

# PREVENTION AND PUBLIC HEALTH

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The ASAM Review Course of Addiction Medicine  
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## Financial Disclosures

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No Disclosures



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## Learning Objectives

**Interact** with patients and professional colleagues so as to display professionalism in all activities, by demonstrating commitment to the health and well-being of individuals and society through ethical practice, profession-led regulation, and high personal standards of behavior.

**Identify** their feelings and attitudes that promote or prevent therapeutic responses to their patients with substance use disorders.

**Reflect** on the role of behavioral interventions for patients and families including formal intensive ambulatory and inpatient treatment and informal programs such as mutual aid groups in the recovery process for patients in their practice/communities.



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## Presentation Outline

- ◆ Concepts in prevention
  - ◆ Levels of prevention
  - ◆ Arenas of prevention
- ◆ Overdose prevention
  - ◆ Naloxone
- ◆ Prevention of blood borne infections
  - ◆ Syringe access
- ◆ Opioid maintenance as prevention
  - ◆ Multiple areas



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## Goals of Prevention

- ◆ To reduce mortality
- ◆ To reduce transmission of blood-borne viruses
- ◆ To preserve or improve the general health and well being of individuals
- ◆ To reduce drug-related crime
- ◆ To reduce or cease drug use



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## Primary Prevention

Primary prevention aims to prevent disease or injury before it ever occurs. This is done by preventing exposures to hazards that cause disease or injury, altering unhealthy or unsafe behaviours that can lead to disease or injury, and increasing resistance to disease or injury should exposure occur.

- ◆ Prevention of drug use
- ◆ Prevention of HIV & HCV: Syringe access, condoms, opioid maintenance



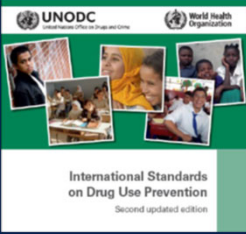
<https://www.iwh.on.ca/what-researchers-mean-by/primary-secondary-and-tertiary-prevention>

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## ASAM Public Policy Statement on Prevention

"Require schools to institute evidence-informed prevention education and standards."

- Early Adolescence
- Prevention education based on social competence and influence



International Standards on Drug Use Prevention, Second updated edition.  
Vienna: United Nations Office on Drugs and Crime and the World Health Organization, 2018.

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## Characteristics deemed to be associated with efficacy and/or effectiveness

- ♦ Use interactive methods;
- ♦ Delivered through a series of structured sessions (typically 10-15) once a week, often providing boosters sessions over multiple years;
- ♦ Delivered by trained facilitator (including also trained peers);
- ♦ Provide opportunity to practice and learn a wide array of personal and social skills;
- ♦ Impact perceptions of risks associated with substance use, emphasizing immediate consequences;
- ♦ Dispel misconceptions regarding the normative nature and the expectations linked to substance use.

International Standards on Drug Use Prevention, Second updated edition.  
Vienna: United Nations Office on Drugs and Crime and the World Health Organization, 2018.

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## Characteristics deemed to be associated with lack of efficacy and/or effectiveness or with adverse effects

- ♦ Utilize non-interactive methods, such as lecturing, as a primary delivery strategy;
- ♦ Information-giving alone, particularly fear arousal.
- ♦ Based on unstructured dialogue sessions;
- ♦ Focus only on the building of self-esteem and emotional education;
- ♦ Address only ethical/ moral decision making or values;
- ♦ Use ex-drug users as testimonials.

International Standards on Drug Use Prevention, Second updated edition.  
Vienna: United Nations Office on Drugs and Crime and the World Health Organization, 2018.

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## Secondary Prevention

- ♦ Secondary prevention aims to reduce the impact of a disease or injury that has already occurred. This is done by detecting and treating disease or injury as soon as possible to halt or slow its progress, encouraging personal strategies to prevent reinjury or recurrence, and implementing programs to return people to their original health and function to prevent long-term problems.
- ♦ Screening and referral for substance use disorders
- ♦ Overdose prevention with naloxone access

<https://www.iwh.on.ca/what-researchers-mean-by/primary-secondary-and-tertiary-prevention>

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## Tertiary Prevention

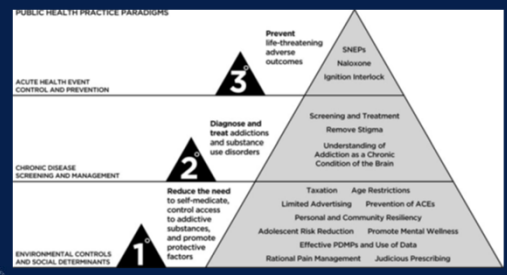
Tertiary prevention aims to soften the impact of an ongoing illness or injury that has lasting effects. This is done by helping people manage long-term, often-complex health problems and injuries (e.g. chronic diseases, permanent impairments) in order to improve as much as possible their ability to function, their quality of life and their life expectancy.

