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'What works' in drug education and prevention?

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‘What works’ in drug education and prevention?

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Executive Summary

- The Cochrane Review of universal schools-based prevention for illicit drug use shows that a combination of social competence and social influence[1] approaches are most likely to be effective in preventing drug use. However, the evidence is not strong, effect sizes are small, and so the authors conclude that schools-based programmes should form part of more comprehensive strategies for drug use prevention to achieve population level impact.

- There are difficulties in disentangling which are the key elements of an effective approach, especially in hybrid programmes, and whether the programme components or the delivery aspects and timing account for the effectiveness.

- Nevertheless, and despite some study quality limitations, there is highly processed and review-level evidence that school-based interventions which focus on psychosocial and developmental skills can be effective in reducing drug use (Dickie, 2014). Prevention programmes for young people are more likely to be effective if they combine social and personal development, resistance skills and normative education techniques.

- There are named 'manualised'[2] and licensed interventions for which there is evidence of success in reducing drug use among young people. Faggiano et. al. (2014) state that what may be of greatest relevance is the programme itself. However, accurate implementation, methods of programme delivery, age appropriate programmes etc. are all instrumental in delivering success. In addition, the importance of a country's social context, drug policies and supporting structures required for delivery all influence the effectiveness of a programme.

- While the evidence does not show clear findings about how long or concentrated a programme should be, there is agreement that programmes need to be of sufficient intensity and duration to influence change and no reviews suggest the use of a one off single session.

- Evidence suggests that wider programmes that are delivered in schools, which target multiple risk behaviours, help build self-esteem and life skills are more likely to be effective in preventing drug use. This suggests a departure from drug specific education. Generic programmes, such as the Good Behaviour Game, which do not focus on drug/substance use, can be effective in reducing substance use and other problematic behaviours in the long term.

[1] See Annex C
[2] See Chapter 4.

- There is considerably more, and more robust, evidence that shows what is *ineffective* in preventing drug use amongst young people. These include knowledge-focussed/information provision (standalone and without reference to the wider context), fear arousal approaches and stand-alone mass media campaigns. Using ex-drug users as testimonials in the classroom – an approach anecdotally considered to be popular in secondary schools in the UK – is also associated with no or negative prevention outcomes.

- Despite the clear evidence of *ineffectiveness* of these approaches, interventions based on these principles continue to operate and be funded, both in Scotland, the UK and internationally. Given that there is strong evidence that these approaches are ineffective or potentially harmful, the Advisory Council on the Misuse of Drugs (ACMD) (2015) suggest that for ethical reasons, local commissioners should carefully consider their investment in such approaches, and whether such interventions and approaches should be discontinued. The European Drug Prevention Quality Standards (EDPQS) (2015) simply state that such programmes should not be funded, even if popular.

- Whilst the evidence suggests that drug prevention is better embedded in more holistic strategies that promote healthy development and wellbeing, drug-specific prevention interventions for those young people most at risk of harm, or already misusing drugs should be maintained. However, the evidence also suggests that young people at greater risk will also benefit from universal approaches.

- Policy makers/commissioners should consider a range of factors before commissioning any new intervention, including; ethical principles, quality standards, avoiding ineffective or potentially harmful programmes/those with unintended consequences, cost effectiveness, the use of a common language when discussing prevention principles and high quality evaluation.

- Evaluation is highlighted in the literature as an important part of any prevention project, especially as the evidence shows that many popular types of prevention activity are ineffective at changing behaviour, and some may even cause harm. The ACMD, amongst others, recommend research funders and charities to support high-quality evaluation research, including economic evaluation.

- On the basis of these findings, it is argued that new work is needed to understand what is currently being delivered in schools and the third sector in Scotland. Such a comprehensive overview of prevention activity in Scotland would allow an assessment of whether approaches have shifted towards social competence and social influence approaches and more generic resilience building approaches in line with the evidence, and whether what is being delivered in Scotland is cost effective.

1. Background

Introduction

At the time of writing, trends in adolescent substance use in Scotland show a general decline over time. The recently published Scottish Schools Adolescent Lifestyle and Substance Use Survey (SALSUS) showed that the proportion of pupils who reported that they had used drugs in the last month has been gradually decreasing since 2002, with the exception of 15 year old boys, for whom there has been a small increase between 2013 and 2015[3]. The focus of this literature review is on drugs, but tobacco and alcohol are also considered – across all 3 substances prevalence has remained largely stable since 2013, against a backdrop of considerable decline over the last two decades[4]. While this general downward trend in reported substance use is welcome, there is little understanding currently as to why this is the case, why reported use of certain substances may be on the rise for particular groups and what role drug prevention delivered in Scotland has played in this.

The aim of this review is to explore the evidence of effectiveness of different types of drug prevention and education for children and young people, principally that which is delivered in schools. There is a need for clarity around 'what works' and what does not, to inform approaches taken towards drug prevention and education for young people in Scotland. This is particularly important because currently there is a poor understanding of what prevention activity is being delivered in Scotland, both in schools and more widely. The lack of a national picture of prevention activity in Scotland was identified as a gap and highlighted as a priority for research on prevention in Scotland in both the Report of the Special Working Group on Prevention (2012) and in the Scottish National Research Framework for Problem Drug Use and Recovery (2015).

It is recognised that drug education and prevention for children and young people in schools constitutes only one small aspect of drug prevention. Dickie's extensive logic model on Prevention in her Outcomes Framework for Problem Drug Use (2014) exemplifies the vast scope of prevention activities beyond schools-based prevention that feed into achieving prevention outcomes (attached at Annex A). For the purposes of this paper the evidence on the effectiveness of school-based prevention programmes is prioritised. However, the importance of prevention systems has also been emphasised, and ideally schools-based prevention should be considered as part of a bigger prevention system which encompasses relevant policy, supporting structures, organisations, workforce, prevention ethos and culture etc. (Sumnall, 2016).

[3] http://www.gov.scot/Resource/0050/00508357.pdf
[4] http://www.gov.scot/Resource/0050/00508306.pdf

There are already several summaries of the evidence of effectiveness of drug prevention activities. This review of the evidence was completed in a short timescale, and is not intended as an exhaustive critical appraisal of the literature. The paper has sought not to repeat previous work but instead to draw together the evidence and findings, to help inform responses to prevention and education in Scotland.

Approach

The literature search was conducted by the Scottish Government Library and covered a wide range of resources, including: IDOX, EBSCOHOST (Academic Search, SocIndex), PROQUEST (Applied Social Sciences Index and Abstracts (ASSIA), ERIC, PAIS International, International Bibliography of the Social Sciences (IBSS), ProQuest Sociology, Social Services Abstracts, Sociological Abstracts) and Web of Science. The majority of the literature was published within the last five years, although some sources are older, including the evaluation of the effectiveness of drug prevention and education in Scotland (Stead et al., 2007) and the accompanying literature review (Stead and Angus, 2004), which were included because of their relevance to Scotland. The library search included the international literature, but because of the volume of published material, the Americas and Africa were excluded.

However, given the vast quantity of relevant literature on this topic and the time constraints that this literature review was conducted in, the focus has been on the most robust and current systematic reviews on drug prevention and education, and many of the articles on smaller studies have not been cited here. Cochrane Reviews are systematic reviews of primary research in human health care and health policy, and investigate the effects of interventions for prevention, treatment, and rehabilitation. The Cochrane Drugs and Alcohol review group have published several systematic reviews on specific substance use prevention. These are internationally recognized as the highest standard in evidence-based health care resources and provide the most robust evidence available regarding the effectiveness of school-based drug education. For this reason, “Universal school-based prevention for illicit drug use” (Faggiano, Minozzi, Versino and Buscemi, 2014) is key to understanding ‘what works’ in drug prevention in schools, and is considered with reference to the companion reviews on alcohol and tobacco.

Robust reviews of systematic reviews, from United Nations Office of Drug Control (UNODC) (2015) and Brotherhood, Atkinson, Bates and Sumnall (2013) are other key sources used in this literature review. The UNODC ‘International Standards on Drug Use Prevention’ (2015) summarises the scientific evidence on effective drug prevention interventions, through a review of systematic reviews and meta-analysis and assessment of primary studies. The research by Brotherhood et. al. (2013) was commissioned as part of the ALICE RAP, EC funded project, and reviewed high quality systematic reviews

of primary studies which evaluated the effectiveness of policies and interventions which target substance use (alongside other addictive behaviours). Lastly, Stead and Angus (2004) is drawn on to provide findings on the effectiveness of drug prevention and education in schools. While this review is not systematic, it is comprehensive and complements the other systematic reviews cited in this document.

