

from Thailand and Uganda also indicate trafficking of amphetamine from West Africa via Ethiopia, raising the possibility of a parallel flow of drugs between East and West Africa: heroin going west and amphetamine going east.

Other important transit countries include the Netherlands (for various drugs) and Brazil (for cocaine). Specifically for maritime trafficking, the Netherlands was also important as a country of provenance, although the transition from land to maritime transportation may not always occur at a seaport in the Netherlands. Ecuador emerges as an important hub in South America for maritime trafficking of cocaine.

C. CANNABIS MARKET

Cannabis is produced in virtually every country of the world, making it the most widely illicitly produced and consumed drug plant. Tables and maps with country data on cannabis cultivation, production and seizures can be found in Annex II.

The cannabis plant yields two main products: cannabis herb and cannabis resin. Cannabis herb, the dried flower buds of the female cannabis plant, is not only consumed in almost all countries of the world, it is produced in most of them, too. The more protracted processing of the compressed resin glands of the cannabis plant into cannabis resin is confined to far fewer countries, most of which are located in North Africa, the Near and Middle East and South-West Asia.⁵²

It is difficult to estimate global levels of cannabis cultivation and production: its cultivation is largely of a localized nature, and it is often consumed in the country of production. Cannabis herb is increasingly cultivated in its main user markets in the Americas and Europe. The bulk of cannabis resin originates in Afghanistan and Morocco; there is evidence of stabilization or even a decrease in production in these countries.

Global cannabis cultivation and production

The localized and often small-scale nature of cannabis cultivation and production makes it very difficult to estimate them at the global level.⁵³ Likewise, few countries estimate the extent of cannabis cultivation and production; in general, data on cannabis are scarce in many regions.

The largest areas under cultivation or areas eradicated were reported by Afghanistan⁵⁴ (12,000 ha under cultivation), Mexico (12,000 ha under cultivation and 13,430 ha eradicated), and Morocco (47,500 ha under cultivation after eradication). Some countries also provided information on the number of plants or number of sites eradicated. Relating the number of plants to the size of an area is difficult as plant density can vary significantly, depending on the cultivation method and on environmental factors. Therefore, comparing plant eradication with eradicated area is difficult. An update of information available on cannabis cultivation and production, as well as eradication, can be found in Annex II.

With regard to outdoor cultivation, the United States reported the largest number of plants eradicated (9.9 million), followed by the Philippines (4 million), Tajikistan (2.1 million) and Indonesia (1.8 million). With regard to indoor cultivation, by far the largest number of plants was eradicated by Netherlands (1.8 million), a major supplier of cannabis herb to the European market, the United States (0.47 million) and Belgium (0.3 million), to where a large portion of European cannabis herb production has shifted in recent years.⁵⁵

Ukraine reported the largest number of eradicated outdoor sites (98,000), followed by the United States (23,622) and New Zealand (2,131). New Zealand, a country with high levels of cannabis use, reported a very large number of eradicated outdoor sites when compared with plants eradicated, which indicates a small average size of grow sites: the number of plants per outdoor site was 55, a much smaller average size than in, for example, the Philippines (30,663 plants per site).

The Netherlands reported the dismantling of 5,435 indoor cultivation sites. This number is comparable to the number of sites eradicated in previous years. The United States reported the dismantling of 4,721 indoor sites and a much smaller number of plants per site (98) than the Netherlands (335). The number of plants per indoor site in Belgium was reported as 349, which was about the same as in the Netherlands.

In countries with a favourable climate for outdoor cultivation (e.g. Australia and Italy), the vast majority of plants eradicated were on outdoor sites, while the opposite was true for countries such as Belgium, Hungary and the Netherlands, which have less favourable climatic conditions.

52 *World Drug Report 2012* (United Nations publication, Sales No. E.12.XI.1).