- ♦ Medications for addiction treatment

<https://www.iwh.on.ca/what-researchers-mean-by/primary-secondary-and-tertiary-prevention>

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## A Conceptual Framework of Public Health Approaches to Preventing Substance Misuse and Addictions



Butler JC. 2017 ASTHO President's Challenge: Preventing Substance Misuse and Addiction. J Public Health Manag Pract. 2017;23(5):531-536.

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## World Health Organization Prevention of Hepatitis C

### Primary prevention

- ♦ safe handling and disposal of sharps and waste;
- ♦ provision of comprehensive harm-reduction services to people who inject drugs including sterile injecting equipment and effective treatment of dependence;
- ♦ testing of donated blood for HCV; and
- ♦ prevention of exposure to blood during sex.

### Secondary prevention:

For people infected with the hepatitis C virus, WHO recommends:

- ♦ immunization with the hepatitis A and B vaccines to prevent coinfection from these hepatitis viruses and to protect their liver;
- ♦ early and appropriate medical management including antiviral therapy; and
- ♦ regular monitoring for early diagnosis of chronic liver disease



[www.who.int/news-room/fact-sheets/detail/hepatitis-c](http://www.who.int/news-room/fact-sheets/detail/hepatitis-c)

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## Environmental Interventions

Primordial prevention consists of actions to minimize future hazards to health and hence inhibit the establishment factors (environmental, economic, social, behavioral, cultural) known to increase the risk of disease

Examples related to drug use with some evidence base

- ♦ Reducing the number of liquor outlets
- ♦ Raising the cost of tobacco
- ♦ Allowing purchase of clean syringes
- ♦ Economic and social equality?



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## Supply Reduction

“Preventing, stopping, disrupting or otherwise reducing the production and supply of illegal drugs; and controlling, managing and/or regulating the availability of legal drugs.”

- ♦ Age restrictions
- ♦ Limiting density of licensed retailers and venues
- ♦ Prevent, stop, disrupt or reduce production and supply



Department of Health, National Drug Strategy 2017-2026, Canberra: Commonwealth Department of Health; 2017

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## Demand Reduction

“Preventing the uptake and/or delaying the onset of use of alcohol, tobacco and other drugs; reducing the misuse of alcohol, tobacco and other drugs in the community and supporting people to recover from dependence through evidence-informed treatment”

- ♦ Price mechanisms- taxes
- ♦ SUD treatment
- ♦ Addressing underlying determinants of substance use disorders



Department of Health, National Drug Strategy 2017-2026, Canberra: Commonwealth Department of Health; 2017

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## Harm Reduction

“Reducing the adverse health, social and economic consequences of the use of drugs, for the user, their families and the wider community”

- ♦ Smoke-free areas
- ♦ Responsible venue operations
- ♦ Hepatitis B vaccination
- ♦ Syringe and naloxone access



Department of Health, National Drug Strategy 2017-2026, Canberra: Commonwealth Department of Health; 2017

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## Harm Reduction Principles

A set of practical strategies by which harm related to illicit drug use is reduced

- ♦ Recognizes that drug use is common
- ♦ Include a “spectrum” of strategies from safer use to abstinence
- ♦ Low threshold: entry requirements appropriate to the targeted group
- ♦ Goal: a longer and healthier life, regardless of drug use

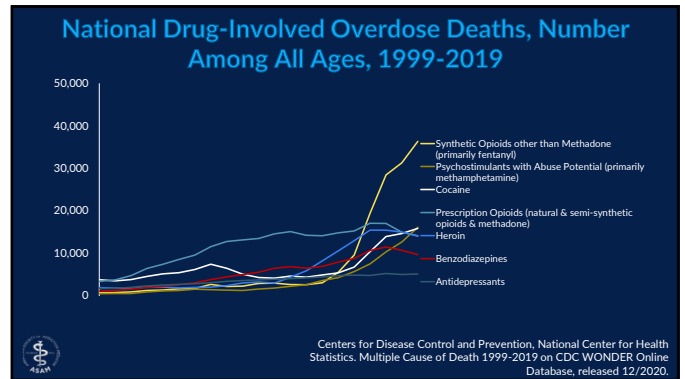


<https://harmreduction.org/about-us/principles-of-harm-reduction/>

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## Strategies to address overdose