Defining drug prevention and education

There is no commonly accepted definition of 'drug prevention' in Europe. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) define this as: *any policy, programme, or activity that is (at least partially) directly or indirectly aimed at* ***preventing, delaying or reducing drug use, and/or its negative consequences*** *such as health and social harm, or the development of problematic drug use* (EMCDDA, 2011). This applies to all psychoactive substances, both legal and illegal. Drug prevention activities can target whole populations, subpopulations, or individuals and may also address common factors that reduce vulnerability to drug use or which promote healthy development in general.

Drug prevention and education are often discussed interchangeably but there is a difference between the two. While drug education aims to provide information, facts, consequences and advice about drugs, upon which individuals can base decisions and make informed choices, its primary objective is not to change behaviour, as is the aim of prevention. However, prevention activities may include "prominent educational components" (ACMD, 2015). Likewise, while the outcomes of drug education are more limited than some of the more comprehensive prevention programmes, drug education can also contribute to preventive outcomes (Thurman and Boughelaf, 2015). Lastly, what is delivered and termed as 'prevention' in schools may in reality be more akin to education.

Prevention science is a relatively new, multi-disciplinary field which has developed rapidly over the last forty years[5]. Its main aim is "to improve public health by identifying malleable risk and protective factors, assessing the efficacy and effectiveness of preventive interventions and identifying optimal means for dissemination and diffusion" (Society for Prevention Research, 2011). There is now a much better understanding of 'risk factors', those which put individuals at a greater risk of initiating drug use, and 'protective factors', those which contribute to making individuals less vulnerable to this occurring. Amongst the many factors associated with developing drug use (alongside other risky behaviours) are: biological processes, personality traits, mental health disorders, family neglect and abuse, poor attachment to school and the

[5] http://www.preventionaction.org/archive/prevention-science-all-is-revealed

community, favourable social norms and conducive environments, and growing up in marginalised and deprived communities (UNODC, 2015). Known protective factors to drug use and other negative behaviours include: psychological and emotional well-being, personal and social competence, a strong attachment to caring and effective parents and to school and communities that are well resourced and organised (UNODC, 2015). Drug prevention can tackle the risk factors that increase a person's vulnerability to developing drug use, and build protective factors, building resilience, offering opportunities for alternative and healthier life choices and developing better skills and decision making abilities (Public Health England, 2015).

The EMCDDA classifies prevention types according to a scheme developed by Mrazek and Haggerty (1994). The categories are complementary to one another and replace the previously used categorisation of primary, secondary, and tertiary prevention (although this latter categorisation is still used in public health and is still relevant). This categorisation is based on the overall vulnerability of the people addressed - the known level of vulnerability for developing substance use problems distinguishes between the categories, rather than how much or whether people are actually using substances:

- **universal prevention** addresses a population at large and targets the development of skills and values, norm perception and interaction with peers and social life;
- **selective prevention** addresses vulnerable groups where substance use is often concentrated and focuses on improving their opportunities in difficult living and social conditions;
- **indicated prevention** addresses vulnerable individuals and helps them in dealing and coping with the individual personality traits which make them more vulnerable to escalating drug use.

There is also interest more recently in environmental prevention, interventions that do not use persuasion to change people's attitudes and behaviour, but instead use interventions that try to limit the availability of opportunities to use drugs, through national policies, restrictions and actions that affect social and cultural norms, e.g. drug driving policies (EMCDDA, 2011; ACMD, 2015).

- **environmental prevention** addresses societies or social environments and targets social norms including market regulations.

There is support for the use of the US Institute of Medicine (IoM) prevention classification system as a means of describing the form of prevention available, from EDPQS (2015) and the ACMD (2015). This classification system illustrates the continuum of services/interventions and provides a common language to describe prevention and assists in the planning, delivery and evaluation of activities. It contains the Universal, Selective and Indicated categories used by the EMCDDA above.

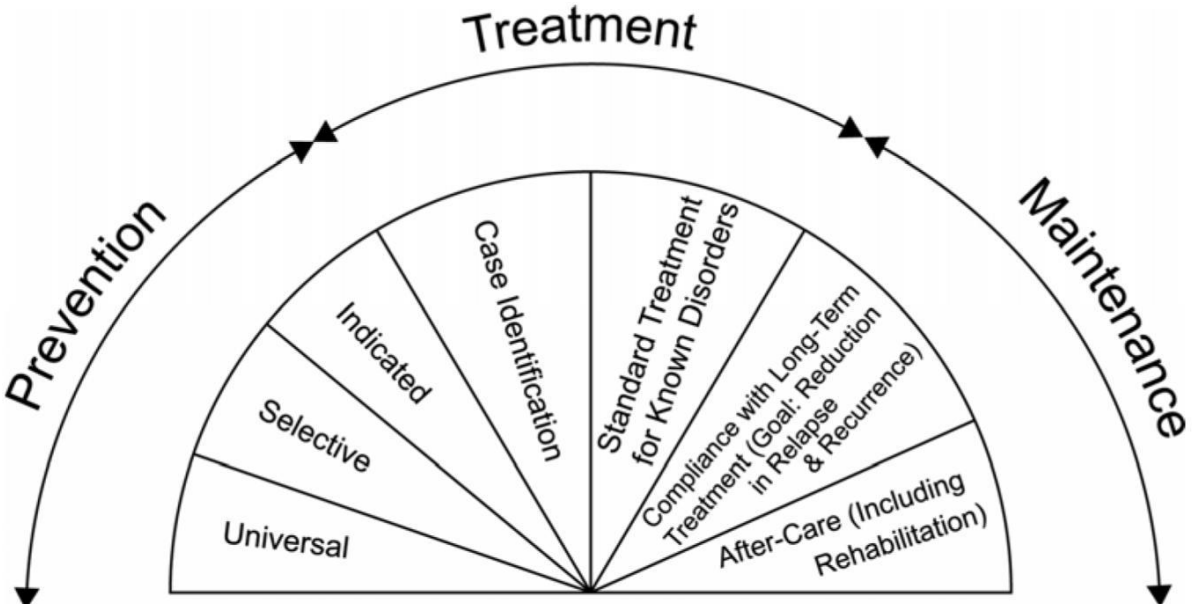

Figure 1. The Institute of Medicine model of prevention (1994; 2009)

Drug prevention is relevant across the lifespan, despite often being considered as most relevant to young people. As stated in the introduction, the main focus of this literature review is on universal approaches to drug education and prevention amongst young people, delivered through school curricula, although approaches beyond schools are also considered. Schools represent the most efficient way of reaching large numbers of young people, so represent the best setting for universal preventive interventions (Faggiano et. al., 2014).

The evidence base

The EDPQS (2015) state that whilst few people would argue with the view that prevention is better (and cheaper) than cure, much of what is done in the name of drug prevention is still not based on what 'works' or on what constitutes 'quality', and scarce resources are still being spent on ineffective approaches.

There is little clear evidence of 'what works' in drug prevention and the UK prevention evidence base is particularly poor (ACMD, 2015). Evaluating prevention is difficult, in particular, measuring something that has not yet happened, and unpicking which intervention made the difference in the long term (Evaluation Support Scotland, 2016). Sumnall points out that evidence on what 'works' will be contingent upon; how prevention is defined, geography, the type of activities included, the outcomes specified etc. (Sumnall, 2016). In terms of geography, the international nature of most of the evidence (particularly from the USA), raises questions around the transferability and adaptability of programmes to the British context. The advantages and barriers to introducing North American prevention

programmes to Europe is explored in depth in the EMCDDA's paper 'North American drug prevention programmes: are they feasible in European cultures and contexts?' (EMCDDA, 2013). Long term behaviour change is difficult and expensive to measure, and so very few evaluations track participants for long follow up times. This report concludes that it is possible to transfer programmes but careful adaptation and evaluation is required, and success is not guaranteed. Scarce resources and opportunities mean that rigorous evaluations are often not conducted, especially in low to middle income countries (UNODC, 2015). Many evaluations therefore focus on 'surrogate' indicators of substance use - short term outcomes, and intermediate measures such as knowledge and attitudes (see page 14).

