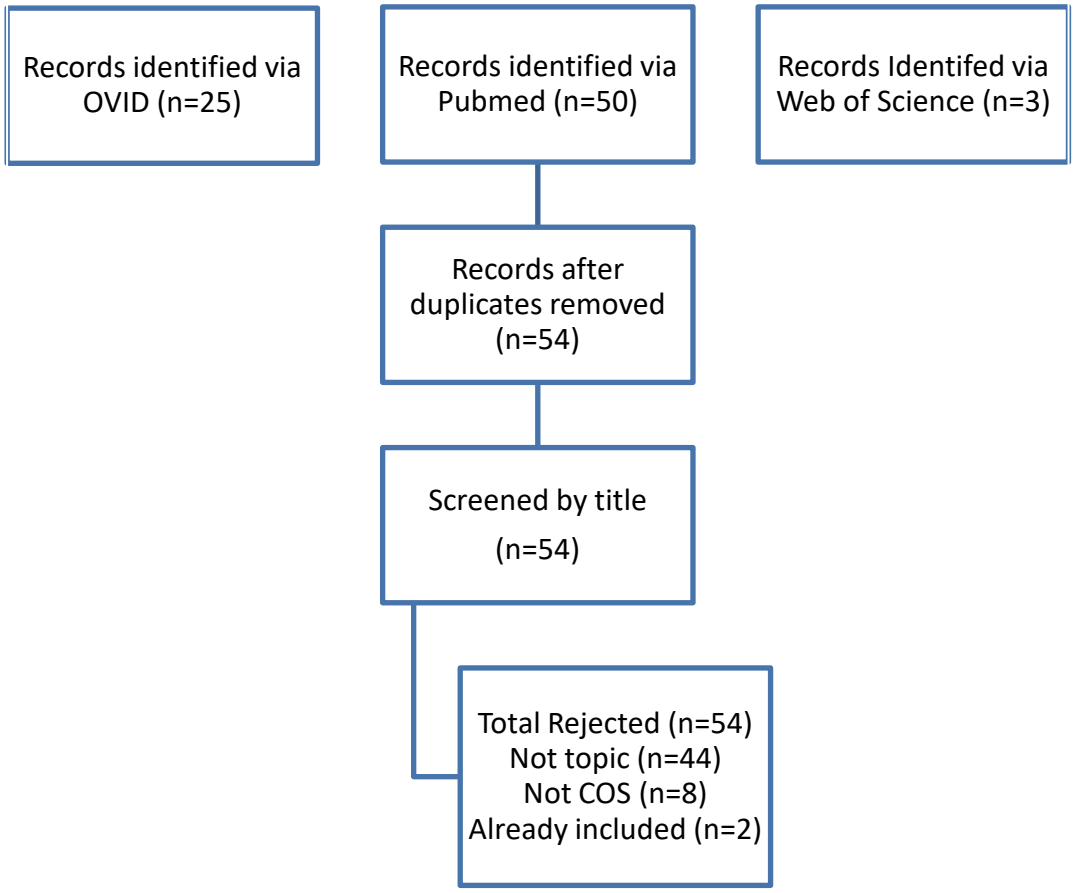

Figure 1: Flow chart of the results of the rapid literature search to identify reviews of core outcome sets in substance use field

3.3.4 Electronic and online databases for existing reviews which evaluate existing pre-court drug diversion schemes

The search query yielded 191 papers, once duplicates were removed. After the titles were manually screened for eligibility, six relevant reviews were selected; others were excluded as out of scope (see fig 1). None of these papers were a review of outcome effectiveness of drug use diversionary schemes. The majority were reviews of broader mental health diversionary schemes facilitated by the police that included serious drug problems as one of a range of target behaviours. In addition to the systematic search, we identified an additional three review articles relevant to this work that were not identified within the selected databases (see Figure 2).

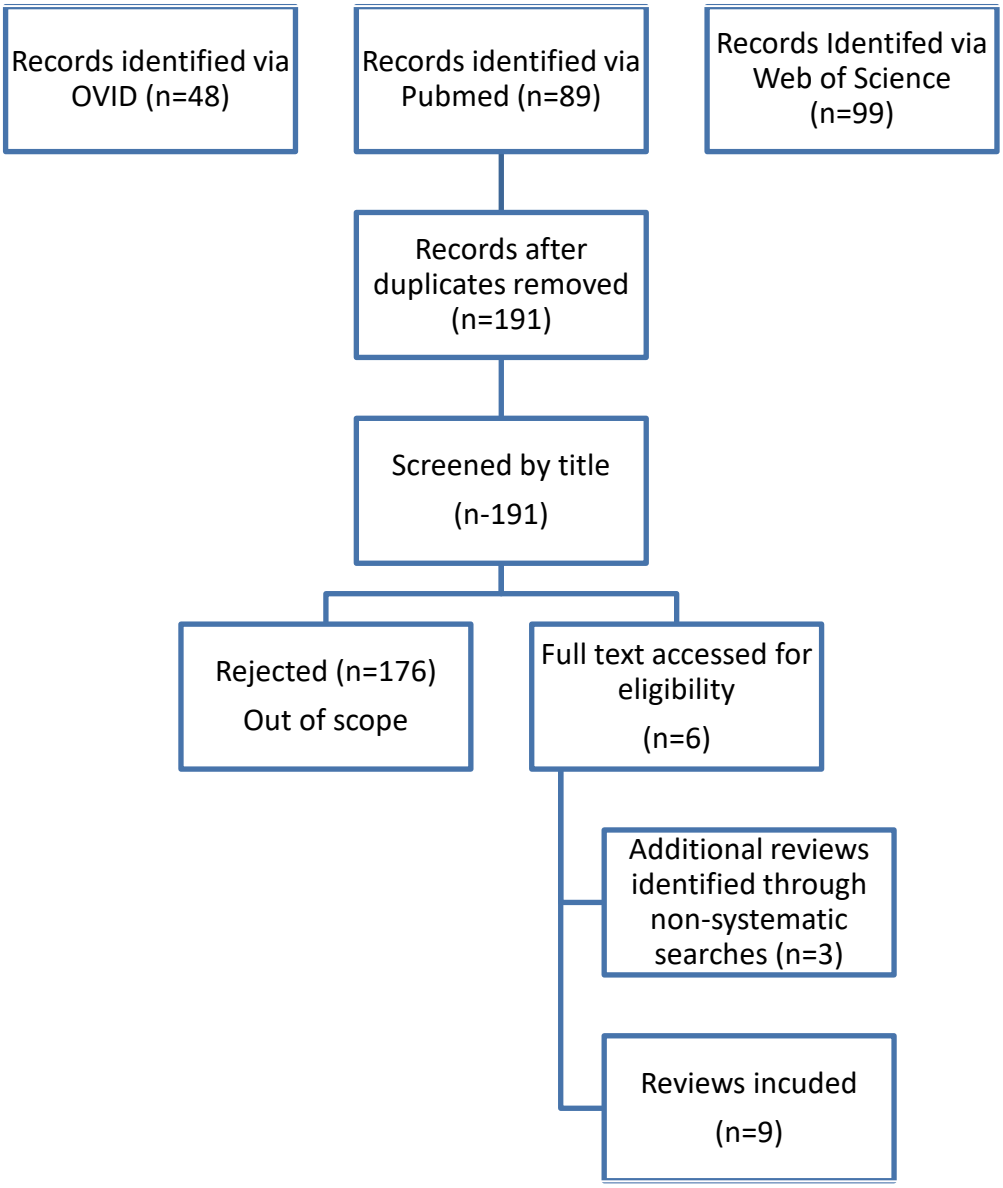

Figure 2: Flow chart of the results of the rapid literature search to identify reviews of drug diversion evaluations