- ◆ Increase access to naloxone
- ◆ Good Samaritan laws
- ◆ Prescription monitoring programs
- ◆ Prescription drug take back events
- ◆ Safe opioid prescribing education
- ◆ Expansion of opioid agonist treatment

Kerensky T, Walley AY. Opioid overdose prevention and naloxone rescue kits: what we know and what we don't know. *Addict Sci Clin Pract.* 2017;12(1):4.  
Babu KM, Brent J, Juurlink DN. Prevention of Opioid Overdose. *N Engl J Med.* 2019;380(23):2246-2255.

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## Naloxone

- ◆ Prescribed opioid antagonist which rapidly reverses opioid related sedation and respiratory depression and may cause withdrawal
- ◆ Overdose victims wake up minutes after administration
- ◆ Displaces opioids from the receptors for 30-90 minutes
- ◆ No pleasant psychoactive effects
- ◆ No other effects

Sporer KA. Buprenorphine: a primer for emergency physicians. *Ann Emerg Med.* 2004;43(5):580-584.

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## Training Essentials

- ◆ What does naloxone do?
- ◆ Overdose recognition
  - Sternal rub/grind
- ◆ Action
  - Call EMS and administer naloxone
- ◆ Recovery position

New York State Technical Working Group on Resuscitation Training in Naloxone Provision Programs  
[https://www.health.ny.gov/diseases/aids/general/opioid\\_overdose\\_prevention/docs/resuscitation\\_training.pdf](https://www.health.ny.gov/diseases/aids/general/opioid_overdose_prevention/docs/resuscitation_training.pdf)

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## An Innovative Model for Naloxone Use Within an OTP Setting

395 opioid treatment program patients trained on overdose & the use of naloxone; provided with 2-dose naloxone kits in a prospective study

- ◆ Over the course of 12 months 73 (18%) participants reported overdose reversals using naloxone auto-injector kits on 114 people -mostly friends and family
- ◆ None reported a kit used on themselves

Katzman JG, Takeda MY, Greenberg N, et al. Association of Take-Home Naloxone and Opioid Overdose Reversals Performed by Patients in an Opioid Treatment Program. *JAMA Netw Open.* 2020;3(2):e200117

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## Pharmacy

Pharmacies across the country are now carrying naloxone

- ◆ Dispense with a patient specific order
  - ◆ Co-prescribing with opioid prescriptions an increasing practice
- ◆ Dispense per an non-patient specific (standing) order

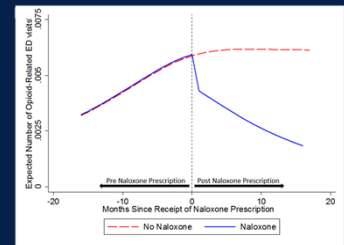


Naloxone Overdose Prevention Laws <http://pdaps.org/datasets/laws-regulating-administration-of-naloxone-1501695139>

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## Opioid-Related ED Visits by Receipt of Naloxone Prescription Among Primary Care Patients with Chronic Pain

In a population with a rate of opioid-related emergency department visits of 7/100 person-years, prescribing naloxone to 29 patients would avert 1 opioid-related visit in the subsequent year



Coffin PO, Behar E, Rowe C, et al. Nonrandomized Intervention Study of Naloxone Coprescription for Primary Care Patients Receiving Long-Term Opioid Therapy for Pain. *Ann Intern Med.* 2016;165(4):245-252.

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## Prevention of blood borne infections

### Syringe access



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## Syringe Access

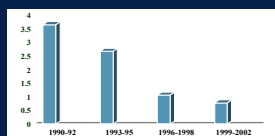
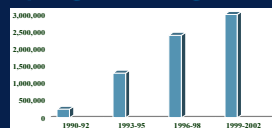
- ◆ Legal options vary by state
- ◆ Syringe exchange programs
- ◆ Over the counter sales at pharmacies (47 states)
- ◆ Prescription (for purpose of reducing spread of blood borne illnesses)
- ◆ Counseling: "I hope you never inject again but I want to be sure you and your associates know where to get a sterile syringe."