Midford and Munro (eds., 2006) write that much of the robust evidence on 'what works' in drug education from the USA comes from studies that have evaluated the rather narrow goals of abstinence and delayed onset of drug use. For this reason, any reported drug use equates to programme failure, even though programmes may have had an influence on patterns of use or associated harm. They write "Most contemporary drug education research is simply not designed to explore if broader prevention benefits can be achieved" (Midford and Munro eds., 2006, p215). This is a sentiment echoed by Strang et. al. (2012) in their review of the evidence for effective interventions for a Lancet Addiction Series.

The quality of prevention studies and whether they contain biases is also important when considering the evidence of 'what works'. In certain studies that have shown statistically significant findings, often the effect is meaningless, e.g. a reduction of drug use frequency of 0.5 episodes in a month (Sumnall, 2016). The UNODC also highlight publication bias as an issue, whereby publications reporting positive results are more likely to be published than those reporting negative findings, which risks an overestimation of the effectiveness of drug prevention programmes and policies (UNODC, 2015).

In contrast to the weak (although improving) evidence base on 'what works' in drug prevention, there is much stronger evidence on which prevention approaches are *ineffective* in improving drug use outcomes (ACMD, 2015).

Structure of the report

Chapter 2 of this review focusses on schools-based drug prevention and education, how success is measured, the evidence of effectiveness for different approaches used in schools and other components necessary for effective drug prevention and education in schools. Chapter 3 explores effectiveness of drug education and prevention beyond the school setting, and considers the evidence to support peer led interventions and specific programmes for vulnerable young people. Chapter 4 discusses specific manualised and licensed prevention programmes and considers some of the issues and challenges involved in implementing these programmes in different

contexts. Chapter 5 highlights the evidence for ineffective approaches to drug prevention and chapter 6 draws on recommendations from the literature for policy makers. Lastly, thoughts are presented on the implications of this review for drug education and prevention in Scotland, in particular the need to map prevention activity for young people being delivered in Scotland. This mapping can then inform an assessment of whether prevention and education being delivered to children and young people in Scotland resonates with the evidence on what is most likely to be effective, highlighted in this review.

2. Schools-Based Drug Prevention and Education

Outcomes from drug education and prevention in schools

In order to determine 'what works' in drug prevention and education, an understanding is needed of what outcomes are being sought from drug education and prevention in schools. The main aim of prevention interventions delivered to children and young people in schools is not simply to increase knowledge and understanding of the issue, but also to deter or to delay the onset of substance use by providing all individuals with the information and skills necessary to prevent the problem[6]. The EMCDDA states the primary outcomes are: Reduction of substance use (in both the short term and long term), reduction of risky behaviour and reduction of intention to use. The EMCDDA do not include outcomes related to knowledge and/or awareness of drugs risks, despite often being included in studies, as these are 'surrogate' ones, i.e. there is no evidence that awareness or knowledge has an impact on drug use. Other outcomes used include delayed initiation of drug use and prevention of the transition from experimental use to addiction (Strang et. al., 2012).

Models of drug prevention in schools

There has been considerable change in the approach taken towards drug education and prevention since the 1960s, both in Scotland and abroad. The fear based and consequences approaches were discredited in the 1970s and generally replaced by the provision of factual information (De Haes and Schuurman, 1975). More recently, evidence has shown the importance and promise of programmes that combine life skills, resistance skills and normative education approaches.

There are numerous models for approaches to universal schools-based drug prevention, based on different theories about the most significant factors determining drug use. The most recent classification used in the Cochrane review by Faggiano et. al. (2014) was developed by Thomas (2013) and is based on the categories used in the companion Cochrane review of smoking. This is not the only categorisation – there is no universally agreed categorisation of programmes, by theory, content or process (James, 2011). In reality programmes often do not fit neatly into one category or another (particularly when implemented by those who did not design the programme), often conflating with other approaches, which makes it difficult to unpack the key elements of an effective approach (Stead and Angus, 2004). However,

[6] EMCDDA Best Practice Portal - Prevention interventions for school students: http://www.emcdda.europa.eu/best-practice/prevention/school-children

this categorisation does provide a framework to understand which programmes show more or less evidence of effectiveness. The descriptions are verbatim from Faggiano et. al. (2014):

1. **Knowledge-focussed** curricula (courses of study) give information about drugs, assuming that information alone will lead to changes in behaviour. Knowledge-focussed interventions are based on the assumption that a deficiency of knowledge regarding the risk and the danger of substance use is the cause of use and abuse, and that increasing knowledge should influence and lead to a change in attitudes toward drugs (from positive to negative) and consequently influence behaviour.

2. **Social Competence** curricula are based on the belief that children learn drug use by modelling, imitation and reinforcement, influenced by the child's pro-drug cognitions (perceptions), attitudes and skills. These programmes use instruction, demonstration, rehearsal, feedback and reinforcement, etc. They teach generic self-management personal and social skills, such as goal-setting, problem-solving and decision-making, as well as cognitive skills to resist media and interpersonal influences, to enhance self-esteem, to cope with stress and anxiety, to increase assertiveness and to interact with others. Social competence approaches are based on the assumption that youth with poor personal and social skills (poor self-esteem, low assertiveness, poor behavioural self-control, difficulties in coping with anxiety and stress) are more susceptible to influences that promote drugs (Griffin 2010). These interventions teach general problem-solving and decision-making skills, skills for increasing self-control and self-esteem, adaptive coping strategies for relieving stress and anxiety, and general social, communication and assertive skills.

3. **Social Norms** approaches use normative education methods and anti-drugs resistance skills training. These include correcting adolescents' overestimates of the drug use rates of adults and adolescents, recognising high-risk situations, increasing awareness of media, peer and family influences, and teaching and practising refusal skills. Social norms approaches are based on the assumption that substance use is a consequence of an inaccurate perception and overestimate of substance use among peers. This overestimate can lead to the perception that substance use is a normative behaviour, which could increase social acceptability among peers. This kind of intervention also teach strategies to recognise and resist peer and media pressures, for example resistance skills training and 'say no' techniques (Griffin 2010).

4. **Combined methods** draw on knowledge-focused, social competence and social influence[7] approaches together.

[7] Faggiano et al. (2014) use 'social norms' and 'social influence' interchangeably.

Findings on universal school-based prevention for illicit drug use

The aim of the Cochrane review by Faggiano et al. (2014) was to evaluate the effectiveness of universal school-based interventions in reducing drug use compared to usual curricula activities or no intervention. The review found that programmes based on **a combination of social competence** (which aim to improve personal and interpersonal skills) **and social influence approaches** (focussed on reducing the influence of society in general on the onset and use of substances, by normative education for example) had better results than the other categories and showed, on average, small but consistent protective effects in preventing drug use. Information provision alone, or **knowledge based interventions were not found to be an effective strategy and showed no differences in outcomes**, apart from knowledge, which was improved amongst participants in the programme.

Most of the programmes included in the studies evaluated were based on a social competence approach. These programmes showed a similar tendency to reduce the use of substances and the intention to use, and to improve knowledge about drugs, compared to the usual curricula, but the effects were rarely statistically significant. Programmes based on social influence approaches were assessed in eight studies and showed weak effects that were rarely significant. With regards to 'hard drugs' (heroin, cocaine and psychedelics), only 2 of the 51 studies analysed in the review found that universal school based programmes had significantly slowed the *frequency of use* of hard drugs and these were variations in the same US programme. It was unclear whether this effect was due to the programme itself or the quality of delivery /specialists compared to normal teachers delivering comparison cases[8].

Some programmes also showed **counterproductive effects**, for example the programmes 'CLIMATE', which demonstrated a significant increase in the use of marijuana, and 'ALERT' which demonstrated an increase in the use of other drugs.

These findings are consistent with those in the alcohol and tobacco Cochrane reviews, and while useful in demonstrating what type of approach is likely to be more effective, the effects of school based programmes are small. The authors state that these findings cannot be used to conclude that all programmes using the combined social competence and social influence approach will be effective, as they observed considerable variability in the results within the same approach (possibly because of the variability in outcomes and scales across the studies). Since the effects of schools based programmes are small, Faggiano et. al. conclude that these should form part of more comprehensive strategies for drug use prevention, in order to achieve

[8] http://findings.org.uk/PHP/dl.php?file=drug_ed.hot&s=dy

population level impact. The authors also suggest that *what really matters is the programme itself*, and named some programmes as showing consistent patterns of positive results that can be recognised as effective, such as 'Life Skills Training' and 'Unplugged'. See section on manualised and licensed evidence based prevention programmes (page 25) for more detail.

