BEYOND 'JUST SAY NO':
A REVIEW OF DRUG PREVENTION PROGRAMMING

by

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ABSTRACT

Numerous drug prevention programs and strategies have been researched, implemented and evaluated over the last few decades. The results from various evaluation efforts have yielded a variety of outcomes with no clear overall prevention strategy success. This project will review drug prevention strategies including supply reduction, demand reduction and harm reduction, with school-based prevention programs being the main focus. Success or effectiveness can be defined statistically or practically, therefore, data collection and research methods are analyzed to display the complexity and ambiguity of evaluation results. In addition, a closer look at what is meant by program effectiveness and whether it is an accurate gauge of success for these programs will also be provided. Although the Drug Abuse Resistance Education (DARE) program is one of the most scrutinized and evaluated programs, a look beyond DARE and a 'just say no' philosophy is required.

Keywords: drug prevention; school-based prevention; DARE

Dedicated to my boys; Ryder, Asher and Cooper

My family; Gumpy, Mom, Jason, and Jenna &

To all those who believed in me...

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GLOSSARY

ASAPS   Adolescent Substance Abuse Prevention Study

CCSA   Canadian Centre on Substance Abuse

CDS   Canada's Drug Strategy

CPEC   Community Prevention Education Continuum

DARE   Drug Abuse Resistance Education

DOCAS   Drug and Organized Crime Awareness Services

RCMP   Royal Canadian Mounted Police

RWJF   Robert Wood Johnson Foundation

UNODC   United Nations Office on Drugs and Crime

INTRODUCTION

Nancy Reagan was a vocal and visible advocate for drug prevention

programs aimed at children and youth during her tenure as First Lady in the

White House from 1981-1989. She travelled extensively around the United

States and other countries in order to speak to various stakeholders in drug

prevention, which included parents and young children in schools. During one of

these school visits, a key phrase in the drug prevention realm was coined. When

asked by a young student what to say if they are offered drugs, she replied, "Just

say no." This new catchphrase would become a mainstay in the drug prevention

language and its message generated numerous clubs and organizations aimed

at youth drug abstinence (National First Ladies' Library, 2005). However, not all

viewpoints on drugs and drug use adhere to an abstinence standard. Although

the majority of perspectives will lie somewhere in the middle ground, the

following statements represent the extreme positions that can exist on the drug

use continuum in society.

> Absolute sobriety is not a natural or primary state (Davenport-Hines, 2001, pg. 12). There are only a few recorded instances of societies anywhere in history that have lived without the use of psychoactive substances (Mosher & Akins, 2007, pg. x).

> The casual drug user ought to be taken out and shot (Darryl Gates, Chief of the Los Angeles Police Department, 1990, as cited in Davenport-Hines, 2001, pg. 447).

With such opposing views on drug use it is not surprising that a clear frontrunner in the drug prevention realm has yet to be recognized.

In order to understand how current prevention programs came in to practice, the history of both the evolution of drug policy in Canada and the need for prevention efforts in Canada is examined. In addition, a description of the various types of prevention programs is provided, including; supply reduction, demand reduction and harm reduction. Demand reduction programming has been touted as one of the crucial keys to ending the cycle of drug abuse and addiction. However, the type, scope and delivery method of these prevention programs varies, as does its reported success. On the one hand, there are programs that advance a complete abstinence approach to drug prevention programming, with Drug Abuse Resistance Education (DARE) being perhaps the most recognizable program of this genre. In Canada, the Royal Canadian Mounted Police (RCMP) and other municipal law enforcement agencies widely utilize the DARE program as part of their efforts to deliver drug use and dependence prevention messages for school age children. DARE involves sending trained uniformed police officers into classrooms of elementary students for a ten-week period in order to teach a variety of lessons surrounding drugs. Students receive lessons covering basic information about drugs as well as resistance skills training in order to establish a foundation of knowledge. In order to maintain a consistent stance on drug use, it is natural that law enforcement agencies support and promote an abstinence approach to drug prevention.

Alternatively, some programs view complete abstinence of drugs as an unrealistic and impractical goal and therefore, direct their energies at harm reduction methods and programming rather than outright prevention. These harm reduction approaches vary considerably in their methods; however, they do address the likelihood that experimentation with drugs will occur. Therefore, this method attempts to lessen the potential harm that may result from all levels of use by providing harm-minimizing options, such as needle exchanges for intravenous drug users.

As school-based programs such as DARE have been subject to numerous research evaluations, a selected chronology of evaluation findings will be provided. Due to the variety and volume of research in this area over the last two decades, it is necessary to address whether 'effectiveness' can accurately be measured in these program evaluations. The collection of statistics through self-reported data and the potential for participants to recant their previous drug use during longitudinal studies are just two of the potential dilemmas with obtaining constructive research results for these programs. It is essential to review research design and methodology issues, as research and evaluation results have the potential to be utilized as vital bargaining chips in advancing or refuting programming policy and practice. In addition, it is critical to question whether research outcomes can properly assist decision-makers in assessing recommendations for change or improvement to current programming. As agencies such as the West Vancouver Police Department have recently cancelled their DARE program after many years of operation due to lack of

quantifiable results, it is important to understand what information can be gleaned from research evaluations. A clear understanding of what drug prevention is trying to accomplish is also pertinent to discuss in order to determine its success.

Since the majority of drug prevention attention has focused on school-based programming, it is useful to explore recommendations for other types of prevention options that can assist a broader audience. Although police have a stake in halting addiction and crime at the earliest possible stage, it should not be considered solely a law enforcement issue. It is often debated whether police should be the primary educators to youth on drug prevention issues. It can be argued that the message may be best delivered from an education or health care standpoint. Despite the relative ease of the "just say no" philosophy, the reality of its effects are not easily measured and a look beyond abstinence-based solutions is required. The community as a whole needs to share the responsibility of this problem and search for solutions that can appeal to a variety of cultures and lifestyles.

Canadian Drug Policy History

The first legal ramifications imposed on substance in Canada began with opium. This early Canadian drug policy was rooted in prohibiting the circumstance and environment in which drugs were used and disseminated and not predominantly in the pharmacology of the drug itself (Boyd, 1991). Originating from China, opium smoking was a favourite pastime with the Chinese population. As Canada sought an economical source of labour for work on the construction of the Canadian Pacific Railway and other industrialization efforts,

the recruitment of Chinese workers to Vancouver followed. This influx of Chinese influence enabled the establishment of opium factories in numerous cities throughout British Columbia. Both Chinese and Caucasian users smoked the black tar opium which was made available by merchants (Boyd, 1991).

Prior to 1908, opium shops were licensed facilities and caused little apprehension for the government and the public. In addition to smoking opium, tonics and elixirs were also available including many of the same ingredients often used by physicians. To avoid the cost of going to a doctor for a cure for ailments patients often sought out the drugs from merchants in order to self medicate (Boyd, 1991). The ease in access to the same drugs as physicians caused apprehension and in 1908 the sale and manufacture of smoking opium was outlawed with the *Opium Act* (Riley, 1998). The legislation ensured the merchants were no longer able to sell their products, however, the medicinal industry could continue to operate (Boyd, 1991). In the next few years, the legislation expanded with the *Opium and Drug Act of 1911*, which allowed for the inclusion of cocaine as a barred substance. In addition, a new offence was added to the regulations. Due to the difficulty of gaining convictions for the sale and manufacture of opium, the offence of illegal drug possession was deemed necessary and entered into the *Act.* At this time questions arose surrounding the addition of tobacco into the drug schedule; however, tobacco was not yet determined to be a drug requiring stringent controls (Boyd, 1991).

Alcohol soon became the next target for control and a brief prohibition in 1918 during war times had some success. The prohibition of alcohol meant that

it was illegal to produce, sell and transport liquor (Inaba, & Cohen, 2004).

However, most provinces repealed the prohibition legislation by the late 1920s

and alcohol reverted to its original legal status with some regulations imposed

(Riley, 1998). In 1923, marihuana made its debut into Canadian legislation with

little discussion or opposition. Marihuana was considered to induce mental

illness and sexual experimentation which were deemed as unsavoury

characteristics and its inclusion under government policy became official (Boyd,

1991). *The Opium and Narcotic Drug Act of 1929* followed, which remained the

main drug policy regulation in Canada for almost forty years. This Act, along with

two international regulations, the *Single Convention on Narcotic Drugs (1961)*

and the *Convention on Psychotropic Substances (1971*) of which Canada was

involved, shaped the course of Canadian drug history (Riley, 1998).

Although the addition of marihuana into Canadian law was established in

1923, the widespread backlash from the use of marihuana did not surface until

the 1960s. Recreational drug use was no longer just an issue that was seen on

the streets and back alleys of unpleasant neighbourhoods. Drug use had

entered mainstream culture and middle class families (Inaba, & Cohen, 2004).

At the time, marihuana was the drug of choice for youth and those who rebelled

against authority. The rising cost to prosecute and detain this new breed of

lawbreakers led to various challenges (Boyd, 1991; Fischer, 1999). The line

between what was morally right and wrong was now being challenged on a larger

scale and the Canadian government responded with *An Inquiry into the Non-*

Medical use of Drugs, otherwise known as the Le Dain Commission. The final

report from this Commission, which surfaced almost four years after it was launched, provided some modern recommendations. The Commission found that drug prohibition policy resulted in high cost but little gain. Therefore, the Commission proposed that the simple possession of marihuana no longer be included in the *Narcotic Control Act*. In addition, the piloting of drug maintenance programs was encouraged and the Commission advocated for further exploration in this area (Le Dain, 1973). The Canadian government under the helm of Prime Minister Pierre Trudeau largely ignored the suggestions by the Commission.