Table 5 summarised the articles included in the rapid review. Overall, most reviews considered both criminal justice and health-related outcomes. Health outcomes were considerably varied, and inconsistent, as were the measurement methods employed to assess them. Studies often used service utilisation as a proxy for changes in health outcomes. Likewise, treatment completion was often used as a soft measure of treatment success. Even drug use outcomes were not consistently assessed (last month/year use; Quantity-Frequency measures; AUDIT; MAST; DAST; ASI; urine test). In a 2015 meta-analysis of diversion and aftercare programmes for class A drug users, Hayhurst and Colleagues [69] concluded that the analysis of the effectiveness and cost effectiveness of diversionary schemes for drug users was hampered by poor and inconsistent outcomes measures used across relevant studies. They went as far as recommending the need for research to "conceptualise, define and develop models of diversion programmes and identify a core

outcome set" (pg viii). This rapid review suggests the evidence base has not significantly advanced since 2015. We found little evidence of the application of a consistent set of outcome measures used within the evaluation of police diversionary schemes, be they targeted at drug use, or broader mental health issues (see Table 5)

Table 5: Summary of reviews found as part of the rapid review of electronic databases for reviews of drug diversion schemes (n=9)

Authors	Title	Health outcomes analysed
Papers from systematic search		
Dewa, Loong [70]	Evidence for the effectiveness of police-based pre-booking diversion programs in decriminalizing mental illness: A systematic literature review	Hospitalisations Referral to psychiatric services
Kane, Evans [71]	Effectiveness of current policing-related mental health interventions: A systematic review	Identification of illness Referral to appropriate services Reducing contact time with treatment services
Puntis, Perfect [72]	A systematic review of co-responder models of police mental health 'street' triage	Psychiatric hospitalisation Perceptions of users
Schucan Bird and Shemilt [73]	The crime, mental health, and economic impacts of prearrest diversion of people with mental health problems: A systematic review	Service use (counselling, medication, and hospitalisation)
Stockings, Bartlem [74]	Whole-of-community interventions to reduce population-level harms arising from alcohol and other drug use: a systematic review and meta-analysis	AOD use (past month alcohol; last year alcohol; binge drinking, alcohol frequency, alcohol quantity; AUDIT; last year drug use) AOD related accidents, injuries, and hospital admissions Alcohol related sexual and common assaults
Wilson, Brennan [75]	Police-initiated diversion for youth to prevent future delinquent behaviour: a systematic review	None
Papers from non-systematic search		
Hayhurst, Leitner [69]	The effectiveness and cost-effectiveness of diversion and aftercare programmes for offenders using class A drugs: a systematic review and economic evaluation	Treatment completion Drug use Health service contact Mental and/or physical illness Health risk behaviour (i.e., injecting) Mortality Social functioning (i.e., employment, training, education, homelessness, family and/or social support
Stevens, Hughes [35]	Depenalization, diversion and decriminalization: A realist review and programme theory of alternatives to criminalization for simple drug possession.	Drug use Drug related health harms (i.e., drug related mortality, HIV, Hepatitis, problematic use, injecting, Social integration (i.e., employment, accommodation and relationships)
Wardrop, Ranse [76]	Structures, processes and outcomes of health care for people detained in	Identification of health (i.e., substance misuse, injuries, HIV) and mental health issues

	short-term police custody settings: A scoping review	Referral to health services Enhanced information exchange (i.e., between professionals)

3.4 Conclusions and integrated map of outcomes from all sources

This section integrates all the outcomes identified from the searches for core outcome sets in the substance use field, and the outcomes identified through the search of reviews around drug diversion schemes. Table 6 summarises all the different outcomes by domain area:

- Change in substance use consumption
- Quality of life and drug related consequences
- Health and service use
- Other outcomes

Under each domain, the specific outcomes are discussed with who recommended them. A narrative was provided of the suitability of the outcome for the SAOR outcome framework. Those clearly unsuited to the framework will not be taken forward to discuss with the stakeholder group in Section 4.

Table 6: Integration of all the outcomes from electronic database rapid reviews, common data elements (CDE) repository, and COMET initiative database with a narrative around inclusion in the stakeholder consultation (or not)

Domain	Outcome	Who	Narrative
Change in substance use consumption	Alcohol consumption (AUDIT-C)	Shorter et al; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential only for alcohol/DUDIT equivalent
	Duration of drug use history	CDE	May not change over the course of intervention
	Frequency of substance use (TOP/AUDIT-C+)	ICHOM; Shorter et al; CDE; Dennis et al; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential
	Injecting drug use behaviour (+)	Dennis et al; Hayhurst & Leitner; Stevens & Hughes	Not all injecting
	Hazardous drinking (AUDIT-C)	Shorter et al; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential only for alcohol/DUDIT equivalent
	Heavy episodic drinking (AUDIT-C)	Shorter et al; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential only for alcohol/DUDIT equivalent
	Money spent on drugs (NM+)	Dennis et al	May not change over the course of intervention

	Number of substances used	CDE; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential
	Opioid use including abstinence (NM+)	CDER & FDA; Dennis et al	Not all will be using opioids
	Other drugs (self-report TLFB/biomarker+)	Donovan et al; Dennis et al; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential
	Quantity of substance use (TOP/ AUDIT-C+)	ICHOM; Shorter et al; CDE; Dennis et al; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential
	Target drug (self-report TLFB/biomarker+)	Donovan et al; Dennis et al; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential
	Weekly substance use (TLFB+)	Shorter et al; Dennis et al; Transform; Stockings & Bartlem; Hayhurst & Leitner; Stevens & Hughes	Potential
Quality of life and drug related consequences	Alcohol related problems (SIP)	Shorter et al	Only for alcohol but has potential drug parallels
	Employment, training, education (NM+)	Dennis et al; Transform; Hayhurst & Leitner; Stevens & Hughes	Potential
	Injuries (modified SIP)	Shorter et al; Stockings & Bartlem; Wardrop & Ranse	Potential only for alcohol/Drug equivalent?
	Mental functioning (PROMIS Global Health/WHODAS/SURE/WHOQOL Bref/NM/SF-12/SF-36+)	ICHOM; Shorter et al; CDER & FDA; CDE; Dennis et al; Transform	Potential
	Physical functioning (PROMIS Global Health/WHODAS/SURE/WHOQOL Bref/NM/SF-12/SF-36+)	ICHOM; Shorter et al; Donovan et al; CDER & FDA; CDE; Dennis et al; Transform	Potential
	Risky use/safety/identification of risk (NM+)	CDER & FDA; Transform; Hayhurst & Leitner; Stevens & Hughes; Wardrop & Ranse	Potential
	Social stability assessed using volunteering or social activities, housing and food (+)	Dennis et al; Hayhurst & Leitner; Stevens & Hughes	Potential
	Stable relationships, family or social support (NM+)	Dennis et al; Hayhurst & Leitner; Stevens & Hughes	Potential
	Substance use problems (+)	Dennis et al	Potential
Health and service use	Attendance at services (+)	Dennis et al; Schucan, Bird & Shemilt; Hayhurst & Leitner	Potential
	Cardiac function	Dennis et al	Not relevant to all