Components of effective schools based drug education and prevention

Besides getting the right theoretical model of drug education and prevention delivered in schools, other components determining effectiveness also need to be considered, such as *how*, by whom and to whom the programme is delivered. It is difficult to unpick the key components of effective programmes but the following are considered central. Firstly, the delivery process and methods of programme delivery are integral to the success of education and prevention interventions. **Interactive programmes** are those with a higher amount of participation by students, through discussion, brainstorming or skills practice (Stead and Angus, 2004). The most interactive programmes include all participants and include participation between peers, while the least interactive comprised of teachers presenting information or leading discussions (see page 22 for discussion of peer-led interventions). There is strong evidence to show that programmes which include student to student interaction and active learning are more effective at influencing drug use behaviour than non-interactive (passive and didactic) programmes (Stead and Angus, 2004).

Secondly, Stead and Angus (2004) find from their review of the literature that there is modest evidence to show that **multi-component** drug education programmes (those that include a school curriculum as well as other components, e.g. a media campaign, parent programme or policy activity) or those which target a young person's environment (school, family or community) are more likely to be effective than single component programmes that target just the individual. There is also evidence that environmental interventions - those which target the school teaching environment rather than the individual - can be effective in reducing other risk taking behaviours in young people (Stead and Angus, 2004).

Thirdly, the timing of interventions is important and need to be **age appropriate**, as the age at which the intervention is delivered can have an impact on the programme's effectiveness. Chowdry, Kelly and Rasul (2013) write that timing is important in any intervention to reduce risky behaviour, and it needs to be early enough to be preventative (before young people begin to experiment and engage in the risky behaviour) but also timed to be relevant, as intervention too early can be a wasted effort. McBride (2002) echoes this but also stresses the importance of drug education continuing as young people mature, so they have the knowledge and skills to deal with risky

scenarios as they present more regularly as they grow older (McBride, 2002 in Midford and Munro eds., 2006). Stead and Angus (2004) reviewed the evidence on effectiveness of drug education at specific ages and found that it does not appear to be more or less effective at particular ages. However, Midford and Munro (eds., 2006) state that the research evidence shows the transition from primary to secondary school is the best time to start drug education (Midford and Munro eds., 2006, p220). They also argue that timing of drug education should be influenced by drug use prevalence data for the target student population, as these can indicate 'critical change points'. While most drug education programmes are targeted in the early years of high school (12-13 years old typically), often no rationale for this choice of age group is given (Midford and Munro eds., 2006, p220).

Fourthly, in terms of who delivers the intervention, there is evidence that **peers** should be involved in (although not necessarily lead in) programmes, and also that trained teachers and health professionals can be effective (Stead and Angus, 2004; UNODC, 2015). It is likely that the success of the 'delivery agent' will be closely bound up with the type of programme being delivered, the amount and quality of training they receive, how credible the person delivering the programme is considered to be by those receiving the programme, and importantly, how well the programme is implemented.

Faggiano et. al. (2014) assert above that *what really matters is the programme itself.* The point about how well the programme is implemented is therefore instrumental. Chapter 4 goes on to look at manualised and licensed prevention programmes and considers 'implementation fidelity' - whether interventions are delivered as intended, which is critical to the successful translation of evidence-based interventions into practice.

Finally, while the evidence does not show clear findings about how long or concentrated a programme show be, there is agreement that programmes need to be of sufficient intensity and duration to influence change and **no reviews suggest the use of a one off single session**[9] (Stead and Angus, 2004). See below the summary by UNODC on characteristics associated with positive prevention outcomes:

[9] This is in contrast to brief interventions, which can have a preventative effect.

Characteristics associated with positive prevention outcomes

Available evidence indicates that the following characteristics are associated with positive prevention outcomes:

- ✓ Using interactive methods
- ✓ Delivered through a series of structured sessions (typically 10-15) once a week, often providing boosters sessions over multiple years
- ✓ Delivered by trained facilitator (including also trained peers)
- ✓ Providing an opportunity to practise and learn a wide array of personal and social skills, including particularly coping, decision making and resistance skills, particularly in relation to substance abuse
- ✓ Impact perceptions of risks associated with substance abuse, emphasizing immediate consequences
- ✓ Dispel misconceptions regarding the normative nature and the expectations linked to substance abuse

UNODC, International Standards on Drug Use Prevention (2015), page 21.

3. Effectiveness of Drug Prevention Beyond Schools

Broader findings on the effectiveness of education and prevention of drug use

Below is a table drawn from the ACMD report (2015) which summarises the findings from one piece of research on the evidence of effectiveness for a wide range of policies and interventions designed to address young people's addictive behaviours (Brotherhood et. al, 2013). This is included here because it contains further evidence beyond that on schools-based prevention on 'what works' in substance use prevention (including alcohol and tobacco). The findings on schools are consistent with those in Chapter 2. **Pre-school family programmes, multi-sector programmes with multiple components (including school and the community) and some skills development based programmes** (similar to the social competence and social influence approach described above) are promising and likely to be beneficial, if implemented correctly. The evidence is summarised in the table below, and the approaches in bold are those that deal specifically with illicit drug use (it should be noted that the table may not be comprehensive) (ACMD, 2015).

Table 1 - 'What works' in substance use prevention for young people – a summary of Brotherhood *et al*., 2013

Beneficial Interventions and approaches which showed robust evidence for positive effects on addictive behaviours. Research evidence for the intervention or approach is likely to be transferable to young people in other geographies.	• No evidence identified
Likely to be beneficial Interventions and approaches for which there was some, but limited, evidence for positive effects on addictive behaviours. Research evidence for the intervention or	• Universal programmes such as the *Good Behavior Game*; *Life Skills Training*; and *Unplugged* in reducing alcohol misuse • Universal family-based programmes in producing small/medium to long-term reductions in alcohol misuse • Web-based and individual face-to-face feedback in reducing alcohol misuse up to three months after intervention

approach was likely to be transferable to young people in other geographies but caution is warranted and adaptation studies are recommended.	• Brief motivational interviewing in producing short- and medium-term reductions in tobacco use • Multisectoral (including the school) and community-based interventions at preventing tobacco use, particularly when delivered with high intensity and based on theory • Addition of media-based components (supporting the core curriculum) to school-based education at preventing tobacco use • **Pre-school, family-based programmes in producing long-term reductions in the prevalence of lifetime or current tobacco use, and lifetime cannabis use** • **Multisectoral programmes with multiple components (including the school and community) in reducing illegal drug use** • **Motivational interviewing in producing short-term reductions in multiple substance use** • **Some skills-development-based school programmes in preventing early stage illegal drug use.**
Mixed evidence Interventions and approaches for which there was some evidence of positive effects in favour of the intervention, but which also showed some limitations or unintended effects that would need to be assessed before implementing them further.	• **Whole school approaches that aim to change the school environment on use of multiple substances** • Pre-school, family-based programmes showed mixed effects on alcohol use in later adult life • Manualised universal community-based multi-component programme targeting alcohol misuse • Universal school-based tobacco prevention programmes • Community-based tobacco prevention programmes when delivered in combination with a school-based programme • Mass media approaches to tobacco prevention, or the addition of mass media components to community activities • **Some social influence programmes can produce short-term reductions in cannabis use, particularly in low-risk**

	populations • **Parental programmes for parents designed to reduce use of multiple substances by young people. Where effective, programmes included active parental involvement, or aimed to develop skills in social competence, self-regulation, and parenting skills.**

Interventions that do not have substance use outcomes and may not focus on drugs at all, but rather on children and young people's attachment to and behaviour at school, can be effective at reducing substance use, e.g. The Good Behaviour Game (see page 25). Similarly, there may be interventions whose focus is on drug use/misuse but which may also help reduce other, different risk taking behaviours. The EDPQS, former UKDPC and ACMD (amongst others) promote a more generic approach, which target multiple risk behaviours, of which drug use is only one (see Chapter 6).

Peer-led interventions

Peer-led interventions do not appear in the table by Brotherhood et. al. (2013) above, but the EMCDDA lists these in a section headed 'likely to work'[10], and so are included here. Peer education can be described as 'the teaching or sharing of health information, values and behaviours between individuals with shared characteristics' (MacArthur et al., 2015). This can involve all or part of the delivery of an intervention by peers the same age or older in formal or informal settings, and have been used to target substance use, sexual risk behaviour, HIV prevention and psychosocial wellbeing among young people (MacArthur et al., 2015). The rationale for this approach is that young people learn from each other and have greater credibility, sensitivity and understanding than adults when discussing health behaviour, and can act as positive role models to reinforce these messages.