The closest legislation that mirrored the ideals of the Commission came with Bill S-19. This bill would have ensured that the possession of cannabis would result in a 'fine only' option, however, the bill was defeated in 1975 (Fischer, 1999). Public pressure on this issue had abated and instead of breaking new ground and revamping the laws around possession of marihuana, Canada's stance soon followed suit with its neighbours. The United States had previously declared a "War on Drugs" in 1971 (Frontline/NPR, 2000) and Canada responded by maintaining a prohibition position on drug policy. By the 1980s, it was determined that law enforcement efforts alone were too limited in their approach to fight the drug situation alone. Therefore, education and prevention programming began to gain momentum and attention (Riley, 1998). Grassroots prevention programming had always been taking place; however, Canadian Government acknowledged initiatives began to take shape in the 1980s, which provided structure and funding, which the earlier attempts lacked.

In 1987, the federal government announced a *National Drug Strategy*, later renamed *Canada's Drug Strategy* (*CDS*) in 1992, in order to address substance abuse issues. This was the first step in recognizing the various avenues to ending substance abuse concerns. The main components of this strategy encompassed enforcement, prevention and treatment initiatives. One initial goal of the strategy focused on the reduction of the supply and demand for drugs. In 2003, a renewed strategy was launched which introduced the four pillars. Harm reduction was included with enforcement, prevention and treatment as an important cornerstone of the strategy. The aim of this revamped strategy was to "ensure that Canadians can live in a society increasingly free of the harms associated with substance abuse" (Pieterson, 2004, pg. 6).

Currently, the *Controlled Drug and Substances Act (1996)*, and the *National Anti-Drug Strategy* (which replaced *CDS* in October 2007), govern existing Canadian drug policy and legislation. Together, these documents set out the current government strategy and legal response to substance use issues. In November 2008, the Government of Canada reiterated its commitment to the *National Anti-Drug Strategy*. Once again prevention, treatment, and enforcement were set as the cornerstones of this approach; however, harm reduction was not included. The government set aside $30 million dollars in new funding to work towards prevention goals, which included new national public awareness campaigns, developing school based awareness strategies and refocusing existing drug prevention strategies. The treatment action plan proposed to provide treatment programs for youth, support new research and enhance

treatment and support for First Nations through $100 million dollars in funding

initiatives over the next five years. In order to bolster the enforcement plan, $102

million dollars was earmarked for funding to the RCMP's drug teams to

investigate and shut down production and distribution efforts. In addition, the

plan also involved funding for Public Prosecutions, Health Canada, and Canada

Border Services Agency to enhance services in the enforcement field

(Department of Justice Canada, 2008).

Legal and Illegal Substance Use Statistics

Recent national statistics show that drug use both legal and illegal is still

an issue that requires attention. Statistics from the Canadian Centre on

Substance Abuse (2007) found that 60% of illicit drug users are fifteen to twenty-

four years old (pg.1) and that Canadians are initiating substance use around

fourteen years old or younger (pg. 2). Of the 13,909 people interviewed for the

Canadian Addiction Survey 2004, 45% of respondents tried drugs of any type

including cannabis. In addition, one in six individuals used illicit drugs, other than

cannabis, however, few had used in the previous year. Furthermore, 30% of

fifteen to seventeen year olds and 47% of eighteen to nineteen year olds had

used cannabis in the last year. Concerning legal drug use, 80% of Canadians

engage in alcohol consumption, however, most responded that use was

moderate (Canadian Executive Council on Addictions [CECA] & Health Canada,

2004).

The *2006 Vancouver Youth Drug Survey* was an informal exploration,

which approached young people between the ages of sixteen and twenty-five

years old on the streets of Vancouver. The goal of the survey was to gain insight on emerging usage trends. Of the 500 respondents in this survey, close to 90% had consumed a full glass of alcohol, 70% tried marihuana and over 50% had smoked an entire cigarette (Vancouver Coastal Health, 2006, pg. 1). In this survey, 94% of respondents reported marihuana as being the first "*drug"* attempted, with one in six youth self declaring as daily users. In regards to alcohol consumption, nearly half of the respondents who drink reported doing so once or twice a week or more (Vancouver Coastal Health, 2006, pg. 5).

Given the potential volume and variety of drugs available to youth, it is prudent to uncover where youth get their information about drugs and why they choose to engage in the behaviour. Although exact statistics are not given, the *2006 Vancouver Youth Drug Survey* revealed that the Internet was the most popular resource for drug information amongst those interviewed, with friends being the second most utilized source of information (pg. 3). Interestingly enough, school and police did not surface as sources of information, despite the fact that funding supports many police-taught school-based programs each year. With respect to why youth chose to use drugs a variety of reasons surfaced including; curiosity, fun or exciting activity or a friend offered it to them (Vancouver Coastal Health, 2006, pg. 3). Of those who chose not to use drugs, they listed concerns about the health consequences and lack of interest as explanations. As it turns out, 13% of the current abstainers reported that they might use drugs in the future, with curiosity being the motivating factor (Vancouver Coastal Health, 2006, pg. 3).

Statistics regarding the cost of the drug abuse problem in society is also valuable to examine in order to understand wider consequences of the issue. In 1992, a baseline of information was obtained and subsequent research in 2002 helped to distinguish trends of use and economic loss in Canadian society. The cost of substance abuse in Canada in terms of a drain on health and law enforcement services and loss of work place output, were calculated at $39.8 billion dollars (Rehm et al., 2006). Tobacco and alcohol related losses accounted for 42.7% ($17 billion) and 36.6% ($14.6 billion) respectively, with illegal drugs attributing to 20.7% ($8.2 billion) of the total substance abuse cost (Rehm et al., 2006, pg. 1).

Tobacco and alcohol related deaths accounted for almost 20% (16.6% and 3.6% respectively) of all deaths that occurred in Canada in 2002, whereas illegal drugs accounted for .08% of all deaths (Rehm et al., 2006). Although fewer Canadians lose their life from illicit drug use, the deaths tend to involve younger people (Rehm et al., 2006, pg. 7). The above statistic does not coalesce with the publics' perception of the seriousness of drug abuse issues. The perceived seriousness and the actual costs associated to substance abuse were analyzed collectively. The results found that although the total social cost of alcohol related problems outweighed illegal drug use by more than two times, the public perceived illicit drug use as higher concern. There are numerous reasons for this variance. Since alcohol is a legal substance the level of risk is typically perceived to be less as opposed to illegal substances. Alcohol consumption is often viewed as a lifestyle choice rather than a risky behaviour.

In addition, the media can often put higher priority on illegal drug news stories since those involving alcohol and tobacco have little cachet in today's society (Thomas & Davis, 2007, pg. 4). Substance abuse appears to be a greater moral issue as opposed to a cost issue. The variety or legality of substances involved in ones' addiction appears to determine the perception of its related harm in spite of actual statistics.

Regardless of how statistics are interpreted or how Canadian drug policies came to fruition, it remains that there are substance abuse issues both with illegal and legal substances in Canadian society. Despite the fact tobacco and alcohol account for the greatest amount of social burden and highest death rate, it is the costs and consequences of illegal drugs that receive the most attention and cause for concern. Irrespective of what viewpoint a person takes on legal and illegal drug consumption, the focus needs to be on measurable and attainable interventions that suit a variety of substance abuse issues. Investing in efforts to avert or delay use before it becomes problematic is a necessary component in drug prevention. A variety of options have been undertaken over the years to accomplish this objective.

PREVENTION METHODS

The term prevention, as it relates to drug use has numerous connotations. At the most basic level, prevention refers to keeping something from happening or stopping its occurrence (Oxford dictionary, 2009). This definition leaves a wide array of possibilities in the drug prevention world on how prevention strategies can be implemented and achieved. On one end of the spectrum prevention goals can refer to the complete abstinence of drug use, on the other end of the spectrum prevention efforts can be aimed at impeding drug *abuse* or *misuse*. The minor semantic differences between use and abuse appear minimal; however, they are at times proposing conflicting solutions to a problem. In order to address these important distinctions, three common methods of prevention will be examined; supply reduction, demand reduction and harm reduction.

Supply Reduction

In its most basic form supply reduction refers to reducing the production and availability of illicit drugs, with an intent to generate a decline in drug abuse or misuse due to lack of product. The most common means by which supply reduction is administered includes law enforcement initiatives, interdiction teams, legislation and laws or penalties for use and possession of illegal substances (Inaba, & Cohen, 2004; United Nations Office on Drugs and Crime (UNODC), 2004). At a fundamental level general police work and legal ramifications are

highly useful methods of prevention. Most citizens are commonly law abiding

and the prospect of being arrested and having to suffer penalties is enough of a

deterrent to invoke compliance with set regulations. The downside to supply

reduction attempts is the limitation in what can be achieved through legislation

and enforcement efforts alone. According to the *World Drug Report 2008*, there

is an indication that the supply of illicit drugs in the world has increased in

comparison with previous years. The current increase in the supply of drugs

coupled with the steady advancement of new trafficking routes has the potential

to increase demand in current markets in addition to creating new market bases

(UNODC, 2008). This change and fluctuation in markets requires that

enforcement efforts adapt and change to keep up with current trends which can

often pose challenges due to the worldwide scope of drug supply issues. In

addition, legislation is often out of date in regards to chemicals used in the

production of synthetic drugs. This lack of up to date knowledge can make

interdiction efforts for these chemicals complex. Despite these challenges, drug

prevention efforts could not exist without an enforcement component. Therefore,

any attempt to limit drug abuse must always consider how enforcement action is

being employed.