	Depression, anxiety and other psychiatric symptoms (+)	Dennis et al; Kane & Evans; Hayhurst & Leitner; Wardrop & Ranse	Not relevant to all
	Drug Craving (NM+)	Dennis et al	Potential
	Hospitalisations including psychiatric hospitalizations	Shorter et al; Dewa & Loong; Puntis & Perfect; Stockings & Bartlem	May not change over the course of intervention
	Immune system function	Dennis et al	Not relevant to all
	Medication adherence	Dennis et al	Not relevant to all
	Medication preference	Dennis et al	Not relevant to all
	Mortality	Hayhurst & Leitner	Not relevant to all
	Overdose	Dennis et al	Not all will be at risk of overdose
	Physicians perceptions	Dennis et al	May not change over the course of intervention
	Psychological and social adjustment (+)	Dennis et al; Wardrop & Ranse	Potential
	Reduction in contact time with treatment services	Kane & Evans	May not change over the course of intervention
	Referral to other services	Transform; Dewa & Loong; Kane & Evans; Wardrop & Ranse	Potential
	Regaining physical health/ General physical health (NM)	Hayhurst & Leitner	May not change over the course of intervention
	Symptoms (PROMIS Alcohol or Substance Use+, ASI, CIDI, EASI)	ICHOM; Dennis et al	Not relevant to all
	Wellbeing (NM)	CDER & FDA	Potential
	Withdrawal	Dennis et al	Not all will be at risk of withdrawal
Intervention factors and other outcomes Intervention factors	Alcohol related sexual and common assault	Stockings & Bartlem	Not relevant to all
	Attitudes to police	Transform	Potential
	Costs compared to criminal justice intervention	Transform	Potential
	Demographic factors	Transform	Not an outcome but relevant at baseline for context
	Enhanced co-operation between treatment professionals	Wardrop & Ranse	Not relevant
	Intervention adherence/program use/completion	Dennis et al; Transform; Hayhurst & Leitner	Potential
	Intervention preference	Dennis et al	Not relevant

Intervention perception/satisfaction	Puntis & Perfect	Potential
Involvement in illegal activity (+)	Dennis et al	Potential

+ = range of measures from Dennis et al; NM = no measure suggested

4 Consultation with potential SAOR service users

4.1 Summary

To ensure any recommendations are appropriate and acceptable to potential SAOR service users, we consulted with individuals who might offer informed views on what we should measure and how we should measure outcomes in the SAOR outcomes framework. We conducted eight short interviews ranging from 11 to 43 minutes. In these interviews we discussed:

a) potential outcomes we could measure,
b) time frames for measurement, and
c) anything else they wanted to discuss with us in relationship to the measurement of outcomes from the scheme.

The outcomes preferred varied by person; however, some common elements were recommended. These were consumption measures which reflected patterns of use including summary/average measure and a more recent measure; knowledge of the effects of drugs; a measure of the problems or consequences which predominantly related to meeting responsibilities or maintaining relationships at home or at work; and a measure of quality of life or general health. Participants noted any outcome framework would be a challenge as drug use and drug users are diverse. There was a strong preference for keeping the framework as short as possible. Regarding timing of measurement, suggestions ranged from two weeks to one month, with two individuals recommending additional follow up beyond this point.

4.2 Methods

Service user involvement should be central to the design, implementation, and evaluation of drug services [77]. As part of the development of the SAOR outcome framework, it was important to engage with those who can knowledgably speak on behalf of, or potentially be, SAOR service users to understand views on what a successful outcome would look like and how it should be measured.

To gain valuable insights into a proposed outcome framework, we sought views and perceptions from the following groups:

1. People who use drugs in the night-time economy (recruited through key informant organisations)
2. Festival attendees (recruited via the USI-NSU)
3. Individuals in recovery (recruited through Recovery Academy Ireland)

A series of individual interviews were conducted following guidance on patient and public consultation [78]. The Health Service Executive helped facilitate these conversations through their key gatekeepers, who identified and approached potential interviewees. An

example advertisement is given in Section 7.1. Individuals booked a time slot online using *youcanbook.me* and were interviewed via Microsoft teams.

All meetings were prefaced with the purpose of the discussion, that responses will be anonymous, and that responses will be shared with the (named) research team. Materials are provided in Section 7. We also discussed a summary of the SAOR intervention and how it could be used for pre-arrest health diversion instead of a conviction for drug possession. Participants were informed their recommendations for outcomes would inform a report to HSE summarised with other individuals' views on what to measure. They were also notified it may be included in a published peer reviewed article to support the development and reputation of a SAOR outcomes framework, but that no individuals would be identified including through quotations. We were conscious of the challenges arising from COVID-19 and held these meetings online, in line with Government Guidance at the time of the interviews.

There was a consultation guide rather than a formal interview schedule (see Section 7.2). Similar work by Dennis et al [45] informed this consultation guide who interviewed stakeholders similarly. The consultation guide we created focused on the following elements:

1) Their views on potential outcomes grouped by type of outcome; consumption, health factors, quality of life, and anything else.
2) Their views on the timing of measurement
3) Questions they had, or views they may wish to share.

All participants received a voucher up to 20 Euro value to cover the expenses associated with their participation, such as telephone credit.

4.3 Findings

Interviews lasted on average 23 minutes, ranging from 11-43 minutes long. There were nine appointments and eight interviews. Of the participants, three were male, four were female, and one identified as another category other than male or female. The results below summarise the key elements of the discussion with illustrative quotes where given. Our attendees came from a range of backgrounds and where they asserted their experience of substance use, the following information was disclosed; perspective from cannabis use (1), of opioid use (1), and not specified (6). Quotes are attributed as from Participant 1, 2, 3 etc is the order in interviewed and potentially identifying information was removed from the statements.

4.3.1 Potential drug consumption outcomes for the SAOR outcomes framework

Consumption outcomes typically describe the nature of drug use. Those discussed with the stakeholders were quantity of substance use, frequency of substance use, heavy episodic use, general consumption summary measures, hazardous/risky consumption, weekly substance use, specific named drug use as targeted during the intervention, other drugs used not targeted by the intervention, and number of substances used (Table 6).

All stakeholders interviewed stated consumption should be measured in the SAOR outcome framework. Participant 8 noted

> *"how much people are using is important" (Participant 8)*

and Participant 3 added

> *"the amount of drugs used should reduce if the intervention was considered to be successful" (Participant 3)*

All noted in some form that the nature of use for each drug differs, and this makes measurement challenging. Cannabis was of an outlier compared with other drugs as individuals may use multiple times a day without amounts being standardised. Participant 2 had some concerns. They felt a measure which captured the number of times a person used cannabis in a week may well be able to capture multiple use on the same day but noted this might be challenging to recall over a week. Participant 1 also noted similar reflections on cannabis, but noted differences in daily frequency may show useful change:

> *"if someone was a weed smoker or something like that, maybe they could smoke maybe two times a day instead of four times a day… that may seem to be something very small, but it could be big in the eyes of someone who uses" (Participant 1)*

Moving back to the broader remit of the SAOR intervention, all but one stated patterns of use would be important (Participant 1, 2, 4, 5, 6, 7, 8). Participant 6 cautioned against the use of averages to capture this pattern, where it was possible to do so:

> *"measuring what people have used, and more of a pattern of use than averages. Average can be difficult to estimate depending on the drug" (Participant 6)*

Participant 7 noted average measures may be useful but expressed some concern about if they would capture relevant change for the intervention, they noted

> *"…average over what time? Depends how long you think the advice would work for" (Participant 7)*

Others disagreed averages were a problem, and considered that we could incorporate them into a monthly pattern of drug use, Participant 1 notes:

> *"Because you know like I said, even like on the weekends, for example, if someone was to go out on Friday they tend to go a little bit more excessive… it's a given thing in society I go a bit mad on a Friday night… use tends to be very repetitive until something happens" (Participant 1)*

Month time frames were felt by some to capture different weeks within a month, noting that some weeks may be characterised by higher use (maybe around payday, or events), and the last week or more recent week may not match the full month's activity. What was used, and the frequency of use was important. Weekly consumption was also considered important:

> *"get the statistics out of that week, maybe … kind of find a pattern within that of how the week was" (Participant 1)*

Two individuals mentioned objective measures such as drug testing should be avoided given the intrusive nature of drug testing, and how useful it might be it varied by drug taken. Participant 5 summarised:

> *"… going through drug testing every week… this is dehumanising…because it is associated with punishment unless you have tested negative" (Participant 5)*

Finally, there was a consideration by all that any measure chosen should be suitable for a range of drugs

> *"There's got to be recognition that more than one drug should be measurable" (Participant 5)*

In summary, the participants noted patterns of use were important, and we should capture both quantity and frequency in patterns. There was some support for a more recent outcome, such as weekly consumption, and they considered any recommendations should be able to measure the range of drugs consumed by people who may be involved in a health diversion scheme.