A review of 29 reviews found evidence in favour of the effectiveness of peer educators in school-based drug prevention programmes in reducing all substances use at post-test, but this relative effectiveness did not extend to 1 or 2 year follow-ups (McGrath et al., 2006). More recently, MacArthur et. al. (2015) conducted a systematic review to investigate and quantify the effect of peer-led interventions that sought to reduce tobacco, alcohol and/or drug use among people aged 11-21 years. Most of the studies reviewed were on tobacco and alcohol use, and only 3 of the studies (all from the US) focussed on cannabis use (no studies were found that examined other drug use), but the findings tentatively suggest that peer-led interventions may possibly be

[10] http://www.emcdda.europa.eu/best-practice/prevention/school-children#Faggiano2014

effective in preventing cannabis use among young people (MacArthur et al., 2015).

ASSIST (A Stop Smoking In Schools Trial) is a peer-led, licensed programme, developed in Wales and England, which has shown reductions in adolescent smoking prevalence (Campbell *et. al.,* 2008 in MacArthur et. al., 2015). ASSIST is different to other peer-led prevention interventions in that the peers are selected by the pupils, rather than the teachers and so a different type of peer is selected from the 'usual suspects'. ASSIST programme is currently being trialled in Scotland by the Scottish Government[11], and an approach which combines ASSIST and FRANK[12] is being tested in England[13] which will produce findings for drug and tobacco prevention. The results of the trial in England, which include drugs, will be of interest.

Interventions for high risk/vulnerable young people

As well as understanding 'what works' and does not in universal prevention, it is also important to consider the differential effects of programmes in population subgroups – 'what works' for whom (ACMD, 2015). Of particular importance are high-risk groups, those young people who are at an increased risk of involvement in drug/substance misuse, or who are already using substances.

The National Institute for Health and Care Excellence (NICE) Public health guideline [PH4] on Substance misuse interventions for vulnerable under 25s (2007)[14], states that vulnerable and disadvantaged children and young people aged under 25 who are at particular risk of misusing substances include: "those who are – or who have been – looked after by local authorities, fostered or homeless, or who move frequently, those whose parents or other family members misuse substances, those from marginalised and disadvantaged communities, including some black and minority ethnic groups, those with behavioural conduct disorders and/or mental health problems, those excluded from school and truants, young offenders (including those who are incarcerated), those involved in commercial sex work, those with other health, education or social problems at home, school and elsewhere and those who are already misusing substances".

Understanding the 'differential prevention impact' of programmes on vulnerable young people/high risk groups is important, as it allows for better targeting and refinement of programmes and importantly may reduce the possibility of interventions reinforcing health and social inequalities (ACMD, 2015). The evidence is mixed, and while some studies show that there is no

[11] A process evaluation is underway which will report in 2017.
[12] http://www.talktofrank.com/
[13] http://medicine.cardiff.ac.uk/clinical-study/assist-frank/
[14] This guideline is currently being updated and is due to be published in 2017.

difference in intervention effectiveness across sub-groups, others show prevention programmes to be effective only in the higher risk groups, while others show the opposite, with stronger effects in the lower-risk groups (ACMD, 2015).

While the evidence suggests that drug prevention is better embedded in more holistic strategies that promote healthy development and wellbeing, there is a case for maintaining drug-specific prevention interventions for those young people most at risk of harm, or already misusing drugs. NICE, as highlighted above, provide guidance on substance misuse interventions for under 25s[15] and has recently consulted on draft guidelines for this group for 2017[16]. However, the evidence also suggests that young people considered at greater risk will also benefit from universal approaches, and so tailored approaches may not always be required (Spoth et al., 2006, in ACMD, 2015).

One universal programme with benefits for higher risk young people is the School Health and Alcohol Harm Reduction Project (SHAHRP). SHAHRP is an interactive universal school based programme with a psychosocial and developmental approach, focussing on harm reduction philosophy with skills training, education and activities with the aim of bringing about behaviour change. Although focussed on alcohol, the findings from Australia, and from the adapted SHAHRP programme in Northern Ireland are worth highlighting. In both evaluations, the results demonstrate that this approach shows evidence of effectiveness amongst the higher risk young people, who some may argue are the group where risk reduction is most important[17]. Findings from the Northern Ireland evaluation showed that SHAHRP was viewed positively, seen as enjoyable and worthwhile by the recipients and engaging and relevant to the young people's experiences of alcohol use (Harvey et al., 2016). This compared to "alcohol education as usual", which was viewed negatively as unstructured, boring, repetitive and unrealistic. The authors conclude that one reason alcohol education is not generally effective may be due to the failure to engage young people (Harvey et al., 2016).

[15] https://pathways.nice.org.uk/pathways/substance-misuse-interventions-for-vulnerable-under-25s
[16] https://www.nice.org.uk/guidance/indevelopment/GID-PHG90/consultation/html-content
[17] http://findings.org.uk/PHP/dl.php?file=drug_ed.hot&s=dy

4. Manualised and Licensed Evidence Based Prevention Programmes

Research has shown that a number of named prevention programmes are likely to be beneficial and cost effective (ACMD, 2015). These have been subject to high quality research and are known as 'manualised' interventions, and have been standardised through the creation of manuals and protocols for those who implement them (ACMD, 2015). Manualised programmes are often highly structured (e.g. school based prevention programmes), and are often accompanied by training and implementation guidelines. Whilst many are available free of charge, particularly those programmes developed in the UK, the EU, and Australia, some well-known manualised interventions have licensing requirements, providing organisational rights to deliver the programme. Programme developers may sometimes also charge annual fees, with additional costs for official intervention materials, training, and analysis of screening questionnaires etc. (Sumnall, 2016). Other programmes that are available free of charge may have some conditions on their use; for example, deliverers must undergo training or implementation and cannot be funded by the alcohol and tobacco industries.

One example of a manualised prevention programme that has shown positive results is the Good Behaviour Game (GBG)[18]. This is an evidence based early intervention programme delivered in primary schools which seeks to improve socialisation skills and behaviour in the classroom. Unlike many school based prevention approaches, the GBG is not a curriculum but it is based on a social influence approach. The Game is played in the classroom several times a week and teams are rewarded for adhering to classroom rules such as working quietly, being polite to others, not leaving their seats without permission, and following directions. Teachers monitor teams for rule-breaking, and good behaviour and team co-operation is rewarded with praise and small prizes such as stickers and badges. At the end of the Game the winning team are praised, and sometime prizes are offered.

Although the programme does not directly mention drugs or substance misuse, its intended outcomes are to prevent: substance misuse, risky sexual behaviour and violent and anti-social behaviour. Evaluations of the GBG have shown significant benefits in the short term (reductions in aggressive behaviour and ability to focus and work independently) as well as notable long term effects in males. In one long-term trial in the USA, participation in this programme in primary school was associated at age 19-21 with significantly lower rates of drug and alcohol use disorders, delinquency and imprisonment for violent crimes, suicide ideation and use of school based services (ACMD, 2015).

[18] http://goodbehaviorgame.org/

Alongside the GBG, the ACMD paper also highlights 'PreVenture'[19] and the 'Strengthening Families'[20] programmes, as of interest to the UK, having been trialled, piloted or implemented in the UK. The Cochrane Drugs and Alcohol reviews highlighted 'Unplugged' and 'Life Skills Training' as showing positive effects and recommended these programmes for implementation. Some of these programmes aim to reduce all types of substance use, rather than focussing just on illegal drugs, and some also target other high risk behaviours (e.g. sexual health). Rather than exploring each of these programmes in turn, there are a range of databases online that list details of programmes in the field of drug prevention that demonstrate effective practice (with varying degrees of evidence to prove their effectiveness). For example, the UK Centre for Analysis of Youth Transitions (CAYT) repository of evidence based services and programmes for young people[21], US National Registry of Evidence-Based Programmes and Practices[22], the EMCDDA Exchange on Drug Demand Reduction Action (EDDRA) examples of evaluated practices[23], and the National Institute of Drug Abuse (NIDA)[24] all list examples of evidence-based drug prevention programmes.