Demand Reduction

Demand reduction requires that individuals reduce the desire to use illegal

drugs or delay the onset of first use of drugs. Demand reduction can be broken

down into three stages; primary, secondary and tertiary. These subsections are

necessary as demand reduction has the opportunity to make a difference on a

variety of levels. If there is little demand or desire for drugs, drug abuse or misuse becomes less likely. This method is accomplished by a variety of practices; including education, via abstinence programs or by involvement in community activities (Inaba & Cohen, 2004; UNODC, 2004). The primary level of prevention attempts to predict and avert first drug use by gearing programs toward younger children with minimal prior exposure to drugs (Inaba & Cohen, 2004). Abstinence is often promoted through these means and skills are taught to help children deflect pressure to use drugs. One of the most visible and well-known school-based abstinence prevention programs being utilized today is DARE.

Secondary demand reduction attempts to keep recreational and experimental users from becoming habitual or addicted users (Inaba & Cohen, 2004). In order to attend to the needs of this group of individuals, education is important, albeit challenging, as competing sources of information become apparent. Health and legal consequences become the focus, as well as counselling and intervention strategies. First time or occasional offenders can benefit from Drug Courts or Drug Diversion programs that provide useful information and rehabilitation instead of jail sentences (Inaba & Cohen, 2004). In the same vein as secondary programming, tertiary prevention goes even further and attempts to halt further damage and harm as a result of misuse. The main goal is to restore health from addiction by offering a variety of programs and interventions such as; group therapy, rehabilitation centres, twelve step programs

and drug maintenance such as methadone clinics (Inaba & Cohen, 2004; Cuijpers, 2003).

Demand reduction is not a complete solution; it too is merely one component in the myriad of options within drug prevention. The DARE America Annual Report (2007) stands by its claim to have positively influenced ten million students and families each year (pg.12), as well as seeing a 24% decline in youth substance abuse over the last six years (pg. 3). Conversely, numerous research results have described any substantial benefits gained as result of these programs as largely fleeting. The method and actual 'effectiveness' of this level of prevention is often scrutinized and has received its fair share of criticism over the years, as evidenced by numerous DARE research evaluations. Due to the agreed upon need for solid primary prevention strategies and the widespread variance on what is considered effective, a review of the results from primary prevention research studies will be explored in greater depth in the next chapter.

Harm Reduction

While supply and demand reduction strategies attempt to stop or impede drug use, harm reduction efforts attempt to provide a safe avenue for both the user and the community as a whole (Fischer, 2005). This strategy was born with the awareness that getting people into treatment and recovery programs is not always an immediately available, advisable or desirable option. Abstinence is not the primary aim; instead, reducing the levels of use and dependence through safe consumption and lessening the impact of use on the community are the main objectives (Inaba & Cohen, 2004; Levinson, 2002; UNODC, 2004). The

types of programs supported under a harm reduction premise can vary significantly. Providing nicotine patches for habitual smokers or arranging designated drivers for intoxicated individuals are examples of a harm reduction philosophy at work for less deviant usage situations. In addition, efforts to provide condoms to street workers or allowing the homeless to attend 'wet hostels,' which permits alcohol consumption in the facility, are contentious examples of harm reduction. Arguably one of the most controversial harm reduction strategies currently in use is safe injection sites. Programs such as *Insite* in Vancouver, British Columbia provide a site for users to inject illicit drugs under the supervision of health care professionals without legal reprise. A safe and clean atmosphere is provided and the decline of needle sharing and spread of infection are viewed as some of the harm minimizing aspects of the service (Insite for Community Safety, n.d; Fischer, 2005).

Criticisms of a harm reduction perspective view its ideals as simply allowing problems to exist and that it encourages use (Levinson, 2002; Beirness, Jesseman, Notarandrea & Perron, 2008). In addition, harm reduction can be interpreted as an endorsement for decriminalization or legalization of drugs. One key principle of harm reduction as noted by the Canadian Centre on Substance Abuse (CCSA) National Policy Working Group (1996) is that no moral judgment is made with respect to use. This does not imply approval; instead, it refers to the respect for the rights of an individual to choose (as cited in Beirness, Jesseman, Notarandrea & Perron, 2008). In effect the main contention may not be with the harm reduction philosophy itself, it may be more about the

acceptance of certain interventions or services on the harm reduction spectrum (Beirness, Jesseman, Notarandrea & Perron, 2008). The two most vital social and health issues today are alcohol and tobacco use; however, the use of nicotine patches to curb addicted individuals rarely invokes widespread debate. On the other hand, harm reduction initiatives aimed at the comparatively small number of illicit drug users tends to garner the majority of attention and examination based on moral objections.

The term prevention as it relates to the three methods discussed above, are unique in each circumstance. Due to the diversity of drug prevention programs it is not surprising that impassioned arguments for all methods are available. When examining prevention strategies it is beneficial to keep in mind that there is no quick fix to curb substance abuse and there is not one clear answer. Dynamic and multi-faceted approaches are required to make gains into solving the problem. No single prevention strategy can deal with the variety of issues that face Canadians today and no single approach has the means to solve the problem alone. Supply reduction, demand reduction and harm reduction efforts all have the potential to assist the wider issue of substance abuse by providing a comprehensive approach to the problem.

SCHOOL-BASED PREVENTION

School-based programs have been regarded as an essential component in averting substance use during the time of potential first experimentation. One of the best-case scenarios in drug education for children would be for parents or family members to offer timely and accurate information about drugs. However, this is not always possible to achieve. Not all parents are willing, able or equipped to speak frankly with their children about drugs. Therefore, school-based programs have the potential to close this gap or assist in providing a broad approach, for example by including social skills training aspects. According to Botvin (1995), the school setting allows teachers or facilitators to have direct access to their target audience during crucial formative years. In addition, the daily contact with such a large captive audience can ensure that teachings can be done on a regular basis and provide a consistent approach and curriculum. The DARE program is an example of a widely implemented school-based drug abstinence program.

DARE

DARE was created by the Los Angeles Police Department and the Los Angeles Unified School District in 1983. The aim was to foster positive relationships between law enforcement and youth, as well as provide education on the consequences of drug use (DARE America, 1996a; Mosher & Akins, 2007). The original version of DARE sent uniformed police into the classrooms

of fifth and sixth grade students to teach a variety of important lessons surrounding the topic of drugs over a seventeen-week period. The DARE program evolved over the years and began to introduce interactive programs which expanded to include all levels of students. The new DARE program incorporates role-playing and group discussions in order to maintain student interest in the program. The new program is a result of research-based evaluations from the Robert Wood Johnson Foundation (RWJF) and utilizes officers in a facilitation capacity instead of lecturing. DARE America declares, "kids who complete the new DARE program…view drug use as unacceptable, and possess a significantly decreased likelihood of ever using drugs" (DARE America pamphlet, n.d). The program has become so well known that forty-three countries worldwide have adopted the core curriculum including Canada, which implemented the program in 1993 (DARE America, 1996b).

In Canada, DARE is an established school based prevention program and remains as one of the key drug prevention strategies utilized by the RCMP and the Drug and Organized Crime Awareness Service (DOCAS). DARE programming falls within two of the RCMP's priorities, youth and organized crime (RCMP, 2008). Organized crime is often tied closely with the drug trade; therefore, by both preventing future drug use and potential criminal lifestyle, demand and supply reduction should occur.

It may seem unusual for police to be the sole delivery source of drug prevention programming since drug abuse is often considered a public health issue. However, there are a few important rationales for this particular program

structure. One of the key justifications for the inclusion of police officers in drug prevention for children was due in large part because police worked on the street and saw the effects of drugs daily. This hands-on experience could enable officers to use real life examples in relaying their message to students, including the legal ramifications from drug use (Mosher & Akins, 2007). In addition, utilizing police officers to deliver the prevention curriculum afforded an instant pool of credible and portable facilitators in a wide range of communities. Acquiring credibility and resources for a new endeavour, especially a social program, is often difficult to achieve. However, police inherently exude a certain level of integrity and reliability. When combined with their current presence in most communities the use of police offered an avenue for the program to gain a positive reputation and flourish.

In order to address concerns about utilizing police as prevention instructors, Hammond et al. (2007) investigated whether police officers are perceived as credible instructors of prevention programming. Due to the fact that students reaction to and acceptance of programming is often heavily ensconced in whether or not the instructor is trustworthy and credible, this research is useful in addressing those concerns. Data was taken from the Adolescent Substance Abuse Prevention Study (ASAPS). ASAPS incorporated a randomized experimental design exploring the effectiveness of prevention programs delivered by DARE officers. The five-year study included a cohort of seventh graders attending six metropolitan areas in the United States beginning in 2001 (Hammond et al., 2007).

The program evaluated was the 'Take Charge of Your Life' program. The sample included 6,069 students in both treatment and control conditions who reported they had participated in some type of drug education program. Outcome measures on attitudes were determined through a 5 point Lickert-type scale. Overall, students in the study were positive in their evaluation of prevention instructors, however, students who had police as instructors had significantly higher mean scores for all outcome measures compared with non-police instructors (Hammond et al., 2007).