4.3.2 Potential consequence, health, or quality of life outcomes for the SAOR outcomes framework

Consequence and quality of life outcomes discussed with stakeholders included general problem or consequences of drug use scales, risky use of substance use, employment, training, and education; stable relationships, family, or social support; social stability including volunteering or social activities, housing or food; physical functioning and mental functioning; drug craving or general physical health; wellbeing, psychological and social adjustment (Table 6). Although we had separated these in the discussions with our stakeholders, many of the suggestions mirrored each other so we outline their suggestions and preferences under both below. Those interviewed also noted that the consequences of drug use were very much determined by the drug being used, and the wider circumstances that reflected the person who used drugs' day to day reality.

> *"…it can be difficult to summarise what is problematic because of the different drugs heroin, cocaine, ecstasy, and then it can depend on the person's wider life and the opportunities they have" (Participant 5)*

> *"People's circumstances are so different" (Participant 1)*

There was a conclusion more universal consequences, less dependent on a specific drug or drugs, and independent of a person's circumstances would be more meaningful as an outcome. The predominant preference was to understand how drug use affected relationships, whether at home, at work, or with family and/or loved ones. For example, participant 4 spoke of measuring ability to be in relationships, so too participant 2. Participant 3 noted that family was important but acknowledged that this might be less universal and more important for younger people or those who are still living at home. Participant 4 also noted the important role of support from others when change is occurring. We give some indicative quotes below:

> *"…idea of relationships, how it is affecting your ability to be in those …at home, work, or with family" (Participant 4)*

> *"Impact of drug use on the family is change… important for younger people or those living at home" (Participant 3)*

> *"Way of life, things you do every day, relationships, role, family, and specifically gaps between the family and the person" (Participant 2)*

Some felt understanding people's reasons for use would help guide what the outcomes might be. The use might be broad, with reasons around mental health, anxiety, depression, relationships with partners, friendships, or other stressors. Participant 7 mentioned they considered the mental health measurement to be a priority. Participant 2 noted psychological health and mood changes might be important to measure, and participant 5 agreed, they stated:

> *"Questions on how people are feeling are much more humanising.. is it better, it it worse? Have you been struggling financially? Employment? Friends?" (Participant 5)*

Participant 5 also noted in a separate statement later in the interview:

> *"I'm just putting an emphasis on the mental health aspect because I honestly do believe it is a mental health problem and it depends on why the person is using" (Participant 5)*

Service use outcomes include attendance at health services and referral to services (Table 6). There was little enthusiasm for this as a measure for everyone, although Participant 4 noted that it may be useful for some to measure injuries or other hospitalisations. Participant 3 noted again that it would not apply to all but a service might wish to record any referral on to treatment.

Physical health was also mentioned but not felt to be universally relevant. Participant 3 felt it was more important when an individual is 'under the control' of drugs, or experiencing addiction, although they noted that this damage may not change over the time between measurements around the SAOR intervention. A general health measure was considered helpful by Participant 2. Finally, participant 4 noted the relevance of any health measures would depend on what drugs had been used and how much:

> *"this one depends on the quantity of these drugs you have consumed into your system and if you have been doing this for… like years now" (Participant 4)*

Finally, outcomes related to criminal justice which were considered included involvement in illegal activity and attitudes to police (Table 6). There was little appetite for these measures amongst the participants, although two (Participants 5, 6) mentioned that it might be useful to know if someone comes back in contact with An Garda Síochána after the intervention. Another person thought that people may have more favourable attitudes to the police following an intervention such as SAOR in this context (Participant 7)

4.3.3 Intervention or other factors for the SAOR outcomes framework

Intervention factors include adherence or completion, satisfaction with intervention, and the costs compared to criminal justice interventions (Table 6). Participants were also invited to suggest any other measures we had missed. Nearly all said that we should measure if the person attended the SAOR intervention. Some of those interviewed considered that improvements in understanding the effect of drugs on the body would be good (Participants 1, 2, 3, 5, 6, 7). One respondent mentioned it would be good to measure what they feel they are getting from the intervention to keep it relevant – did they meet the goals they wanted for themselves.

The importance of knowledge change was noted, and there was a general feeling that it would be important to measure whether people are more informed about the effects of their drug use. For example, some stakeholders stated:

> *"we should try and understand their knowledge of drug use, why they are taking these drugs now, and if they know what the outcomes might be" (Participant 2).*

> *"Sometimes we just like the effect of what it's doing, but we have no knowledge of about what it is actually doing internally in the body and how it's affecting the body" (Participant 1).*

Participant 2 considered this knowledge to be important as a mechanism by which drug use might decrease. They used cannabis use as an example:

> *"There are some things that can reduce the use of cannabis… creating awareness and also talking about the effects of cannabis use on the body as a whole or as part of our identity… it is a balance of risk versus reward" (Participant 2)*

Participant 5 had three recommendations for measurement; whether people were more informed of the effects of the drug(s) they use, whether they were more informed about how to use more safely, and whether they had a greater understanding the reasons or motivations for their use. Participant 6 independently agreed, that knowing whether individuals felt they had learned something from the intervention, the environment they were in, and if they were engaging in harm reduction practices. Participant 7 also noted that we could ask if others had knowledge about the effect on the mind and on the body and how the effects changed if people were using multiple drugs including alcohol.

4.3.4 Recommendations for timing of SAOR outcome framework

There was some agreement around timing, but for different reasons. Consumption change was thought to be possible in a week following the intervention, but for outcomes requiring reflection, more time between follow-ups would be useful. Others noted:

> *"I'd like to give them a month, to see that vision of what could change in a month" (Participant 1).*

> *"It should not be more than a month … up to … three weeks it is ok" (Participant 2)*

> *"A month is enough to monitor behaviour" (Participant 3)*

> *"I believe… two to three weeks is enough… to see how these things are working (Participant 4)*

> *"A month is a moderate amount of time" (Participant 8)*

The goals of the intervention were important to reflect in the decision making. Those who considered a shorter time frame to measure change noted:

> *"Depends on the goal of the person receiving the intervention, if their goal is short term, then maybe a week or two" (Participant 1)*

> *"I think two weeks is not too long or too short… I think three weeks will be way too long. They may forget about a week, maybe a bit too soon. I think two weeks makes the most sense to me" (Participant 5)*

Two participants recommended a longer time frame. Participant 7 noted an evaluation may "*allow the changes to embed… 3 months*". Participant 6 said we could continue to measure change, particularly those around relationships, quality of life, and mental health, up to a year after the intervention was complete.

4.3.5 Any other comments relevant to the SAOR outcome framework

Several final thoughts were noted. Some had reflected on their experience and how it has shaped their thinking about substance use, sharing their stories of either personal or other people's use. Those stories are not replicated here, as they may identify, although we are grateful for their honesty and insight. However, a few key elements came from these discussions which apply to the SAOR outcome framework and the potential use of SAOR. Participant 1 mentioned that pre-arrest referral was demonstrative that An Garda Síochána viewed individuals as not just offenders or potential offenders, and this sense of worth and value might translate to meaningful positive change in those who used SAOR. Others mentioned it showed An Garda Síochána were protecting their communities. Nearly all participants mentioned any outcome framework must not be too overbearing or complex, i.e. we should not measure too much, and Participant 2 mentioned that only one follow-up period was enough but noted that "*we might have different ideas*", (i.e. the HSE or researchers).

Participant 5 noted the SAOR intervention takes a harm reduction approach which is important in reducing issues around substance use and potential harm but may not be the goal of all involved in the scheme (i.e., many might prefer people stop their use as a function of the SAOR intervention).