Despite showing evidence of success, programmes such as these cannot be guaranteed to be effective, and can often fail to replicate initial successful results. One notable example is the seven nation European trial of the Unplugged programmes, the largest European drug education trial ever conducted. At the follow up at 15 months after the lessons ended, the results were disappointing, showing that Unplugged probably had some of the intended effects, but the results were "patchy, modest and usually statistically insignificant"[25]. Some of the reasons why interventions that show evidence of effectiveness then go on to fail in other contexts are explored below.

Challenges in successfully implementing evidence based programmes

Prevention programmes which show initial successful results may not be replicated when implemented more widely, particularly if they are not led by the programmes developers and not implemented as the designers intended.

The importance of a nation's social context, drug policies and a need for high quality supporting structures has been emphasised by many commentators as

[19] 'PreVenture' is different to other programmes mentioned here in that it is an Indicated rather than Universal prevention programme, targeted at young people at greater risk of co-occurring substance use and other emotional or behavioural disorders.
[20] http://www.strengtheningfamiliesprogram.org/
[21] http://mentor-adepis.org/cayt/
[22] http://nrepp.samhsa.gov
[23] http://www.emcdda.europa.eu/themes/best-practice/examples#
[24] https://www.drugabuse.gov/publications/preventing-drug-abuse-among-children-adolescents-in-brief/chapter-4-examples-research-based-drug-abuse-prevention-programs
[25] Drug and Alcohol Findings, Hot topic -Drug education yet to match great (preventive) expectations

having a significant influence on the effectiveness of programmes. An evidence based programme is necessary but not sufficient – also required are the structures in place to support the delivery and implementation (training of teachers, funding, support at national and local level etc.).

'Implementation fidelity' is the degree to which an intervention is delivered as intended and is critical to successful translation of evidence-based interventions into practice (Breitenstein et al., 2010). Manualised and highly structured programmes do not always transfer from one geographic or cultural setting to another and the structures for delivering prevention programmes might not always be in place (Public Health England, 2015).

Diminished fidelity may be why interventions that show evidence of efficacy in highly controlled trials may not deliver evidence of effectiveness when implemented in real life contexts/routine practice. For example, the mechanisms for delivery might differ and the EDPQS stress that poorly trained staff members cannot deliver high quality prevention (EDPQS, 2015). Transferring programmes to substantially different contexts may require adaptation and re-evaluation (Faggiano et. al, 2014). The ACMD briefing paper on prevention of drug and alcohol dependence emphasises that the difficulties and challenges in implementing manualised interventions in routine practice, with fidelity, and on a large scale are exacerbated because we do not have well established and robust national and local prevention systems in place (ACMD, 2015). In most cases, more research needs to be done to determine whether the success of these interventions can be replicated in real-world settings in routine practice, and how programmes and policies can be effectively implemented and disseminated (ACMD, 2015).

There are some steps that can be taken to maintain important elements of programmes which are rolled out in the UK (James, 2011). For example, the content of the programme needs to be realistic for the time available in schools, as in the past teachers have found the volume and content to be overambitious and unrealistic. Flexibility and adaptability of the programme is also instrumental, and while this can be positive in meeting the needs of different groups, programme developers should provide sufficient training and guidance to teachers on which parts of the programme can be adapted without compromising the core components (James, 2011).

The UNODC (2015) stress that when adapting evidence based programmes to different contexts several steps are taken: (i) “A careful and systematic process of adaptation that does not touch the core components of the programme, while making it more acceptable to the new socio-economic/ cultural context: this would take place with the support of the developers of the programme...” and (ii) “A scientific monitoring and evaluation component in order to assess whether the programme is actually effective in the new socio-economic/cultural context”.

5. Ineffective Approaches

What doesn't 'work'?

There is much stronger evidence of prevention approaches that have consistently been shown to be ineffective at improving drug use outcomes, than approaches that have shown to be effective. The table below summarises evidence on approaches shown to be **ineffective** from a much larger review of effectiveness of policies and interventions to address young people's addictive behaviours (Brotherhood et. al, 2013 in ACMD, 2015). As above, the approaches in bold are those that deal specifically with illicit drug use.

Table 2 – Ineffective interventions and approaches in substance use prevention for young people – a summary of Brotherhood *et al*., 2013

Ineffective Interventions and approaches which produced negative effects on substance use behaviours when compared to a standard intervention or no intervention.	• Mailed, group feedback, and social-marketing-based approaches to reduce alcohol misuse • Web and computer-based interventions to prevent tobacco use • Universal family-based programmes to prevent tobacco use • Use of competition incentives to prevent tobacco use in school children • **Standalone school-based curricula designed only to increase knowledge about illegal drugs** • **Recreational/diversionary activities, and theatre/drama based education to prevent illegal drug use** • **Individual programmes that have combined school and community-based interventions to prevent illegal drug use** • **Mentoring programmes have no short- or long-term preventative effects on illegal drug use** • **Mass media programmes targeting illegal drug use.**

The ACMD (2015) summarise these and other findings on approaches for which there is evidence of ineffectiveness, as including: **information provision** (*standalone* school-based curricula designed only to increase knowledge about illegal drugs), **fear arousal approaches** (including 'scared straight' approaches), and **stand-alone mass media campaigns**.

The information provision model assumes a 'rational consumer' or 'information deficit' approach to drug use in young people, put simply, the idea that young people do not have a clear understanding of the potential consequences of participating in risky behaviour, and giving them this information would make such behaviour less appealing. This hypotheses is not supported by the evidence (ACMD, 2015). As highlighted above in the Cochrane Review, at best, information provision improves drug-related knowledge, but there is no evidence that information provision alone *changes behaviour* and reduces drug use (Stead and Angus, 2004). Chowdry et. al. (2013) point out that there is limited information as to why this approach is not successful at reducing risky behaviour. For example, whether the lack of success is due to the approach itself, the behaviour it tries to deter, or because of the method of delivery. Whatever the answers to these questions, information provision approaches continue to operate both in Scotland and internationally, despite the lack of evidence to show that they reduce drug use. If the stated aim (usually of schools based drug education) is to improve drug related knowledge rather than to change behaviour then this is perhaps less problematic, provided that the limitations of the information provision approach are made transparent.

Public Health England write that it is vital that accurate and relevant information is made available to people about health harm, and that while there is no evidence to support information provision as effective in changing behaviour on its own, it can nonetheless reduce harm and inform choice (Public Health England, 2015). Midford and Munro (eds., 2006) also write that while the information only approach is now well understood to be a 'failure', a study by Tobler et. al (1999) found that effective drug education programmes must provide relevant knowledge, and even the best delivery method is not sufficient for an effective programme (Tobler et. al, 1999 in Midford and Munro eds., 2006). Midford and Munro also write that further research is needed to delineate what constitutes essential content knowledge (Midford and Munro (eds.), 2006, 225).

Stand-alone mass media campaigns for illegal drug use are at best ineffective, and at worst associated with harmful effects (also known as 'iatrogenic effects' - i.e. they increase a behaviour that is trying to be prevented). The ACMD recommend that mass media campaigns are therefore only delivered as part of multiple component programmes to support school-based prevention (ACMD, 2015).
Below is a table from the UNODC review which adds some further points on the components of programmes likely to be ineffective. As stated earlier, in Scotland there is little knowledge about what types of prevention activity are being delivered in schools and in the third sector. Anecdotally however, it would seem that the last two on the list below – the ex-addict 'in the classroom' approach and using police officers to deliver the programme or session – are reasonably common, despite being classed by the UNODC as 'programmes with no or negative prevention outcomes'.

Characteristics associated with no or negative prevention outcomes

Available evidence indicates that the following characteristics are associated with no or negative prevention outcomes:

- ✗ Utilizing non-interactive methods, such as lecturing, as a primary delivery strategy
- ✗ Information-giving alone, particularly fear arousal

Moreover, programmes with no or negative prevention outcomes appear to be linked to the following characteristics:

- ✗ Based on unstructured dialogue sessions
- ✗ Focusing only on the building of self-esteem and emotional education
- ✗ Addressing only ethical/moral decision making or values
- ✗ Using ex-drug users as testimonials
- ✗ Using police officers to deliver the programme

UNODC, International Standards on Drug Use Prevention (2015), page 21.