53 In the *World Drug Report 2009* (United Nations publication, Sales No. E.09.XI.12), it was estimated that the global production of cannabis herb ranged from 13,300 to 66,100 tons and the production of cannabis resin from 2,200 to 9,900 tons. The calculations were based on the minimum and maximum levels from reported cultivation and production, seizures and prevalence rates. In 2011, these indicators did not show significant changes that would justify an update of the production estimates, taking into account the large minimum and maximum levels.

54 Information from the cannabis survey conducted by the United Nations Office on Drugs and Crime and Afghanistan in Afghanistan in 2011.

55 See, for example, European Monitoring Centre for Drugs and Drug Addiction, *Cannabis Production and Markets in Europe*, EMCDDA Insights Series No. 12 (Luxembourg, Office for Official Publications of the European Union, 2012).

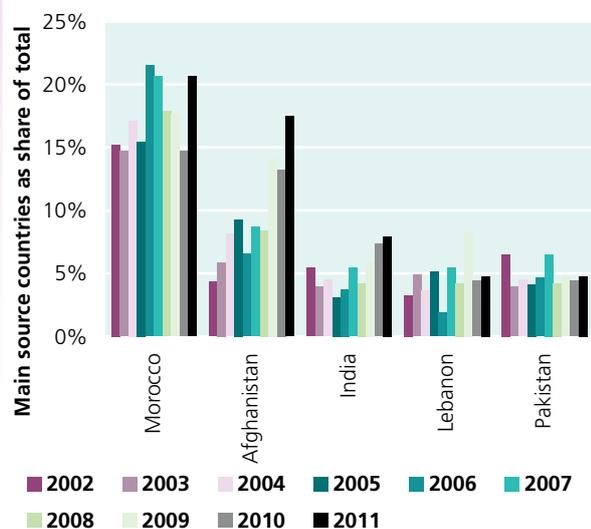
Cannabis resin production: a look at the two main source countries

In 2011, the main countries mentioned as a source country of cannabis resin by countries in which seizures of cannabis resin took place continued to be Morocco, followed by Afghanistan and, to a lesser extent, India, Lebanon and Pakistan (Pakistan assessed that all resin seized in its territory originated in Afghanistan). Such data must be treated carefully as they do not distinguish between transit countries and countries of origin, but the data do suggest that Afghanistan and Morocco are the two main source countries for cannabis resin.

Annex II shows a map with the geographical distribution of countries mentioning Afghanistan or Morocco as a source country for cannabis resin between 2009 and 2011, and thus may reflect the main markets for Afghan and Moroccan cannabis resin. Morocco was named as a source of trafficked cannabis resin by 17 different countries, 11 of which were in Western and Central Europe, where Morocco seems to remain the main source of cannabis resin. Afghanistan, on the other hand, was named as a source country for seized cannabis resin by its neighbouring countries and by countries further north. Countries in the Near and Middle East and in Europe also named Afghanistan as a source of cannabis resin.

The global distribution of cannabis resin seizures reflects the main source countries as well. During the period 2000-2011, global seizures of cannabis resin were dominated by Spain, which is the main entry point to Europe for Moroccan cannabis resin. In 2011, Spain accounted for 34 per cent of global seizures, Pakistan for 18 per cent and Morocco for 12 per cent.

Fig. 30. Main source countries of cannabis resin, as reported by Member States, 2002-2011



Source: UNODC, data from the annual report questionnaire and other official sources.

Morocco: indications of a decrease in production

Data reported by the Government of Morocco point to an overall decrease in the production of cannabis resin since the period 2003-2005, when UNODC and the Government conducted joint surveys (in the most recent UNODC cannabis survey on Morocco, from 2005, the total area under illicit cannabis cultivation was estimated at 72,500 hectares). In 2011, the estimates provided by the Government did not change compared with those provided in 2010.