> *"Small steps in the right direction are important" (Participant 5).*

Participant 6 also noted:

> *"taking a health layered approach is probably more helpful, you know, to try and sort of help people consider health first" (Participant 6)*

Participant 7 considered:

> *"text messages are helpful to support data collection and improve follow up" (Participant 7)*

Participant 6 reflected on the clients that might access a pre-arrest referral scheme. They stated:

> *"you'll have like a few different people, the people that won't engage, you know, the people that will genuinely be very regretful and get the fright of their lives from kind of being brought into this kind of process… the messaging is so important" (Participant 6)*

5 Consensus meeting

5.1 Summary of considerations which informed the recommendations

Ideally, the SAOR outcome framework would be informed by an identified core outcome set, established using strong methodological approaches such as for alcohol brief interventions [2], using methods established by the COMET Initiative [16-18, 39, 41]. At the outset of this work, we had assumed relevant core outcome sets, or outcome frameworks existed which could be adapted to support the development of the SAOR outcome framework for drug use. Unfortunately, there are no core outcome sets which directly related which included outcomes and measures. We found some previous works to help narrow the candidate outcomes and measures into a list of outcomes and measures, and these were prioritised by our stakeholders in Part 2. Many of the measures are robust and psychometrically tested, but not necessarily in the health diversion setting. To construct a core outcome from scratch would take over a year or more and considerably more primary research including extensive psychometric evaluation of potential candidate outcomes, Delphi consultations, etc [16, 39]; resources preclude this. In addition, when drawing on evaluations of similar initiatives, there is limited consistency, quality of studies are highly variable, and applicability to the use of SAOR in health diversion settings is sometimes tenuous. Relevant research displayed a wide variety of assessed outcomes (and moderator/mediators of outcome effects), little consistency in research methods, data collection, or data analysis strategies [69]. As a function of this concern, we convened a consensus meeting to discuss these matters bringing diverse experiences, the best measurement options for the SAOR outcomes framework.

5.2 Methods

We held the meeting in August 2022, with nine individuals in attendance with a range of experience spanning research, frontline practice / practitioners including working with potential client groups, policymaking, healthcare and intervention development. The meeting lasted two hours 33 minutes and followed Chatham House Rules, i.e. that notes would be taken on decisions made but no discussion points will be attributed to an individual. The meeting was recorded to support the accuracy of the summaries below. Each person would be limited to only a minute on a topic to allow for diversity of views to be shared. Each person had a single and equal vote, and the Chair did not vote.

The consensus meeting began with an outline of the task ahead. A briefing document was provided to delegates three weeks ahead of the meeting time (available here).

Delegates were reminded of the remit:

1. Outcomes need to be suitable and acceptable through their widespread application in outcome research and their perceived relevance [40, 79-81].

2. Minimum burden on those receiving, delivering, or evaluating SAOR [16, 82, 83].

3. Suitable for the diversity of people who use drugs who could engage with SAOR [35]. Variation may include drug(s) of choice, pattern of use, route of consumption, duration of drug using career, level of dependence (if at all), harm experienced, offending behaviour, co-morbid conditions, and social situation such as employment, housing, and other social needs [49]. It is important to note, those engaging via health diversion may benefit from the teachable moment, but, may differ in their motivation to change drug use [46, 49].

4. Have the diversity of outcomes to capture change expected from a successful brief intervention for drug use across all the diverse people who use drugs who may have received the SAOR intervention [49, 83].

5. That although we are ultimately interested in change and therapeutic benefit at the individual level, the outcomes should reflect a meaningful statistic when considered in aggregate with other SAOR users.

5.3 Recommended Outcome Framework

According to the priorities outlined by stakeholders, we recommend measures of recent and average use of drugs which can encompass a range of drugs used. Stakeholders were also keen to see some measure of how relationships and fulfilment of responsibilities had changed. There was a preference for a measure of quality of life. This has parallels with the established alcohol brief intervention core outcome set [2]. Nearly all suggested we should measure knowledge change because of the intervention. Although a range of time points for measurement were supported, there was greatest support for measurement at baseline and at one month from the rapid literature review and stakeholder consultation. We consider below each outcome domain with the background outlining the findings between parts 1 and 2, followed by a summary of the discussion at the consensus meeting and final decision on the measure and outcome to be included in the SAOR evaluation framework for drugs.

5.3.1 Recent drug use

5.3.1.1 Background

The measurement of weekly substance use was supported by Shorter et al., Dennis et al., Transform, Stockings and Bartlem, Hayhurst and Leitner, Stevens and Hughes [2, 32, 35, 45, 69, 74]. As an individual may well be using over one drug [84-86], it was proposed to evaluate consumption for the drug which led to the pre-arrest diversion referral to SAOR.

This is in line with Donovan's recommendation [49] to identify a primary target drug and secondary targets can be other drugs used alongside if priorities and time allow.

Recent use refers to consumption in the last seven days and may differ from the average week in a month. The recommendation brought to the consensus meeting was a timeline follow-back diary style approach which asks about use on each day in the past seven days [1]. This would reflect questions on which days in the past seven did you consume drugs, and then on each day in which a person took drugs, how much they consumed on that day. Although the original timeline-follow back refers to alcohol and recommend conversion to grams of alcohol for the week; to measure drugs, we recommend where possible grams per week are summarised also (unless other units are appropriate). These should be reported separately by type of drug as 1g for a particular drug may differ in effect to 1g in another. A composite, number of grams for all drugs included in the health led referral scheme is likely to mask a considerable amount of diversity and would be less meaningful as a summary statistic. The treatment outcomes profile (TOP) provides alternate ways of calibrating amounts used including spliffs or pills [60].

5.3.1.2 Summary of discussion

There was firm support to focus on the drug found in possession of in health diversion to understand the utility of the drug diversion scheme and provide accountability against the drug strategy. For others not in health diversion, it may be more useful to focus on the single drug causing the most consequences for the person; asking about all drugs being used may cause reduced engagement or drop out. It is likely that all SAOR users were experiencing some consequences from at least one drug which may motivate engagement, for those in health diversion this may be the engagement with criminal justice, for others, it is a likely motivator to seek the brief intervention out.

We discussed the time frame. There could be a delay from referral to SAOR and the SAOR appointment which may not appropriately capture the recent use. As such, we agreed to amend the time to refer to the week prior to contact with An Garda Síochána, and past week for all others.

The potential measure discussed reflected the number of days the drug was used and the amount on each day to be summarised in two outcome measures. There were concerns about the diversity of drugs used by SAOR participants, and how challenging it would be to estimate quantities in grams, spliffs, pills, etc. Those in more chaotic patterns of use might find it challenging to estimate with accuracy, and that the focus on precision may interrupt the therapeutic nature of the intervention delivery. Edibles, and novel substances also posed a challenge to established amounts. Others agreed, that even with the standardisation offered by the TOP, the question did not reflect the wide range of ways in which every drug would be described by people who used that substance. There are also challenges in the variable strengths of drugs from week to week which could influence the amount used. There were concerns about how conversations converting amounts to usable units would halt the flow of conversation and contradict the training given to those who deliver the motivational interviewing based SAOR intervention. An alternate was posed

where individuals could ask those receiving SAOR to describe their drug use. The natural flow of conversation may result in probes about weekends, and weekdays, and the typical number of times used on that day. This reframing led to a refocus of the question to the number of days used in the week frame, and the number of times on each day used. It was felt this was simpler, easier to implement, and followed how SAOR would be delivered.

5.3.1.3 Recommended Outcomes

Incorporating the suggestions above, principles from Timeline Follow-back [1] and [2], the rapid reviews, and the stakeholder consultation, the following are the recommended questions.