Given that there is strong evidence that these approaches are ineffective or iatrogenic, the ACMD (2015) suggest that for ethical reasons, local commissioners should carefully consider their investment in such approaches, and whether such interventions and approaches should be discontinued. The EDPQS (2015) are less equivocal and argue that such programmes should not be funded, even if popular. However, Foxcroft (2005 in ACMD, 2015) suggest a 'precautionary pragmatism' when there is uncertainty about the effectiveness of an approach. Considerations to be weighed up include: whether the prevention activity is likely to be associated with harm, the potential costs and harms of withdrawing this activity/not delivering any prevention activity, and potential benefits to other health and wellbeing outcomes, even if these are not apparent for drug use. The section below on considerations for policy makers includes the recommendation for commissioners to use quality standards and guidelines on intervention development and delivery to guide these decisions (ACMD, 2015).

6. Considerations

Considerations for policy makers

Before commissioning any prevention activity, there are important considerations for policy makers. Firstly, the EDPQS (2015) have proposed certain principles that should underpin all prevention activities and which should be considered at the outset. According to these, prevention should:

- Respect participants' rights and autonomy
- Provide real benefits for participants (i.e. ensuring that the programme is relevant and useful for participants)
- Cause no harm or substantial disadvantages for participants
- Obtain participants' consent before participation
- Ensure that participation is voluntary
- Tailor the intervention to participants' needs
- Involve participants as partners in the development, implementation, and evaluation of the programme.

Commissioners of prevention activities should be mindful before commissioning a prevention programme that drug and substance use prevention is likely to have only limited effects as a standalone activity. Prevention activities should be embedded in general strategies that support development across multiple life domains (ACMD, 2015). The ACMD (2015) recommends that authorities commissioning prevention programmes should consider drug and substance use prevention as part of a more general strategy supporting all aspects of users' lives.

Prevention should adhere to **quality standards** – The EDPQS, UNODC and Mentor-ADEPIS are amongst those who provide quality standards. These should be used when developing or introducing new interventions and/or improving existing interventions. The EDPQS focus on structural aspects in their quality standards, so that these are relevant in different contexts and in relation to different types of interventions (EDPQS, 2015).

Prevention projects should incorporate **high quality evaluation**, and be developed from the findings of evaluation (ideally with economic evaluation). The UNODC advise that a scientific monitoring and evaluation component is required to assess the effectiveness or otherwise of an intervention, and recommend collaborations with academic and research institutions to achieve this, alongside the use of an experimental or quasi experimental design. They write, "In the field of medicine, no intervention would be used unless scientific research had found it to be effective and safe. The same should go for drug prevention interventions and policies" (UNODC, 2015).

Randomised Control Trials (RCTs) clearly play a key role in providing evidence of effectiveness, particularly in the field of healthcare. However, given the importance of context and geography in influencing drug education and prevention programmes, there is also a case for theory-driven evaluations, which seek to unpack *why* an evaluation or programme works, giving a contextualised understanding of effectiveness and which elements are effective and ineffective in improving the chances of programmes exporting successfully to other contexts (Davies et. al., 2000). A mixture of randomised and theory driven approaches to assessing 'what works' is likely to be advisable (Davies et. al., 2000).

Those working in the prevention field should be encouraged to use **a common language** (both in the UK and internationally) to help make prevention strategies more coherent (ACMD, 2015). The IoM Prevention taxonomy is proposed as a first step towards a common prevention language.

Ineffective or iatrogenic programmes - when considering commissioning prevention programmes, caution is urged as without clear evidence of effectiveness, some programmes may be associated with unanticipated harmful outcomes. Programmes without clear evidence of effectiveness should only be delivered as part of a research programme, where there is well-developed programme logic, and where costs and harms associated with a lack of action are considered to be high (ACMD, 2015). The EDPQS go further and argue that ineffective or iatrogenic programmes and approaches should not be funded, even if they are considered popular (The EDPQS, 2015). As above, quality standards and guidelines on intervention development and delivery are recommended to guide such actions. The EDPQS for example, provide guidance and toolkits for 'developing, organising and delivering prevention activities'[26]. Where commissioners are uncertain, NICE and Public Health England (PHE) provide resources to help easily understand the evidence. PHE have provided a summary of the UNODC prevention standards and provide examples of relevant and UK guidelines, programmes and interventions available in England[27].

Faggiano et. al (2014) present an ambitious proposition for a European central, transparent, and evidence-based process for behavioural prevention interventions (Faggiano et. al, 2014). They state that currently across Europe no prior evaluation is required before implementing a prevention intervention, and this can lead to widespread dissemination of 'potentially ineffective or harmful interventions'. Such a standardised approval process, they argue, would lead to positive outcomes for practice, the dissemination of effective interventions in Europe and more impactful prevention at a time of scare economic resource (Faggiano et. al, 2014).

[26] http://prevention-standards.eu/standards/
[27] http://ranzetta.typepad.com/files/the-international-evidence-on-the-prevention-of-drug-and-alcohol-use-summary-and-examples-of-implementation-in-england.pdf

Economic analysis can provide important information on the **cost effectiveness** of interventions, and whether prevention programmes represent good value for money compared to other approaches, or to doing nothing at all (ACMD, 2015). There is a lack of data on the cost effectiveness of drug prevention programmes in the UK, and economic evaluations in prevention is difficult, but economic analysis has been conducted in the US, including one of the GBG, where the programme shows a cost benefit ratio of 1:26 (Mentor-ADEPIS, 2014a). What evidence there is on cost effectiveness suggests that programmes do not have to show considerable impacts to be cost effective (James, 2011). The ACDM stress that there is a need for economic analysis from the UK, where prevention programmes have been rolled out, but foresee barriers to achieving this given the long periods required to demonstrate positive benefits.

The ACMD also recommend viewing prevention approaches as inter-related and emphasise the need to consider context and to **take a wider view of the prevention system**. The ACMD write "Commissioners and prevention providers should be aware that although not understood well, actions in one part of the overall prevention 'system' may have beneficial or untoward effects in another. To understand the likely effects of a prevention initiative, the action must be located in an overall framework which includes (but is not limited to) such factors as the influence of national policy (which may be positive or negative in effect), national and local delivery systems, professional competencies, available resources and services, competing and compatible actions, and public acceptability of the action" (ACMD, 2015).

The review has shown that the evidence supports embedding universal drug prevention actions in wider strategies that aim to support healthy development and wellbeing in general (ACMD, 2015). The ACMD propose that prevention is part of a 'complex system' of policies, interventions and activities and suggests that "the greatest preventative benefits may be obtained through policies and actions **that target multiple risk behaviours**, of which substance use is just one". The ACMD report also notes the UK Drug Policy Commission's statement regarding prevention in their final report (UKDPC, 2012), which advised against 'drug-specific education' and highlighted the importance of supporting schools to implement broader programmes that aimed to build self-efficacy, help with impulse control and teach life skills, preferably as part of the national curriculum.

Implications for prevention activity in Scotland

There is a lack of knowledge around what prevention and educational interventions are currently being carried out in schools in Scotland, and how this compares with the findings above on 'what works' and what is ineffective. However, there are findings from a large scale evaluation of the effectiveness of drug education in Scottish schools, carried out on behalf of the Scottish

Executive and published in 2007 (Stead, et al., 2007). The focus was on (illegal) drug education, and not inclusive of smoking and drinking, or New Psychoactive Substances, which were not an issue at the time the research was conducted. The evaluation compared findings from a literature review of what is likely to be effective in drug education (Stead and Angus, 2004) with what was being delivered in Scottish schools in 2004 and 2005 (through a survey of teachers and observations). In line with the findings above, the study found that drug education using highly interactive and social influences approaches, specifically including resistance skills and normative education elements are consistently found to be more effective than other approaches (Stead et al., 2007). The research found that while the vast majority of schools in Scotland were providing drug education, information provision predominated and that drug education lessons were not as interactive as they could be. Only a minority of lessons used social influence approaches and virtually none used normative education approaches. Substantial use was also made of external visitors (police, drug enforcement agency, nurses, theatre groups), which raises questions as to whether these included 'fear appeals' and ex-addicts, also shown to be ineffective or to have counterproductive effects.

New work is needed to understand what is currently being delivered in schools and the third sector in Scotland, and whether approaches have shifted towards social influence and social competence approaches and more generic resilience building approaches in line with the evidence. It is also important to know whether current approaches maximise scarce resources and are cost effective. A mapping exercise of what is being delivered in Scotland will show whether school-based drug education in Scotland still comprises mainly of information provision alone – a possibility given that many schools may have traditionally viewed their role as purely educational. Guidance and support for schools to incorporate more components associated with preventive outcomes discussed above may be required.