Syringe Distribution Laws <http://lawattlas.org/datasets/syringe-services-programs-laws>

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## Syringe Exchange and HIV Incidence Among PWID



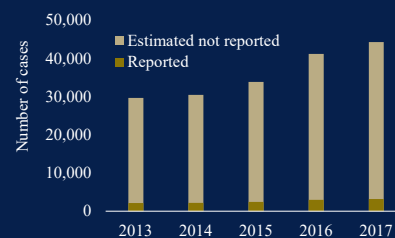
From 1990 to 2002, in New York City:  
The number of needles exchanged rose tenfold  
HIV seroincidence among drug users dropped

Des Jarlais DC, Perlis T, Arasteh K, et al. HIV incidence among injection drug users in New York City, 1990 to 2002: use of serologic test algorithm to assess expansion of HIV prevention services. *Am J Public Health.* 2005;95(8):1439-1444.



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## Reported and estimated number of acute hepatitis C cases



Source: CDC, National Notifiable Diseases Surveillance System.

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### Reductions in Hepatitis C associated with syringe access

#### New York City

- 1990: 80% of all new (<6yrs) IDUs Hepatitis C positive
- 2001: 38% of all new IDUs Hepatitis C positive
- The median time between the first use of injection drugs and HCV infection rose from 3–4 months in the 1980s to 4–7 years in the 1990s

Des Jarlais DC, Perlis T, Arasteh K, et al. HIV incidence among injection drug users in New York City, 1990 to 2002: use of serologic test algorithm to assess expansion of HIV prevention services. *Am J Public Health*. 2005;95(8):1439-1444.

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### Opioid Maintenance and Prevention

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### Opioid maintenance and mortality

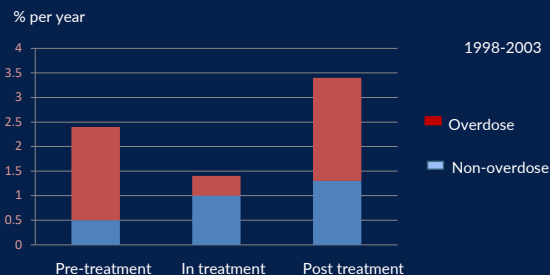
Prospective study of opioid dependent patients applying for methadone (and buprenorphine) treatment in Norway

- 3,789 subjects followed for up to 7 years

Clausen T, Ancheren K, Waal H. Mortality prior to, during and after opioid maintenance treatment (OMT); a national prospective cross-registry study. *Drug Alcohol Depend*. 2008;94(1-3):151-157.

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### Mortality before, during and after OMT in Norway



Clausen T, Ancheren K, Waal H. Mortality prior to, during and after opioid maintenance treatment (OMT); a national prospective cross-registry study. *Drug Alcohol Depend*. 2008;94(1-3):151-157.

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### Opioid maintenance and mortality

#### Overdose deaths in Baltimore

Adjusting for heroin purity and the number of methadone patients, there was a statistically significant inverse relationship between heroin overdose deaths and patients treated with buprenorphine ( $P = .002$ ).

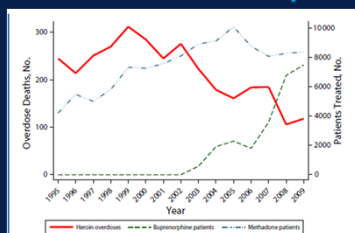


FIGURE 1—Heroin overdose deaths and opioid agonist treatment: Baltimore, MD, 1995–2009.  
Schwartz RP, Gryczynski J, O'Grady KE, et al. Opioid agonist treatments and heroin overdose deaths in Baltimore, Maryland, 1995–2009. *Am J Public Health*. 2013;103(5):917-922.

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### Opioid maintenance reduces infections

- Methadone maintenance was associated with a 54% reduction in risk of HIV infection among people who inject drugs
- Buprenorphine has been shown to reduce risk behaviors
- Some studies are finding reductions in HCV incidence among patients on methadone or buprenorphine

MacArthur BMJ 2012, Tsui JAMA Int 2014, White MJA 2014, Arterian CMAJ 2019

MacArthur George J, Minozzi Silvia, Martin Natasha, Vickerman Peter, Deren Sherry, Bruneau Julie et al. Opiate substitution treatment and HIV transmission in people who inject drugs: systematic review and meta-analysis *BMJ* 2012; 345:e5945  
Tsui JI, Evans JL, Lum PJ, Hahn JA, Page K. Association of Opioid Agonist Therapy With Lower Incidence of Hepatitis C Virus Infection in Young Adult Injection Drug Users. *JAMA Intern Med*. 2014;174(12):1974–1981