If SAOR is being used **outside a drug diversion scheme**, the following three questions are appropriate:

> *1. **Thinking of the primary drug you use, what is the name of that drug?***
>
> *OUTCOME is the percentage using each drug*
>
> *2. **In the past week, on what days did you use [NAMED DRUG]?** (Recommend using days of the week to prompt)*
>
> *Monday ___ Tuesday ___ Wednesday ___ Thursday ___ Friday ___ Saturday ___ Sunday ___*
>
> *OUTCOME is the number of days used in recent week (range 0-7 days)*
>
> *3. **And on each day how many times did you use this drug**? (Recommend using days they said they used in Q2 to prompt… e.g. and on Tuesday how many times)*
>
> *Monday ___ Tuesday ___ Wednesday ___ Thursday ___ Friday ___ Saturday ___ Sunday ___*
>
> *OUTCOME is the number of times used in recent week (range 0+ days)*

If **part of a drug diversion scheme** following contact with An Garda Síochána, the following three questions are appropriate:

> *1. **Thinking of the drug you were found in possession of, what is the name of that drug?***
>
> *OUTCOME is the percentage using each drug*
>
> *2. **In the week leading up to contact with An Garda Síochána, on what days did you use [NAMED DRUG]?** (Recommend using days of the week to prompt)*
>
> *Monday ___ Tuesday ___ Wednesday ___ Thursday ___ Friday ___ Saturday ___ Sunday ___*
>
> *OUTCOME is the number of days used in recent week (range 0-7 days)*
>
> *3. **And on each day how many times did you use this drug**? (Recommend using days they said they used in Q2 to prompt... and on Tuesday how many times)*

Monday ___ Tuesday ___ Wednesday ___ Thursday ___ Friday ___ Saturday ___ Sunday ___

OUTCOME is the number of times used in recent week (range 0+ days)

5.3.2 Average drug use

5.3.2.1 Background

Average, summary measures had support from the stakeholder evaluation and several existing aligned studies including ICHOM, Shorter et al., Transform, Stockings and Bartlem, Hayhurst and Leitner, Stevens and Hughes and the CDE repository measures [2, 32, 35, 46, 69, 74]. As above, we recommend evaluating consumption for the drug which led to the pre-arrest diversion referral to SAOR. This aligns with Donovan's recommendation [49] to identify the primary target drug, and measure others alongside where appropriate.

Average or summary drug consumption measures can be captured via several specific measures. The first of these is the Drug Use Disorders Identification Test consumption questions [3] which assesses the typical frequency of use, the typical intensity of use, the typical frequency of polydrug use, and the frequency of heavy consumption (binge) episodes. While average consumption measures of alcohol can rely on the existence of a standard measure of the quantity of alcohol consumed (standard drink/unit of alcohol), no such standard quantity measure can be applied to drug use, given the wide variety of potential drugs, variations in the route of consumption which may affect the amount of active ingredients consumed, variations in the purity and nature of the drugs purchased and consumed. Therefore, the intensity of use is often used as a proxy indicator of quantity. Potential measures are given below, firstly using the DUDIT questions[3]:

- *Typical frequency of drug use* (how often do you use drugs other than alcohol?)
- *Typical intensity of drug use* (How many times do you take drugs on a typical day when you use drugs?)
- *Typical frequency of polydrug use* (How often do you take more than one type of drug on the same occasion?)
- *Typical frequency of heavy consumption* (How often are you heavily intoxicated when using drugs?)

Alternatively, National Health Service Treatment Outcomes Profile for Substance Misuse – Section 1 (TOP-S1) could be used [60]. This records the average amount on a using day and the number of days substances are used on average over the past four weeks for the following substances:

1. Alcohol units/day
2. Opiates/opioids (illicit) including street heroin and any non-prescribed opioid, such as methadone and buprenorphine. g/day
3. Crack g/day
4. Cocaine g/day
5. Amphetamines g/day

6. Cannabis spliff/day
7. Other problem substance (name……..) g/day

5.3.2.2 Summary of discussion

There was a strong preference for the DUDIT questionnaire given how commonly used this questionnaire is in training, research, and practice in Ireland. We briefly discussed the suitability of the TOP; however, it was felt less useful for this setting, and there was universal support for the DUDIT consumption questions.

5.3.2.3 Recommended outcome

For average consumption, the recommendation is to use the consumption questions from the Drug Use Disorders Identification Test [3]. Responses to all four questions are summed into a total score of 0-16. The reference time-point is past 30 days at each data collection wave including baseline.

> *1.* ***How often do you use drugs other than alcohol?***
>
> *Responses are never (0), once a month or less often (1), two to four times a month (2), two to three times a week (3), four times a week or more often (4)*
>
> ***2. Do you use more than one type of drug on the same occasion?***
>
> *Responses are never (0), once a month or less often (1), two to four times a month (2), two to three times a week (3), four times a week or more often (4)*
>
> *3.* ***How many times do you take drugs on a typical day when you use drugs?***
>
> *Responses are 0 (0), 1-2 (1), 3-4 (2), 5-6 (3), 7 or more (4)*
>
> *4.* ***How often are you influenced heavily by drugs?***
>
> *Responses are never (0), less often than once a month or less often (1), every month (2), every week (3), daily or almost every day (4)*
>
> *OUTCOME is total score from all four questions (0-16)*

5.3.3 Drug related consequences

5.3.3.1 Background

Consequences refer to the direct harms, risks, and negative effects associated with current consumption patterns [86]. Drug related consequences can include risks associated with route of consumption (such as injecting), risks associated with intoxication (such as passing out), legal/crime risks (such as committing acquisitive crime, contact with the police, being a victim of a crime), and social risks (such as not fulfilling social roles and responsibilities). Given the nature of the SAOR intervention, outcomes and corresponding measures for this component should focus on the occurrence of short-term modifiable consequences of use rather than long-term distal harms that may only become apparent after many years of exposure [11, 49].

The measurement of consequences was strongly recommended by our stakeholder group; however, they focused mostly on fulfilling role responsibilities at work, at home, or with friends. They feature in some form within existing core outcome sets and related works including [2, 35, 45, 46, 69, 74, 76]. In the ICHOM core outcome set two measures are recommended the Substance Use Recovery Evaluator (SURE) [63] and the PROMIS Substance Use [4] measures.

SURE [63] has a strong psychometric design and involved service users in its construction. It has a 'last week' time frame which could be suited to short term evaluation and is simple to administer. However, this was designed with individuals who may be experiencing problems associated with their drug use in mind, and although it is easily scored, several questions may not be relevant for the diverse clientele of the SAOR evaluation. It is also a longer measure with 21 questions.

The PROMIS substance use measure is more concise at seven questions long, and similarly designed with good psychometric properties and input from key stakeholders in the design [4]. The time reference is the past 30 days which also fits with the timing of potential evaluation. It has only one question which only somewhat reflects the priorities of the stakeholders interviewed for this report "My drug use caused problems with people close to me", and arguably also contains questions which may be more suited to individuals who are experiencing problems with their drug use, containing questions about being out of control, strong desire to use drugs, preoccupation with drug use, craving, and time spent using drugs, and explicitly asking if the individual felt they had a drug problem.

An alternative would be the remainder of the DUDIT questions [3], which may be useful if the DUDIT consumption questions are used to measure average or summary consumption. However, the response categories for questions 10 and 11 are unlikely to show change in short term interventions (for an explanation see [2]), and the usual response window for considering the average or summary consumption (whether for drugs or alcohol) is one year. The priorities outlined by stakeholders are not as clearly expressed – question 11 relates to whether others have been worried about your use, but has the responses of yes, not in the last year; yes in the last year; and no. There is a question about general role responsibilities; whether someone in the past year has taken drugs and then neglected to do something they should have done. However, it does not distinguish between family or friend responsibilities and those at work.