Stead et. al.'s recommendations from 2007 regarding schools-based drug education are likely to still be relevant, including: "more can be done to enhance its effectiveness, particularly through clearer guidance on evidence-based methods and approaches, and on continuity and progression; further training and support to boost teachers' knowledge, skills and confidence; and more attention to resources". On the first point mentioned, Stead et. al. make a more specific recommendation to "Give consideration to providing schools with an annotated list of recommended drug education programmes which are based on effective approaches and have been evaluated." These are useful considerations and other more strategic approaches such as targeting decision-makers at the council level, as well as schools, also merit consideration.

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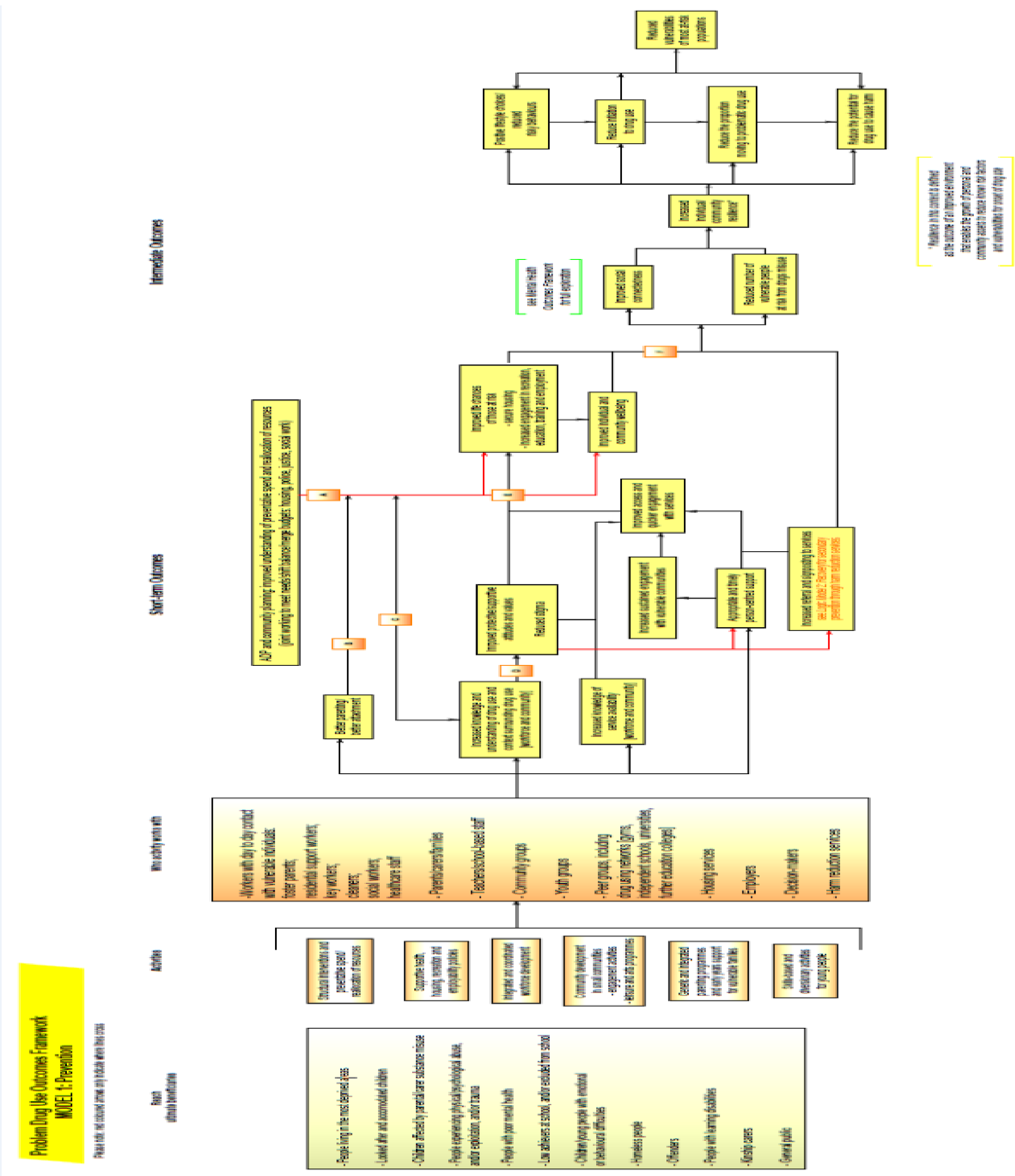
Appendices

A. Problem Drug Use Outcomes Framework – Prevention Logic Model

The ‘Prevention’ nested logic model – “The relevant links in the chains have been lettered (A to E) and reflected in the model for ease of reference. Where available, evidence has been drawn from key sources...We have called this information ‘highly processed evidence’” (Dickie, 2014).



B. Abbreviations

ACMD - Advisory Council on the Misuse of Drugs (UK)

ASSIST - A Stop Smoking In Schools Trial

CAYT - Centre for Analysis of Youth Transitions

EDDRA - EMCDDA Exchange on Drug Demand Reduction Action

EDPQS - The European Drug Prevention Quality Standards

EMCDDA - The European Monitoring Centre for Drugs and Drug Addiction

GBG – The Good Behaviour Game

IoM - (US) Institute of Medicine

NICE - The National Institute for Health and Care Excellence

NIDA - National Institute of Drug Abuse (US)

PHE - Public Health England

SALSUS - Scottish Schools Adolescent Lifestyle and Substance Use Survey

SHAHRP - School Health and Alcohol Harm Reduction Project (Australia and Northern Ireland)

UKDPC - UK Drug Policy Commission

UNODC - United Nations Office of Drug Control

C. Types of Prevention and Education Programmes and Approaches

Affective Programmes
EMCDDA - affective focused interventions, aimed to modify inner qualities (personality traits such as self-esteem and self-efficacy, and motivational aspects such as the intention to use drugs).

Social Competence
Thomas and Perera (2008) - Social competence curricula use enhancement interventions (also called Affective Education) based on Bandura's social learning theory (Bandura, 1977). This model hypothesizes that children learn drug use by modelling, imitation, and reinforcement, influenced by the child's pro-drug cognitions, attitudes and skills. Susceptibility is increased by poor personal and social skills and a poor personal self-concept (Botvin, 2000). These programmes use cognitive- behavioural skills (instruction, demonstration, rehearsal, feedback, reinforcement, and out-of-class practice in homework and assignments). They teach generic self-management personal and social skills, such as goal-setting, problem-solving, and decision making, and also teach cognitive skills to resist media and interpersonal influences, to enhance self-esteem, to cope with stress and anxiety, to increase assertiveness, and to interact with others of both genders.

Social Influence
Thomas and Perera (2008) - Social influence approaches, based on McGuire's persuasive communications theory (McGuire 1968) and Evans's theory of psychological inoculation (Evans 1976), use normative education methods and anti-tobacco resistance skills training. These include correcting adolescents' overestimates of the smoking rates of adults and adolescents, recognising high-risk situations, increasing awareness of media, peer, and family influences, teaching and practising refusal skills, and making public commitments not to smoke. They often apply the techniques of generic competence enhancement to specific anti-tobacco, anti-alcohol, and anti-drug goals.

Social Norms
Faggiano et. al (2014) – see social influence above.

Fear-based approaches
James (2011) "Research has consistently found that attempting to frighten young people away from using drugs through fear-based approaches is ineffective (Prevention First, 2008). In general, people often have a defensive response to messages arousing fear and unpleasant emotions. Warnings that do not match young people's personal experiences or what they perceive amongst their friends will not be believed and can undermine the credibility of the messenger. Cragg (1994) argues that emphasising the dangers of drugs

may in fact enhance the status of drug-taking as part of youth culture and a rite of passage" (James, 2011, 8).

Knowledge based approaches/Factual Information provision
EMCDDA - knowledge focused interventions, aimed to enhance knowledge of drugs, and drug effects, and consequences. These approaches assume that information alone will lead to changes in behaviour.

Multi-model approaches
Thomas and Perera (2008) - Multi-modal programmes combine curricular approaches with wider initiatives within and beyond the school, including programmes for parents, schools, or communities and initiatives to change school policies about tobacco, or state policies about the taxation, sale, availability and use of tobacco.

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The views expressed in this report are those of the researcher and do not necessarily represent those of the Scottish Government or Scottish Ministers.

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