programme is now expanding to the Western Pacific region (personal communication, S Del Fino, 2010). The focus of this initiative is to document the state of health services for prisoners in the region. Four regional offices still need to identify the health of prisoners as a priority.

If a state deprives citizens of their liberty, then at the very least they must provide competent health services and measure the health gains. Where competent prison health services are provided, the health seeking behaviours of prisoners improve. But even where health services are provided, continuity of healthcare on release is not achieving its full potential.1 Independent prison inspection, including inspection of the prison health service, should play an increasing role in improving both access to services and their quality. The Council of Europe provides the strongest support for this, through the Committee for the Prevention of Torture.6 The adoption of the Optional Protocol to the Convention Against Torture by 57 countries will increase the spread of independent reviews.2

Research will contribute to the better description of the health of prisoners and an understanding of the health determinants of “criminality.” In the interim it is safe to assume that prisoners are no different from other socially excluded population groups—that is, they are characterised by unstable housing, poor employment history, poor educational achievement, high levels of mental illness, high prevalence of addictive behaviours, and unstable social and family relationships. The evidence for all these is building, as is the amount of ethical prisoner health research.3 Nearly every country recorded in the World Prison Brief reports overcrowding of existing facilities. Physical and sexual violence are a constant health threat to prisoners. Diseases such as HIV, tuberculosis, and hepatitis C continue to spread among prisoners and their families, simply because effective control measures are impeded by prison authorities.4 Barrier behaviour may not be sanctioned, and contaminated injecting equipment continues to circulate because draconian drug policies mean that sterile equipment is not provided. Suicide in prison10 and death after release are unacceptably high.11

A range of health motivated alternatives to imprisonment are being trialled, such as drug courts and mental health referral services. “Justice reinvestment” is an explicit attempt to “disinvest” from prison services and invest in health and social welfare services instead.12 Several trials in the United States are showing benefits to the criminal justice system and financial savings. The health benefit is that prisoner numbers are decreasing in all the trial sites.

Prison services, their supporting health programmes, and health professionals must increase their coverage and attain the standard of care available to free citizens in the community. Redefining addiction and mental illness to come under the auspices of health, and not criminal justice, offers the greatest hope for reducing the number of people deprived of liberty.

In 1997 the BMJ stated that “prison health services should be as good as those for the general community.” The world’s prisoners have not yet achieved this, but there has been progress, and there are reasons for ongoing optimism.

Evidence suggests that cannabis precipitates schizophrenia in vulnerable people

Cannabis and the persistence of psychosis

Evidence suggests that cannabis precipitates schizophrenia in vulnerable people

Prospective studies in Australia, Germany, the Netherlands, New Zealand, and Sweden have found that regular use of cannabis is associated with an increased risk of psychotic symptoms and disorders in the general population.1 Some people have interpreted this as evidence that cannabis use is a contributory cause of psychoses.2 More sceptical researchers have argued that the association might be the result of residual confounding by—for example, the use of other drugs or genetic factors.3 Another possibility is that the association arises because people with psychosis use cannabis to self-medicate their symptoms,4 even though evidence suggests that they use cannabis for much the same reasons as their peers without psychosis.5

The results of the linked prospective study by Kuepper and colleagues argue against these two alternative explanations.6 The authors excluded anyone who reported cannabis use or psychotic symptoms in the baseline survey so that they could examine the relation between incident cannabis use and incident psychotic symptoms. They found an association that survived statistical adjustment for confounders and was of similar size (odds ratio 1.87) to that in other prospective studies that adjusted for the effects of drug use, personal characteristics, and a personal history of psychotic symptoms7.
or used fixed effects regression to control for unmeasured confounders. The results cast doubt on the argument that uncontrolled confounding explains the association between cannabis and psychosis and place the onus on those who support it to specify plausibly confounding variables that have not been adequately controlled for in these studies.

Kuepper and colleagues also provided new information on the effects of continued cannabis use on psychotic symptoms over four years in a population sample. Prospective studies of people treated for psychosis have reported that patients with schizophrenia who use cannabis have more psychotic symptoms, respond poorly to neuroleptic drugs, and have a worse clinical course compared with those who do not use cannabis. Critics of these studies have argued that they have not properly controlled for the effects of confounding factors. Kuepper and colleagues showed that people who reported new psychotic symptoms, and who persisted in using cannabis between the second and fourth follow-up surveys, reported more persistent psychotic symptoms than those who stopped using cannabis. This association also persisted after controlling for potential confounders.

In the light of these findings and those of earlier studies, it is likely that cannabis use precipitates schizophrenia in people who are vulnerable because of a personal or family history of schizophrenia. This explanation is consistent with the modest increase in the risk of developing schizophrenia among regular cannabis users (twofold to threefold), and with the earlier onset of psychotic disorders in people who have used cannabis. A causal association is also biologically plausible; a double blind provocation study found that intravenous tetrahydrocannabinol provokes positive and negative psychotic symptoms in a dose dependent way in healthy volunteers and people with schizophrenia.

The increase in risk may be modest for people without other risk factors for psychosis, increasing from around seven in 1000 in non-cannabis users to one in five in regular users. It could be substantially higher in young people with an affected first degree relative, however. If the risks of regular cannabis use are multiplicative, the risk of psychosis in people with a family history of the disorder could increase from around one in 100 among non-users to one in five in regular users. Sensible reasoning supports the policy of providing young people with information about the risks of using cannabis. The case for communication is strengthened by evidence that regular cannabis use in adolescence predicts poorer educational outcomes, increased risk of using other illicit drugs, increased risk of depression, and poorer social relationships in early adulthood.

The major challenge, however, is to deter enough young people from using cannabis so that the prevalence of psychosis is reduced. A modelling study suggests that we would need to prevent 2018-4530 young people in the United Kingdom from becoming regular cannabis users to prevent one case of schizophrenia, or to prevent four to five times as many (10 000-23 000) from light cannabis use to achieve the same result.

The evidence on cannabis and psychosis has influenced the decision in the UK to retain criminal penalties for cannabis use, despite evidence that removing such penalties has little or no detectable effect on rates of use. An informed cannabis policy should be based not only on the harms caused by cannabis use, but also on the harms caused by social policies that attempt to discourage its use, such as criminal penalties for possession and use.  