5.3.3.2 Summary of discussion

The importance of this measure was noted, particularly since consequences from drug use are often a seed to motivate change. Issues prioritised by the potential service user panel such as relationship breakdown, loss of jobs, conflict with family and friends can be a powerful motivator for change and to seek support. However, it can be challenging to see changes in this following a single session brief intervention, and the timing of the questions, and the evaluation is important to consider as we seek to capture recent, relevant change. It was also noted that SAOR applied in the health diversion programme, is likely to be a powerful motivator to reduce interactions with law enforcement and thus legal consequences. With these in mind, each questionnaire was discussed in turn. SURE was felt

to be very long, and had too many questions which people may not feel apply to them, e.g. those stopped in possession of drugs on the way to a festival for example, may not see their use as problematic in any way, their use as overpowering, or out of control. For this reason, it was discounted. There were concerns that the DUDIT questionnaire would not be able to capture change in the appropriate time frame with particular concern about the last two questions, and this was also discounted. PROMIS was also discussed, and the panel felt it was more suited to the needs of the outcome framework, in that it was concise, covered relevant consequences (noting that not all would be relevant to all groups, but may be more likely to show change than some of the alternatives). It also contains a question which reflects the wishes of the potential SAOR service users in relation to consequences for relationships. All but one person voted this into the framework.

5.3.3.3 Recommended outcome

Drug related consequences are measured by the PROMIS Severity of Substance Use measure [4]. These are available on www.healthmeasures.net and outlined below.

In the past 30 days…

*1. **I felt that my drug use was out of control***

Responses are not at all (1), a little bit (2), somewhat (3), quite a bit (4), very much (5)

In the past 30 days…

*2. **My desire to use drugs seemed overpowering***

Responses are never (1), rarely (2), sometimes (3), often (4), almost always (5)

*3. **Drugs were the only thing I could think about***

Responses are never (1), rarely (2), sometimes (3), often (4), almost always (5)

*4. **My drug use caused problems with people close to me***

Responses are never (1), rarely (2), sometimes (3), often (4), almost always (5)

In the past 30 days

*5. **I have a drug problem***

Responses are not at all (1), a little bit (2), somewhat (3), quite a bit (4), very much (5)

In the past 30 days

*6. **I craved drugs***

Responses are never (1), rarely (2), sometimes (3), often (4), almost always (5)

*7. **I spent a lot of time using drugs***

Responses are never (1), rarely (2), sometimes (3), often (4), almost always (5)

5.3.4 Knowledge related questions

5.3.4.1 Background

This was strongly recommended by the stakeholders interviewed for this report. There was limited information on what would be suitable to measure this outcome, and few of the other consulted papers or core outcome sets included it as a potential outcome. However, one stakeholder suggested measuring:

1) Whether participants felt they were informed about their drugs' effects
2) Whether participants felt they were more informed on how to use their drug or drugs more safely, and
3) Whether participants felt they had a greater understanding of their motivations for use

5.3.4.2 Summary of discussion

There were no validated questions arising from the literature, and the delegates were not aware of any from their experience that could be discussed. There were concerns as these questions suggested by one of our stakeholders, although well intentioned did not match the intentions of the SAOR programme and how the intervention was delivered especially questions one and two. The third question had some relevance to the motivational interviewing principles of SAOR; however, asking questions about peoples' perceptions on motivation was felt to be problematic. Those in longer forms of treatment such as a counselling programme can take some time to explore and understand their motivations, and SAOR users, receiving a brief intervention may not have a greater understanding of their motivations around drug use.

In addition, whilst brief interventions may seek to tap into and activate people's internal motivation, this may not always be connected to knowledge. As SAOR does not provide psychoeducation type sessions, it may be unreasonable to expect this outcome to change. The focus then shifted to ways this question could be reframed to reflect what happens during SAOR delivery. Discussions focused on a line of questioning towards whether those receiving a SAOR intervention felt better informed to make healthier choices rather than specifically developing knowledge about drugs. Several iterations of questions were discussed, and the language was simplified and refined into the below, voted in unanimously to replace the suggestions above. A five-point Likert response was preferred by delegates.

5.3.4.3 Recommended outcome

The recommended outcome is

> **I am better able to make informed choices about my drug use**
>
> *Responses are strongly disagree (0), disagree (1), slightly disagree (2), slightly agree (3), agree (4), strongly agree (5).*

5.3.5 Quality of life outcomes

5.3.5.1 Background

The last recommendation was to measure quality of life outcomes in those who have participated in the SAOR intervention. This was endorsed by the stakeholders interviewed for this report, in the Common Data Elements repository and in the following papers and core outcome sets [2, 32, 45, 46, 49, 52]. Recommended measures are WHOQOL Bref [66] and PROMIS Global Health v1.2 [61] from Shorter et al. [2] and PROMIS Global Health [61], WHODAS [62], SURE [63] from ICHOM [46]. If SURE has been selected as a potential drug related consequence measure, there is a question which directly asks about quality of life. A single measure will generate more than one outcome, which has been shown to be good practice elsewhere to minimise burden [2, 87]. Should a more comprehensive quality of life measure be required, both ICHOM and Shorter recommend the PROMIS Global Health measure [61, 88]. This measure may also be more useful to determine preference weights for health economic evaluation (for more information see [89]).

5.3.5.2 Summary of discussion

The conversation focused on being realistic of what can be achieved following a brief intervention. Changes in quality of life may take some time, and indeed some individuals who adjust their drug use following a brief intervention may well feel like their quality of life has got worse (particularly if drug use was a key element of their social life). There was some suggestion that PROMIS was the best of those presented, however, this was not thought to be a suitable measure, as it would not have relevance to the diversity of SAOR users. We discussed whether health economic analysis was a consideration, and at this stage, it was not part of the wider plans for evaluation. As such preference weights of recommended measures were not seen as relevant to the discussion. The focus returned to the benefits (or not) to the individual SAOR user. We considered measures such as general health or how participants might rate their quality of life from good to very poor from the Healthy Ireland survey as an alternative, however, this was also discounted as less relevant to the objectives of SAOR.

The conversation moved towards a SAOR user taking steps towards, or feeling more equipped to achieve a better quality of life; this was felt to be more suited to a brief intervention. It was also suggested the importance and confidence readiness ruler questions might provide a useful framework to develop a question which could understand the participants' direction of travel in relation to their quality of life. As such it could capture the importance of the change, and the confidence in being able to achieve this change. Several structures were proposed, including whether we should phrase as a statement or as a question; the former was preferred for clarity in responses.

5.3.5.3 Recommended outcome

The following was the recommendation of the panel based on the Readiness Ruler frames [5]

> ***Quality of life as I define it is important to me***
>
> *Responses are the scale of all numbers from 0-10 with anchors placed at 0 for not important 5 for somewhat important and 10 for very important*
>
> ***I am confident I can improve my quality of life as I define it***
>
> *Responses are the scale of all numbers from 0-10 with anchors placed at 0 for not confident 5 for somewhat confident and 10 for very confident*

5.3.6 Timing and other considerations

At the consensus meeting, it was thought to be helpful to have some background questions in the framework to understand where people came to use the SAOR intervention. It may also be useful to separate out those who are in health diversion and where they came into contact with An Garda Síochána, to understand the diversity of clients, and the utility of SAOR for each. It would also be helpful to measure who is referred on to other treatment services, which services, and if they are taken up.

Timing was discussed and the follow up period of one month was deemed to be highly suitable to evaluating the programme. It was felt the initial follow up should not be left too long after the intervention was delivered, but also not too soon after such that the session cannot be processed. The time points for each of the outcomes in the framework was discussed, with recent consumption (past week), consequences and average consumption (past month), with the other questions more about how the person feels at the present time. It was noted the alcohol brief intervention review found the three-month evaluation follow up as the most common, followed by six months, and a year and this was felt to be optimal practice where resources allow to understand the long-term impact of SAOR.