It is possible that exposure to DARE has improved the image of police officers among adolescents. However, just because students evaluated police instructors more positively, does not translate into the fact that the programs were actually more effective in preventing drug use. Nevertheless, a positive image of police can be reflected in the wider community by way of being able to relate better with police and their role. This can translate into feeling confident in reporting crime and bolstering reassurance policing. Reassurance policing refers to a style of community policing attempting to improve the public confidence in police (Home Office, 2006). As reassurance policing gains momentum the use of police in visible roles, such as DARE, is one way to maintain a certain level of assurance in their abilities.

School-based prevention components

Under the umbrella of school-based programs there exists a wide compliment of program strategies. Information dissemination, social resistance skills training and personal and social skills training have all been widely

implemented into to youth programming. Within these categories diversity exists

given the needs of the population that is targeted. For example, peer-to-peer

training or parental components can be used in conjunction with a set school-

based curriculum. In addition, more evaluation research is beginning to emerge

on the use of identifying risk factors and incorporating protective factors. Risk

factors can include mental illness and poverty, while protective factors refer to

stable living arrangements and solid family relationships.

Information dissemination refers to teaching students accurate information

about drug use. This method provides one of the most basic prevention

strategies to dissuade drug use, often including discussions on the long-term

health effects as well as social and legal consequences (Botvin, 1995; Cuijpers,

2003). The main tenet behind this manner of education is that if children and

youth were provided with the correct information about drugs and their possible

side effects, then they would simply choose not to engage in their use (Levinson,

2002). Providing information, although a necessary component, may not

address all of the needs of a young person learning about drug use. Therefore,

the use of social resistance skills training is often included in order to assist

children in dealing with the social influences that surround drugs. The main

philosophy behind this approach is to teach children how to resist peer pressure

in social situations and thus, limit their drug use and exposure (Botvin, 1995).

The underlying premise for the addition of personal and social skills

training for students was that some students will want to smoke and drink for a

variety of reasons. As a result, the previous types of programming which

provides information and resistance skills, will not translate for those who choose to seek out alcohol and drugs. Therefore, the addition of a generic set of attributes and skills such as decision making, coping and stress management and building self esteem and assertiveness can be put to use in a variety of life situations not only drug resistance (Botvin, 1995). Within these categories peer-to-peer educators and parental components have been added to enhance the basic curriculum. Same age educators have the potential to illicit more candid discussions than adult led teachings. This is a positive result that is not achieved if only parental components are utilized. However, the inclusion of parental components ensures that school is not the only avenue in which skills are being reinforced.

Prevention research recognized the importance of identifying a variety of factors that can cause one to seek out ways to cope with daily life stressors. Risk factors can include such things as gender, age, mental illness and level of personal and social skill development. Outside influences are also risk factors such as unsupportive or nonexistent parental support, physical, mental or emotional abuse, poverty and homelessness. On the other hand, protective factors are those aspects in ones life that prevent them from choosing to partake in altering their consciousness. Protective factors can include well-developed personal skills, solid familial connections, stable living arrangements and proximity to norms that discourage illegal activity (UNODC, 2004). If the risk factors in ones life outweigh the number of protective factors, then drug use is more probable. In addition to risk and protective factors, developmental assets

can be incorporated into school-based programming. The Search Institute (2006) developed a list of forty developmental assets that serve as building blocks for children to gather in order to grow up healthy and responsible (a full list of assets appears in Appendix A). Similar to protective factors, the more developmental assets one has, the less likely they will be to engage in drug use or similar behaviours.

Combinations of the above components can be found in school-based program strategies in order to offer a variety of training and skills to students. The Canadian DARE structure offers both elementary and middle schools with ten-week curriculums including components on knowledge, resistance skills and creating positive relationships with police. The DARE program in British Columbia attempts to incorporate both protective factors and developmental assets into their current prevention education curriculum.

Research Limitations

Although DARE is a widely utilized program, the potential for the program components to actually effect change on its recipients has been difficult to assess. In addition, the methods in which 'effectiveness' results are gathered are debatable. Given the amount of funding, resources and time that go into the program it is essential to determine whether research evaluations in fact, are able to extract valuable and useable information to determine its level of success. Flawed or biased research designs and collection methods make it difficult to assess actual levels of effectiveness and success at reaching program expectations. In addition, the definition of what constitutes a success is not

always clear. Is life-long abstinence the only measure of success or can informed decision-making concerning drug use be viewed as an accomplishment? These issues will be explored further to address concerns regarding research limitations.

Collection of statistics

Problems with the reliability of drug use data is an important issue to examine in understanding the results from research studies. McCambridge & Strang (2006) set out to investigate the use of motivational interviewing with youth and drug prevention. Motivational interviewing (MI) refers to "a directive, client-centred counselling style for eliciting behaviour change by helping clients to explore and resolve ambivalence" (Rollnick & Miller,1995, para. 3). In the current study, drug use was the topic explored through individualized interviews. These interviews were conducted outside of the classroom with half of the fourteen to fifteen year-old research population. After a baseline, three-month and six-month survey, the results showed that the intervention made no difference in comparison with the control group concerning drug use. However, due to the fact the researchers actually spent time talking one on one with the students about drugs and drug use, it made them consider the problem of self-reported data. Despite the fact that the students were advised that all data would be confidential, they found that questionnaires of this type were often unreliable and under-representative of drug use. This subject is significant as the ambiguity of the results makes it difficult to assess effectiveness. Although the scope of this

issue is not easily measured, the results could influence the use of 'effectiveness lists' to promote successful programs.

Due to the abundance of research on prevention, the creation of various lists was undertaken in the United States. The National Institute on Drug Abuse, the United States Education List and the National Registry of Evidence-Based Programs and Practices are a few examples of best practice lists created in order to best equip schools with information about programs that are deemed successful. In general, best practices are viewed as processes or procedures that consistently show better results than other means. As more advanced and superior techniques become known, best practices are often adapted and changed (Business Dictionary, 2009). In comparison, evidence based solutions are based solely on scientific evidence on determining 'what works.' Only those programs and characteristics proven effective through vigorous research are considered valid (Welsh, 2007). In many states prevention programs are mandatory, thus, if they do not maintain a program that is deemed "successful" they will lose their funding. Gandhi, Murphy-Graham, Petrosino, Schwartz Chrismer & Weiss (2007) analyzed the evidence base for the inclusion of the programs that made it on the best practice lists and found limited evidence of success. For example, the Life Skills Training program is listed as being a 'model' or 'exemplary' program on numerous lists. However, upon further examination it was determined that a programs' status was often the result of only one or two positive evaluations. One research evaluation displaying statistically significant effects would be deemed 'promising' and two or more

evaluations would result in an 'effective' or 'model' designation (Gandhi, Murphy-Graham, Petrosino, Schwartz Chrismer & Weiss, 2007). Thus, schools would choose from this list of "promising" or "effective" programs in order to maintain their funding, however, the consistency for inclusion on these lists is questionable given the issues with statistical collection.

Recall and response editing are known to affect research findings. Response editing (recanting) is the intentional underreporting of drug use in order to respond in a socially acceptable manner. Recall, in contrast, often becomes more of an issue for longer-term studies and remembering events that occurred in the past. Fenrich & Rosenbaum (2003) undertook research in this area over a six-year period. In their research, they looked at DARE students and analyzed whether recanting occurred through various surveys. Most DARE research is based on self-reported questionnaires of drug use and behaviours. As a result, researchers examined whether students who initially disclosed drug use recanted or denied the use in subsequent surveys over the six-year span of research. The researchers found that 81% of cocaine use was eventually recanted and almost one-third of marihuana use was withdrawn. For all substance behaviours except alcohol, recanting was immediate during the next survey stage (Fenrich & Rosenbaum, 2003). The issue of underreporting appeared to focus on the sensitive nature of the information and anonymity assurances. Over reporting was often associated with the need to appear deviant or more mature. One possible side effect of abstinence based drug education is a reduced willingness to be honest about personal use in research

studies (McCambridge & Strang (2006). Although DARE participation did not prove to be a significant factor of recanting comparisons, it is still an important aspect to be aware of since school-based prevention research rely heavily on self-report data.

Research designs

Various types of research about drug abuse prevention have been initiated including pre-intervention, efficacy or effectiveness. Pre-intervention research is generally conducted prior to financial and resource commitments to a program being in place. Efficacy research on the other hand, attempts to understand how actual interventions work under somewhat controlled conditions (Donaldson, 2002). The controlled conditions allow for a limited sample of clients to undergo the basic components of the program strategy and determine whether it has the potential to affect drug use. An advantage of this research is that strict controls can be put in place to ensure proper delivery and thus, accurate results can be gleaned. However, the downfalls of this type of research are that conflict can arise when the same developers are evaluating their own program design. In addition, the program designs may not be feasible or there could be difficulty of replication in real world situations (Donaldson, 2002). In order to overcome some of the shortcomings of efficacy research, effectiveness research examines the results of "real-world" implementation of programs. The bulk of the DARE research evaluations that follow are effectiveness research outcomes based on actual classroom evaluations. This is an important aspect to consider, as

comparisons with competing programs may be difficult if different research designs are employed.

