

Prevention – How to look after the next generation

Article 33 of the Convention on the Rights of the Child says, “States Parties shall take all appropriate measures, including legislative, administrative, social and educational measures, to protect children from the illicit use of narcotic drugs and psychotropic substances as defined in the relevant international treaties”.

I was a biology teacher in a grammar school for boys for over 30 years and introduced Health Education. There was no drug education policy, no guidelines, no books to help so I used my common sense and set out to try to prevent them from ever starting.

I knew that children always want and need explanations for everything, so I decided to show them exactly how drugs can affect the body, particularly brain cells, using simple scientific diagrams and reasoning. My talks would be factual, non-patronising and regularly updated. Watching the faces of children change as understanding slowly dawns as to how drugs work is very rewarding.

My greatest concern was then, and is now, cannabis. It’s the most commonly used illegal drug, 2-3 million in the UK, and its dangers are constantly downplayed. Up-to-date research findings are ignored, disputed and challenged by people, some of whom are users. Most don’t read all or even any of the literature. Some cherry-pick the occasional paper to suits their purpose, constantly quote it and argue that it proves their point despite the many others that find otherwise.

The normalisation of drug use is indefensible. Only around 3% of the adult population in the UK regularly use drugs so around 97 % do not. Drug use is clearly not the norm and this must be constantly emphasised.

The first thing is to look at the brain cells and understand how mind-altering drugs work. I apologise to those of you who are familiar with all the scientific details.

Cannabis receptor sites (C1) are present in many areas of the brain. Other receptor sites (C2) are in other cells of the body. So its effects are many, widespread and varied.

Messages pass along nerve fibres as tiny electrical impulses and cross the gap, the synapse, between nerve cells as chemicals called neurotransmitters. These are the brain’s own natural drugs and there are dozens of them. Each neurotransmitter molecule has a specific shape that fits into its own receptor site on the next cell, as a key fits a lock.

Mind-altering drugs operate at these synapses. They either mimic the neurotransmitters by shape, increase the rate at which they are released, block them or prevent them from being recycled.

I tell children, ‘Drugs take control. No person can do that, no parent, no teacher, no friend, but drugs can and do.

The substance that gives the “high”, tetrahydrocannabinol - THC for short, mimics a neurotransmitter – anandamide (Sanskrit for ‘bliss’).

Receptor sites for anandamide, and so THC, are found in several areas of the brain and on other cells of the body.

Unlike most other common drugs, THC is fat-soluble so persists in the fatty membranes of brain cells, 50% will be there after a week and 10% a month later. Traces are found in hair and urine for weeks after that. This “clogging up” of the cells by THC interferes with the transmission of other neurotransmitters so functioning of the whole brain is impaired.

In the sixties and seventies the average THC content of herbal cannabis was around 1-2%. In the UK's last potency report in 2008, the THC content of skunk averaged 16.2% ranging to 46%. 80% of the cannabis seized, mostly grown here in "factories" and "farms" was "skunk". The rest was hash (resin), around 4-6% THC. The Dutch are considering banning the sale of skunk with a THC content of 15% or more. They equate it with our class A drugs, cocaine and heroin.

"Old-fashioned" herbal cannabis had about equal amounts of THC and an anti-psychotic substance CBD (cannabidiol). CBD used to counteract some of the psychotic effects of THC, but it is virtually absent (0.1%) from skunk.

Addiction:

Most drugs that can be abused, heroin, cocaine, alcohol, nicotine and cannabis, increase the amount of dopamine, the "pleasure" neurotransmitter in the brain. It's also increased by eating, listening to music, exercise etc. However, two other substances are produced - one reduces the production of dopamine so more is needed to get the same effect - tolerance. The other makes new connections and receptor sites making the brain more sensitive to the drug. These cravings persist for a long time and come back even years after a person has stopped. I tell children that they can increase the release of dopamine naturally with the brain in control, for example by jogging, rather than stuffing it with random amounts of chemicals which then take charge with unknown and sometimes tragic outcomes.

Physical dependence happens when cannabis replaces anandamide. Production of anandamide drops, it's not needed. If a person then stops taking cannabis, the receptor sites are left empty. They have to be filled otherwise withdrawal sets in - irritability, sleeplessness, anxiety, depression, sometimes even violence. It takes time for the anandamide to resume production. Withdrawal from cannabis is not so dramatic as drugs like heroin since THC persists in cells for a long time.