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## Dose matters

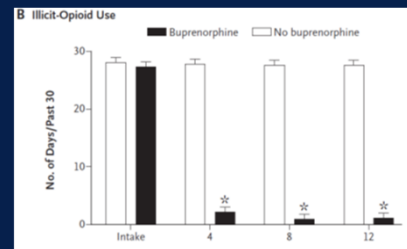
**Table 2: Hazard ratios for associations between incident hepatitis C virus infection and perceived dosage of opioid agonist treatment, categorized according to buprenorphine and patient-perceived dosage adequacy**

Dosage of opioid agonist treatment and perceived adequacy	No. of observations	No. of person-years of follow-up	No. of incident cases	Rate per 100 person-years	Unadjusted HR (95% CI)	Adjusted HR† (95% CI)
Not enrolled in opioid agonist treatment	1051	762.76	128	16.91	1.00 (Ref.)	1.00 (Ref.)
High dosage, perceived adequate	390	367.38	6	1.63	0.10 (0.07-0.30)	0.27 (0.10-0.74)
High dosage, perceived inadequate	113	69.89	2	2.86	0.17 (0.09-1.20)	0.37 (0.09-1.49)
Moderate dosage, perceived adequate	492	156.56	12	7.66	0.45 (0.28-1.07)	0.83 (0.50-1.32)
Moderate dosage, perceived inadequate	129	69.28	6	8.66	0.51 (0.27-1.00)	1.40 (0.63-3.24)
Low dosage, perceived adequate	361	158.05	14	8.86	0.52 (0.43-1.32)	1.21 (0.69-2.14)
Low dosage, perceived inadequate	175	59.42	12	20.20	1.42 (0.79-2.56)	1.93 (1.06-3.55)

HRs for incident hepatitis C virus infection, adjusted for age, sex, and duration of follow-up. †Adjusted for age, sex, duration of follow-up, and duration of follow-up. ‡Adjusted for age, sex, duration of follow-up, and duration of follow-up.

Artenie AA, Minoyan N, Jacka B, et al Opioid agonist treatment dosage and patient-perceived dosage adequacy, and risk of hepatitis C infection among people who inject drugs. CMAJ. 2019 Apr 29;191(17):

## Interim buprenorphine



Sigmon SC, Ochalek TA, Meyer AC, et al Interim Buprenorphine vs. Waiting List for Opioid Dependence. N Engl J Med. 2016 Dec 22;375(25):2504-2505.

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## Opioid maintenance: other risk behaviors

Compared to former buprenorphine and methadone patients and those never on maintenance current patients had, in the past month

- fewer non-fatal overdoses (OR = 0.5)
- Additionally, they were less likely to have
- injected frequently (OR = 0.4)
- to have used heroin daily or almost daily (OR = 0.3)
- to have committed theft (OR = 0.6)
- engaged in drug dealing (OR = 0.7)

Bretteville-Jensen AL, Lillehaugen M, Gjersing L, Andreas JB. Illicit use of opioid substitution drugs: prevalence, user characteristics, and the association with non-fatal overdoses. Drug Alcohol Depend. 2015 Feb 1;147:89-96.

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## Implementing Transmucosal Buprenorphine for Treatment of Opioid Use Disorder: NYS Best Practices

- Counseling: Prescribers should ensure continued access to buprenorphine even in the absence of counseling.
- Poly-substance use: Prescribers should not discharge patients solely based on the use of prescribed or unprescribed substances including, but not limited to, cannabis, and benzodiazepines.
- Length of treatment: Treatment with buprenorphine should continue for as long as the patient is benefiting. Risk of return to illicit opioid use is high when treatment is discontinued.

Implementing Transmucosal Buprenorphine for Treatment of Opioid Use Disorder NYS DOH&OASAS 2019

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## Conclusions

Public health and prevention principles may be applied to

- Prevention or delaying onset of drug use
- Reducing or stopping drug use
- Prevention of morbidity and mortality despite drug use

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Measures aiming to delay the onset of alcohol use are examples of:

- Supply reduction
- Primary prevention
- Secondary prevention
- Tertiary prevention

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Which of the following has been documented to reduce the risk of opioid overdose?

- A. Provision of naloxone
- B. Good Samaritan laws protecting persons with an overdose and the rescuer
- C. Prescription take back programs
- D. Prescription monitoring programs

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Which of the following is considered to be an effective to prevent drug use?

- A. Using ex-drug users as testimony
- B. Giving information in lectures, focusing on fear arousal
- C. Dispelling misconceptions regarding the normative nature and the expectations linked to substance use
- D. Addressing only ethical/ moral decision making or values

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