Research tension and bias

As tension and bias are possible within any type of research, it is important to be aware of how and why examinations into certain topics come to realization. With respect to DARE evaluations, it is useful to note the history between academia and law enforcement on this subject. Although this issue is more heavily ensconced in the United States it is still an important topic to consider.

DARE was created by law enforcement and school personnel, whereas, other programs that have been deemed effective have been the result of academic endeavours. As evaluations began to surface questioning the ability of the DARE program to impact drug use, tension began to develop. The ability for DARE to gain access to schools around the world was an extremely positive component; however, based on the research findings, programming needed an upgrade to include more current research prevention strategies (Rosenbaum, 2007). Other school-based program leaders with a research or academic background spoke publicly about their views on DARE. Dr. Gilbert Botvin, creator of Botvin Life Skills Training, claimed that "it is well established that DARE doesn't work," in addition, Dr. Phyllis Erickson, primary researcher for RAND and Project ALERT, suggested, "almost every researcher would agree there's enough information to judge DARE" (Cauchon, 1993, para. 7-8). When concerns arose about the lack of success in research evaluations, DARE

creators spent a lot of time defending its relevance instead of learning from the research evaluations (Rosenbaum, 2007). In a 1993 interview with USA Today, DARE Executive Director Glenn Levant responded to criticisms saying that the negative research evaluations of the DARE program were faulty and joked, "scientists will tell you bumblebees can't fly, but we know they can" (Cauchon, 1993, para. 4).

The potential strain and tension resulting from these early conflicts can still be detected in articles and research. It can be argued that some research may be aimed at discrediting other programs or at actively finding fault in programs, rather than seeking to understand what really can work in prevention. Given the heated debate that still exists, it is an important aspect to consider when analyzing research outcomes.

Limitations and restrictions are unavoidable in research; however, knowledge of these issues at the outset can serve to eliminate misconceptions. DARE is the only widely implemented primary education program currently being utilized in Canada; therefore, it is pertinent that research evaluations on this program are debated more extensively. In an attempt to succinctly review the research on the DARE program, a selected chronology of evaluation highlights will be the focus. Other prevention programs such as Life Skills Training (LST) and Project ALERT will also be included for discussion. Regardless of the fact that the majority of the studies surrounding DARE are completed in the United States and are therefore, not exactly applicable, the results are still worth uncovering in order to respond to the research conclusions. In addition, the

results of previous research findings are often cited today in an effort to promote

or refute specific program abilities. However, the bulk of the research on DARE

concentrates on the curriculum that was implemented and delivered in the 1990s.

Despite the noted research limitations, historical research is useful to be aware of

and to dissect in order to ensure that methodological strengths and weaknesses

are learned from for future evaluations.

Research Outcomes

One of the first published research attempts on the DARE program was

prepared by DeJong (1987) and the results were fairly positive. Research was

gathered on seventh grade Los Angeles students who participated in the DARE

program. The research found the program to be successful in averting drug use

and resisting offers, however, programming did not affect intentions, self-concept

or knowledge of drugs (as cited in Clayton, Cattarello & Johnstone, 1996;

Ringwalt, Ennett & Holt, 1991). Despite some optimistic assertions the

methodology of the study was problematic due to lack of randomization of groups

and employing only a post-test assessment. These shortfalls are important to

note as the lack of randomization reflects that not all groups were selected

arbitrarily and some bias could have been involved. In addition, the lack of pre-

test displays that a baseline level of usage behaviours is not available for

accurate comparison. Given these circumstances, confidence in the findings is

suspect. Building upon the deficiencies of the previous study, methods for

testing effectiveness including both pre and post-test evaluations began to

emerge.

Ringwalt, Ennett & Holt (1991) randomly assigned twenty schools to either a DARE or no-DARE condition and implemented pre and post-tests for both groups. They studied alcohol, cigarette and inhalant use, as well as attitudinal variables. Fifth and sixth grade students from North Carolina participated in this study in 1988, with ten schools receiving the seventeen week DARE program and the other ten being waitlisted to receive the curriculum at a later date. The outcomes were measured via self-reports on drug use with effect sizes being utilized to measure outcomes. The effect size, or difference between the intervention and the control group, showed that DARE had no effect on students' drug use or intentions; however, the program seemed to have a positive impact on changing students' attitudes and their assertiveness skills. One of the limitations of the study was that it was not able to address any long-term effects of drug abstinence (Ringwalt, Ennett & Holt, 1991).

Wysong, Aniskiewiez & Wright (1994) attempted to research the long-term effects of the programming by comparing results with seventh grade students who received the DARE program with those who did not after five years from initial program exposure. The results from this study showed no long-term effects on drug use or attitudes and behaviours from the DARE program participants compared with the control group. In another long term study, Ennett, Rosenbaum, Flewelling, Bieler, Ringwalt & Bailey (1994) did find support for DARE and its effects on cigarette smoking and alcohol use on rural students, however, the results were short-lived with no results after the one and two year

anniversaries. The positive note to mention for this research is that almost all effects were in a positive direction although results disappeared over time.

The volume of research on the program amplified even further as result of widespread implementation of DARE in schools. Ennett, Tobler, Ringwalt and Flewelling (1994) undertook a meta-analysis of project DARE in order to compile a comprehensive evaluation. Eight studies were identified and included for analysis. Effect size was calculated for six outcome measures including; knowledge about drugs, attitudes about drug use, social skills, self-esteem, attitude towards police and drug use. All outcomes for the DARE program were statistically significant except for drug use. This suggests outcomes that are more positive for those who took the DARE program compared with the control group, despite the fact the actual effects were deemed minimal (Ennett, Tobler, Ringwalt and Flewelling, 1994). These results were then compared with previous research done on interactive and non-interactive programs by Tobler. In comparison with these other categories of programs, DARE was found to be less effective than interactive programs but more effective than non-interactive programs on outcomes such as drug use and social skills. DARE effects were higher for knowledge, attitudes and social skills compared with non-interactive programs. Overall, the conclusion by the authors was that interactive programs compared with the DARE program yielded greater effective results (Ennett, Tobler, Ringwalt and Flewelling, 1994).

Dukes, Ullman & Stein (1995) embarked upon research over a four-year span on the DARE program. The measure of outcomes used in this research

included latent variables such as self-esteem, resistance to peer pressure, family, teacher and police bonds and acceptance of risky behaviours. This study was unique in that the unit of analysis was the classroom as opposed to an individual in order to achieve a higher level of reliability from the responses. The research involved almost 10,000 students from sixty elementary schools in five school districts. The population of analysis included useable data from 440 classroom units. This research did not include rural populations and the cohort was mainly Caucasian coming from middle or working class families. Overall, the results from this study revealed moderate to large effect sizes for all four latent variables (Dukes, Ullman & Stein, 1995, p. 431). Therefore, immediate benefits of the program were noted. Long-term research was still lacking, therefore, Dukes, Ullman & Stein (1996) completed a follow-up to their original research three years after initial exposure to determine the effects of the DARE program. The cohort of study was grade nine students who previously received the DARE program compared to a control group without prior exposure to the curriculum. Some of the variables measured included self-esteem, delay of experimentation, bonds with police and family, and polydrug use. The sample that was drawn from included 497 previous DARE students and 352 non-DARE students. The results showed that there was no statistical significance on any of the variables measured between the treatment and control groups.

Clayton, Cattarello & Johnstone (1996) examined five-year follow-up results for the DARE program. As a result of earlier findings, the hypothesis was that statistically significant effects might only be found later in student

development. The United States was the locale for the study and the baseline of

students consisted of 2,071 participants. Measurement outcomes were

examined for drug use, attitudes and peer issues. The results showed that

effects were modest and not sustained for the entire study period. Statistically

significant effects were obtained at the midpoint of the study but the effects were

similar for both groups. Significant short-term effects were measured for

attitudes and peer pressure resistance and it appeared DARE temporarily

averted the onset of usage. In continuing the above study, Lynam et al. (1999)

explored the results after ten years of follow-up. A total of 1,002 individuals who

received DARE in the sixth grade were re-evaluated at the age of twenty. The

results yielded no effects after ten years. Rosenbaum & Hanson (1998) also

researched the effects of the DARE program over an extended period. The

authors' conclusion from their six-year multi level analysis was that levels of drug

use did not differ with respect to attendance at DARE programming. They did

note that DARE was able to have both immediate and short-term effects for up to

two years on other variables such as resistance skills and attitudes towards

drugs, however, the results soon dissipated.

Although only a small sample of the research evaluations on the DARE

program has been provided, the chronology and findings of the research put the

evaluations into context. The conclusion one can draw from this research

sample as well as other similar research findings is twofold. Effects have been

noted for the DARE program albeit small at times and the results tend to dissolve

within a few years. In addition to the important distinctions noted by researchers

on the lack of "success" of the program, specific evaluations can be analyzed

further for discrepancies. In reviewing Ennett, Tobler, Ringwalt and Flewelling

(1994), it is important to note that the effect sizes for all categories were positive,

meaning, higher than the control group. The difference between the groups was

larger for knowledge, however, was only slightly greater for attitudes, social skills,

self-esteem, police and drug use. This can be viewed as a positive outcome for

the DARE program if the evaluation ended at that point (Curtis, 2008). However,

this data was then used to compare effect sizes with previously calculated effects

from Tobler's research on interactive and non-interactive programs. One flaw of

this as noted by Curtis (2008), is that comparing the DARE program against the

effect sizes of other programs does not clearly establish what is actually being

compared. The type, duration and intensity of the other programs were not

provided. Due to Tobler's original research being conducted under controlled

conditions, it is difficult to ascertain whether or not the same results would

surface in real world programming. In addition, it is also necessary to keep in

mind that only eight evaluations were included in the meta-analysis.