Of everyone who tries cannabis, 10% will become addicted. In teens this rises to 1 in 6.

Cannabis can cause psychosis. We have seen this from long-term studies from birth, and the fact that cannabis increases dopamine. The brains of people with schizophrenia and psychosis have excess dopamine. The first paper linking cannabis and psychosis was published in 1845.

It's simply a matter of how much they take at a time – too much and they can suffer a psychotic episode. Skunk users are almost 7 times more likely than hash users to suffer. This is work done by Prof Sir Robin Murray and his team at London's Institute of Psychiatry in 2009. He was also involved in the work on CBD.

Researchers now generally agree that some people have a genetic vulnerability to schizophrenia, often a lifetime condition. Scientists are trying to identify the gene(s). In general, users are at least 2-3 times more likely to develop this condition than non-users.

Scans of the brains of users show a decrease in volume which may or may not be permanent in various parts of the brain's grey matter (cell bodies), hippocampus (learning), thalamus (receives and passes on messages) and amygdala (emotions). A decrease in white matter has been seen in the cerebellum.

A record number of children are being treated for cannabis addiction. 13,581 youngsters under 18 were treated in 2013/4 – a 50% rise in 7 years and included 200 aged 12 or under. Treatment averaged 150 days and involved counselling and support. This increase may be due to the increased strength of THC. Rehab specialists have told us that cannabis addiction is THE most challenging to deal with.

Violence and aggression are usually associated with alcohol, cannabis is believed to be the 'peaceful' drug. But a New Zealand study found young male users nearly 4 times more likely to be violent than non-users, the risk for alcohol was around 3. Violence is thought to be associated with psychosis or withdrawal. A Swedish study found more suicides among cannabis users than those who used amphetamines, alcohol or heroin. The manner of death was more violent. Cannabis smokers are nearly

20 times more likely to commit suicide by jumping than a non-user. So much for the peaceful “stoned” image of pot. Some high-profile homicides have been linked to cannabis use.

Less dramatic but harming more young people are the effects on personality and academic performance. Because THC persists in the brain cells, it interferes with other neurotransmitters. New connections are made in the learning and memory processes. During adolescence this is particularly important as there is normally a growth spurt of these new nerve branches but their formation is impaired. Just one joint a week or even a month will ensure the permanent presence of the drug. (Diagram of brain of 0 to 2 year old).

Some cannabis users have become anxious, some apathetic. The risk of deep depression is doubled even in weekly users and can lead to suicides. In 2009 it was found that Serotonin, the ‘happiness’ neurotransmitter is reduced.

Children’s brains are undeveloped, they will not be fully mature till their twenties. The younger a person starts using cannabis, the worse the damage. They are more likely to become addicted, suffer mental illness or move on to other drugs.

School grades fall, As and Bs become Cs and Ds. An average grade D student is 4 times more likely to have used cannabis than an average grade A and some miss out on University places. I’ve seen it happen. A teenage user continuing to smoke will lose an average of 8 IQ points. The IQ of non-users actually rises. A cannabis personality develops, users have fixed opinions and fixed answers. They find it difficult to find words, can’t take criticism - it’s always someone else’s fault, and can’t plan their day. Trying to talk to them is futile. They and their families suffer from their violent mood swings, houses get trashed, family members get injured. At the same time they are lonely, miserable and feel misunderstood. They are twice as likely to drop out of education. An Australian report commented that, while alcohol and cannabis both carry health risks, the overwhelming evidence is that cannabis is the drug for life’s future losers.

‘You have one real chance at education’ I tell pupils, ‘Few children using cannabis even occasionally will achieve their full potential’.

As with alcohol, cannabis users shouldn’t drive. Over 24 hours after taking THC airline pilots, trying to “land” on flight simulators, were found to be making mistakes and thought they were fine. An average joint (20mg) is thought to have the same effect as being just over the drink-drive limit. Reaction times increase. Combining alcohol and cannabis is 16 times more dangerous than either drug alone.