6 The SAOR outcome framework

The SAOR outcome framework has been designed in the context of recommended outcomes, measures, and core outcome sets for alcohol and drug use, and similar health diversion schemes. It has been informed by potential users of a SAOR intervention, and those with relevant experience in policy, research, or healthcare practice. The SAOR outcome framework is suitable for those who are using drugs, including those who are part of a health diversion scheme.

When SAOR is used for those who are using drugs including those involved in health diversion, the following are recommended, outcomes of average consumption, recent consumption, drug related consequences, knowledge, and quality of life. Questions should focus on the primary drug or the drug the person was found in possession of which led to the referral from An Garda Síochána. We recommend measurement at baseline and one

month at a minimum, with longer follow up at 3, 6, and 12 months where possible. The framework is summarised in Table 7.

Table 7: The SAOR outcome framework: measures and outcomes

Outcome Domain	Outcome	Measure **Question in bold**, *responses and coding in italics*	Reference
Recent drug use (1): summarises current drug use	• Percentage using each drug (%) • The number of days used in recent week (range 0-7 days) • The number of times used in recent week (range 0+)	**Thinking of the primary drug you use, what is the name of that drug?** *Named drug* **In the past week, on what days did you use [NAMED DRUG]?** (Recommend using days of the week to prompt) *Monday ___ Tuesday ___ Wednesday ___ Thursday ___ Friday ___ Saturday ___ Sunday ___* **And on each day how many times did you use this drug?** (Recommend using days they said they used in Q2 to prompt... and on Tuesday how many times)	Adapted from Sobell & Sobell [1] and [2]
And **Recent drug use (2) [if deemed appropriate]**	• Percentage using each drug (%) • The number of days used in recent week (range 0-7 days) • The number of times used in recent week (range 0+)	**Thinking of the drug you were found in possession of, what is the name of that drug?** *Named drug* **In the week leading up to contact with An Garda Síochána, on what days did you use [NAMED DRUG]?** (Recommend using days of the week to prompt) *Monday ___ Tuesday ___ Wednesday ___ Thursday ___ Friday ___ Saturday ___ Sunday ___* **And on each day how many times did you use this drug?** (Recommend using days they said they used in Q2 to prompt... and on Tuesday how many times)	
Average consumption: Summarizes drug use outcomes over time	• Total score from all four questions on the Drug Use Disorders Identification Test (0-16)	**How often do you use drugs other than alcohol?** *Never (0), once a month or less often (1), two to four times a month (2), two to three times a week (3), four times a week or more often (4)* **Do you use more than one type of drug on the same occasion?** *Never (0), once a month or less often (1), two to four times a month (2), two to three times a week (3), four times a week or more often (4)* **How many times do you take drugs on a typical day when you use drugs?** *0 (0), 1-2 (1), 3-4 (2), 5-6 (3), 7 or more (4)* **How often are you influenced heavily by drugs?** *Never (0), less often than once a month or less often (1), every month (2), every week (3), daily or almost every day (4)*	Berman et al. [3]
Impact of drug use: summarises key negative effects of drug use	• Score on the PROMIS Severity of Substance Use measure (7-35)	**In the past 30 days…, I felt that my drug use was out of control** *Not at all (1), a little bit (2), somewhat (3), quite a bit (4), very much (5)* **In the past 30 days…, My desire to use drugs seemed overpowering** *Never (1), rarely (2), sometimes (3), often (4), almost always (5)* **Drugs were the only thing I could think about** *Never (1), rarely (2), sometimes (3), often (4), almost always (5)*	Pilkonis et al. [4]

		My drug use caused problems with people close to me *Never (1), rarely (2), sometimes (3), often (4), almost always (5)* **In the past 30 days, I have a drug problem** *Not at all (1), a little bit (2), somewhat (3), quite a bit (4), very much (5)* **In the past 30 days, I craved drugs** *Never (1), rarely (2), sometimes (3), often (4), almost always (5)* **I spent a lot of time using drugs** *Never (1), rarely (2), sometimes (3), often (4), almost always (5)*	
Knowledge of impact of drug use	• To what extent an individual feels better informed about their drug use (0-5)	**I am better able to make informed choices about my drug use** *Strongly disagree (0), disagree (1), slightly disagree (2), slightly agree (3), agree (4), strongly agree (5)*	Bespoke question
Quality of life: Summarizes the standard of health, comfort, or happiness	• Importance of quality of life (0-10) • Confidence to improve quality of life (0-10)	**Quality of life as I define it is important to me** *Scale of all numbers from 0-10 with anchors placed at 0 for not important 5 for somewhat important and 10 for very important* **I am confident I can improve my quality of life as I define it** *Scale of all numbers from 0-10 with anchors placed at 0 for not confident 5 for somewhat confident and 10 for very confident*	Bespoke question with responses based on Readiness Ruler [5]

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8 Appendices

8.1 Promotional materials to recruit individuals for the patient and public involvement consultation

Call for participants

Can you help us decide how to tell if an intervention works?

About the consultation

Would you like take part in a consultation process to help inform the HSE with providing **health-led advice** and **intervention on drug use** as part of a **new scheme for the Republic of Ireland?**

If you are aged over 18 years old with views on drug use in Ireland, we would like to hear from you.

Online interviews will be with Queen's University Belfast researchers and are confidential. All participants will receive a £20 Amazon voucher to cover costs.

Contact us to arrange a time [details here]

QUEEN'S UNIVERSITY BELFAST

8.2 Consultation guide

Introduction to the consultation

Introducing the interviewer

Purpose of the discussion

- To understand the views on outcomes for a novel intervention
- Not a research study but a consultation
- Will inform what we decide to measure in the future
- Your views are important to this process so please be honest

What their views will be used for

- It will inform a report to the HSE
- We may use quotes, but these will not identify you

Explain the SAOR system and how the scheme will work

. How would you define the outcomes we should be looking for from drug diversion schemes in your own words?

What do you think a "successful drug diversion scheme" looks like?

What would your measure of success be?

2. **How might we measure change in substance use?**

How might you expect it to change?

How do you think it would change depending on when we measure it?

Do you think we would be able to measure in this way for all drugs or drug users?

Consumption measure prompt

- Average use of drugs
- Past week use of drugs
- Typical amount or frequency of drugs
- Not using drugs at all
- Heavy use of drugs on occasion
- Risky use (that which might increase the risk of harm)
- Summary of consumption (typical amount, how often, how often using a lot on one occasion)
- Number of substances used
- Drug testing or other measures

3. Do you think quality of life would change? Do you think the consequences people face might change following the intervention?

These might include problems arising from use, problems from risk behaviours, money, addiction symptoms, legal problems, jobs, relationships, stability or safety

Specific consequences and quality of life prompt

- Problems from alcohol or drugs (which ones are important)
- Specific risk of harm
- Addiction symptoms
- Injuries
- Hospitalisation or other service use and referral to services
- Involvement in illegal activities
- Employment
- Relationships and role fulfilment
- Personal stability e.g. employment and housing
- Safety
- Attitudes to An Garda Síochána
- Knowledge about drug harms

4. Should we measure any health outcomes? Do you think these would change following the intervention?

This might include improving your mental and physical health? Health risks? Craving? Withdrawal? Psychiatric symptoms? Being ready to change?

Health factor prompt

- Perceptions of risk
- Drug cravings
- Wellbeing
- Readiness for change
- General or specific health
- Physical health and quality of life
- Psychological health and quality of life
- Goal setting
- Help seeking
- Service use

5. Is there anything else that could tell us if the intervention worked? Should we measure intervention completion or satisfaction?

Other factors prompt

- Intervention completion
- Intervention satisfaction
- Social service use
- Economic factors such as cost savings

6. What time frame should we ask questions about?

7. Is there anything else that you would like to add? Do you have any questions or concerns?