It is also useful to note that the longer-term evaluations such as Clayton

Cattarello & Johnstone (1996) and Lynam et al. (1999) studies were subject to

attrition effects. Although, attrition is unavoidable in long-term evaluations, it is

an important aspect to be cognizant of when determining effectiveness. In

Clayton, Cattarello & Johnstone (1996) study, over 40% of the total sample was

not available for the final wave of evaluations. In these long-term studies the

authors noted that exposure to DARE resulted in a temporary stabilizing effect,

however, the effects seem to decay over time and the distinction between the DARE group and non-DARE group became indistinguishable. Overall, a moderate level of prevention effectiveness over the short-term was noted. Given the previous lack of results for long-term effectiveness noted on three-year evaluations, the absence of notable outcomes after five and ten years are not surprising as well.

In addition, it is useful to understand that statistical significance can be ambiguous and it may not measure practical significance to the programs. Given the ability to tailor evaluation research to suit specific outcomes, all research needs to be considered as a starting point for effectiveness. It is also useful to keep in mind that any program that is widely and swiftly implemented must endure some criticism and growing pains and the DARE program is no different in that respect. The above research found small, but fleeting results from DARE programming, however, does that mean the entire program is a failure or does it mean that expectations were too lofty? The difficulty lies in evaluating effectiveness when there is not a clear distinction on what constitutes a success. If complete abstinence from drugs is the goal of school-based prevention programs then no program can be considered successful. This brings us back to one of the original questions posed, what is drug prevention trying to accomplish? Until this question is addressed, evaluations can only serve as useful information on the state of current programming rather than hard evidence of effectiveness.

Alternate Programs and Evaluations

Life Skills Training (LST)

As a result of only short-term positive results being noted in the DARE research, it is pertinent to analyze other programs to determine whether longer-term results can be achieved. Life Skills Training (LST) is a school-based program first developed in the 1970s by Gilbert Botvin. The LST program is designed to work with elementary and middle school students over a two or three year period. The program focuses on three major components, drug resistance skills, personal skills and social skills. The program promotes healthy behaviours, teaches skills to resist peer pressure, develop self-esteem and coping skills, and increases knowledge of the consequences of drug use (Botvin Life Skills Training, n.d.). The program does not individually train all its facilitators; instead, the Life Skills program curriculum is widely available for purchase via the Internet. The package provides teacher's manuals and student guides for use with elementary, middle and high school students. As this program is available to anyone, the consistency with which the program is delivered becomes a crucial component in its purported success.

Although this program is often touted as an effective program a few important points need to be considered. The program creator, Botvin, has authored the majority of research findings on this program. In addition, the research on this program does not only look at drug use, it also establishes whether violent behaviours can be curbed. Furthermore, in short-term studies tobacco and alcohol usage are the main outcome measures of success (Gandhi,

Murphy-Graham, Petrosino, Schwartz Chrismer & Weiss, 2007). The program

has offered longer-term results in regards to smoking use, but little difference is

noted with respect to drinking and marihuana consumption. In addition, sub

samples of students have been used to assess the program. Results showed

those receiving the program with a "high degree of fidelity" proved to have long

lasting benefits with drinking and marihuana behaviours. The problem with using

a subset of the group is that randomization does not occur and, therefore,

interpretation of the results may be skewed based on selection bias. Given this

information, the conclusion one can draw is that the program may work best only

under specific conditions (Gandhi, Murphy-Graham, Petrosino, Schwartz

Chrismer & Weiss, 2007).

Project ALERT

Project ALERT is a school-based program that was developed in the mid

1980s with the RAND Corporation and Phyllis Ellickson. The program works with

middle school students between grades six and eight. The goals of the program

are to prevent adolescents from beginning to use drugs and prevent those who

have experimented with drugs from becoming regular users (Project ALERT,

2009). The Project ALERT curriculum is also available for purchase online. The

package includes; lesson plans, videos, posters and access to a free telephone

help line to ensure proper implementation of the program. For larger groups of

educators, on-site workshops are also available. The premise behind the

program is abstinence based and offers a two-year curriculum. The first year

consists of eleven lessons, with the second year receiving "booster" sessions.

The lessons involve small group activities, role-playing and discussions (Project ALERT, 2009).

Similar to LST, most evaluations for Project ALERT have been completed by its creator. In addition, most research on Project ALERT utilizes the same data set, but evaluates different follow up milestones. Ellickson, Bell & McGuigan (1993) calculated evaluation results by separating students based on prior drug use and risk level (nonuser, experimenter and user) and then compared the results after the test. Results were gleaned immediately post-test, one year after and four years later. Outcomes showed that at the end of implementation, students categorized as "experimenters" had positive results concerning smoking, which meant they were less likely to engage in smoking in the last month or week. However, "users" reported being more likely to have smoked in the past month or week as compared with the control group. No significant findings were shown fifteen months after in relation to alcohol use. Project ALERT students did have greater knowledge and positive attitudes towards prevention than those in the control groups. However, follow-up results in the twelfth grade found virtually no statistically significant difference related to substance use behaviour (Ellickson, Bell & McGuigan, 1993). Overall, the effects were minimal and the treatment no longer had positive results at the end of high school. Once lessons stopped, the impact also stopped with cognitive factors lasting longer than usage effects (Gandhi, Murphy-Graham, Petrosino, Schwartz Chrismer & Weiss (2007).

In an effort to repeat the positive short-term results of Project ALERT, St.Pierre, Osgood, Mincemoyer, Kaltreider & Kauh (2005) conducted an independent study on the program. The independent trial measured past month usage of alcohol, cigarettes and marihuana. The results of this research did not find a clear distinction between treatment and non-treatment groups. Overall, the outcome measures were unable to replicate the success of Ellickson's findings. One potential reason for this is that Ellickson's research only surfaced among certain types of students, based on their previous level of experimentation. In addition, the exposure to other programs may have potentially masked precise outcomes. The results from this study display concerns about the application of Project ALERT in real world classrooms.

Additional Research Considerations

Given the above information on DARE, LST and Project ALERT, it does not appear that there is an overall victor in school prevention programming. Each program has achieved some positive results; however, no one program has shown widespread and consistent success or replicability. Therefore, instead of rating programs themselves, it may be more beneficial to concentrate on program components that can produce positive results. In addition, being cognizant of programs from a stakeholder's perspective can segue into attaining new insights into programming.

Program components

A meta-analysis prepared by Tobler et al. (2000) examined 144 studies of

207 school-based drug prevention programs. The results showed that those

programs employing interactive models were found in research to provide larger

effect on its students; however, it was not clear what specific components of the

interactive programs produce the effects over the non-interactive ones. White &

Pitts (1998) completed a meta-analysis that looked at whether or not programs

that target a specific type of drug use would garner results that are more

definitive. Effectiveness of drug prevention programs specifically on illicit drug

use was undertaken and the results showed that of the 62 evaluations included

in the review, only eighteen evaluations displayed effectiveness on drug use

behaviour with statistically significant results. Of those eighteen cases, sixteen of

the evaluations relied on self-report data alone. The meta-analysis also showed

that the prevention effort effects specifically for illicit substance use was small

and waned over time.

Other research has also narrowed down various characteristics that have

the potential to lead to behaviour modifications in school education programs.

McBride (2003) reviewed a variety of research components and found numerous

areas that were deemed important including; timing, setting clear goals, use of

social influence approach, interactive lessons, single drug focused and use of

peer interaction. Nation et al., (2003) also reviewed effectiveness principles and

nine key principles were associated with effective prevention, listed in Table 1.

Overall, it appears that a variety of programs and components have yielded

somewhat positive results. Therefore, the "best" program for each community or school may differ based on unique needs and abilities.

Table 1: Characteristics of effective programming

Comprehensive: Multiple interventions and multiple settings	Varied teaching methods: Active, skill-based components
Sufficient Dosage: Length and intensity of the program	Theory-driven: Based on scientific evidence
Positive relationships: Fostering positive parental and peer relationships	Appropriately timed: Provided when maximal impact can be achieved
Socioculturally relevant: Coalesce with community norms and cultural beliefs	Outcome Evaluation: Solid evaluation assessments
Well-trained staff: Sensitive, competent staff with training, support and supervision	

Stakeholders views

In addition to rigorous evidence-based research, the views of the participants and stakeholders of the program need to be included in the evaluation process. Due to the numerous studies revealing DARE's limitations, Drug and Organized Crime Awareness Services (DOCAS) and the RCMP developed a client survey of the DARE program to focus on stakeholders' views. In the survey, students, parents, teachers, principals and detachment

commanders involved in the DARE program were solicited to answer questions. The new DARE elementary program developed by the University of Akron's Institute of Health and Social Policy in Ohio was the program reviewed. The curriculum consisted of ten lessons given to grade five and six students taught by uniformed police officers during the 2005/2006 school year. The results were calculated based on the percentage of positive and negative responses to the questions posed. A total of 221 schools participated and 9,059 surveys were completed (RCMP, 2007, pg. 5). Overall, the results from the survey were overwhelmingly positive.