Cannabis smoke contains more carcinogens than tobacco. The smoke is inhaled deeper, held in the lungs for longer, and smoked right down to the butt. About 3 to 4 times as much tar is deposited in the airways of the lungs. One joint in cancer terms equals 4 or 5 cigarettes. Rare head and neck cancers occur in young people, previously seen only in much older tobacco users. Collapsed lungs, lungs riddled by holes (bullous lung disease) and even young people needing transplants have been documented. Bronchitis and emphysema can result.

The DNA in any NEW cells being formed in a body, will be damaged by THC. Cells have a life-span and THC speeds up the programmed cell death (apoptosis) of white blood cells, our defence cells. Fewer are made, some are abnormal - our protection against infection decreases. People will be more vulnerable to disease, their illness will be worse and last longer.

Sperm cells are constantly made and again THC shortens their life span. Infertility and even impotence have been reported among young men.

The birth weight of babies born to cannabis-using mothers is lower and they may have problems with behaviour, brain function (particularly problem-solving, learning, memory and planning) as they grow

up. They are more likely to develop one of the commonest childhood cancers, neuroblastoma, or one form of leukaemia, and to use cannabis at adolescence. Babies often have mild withdrawal symptoms.

There is a rise in blood pressure and heart rate to the level of real stress. Heart attacks and strokes have been recorded. Two teenagers had strokes and died after bingeing on cannabis, another was left paralysed. New research has found that boys who smoke cannabis before puberty could be stunting their growth by more than 4 inches.

Another paper, just published, has shown that exposure to second-hand cannabis smoke causes mild intoxication, minor problems with memory and coordination and in some cases positive tests for the drug in urinalysis. Some participants did not pass the equivalent of a workplace drug test. The implications for driving need to be noted.

Apart from driving, the combination of cannabis and alcohol is very dangerous, and very common. If a person drinks too much they can overdose and die. But often they are sick and get rid of some. If they use cannabis as well, the vomiting reflex is inhibited.

Tobacco alcohol and cannabis can all lead to the taking of other drugs. If a person starts to smoke cigarettes, the technique of smoking is learned. A MORI poll found that 50% of smokers had tried an illegal drug but only 2% of non-smokers.

A Christchurch study from birth concluded that the greatest single factor in progressing to other drugs is the use of cannabis. And research on nearly 30,000 French adolescents found occasional users 21 times more likely to proceed to other drugs, daily users 124 times!

Peer-group pressure, dealers offering other drugs, curiosity can all be factors. But on-going research in Sweden has found that in animals, cannabis “primes” the brain for the use of other drugs. It’s made more susceptible and sensitive.

Because cannabis stays in the body for weeks, tests will be positive even if a joint was taken a month ago. More and more employers in the UK are now testing future employees and their workers. Visas for countries like the USA will not be issued to anyone with a cannabis conviction.

I’ve surveyed the international evidence base for the efficacy of drug education, finding least evidence for the harm reduction approach and most for preventative programmes. Between 1979 and 1991, a huge prevention campaign in America coincided with a dramatic *decrease* in drug use. This was the “Just say no” campaign but was much more than that. Everyone got involved, parents, teachers, church groups, police, youth leaders, social workers, the children themselves. It worked. The number of users fell from 23 to 14 million. Cannabis and cocaine use *halved*, daily cannabis use dropped by 75%.

A Survey by PRIDE USA among young people at the time found the largest number, more than 70% abstained from cannabis use fearing physical or psychological damage, 40% due to the law and 60% because of parental disapproval. A survey here a few years ago, in which my school took part, showed similar results, around 90% saying no to any drug because of the damage to health.

Most children don’t actually want to take drugs and want a reason to say no – true scientific facts give them that reason. I know, they told me. They wanted my literature to give to friends in other schools to explain why they weren’t interested. Peer group pressure can be very strong.

Random drug testing also gives them an excuse to refuse. My school and 5 others in the area introduced ‘sniffer dogs’ under a police initiative. A survey was done to test opinion beforehand. 98% of parents, 92% of staff and 82% of the pupils voted in favour. The vast majority of students want no part in drug-taking, they want a good education, good grades and further education to have a sound career in the future without any distraction. They are actually on our side.

Some years ago I listened to a young girl in The House of Lords where I was taking part in a conference on cannabis, she said, “...you adults have to say that you care, that you feel strongly about what we do – don’t leave it as a choice. If you don’t want us to do drugs then say so – and why. You don’t ask us to choose whether to steal, or attack people, so why leave us to choose about drugs?”

Guidelines first appeared in the nineties. ‘Tackling Drugs Together’ 1995 was *all* about prevention - the first objective, “to discourage young people from taking drugs”. I watched the emphasis slip over the years, slowly towards acceptance of the “normality” of drug use. By 2002, phrases like, “Reduce the use of class “A” drugs and the *frequent* use of any illicit drug among all young people under the age of 25” appeared. Did they think *infrequent* use was all right? Harm reduction doesn’t *tackle* drugs, it *accommodates, even condones* them. Children are being betrayed.

Current official drug education policy is still one of Harm Reduction in spite of the Coalition Government promising a return to Prevention in 2010. It assumes that, “Kids will use drugs anyway, we must tell them how to do it more safely and give them “*informed choice*”. We read, “Prevention strategies are not able to prevent experimental use”, and “Harm minimisation reflects the reality that many young people use both legal and illegal substances”. Goals of Harm Reduction are to ‘minimise or prevent drug and alcohol-related harms’ and ‘to delay the first use of illegal drugs’ NOTE! NOT to prevent use in the first place. The so-called ‘Prevention charity’ Mentor UK is in charge.

This policy of defeatism is in curious contradiction to the drug laws that set significant criminal penalties for possession and dealing.

There is no guaranteed safe way to take any drug – legal *or* illegal. And kids will *not* use drugs anyway. 30 or 40% may *try* them, but how many try smoking - 90%? Regular drug use in the UK is around 3% and under 20% for tobacco.

“Choice”! Do we let them choose other illegal activities, to steal, spray graffiti? Children are not miniature adults. Brains don’t mature till the twenties, and the risk-taking part develops before the inhibitory area so kids are going to ‘take a chance’. Government guidelines advocate choice at key stage 2. Seven to eleven year olds are simply *incapable* of making critical life decisions that may actually impair their cognitive functioning and mental health - nor should they. We don’t let them eat poisonous berries, cross the road before they are old enough, or let them run towards an open fire - we protect them. How have we become so casual about the threat of potentially life-threatening substances?

Recognising the fact that young children are not capable of making mature sensible decisions in their own best interests, there is an age limit of 18 for the purchase of alcohol and tobacco so why on earth is it that 7 year olds are deemed capable of choosing to use illegal drugs. Government drug education policy far from normalising abstinence has been to legitimise use!

Drug use in general may be going down but in the last survey of 11 to 15 year olds in England, regular use of drugs was 6% and has been stuck there for the last 3 years – about 170,000 children. The average age of first use of cannabis is 13, younger than any other European country. Among 14-15s it is the drug of choice. No room for complacency.

Harm reduction has its place in treatment with known users on an individual basis - a short-term strategy on the road to abstinence. But *never* in the classroom where well over 95% of my pupils had no intention of ever using drugs. Harm reduction tips *can* and often *do* act as a green light for experimentation.

“Informed” – Parents as well as their children need to be knowledgeable about drugs but information about cannabis is woefully inadequate, often misleading, and badly out of date.

FRANK, the official Government site for drug information is specifically aimed at 11 to 15 year olds, but adults as well. Most drug charities take their facts from FRANK or refer people to it.

Cannabis harms are ‘played down’. Information is out of date, the gateway theory ignored. Violence, aggression, changes in personality, depression sometimes leading to suicide - none are mentioned. Nor is the effect on the immune system. The persistence of THC in the brain is ignored. I got to meet the FRANK team and with their permission, rewrote their cannabis information, only to find it was ignored when the site re-launched. But they had, at my request removed the harm reduction advice.

These are their 3 posters. I still don’t get the message. Children find them patronising, ‘jokey’ and ‘matey’, positively encouraging of drug use. They are trite, a waste of time and taxpayer’s money. The average addict is above average intelligence.

Children need, want and value rules and regulations. They feel safe and secure when they have boundaries to kick against. They respond in class to firm discipline. Parents are often used as an excuse, “Dad would kill me” is a common “get-out”.

I am afraid there is no time for me to speak about Colorado and all the predictable outcomes of increased hospital admissions, more vehicle accidents and so on or the subject of legalisation. I hope these may be covered by others.

Prevention has always been, and always *will be* better than cure. Prevention is common sense. Prevention is what every parent wants, and it works!

Thank you very much for listening.