Of the 5,337 student responses received, 93% agreed that DARE assisted in helping them make decisions about drugs and 95% of students responded that DARE has helped them decide against future drug use (RCMP, 2007, pg. 8-9). The parent survey revealed that 88% of respondents claimed that their child spoke at home about how they will make future decisions about drugs and 87% agreed that their child talked at home because of the DARE programs influence. This is interesting considering that only 70% of students responded that they talked with family about things they learned in DARE. Teacher and principal results also revealed extremely positive results from the program. The one point that requires further attention is that only 60% of the 200 principals surveyed agreed that they chose the DARE program over other possible prevention programs (RCMP, 2007, pg. 53). This begs the question of whether any other programs are being offered or available in the variety of communities that the survey reached. From a law enforcement angle, of the 102 detachment

commanders and chiefs, only 41% agreed that they have enough well trained officers.

The results although extremely positive, should be examined with caution. As stated in the executive summary of the RCMP DARE survey, one goal of the program is to assist students in finding ways to resist drug use. The survey merely questioned whether the program was accepted and whether it met stakeholders' needs. Actual drug use resistance was not analyzed, nor was it the goal to measure. Therefore, the results from this survey show that a high level of Canadian DARE stakeholders are happy with the program, however, the probability that it actually helps reduce the instance of drug abuse is not possible to extrapolate. Popularity and acceptance of a program does not necessarily condone its continuance or prove its effectiveness. Client surveys do not fully get to the core of the issue, which is whether drug use can be delayed or averted as a result of the service. The results show that the efforts of DARE have the feeling of doing something productive; however, it is extremely difficult to actually gauge whether or not its effects are a direct result from its implementation.

Due to the criticisms of the DARE program, the Robert Wood Johnson Foundation (RWJF) awarded a $13.7 million dollar grant to the University of Akron in 2001 to research DARE extensively. The research involved a five-year study of the new science-based DARE curriculum tested in six cities in the United States, involving over 24,000 students. In October 2002, the University of Akron released its first results from their new seventh grade DARE curriculum, "Take Charge of Your Life." The initial findings stated the new program offered a more

effective intervention with more students deciding against using drugs and more

students learning how to refuse drugs, than control groups (RWJF, 2002).

However, over the next years of study little evidence was brought forth displaying

that DARE was *more* effective in reducing drug use than other programs. A

variety of other research endeavours surfaced on various other issues, such as

attrition, perceptions of police officers and the fidelity of program implementation.

This lack of research evaluation may point to the fact that determining

effectiveness in such a program continues to be difficult to achieve.

RECOMMENDATIONS & CONCLUSIONS

Drug prevention is a multifaceted, complex, and political issue. Given the positive results from stakeholders yet minimal effective research evaluation outcomes, the question to be considered is where does drug prevention go from here? Clear goal setting, including realistic expectations, along with an open mind toward new and innovative programs has the potential to propel prevention programming towards a productive future.

In order for prevention efforts to achieve any type of effectiveness success, attainable and realistic goals need to be established. Rosenbaum (2007) summarized DARE findings as having some immediate beneficial effects on knowledge and attitudes, however, the results dissipate within one to two years. In sum, the results "were very disappointing despite high expectations for the program" (Rosenbaum, 2007, pg. 817). High expectations may have been the problem. The expectations of what a once a week school-based program can deliver may have been too far reaching. When evaluations of effectiveness are based on self-reported drug usage specifically, many positive factors of a police or teacher/student relationship are being discounted. In addition, complete abstinence is not always realistic; however, it does not mean that it cannot be taught in conjunction with other program features such as resistance skills and developing assets. However, for abstinence-based programs one child experimenting with drugs would result in a failure. Therefore, programs should

not only measure success with changes in drug use behaviours, but broader health goals should be considered a positive outcome. If expectations of the program are to increase positive relationships with police or teachers, increase knowledge about drugs, and develop some developmental assets, then effectiveness can be better gauged in a substantive way.

In addition, the duration of results must be considered. Are school-based programs actually attempting to keep kids off drugs forever or is the wider goal to instil some positive social and developmental skills in order for each child to be equipped to make educated drug use decisions for themselves? It would be counter productive to label a program a failure in which a student attempts drug use once and then makes the decision not to use again. Although the student did not abstain for life, they did make a positive, informed decision. The trouble is determining whether the prevention program actually had an effect on the decision not to use and not other influences. At best, most abstinence school-based programs may only be able to affect change during the time in which the program is offered. As noted in research, long-term results have not been easily achieved. Therefore, instilling developmental assets that can last beyond the program may serve as the best methods of long-term behaviour change.

Most experts agree that recognizing that prevention is a community issue is essential for its success. An environment in which all types of prevention efforts are deemed valuable will ensure progress in the prevention realm. As the population ages and family and social dynamics change, new endeavours may prove more fruitful. Openness to change and the consideration towards

innovative techniques is the only avenue for which genuine progress will occur.

It is also useful to consider that a one-size fits all approach in prevention efforts,

are not conducive to many communities. No single campaign or program can be

expected to reduce drug use. It is neither realistic nor feasible for one program

or prevention method to be chosen for all stakeholders. Since appreciable

results from school-based programs may not be seen in the near future,

managing the issue now is essential through a variety of options.

British Columbia's Community Prevention Education Continuum (CPEC) is

attempting to include the community in prevention efforts. The program is used

as a platform for which coordinated prevention efforts are established between

the RCMP and other community partners. The program is unique to each

service area and it attempts to mobilize the community, bring resources, logistical

support and ideas to address local concerns (Mangham, 2008). Since DARE is

already entrenched and easily accessible by most community members, it is the

core component of the CPEC (Appendix B shows the full integration of CPEC

into the community through a chart created by DOCAS). The DARE program is a

stepping-stone to reach the community and in turn enables the community to

come up with initiatives that are beneficial and specific to their community needs.

Full effects from the two piloted programs in Cranbrook and Campbell River are

not known as the results are too fresh to be fully evaluated. However, the idea of

incorporating the community into drug prevention efforts ensures that law

enforcement is not the only avenue in which drug prevention is reinforced. Other

community services such as Addictions, Mental Health and Family Services can

come together to create original programming that can attempt to address each specific communities' needs. Involving the community in the decision-making creates an environment for positive change to occur over the long-term. Nevertheless, the problem once again comes down to results. What is the evidence that student councils, scholarship programs and youth media programs actually make a difference concerning drug use? Although the idea of involving the community is vital, normative change does not occur swiftly with readily appreciable results. Therefore, the effects may not be noticeable for years to come. Each community will require persistence and the ability to adapt to ever changing needs in order to advance in drug prevention programming.

In addition, a look towards harm minimizing aspects should not be discounted. The crucial stakeholders, the students themselves, have little power in influencing the type of drug education programs that are available to them. Poulin & Nicholson (2005) conducted research in Nova Scotia to determine the types of programs used to decrease involvement with alcohol, tobacco and other drugs. Their approach was to engage the school and community stakeholders to be creative in interventions based on what they deemed appropriate for their students. The results of a province wide self reported drug use survey was completed and harm minimization was seen as acceptable option for senior high schools. High schools reported a decrease in specific risks and negative consequences. Although far from being an ideal research design with lack of randomization, it does add worth to the idea that harm reduction may have a

place in schools, especially given that principal stakeholders are supportive and interested.

DARE has been widely researched and criticized for its lack of results, however, ending the conflict that surrounds DARE is essential in moving forward with prevention. Although research on the DARE program displayed small but fleeting results, so too have many other prevention programs. This displays the fact that no one program alone that can prevent drug use. By ending the conflict surrounding DARE, it will allow prevention to move forward. This does not mean that DARE is without its faults. However, in the absence of a widely available and proven school-based prevention program, it can have some benefits in some communities. Each community is unique and therefore, what works well in one community, may not have the same success in another. The focus may need to shift from whom can provide the "best" prevention program to what can work best in each community. If DARE is getting substantive results with youth in one locale, it does not necessarily mean that it should be promoted as the best or only option. Instead, it can be viewed as meeting the needs for the youth of that community at that specific time. An ideal youth prevention program would include a multi-agency approach with health, treatment, education and police components. In the absence of this idyllic model, the positive benefits of what is currently being achieved need not be lost. Positive relationships with police can be a result of these programs, which can be reflected in the wider community and should not be discounted.

Decision-makers who are charged with providing the "best" option in school-based prevention have a difficult task, to say the least. Above all, the central question remains, what is drug prevention attempting to achieve? If the goal is to achieve a statistically significant reduction in drug use, then the secondary question of whether effectiveness can accurately be determined through research evaluations alone is important to address. If statistically significant results cannot be achieved, should programming continue with the knowledge that effectiveness is difficult to determine? Alternatively, should programs continue to be supported based on the belief that doing something is better than doing nothing, regardless that effects cannot be quantified? These questions and issues are not easily answered or remedied. Substantive versus statistically significant results can yield opposing views on what constitutes success.

Drug prevention is a very complex and political issue, with strong emotional arguments on each end of the spectrum. Prior to decision-makers ending any school-based program altogether, a redefinition of goals and expectations may be required. DARE, LST and Project ALERT may not be the answer in *all* communities; however, it does not mean that they cannot have *some* positive results in *some* areas. As West Vancouver, British Columbia has opted to replace the DARE program, it will be important to see what program takes its place and how the effectiveness of this new program is determined. In addition, the goals, expectations, and evaluation methods will also be crucial in predicting the success of the new West Vancouver program. As DARE, LST and

Project ALERT all have relatively similar goals and structures, it will be important to see if any "new" programs actually offer an original approach or if it is a similar program with a new name.

Overall, school-based prevention alone cannot solve the problem, yet it can be viewed as one reasonable method of "insurance" in order to manage the issue. The best solution in drug prevention may be to adopt a set of functional and developmental components instead of endorsing specific programs. Furthermore, the root of why certain drugs are illegal and others are not will likely continue to fuel the drug use debate. Illicit drug use tends to garner more widespread outcry compared with legal substance use, despite the fact that the social cost and life lost for users of illegal substances pales in comparison with alcohol and tobacco. Drug prevention methods can often be rooted with an underlying message espousing certain morals, as opposed to simply uncovering what can work best for all those dealing with addiction and substance abuse issues. As noted by Pollan (1999):

> You would be hard pressed to explain the taxonomy of chemicals underpinning the drug war to an extraterrestrial. Is it for example, addictiveness that causes this society to condemn a drug? (No; nicotine is legal, and millions of Americans have battled addictions to prescription drugs). So then, our inquisitive alien might ask, is safety the decisive factor? (Not really; over-the-counter and prescription drugs kill more than 45,000 Americans every year, while according to the New England Journal of Medicine, "There is no risk of death from smoking marihuana)." Is it drugs associated with violent behaviour that your society condemns? (If so, alcohol would still be illegal.) Perhaps, then, it is the promise of pleasure that puts a drug beyond the pale? (That would once again rule out alcohol, as well as Viagra). Then maybe the molecules you despise are the ones that alter the texture of consciousness, or even a human's personality? (Tell that to someone who has been saved from depression by Prozac).

Pain, pleasure and escape are all common and valid reasons for using substances. If we ourselves have trouble identifying why a drug is prohibited, it is difficult to teach others why they should not partake in its effects and why "just saying no" is the best answer.

APPENDICES

APPENDIX A: 40 DEVELOPMENTAL ASSETS

40 Developmental Assets® for Adolescents (ages 12-18)

Search Institute® has identified the following building blocks of healthy development—known as Developmental Assets®—that help young people grow up healthy, caring, and responsible.

HEALTHY COMMUNITIES • HEALTHY YOUTH®

External Assets

Support
1. **Family support**—Family life provides high levels of love and support.
2. **Positive family communication**—Young person and her or his parent(s) communicate positively, and young person is willing to seek advice and counsel from parents.
3. **Other adult relationships**—Young person receives support from three or more nonparent adults.
4. **Caring neighborhood**—Young person experiences caring neighbors.
5. **Caring school climate**—School provides a caring, encouraging environment.
6. **Parent involvement in schooling**—Parent(s) are actively involved in helping young person succeed in school.

Empowerment
7. **Community values youth**—Young person perceives that adults in the community value youth.
8. **Youth as resources**—Young people are given useful roles in the community.
9. **Service to others**—Young person serves in the community one hour or more per week.
10. **Safety**—Young person feels safe at home, school, and in the neighborhood.

Boundaries & Expectations
11. **Family boundaries**—Family has clear rules and consequences and monitors the young person's whereabouts.
12. **School Boundaries**—School provides clear rules and consequences.
13. **Neighborhood boundaries**—Neighbors take responsibility for monitoring young people's behavior.
14. **Adult role models**—Parent(s) and other adults model positive, responsible behavior.
15. **Positive peer influence**—Young person's best friends model responsible behavior.
16. **High expectations**—Both parent(s) and teachers encourage the young person to do well.

Constructive Use of Time
17. **Creative activities**—Young person spends three or more hours per week in lessons or practice in music, theater, or other arts.
18. **Youth programs**—Young person spends three or more hours per week in sports, clubs, or organizations at school and/or in the community.
19. **Religious community**—Young person spends one or more hours per week in activities in a religious institution.
20. **Time at home**—Young person is out with friends "with nothing special to do" two or fewer nights per week.

Internal Assets

Commitment to Learning
21. **Achievement Motivation**—Young person is motivated to do well in school.
22. **School Engagement**—Young person is actively engaged in learning.
23. **Homework**—Young person reports doing at least one hour of homework every school day.
24. **Bonding to school**—Young person cares about her or his school.
25. **Reading for Pleasure**—Young person reads for pleasure three or more hours per week.

Positive Values
26. **Caring**—Young person places high value on helping other people.
27. **Equality and social justice**—Young person places high value on promoting equality and reducing hunger and poverty.
28. **Integrity**—Young person acts on convictions and stands up for her or his beliefs.
29. **Honesty**—Young person "tells the truth even when it is not easy."
30. **Responsibility**—Young person accepts and takes personal responsibility.
31. **Restraint**—Young person believes it is important not to be sexually active or to use alcohol or other drugs.

Social Competencies
32. **Planning and decision making**—Young person knows how to plan ahead and make choices.
33. **Interpersonal Competence**—Young person has empathy, sensitivity, and friendship skills.
34. **Cultural Competence**—Young person has knowledge of and comfort with people of different cultural/racial/ethnic backgrounds.
35. **Resistance skills**—Young person can resist negative peer pressure and dangerous situations.
36. **Peaceful conflict resolution**—Young person seeks to resolve conflict nonviolently.

Positive Identity
37. **Personal power**—Young person feels he or she has control over "things that happen to me."
38. **Self-esteem**—Young person reports having a high self-esteem.
39. **Sense of purpose**—Young person reports that "my life has a purpose."
40. **Positive view of personal future**—Young person is optimistic about her or his personal future.

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APPENDIX B: COMMUNITY PREVENTION EDUCATION CONTINUUM (CPEC)
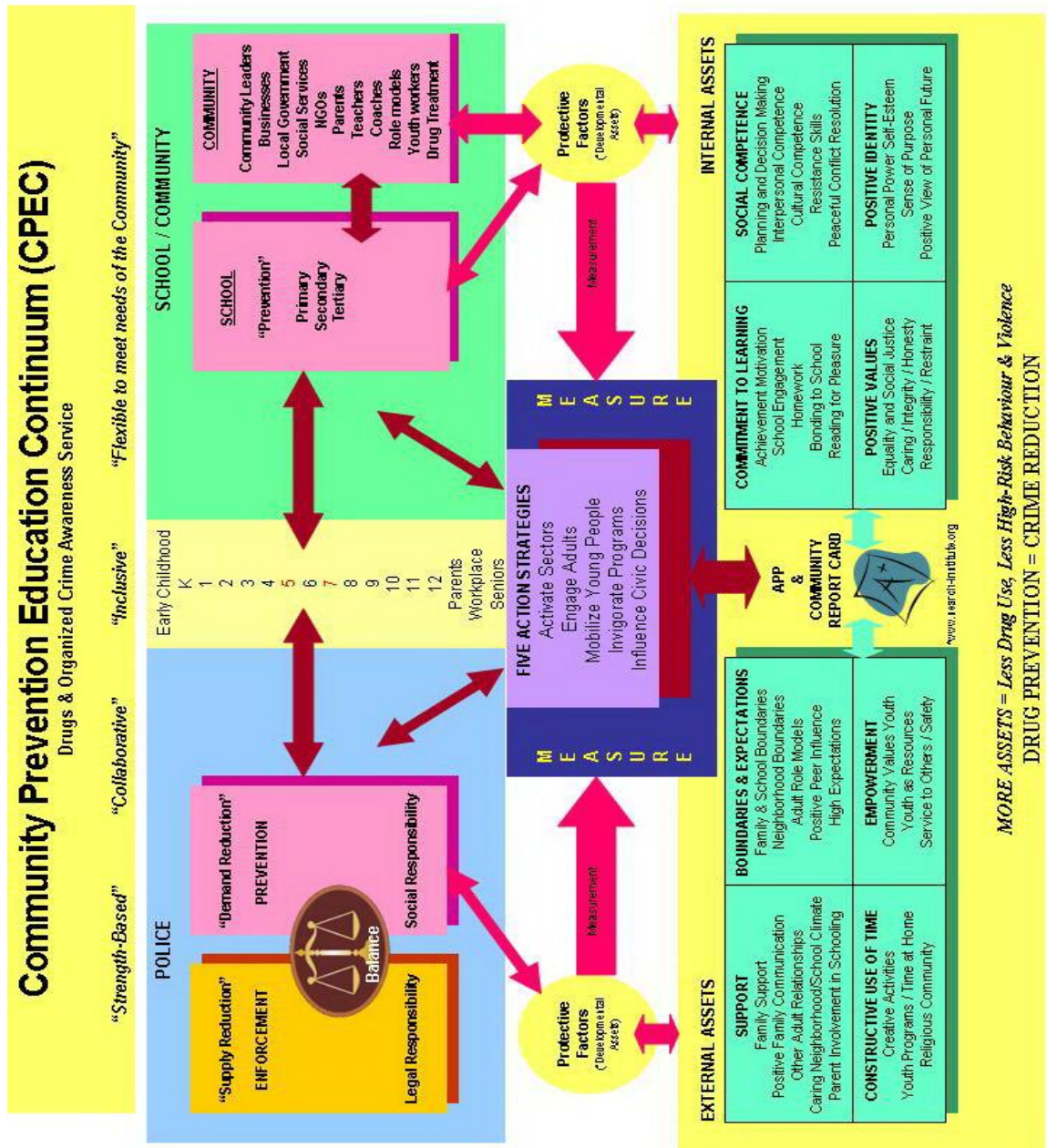
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