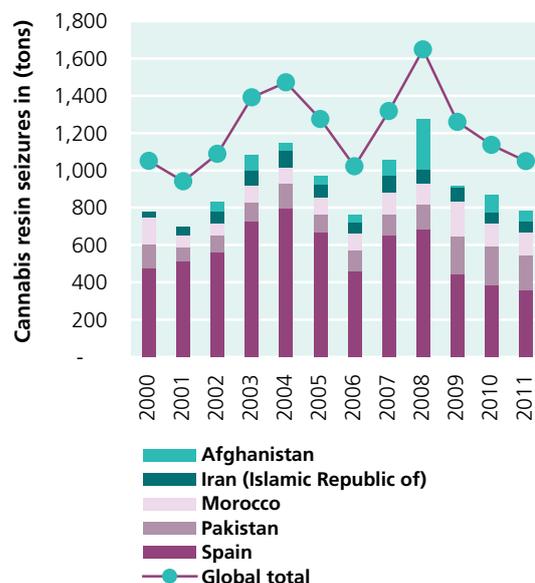
The reported decrease in production is substantiated by a decrease in seizures of both resin and kif (a dried form of cannabis that can be processed into cannabis resin) in the country. In 2011, 138 tons of kif were seized, which was less than in 2009 (223 tons) and 2010 (186 tons). Seizures of cannabis resin by Moroccan authorities increased slightly, from 119 tons in 2010 to 126 tons in 2011, but that followed a large decline from a peak of 188 tons in 2009. In 2010, Moroccan authorities attributed the decline in seizures to increased law enforcement efforts to counter cultivation within the country and to counter trafficking along the country's borders.

Likewise, the quantities of cannabis resin seized in Spain fell for the third consecutive year and Spanish authorities noted that the quantities seized had been decreasing overall. In 2011, seizures amounted to 356 tons (compared to 384 tons in 2010 and 445 tons in 2009).

Afghanistan: signs of stabilization

In 2011, the Government of Afghanistan and UNODC jointly carried out the third survey on cannabis cultivation

Fig. 31. Cannabis resin seizures, global total and selected countries, 2000-2011



Source: UNODC, data from the annual report questionnaire and other official sources.

in Afghanistan. The survey found that cultivation of cannabis plant and production of cannabis resin in Afghanistan appeared stable, and that there was no evidence of a substantive change in comparison with the previous cannabis surveys, which had taken place in 2009 and 2010.

Cannabis in Afghanistan is a very attractive cash crop. However, the volume of cannabis cultivated is much lower than that of opium poppy (12,000 hectares of cannabis were cultivated in 2011, compared with 131,000 hectares of opium poppy), and it is cultivated less frequently: the majority of farmers who grow it do so every other year, and some even less often. The cultivation of cannabis in Afghanistan thus appears to be self-limiting.⁵⁶ However, since strong links exist between opium poppy and cannabis cultivation⁵⁷ and since there is a large pool of farmers who occasionally cultivate cannabis on a commercial basis, there may be significant potential for the substitution of cannabis for opium poppy, if opium poppy cultivation were to become less attractive.

Cannabis herb: increasing cultivation in the main markets

The region with the largest reported share of seizures of cannabis herb is by far North America, with the bulk of global seizures taking place in the United States and Mexico. North America accounted for 69 per cent of global herb seizures in 2011.

In Latin America and the Caribbean, the region with the second largest amount of seizures, most countries observed an increase in seizures, with Bolivia (Plurinational State of), Colombia and Paraguay reporting an increase of more than 100 per cent when comparing the period 2002-2006 with the period 2007-2011. Data are scarce for many African countries; however, seizures in West, Central and Southern Africa have been decreasing over the past decade. There have been increased seizures of cannabis herb in North Africa. Other regions present a mixed picture (see Annex II).

Domestic cultivation in the United States on the rise

In 2011, the United States reported that the availability of cannabis herb may have increased. The United States attributes this increase to sustained high levels of production in Mexico – the primary foreign source of the United States cannabis supply – and increased domestic cannabis cultivation.⁵⁸

Since 2002, seizures in both Mexico and the United States have followed an upward trend, with a combined total of 3,033 tons seized in 2002 and 3,944 tons seized in 2011 (the total amounts seized reached their highest level – 4,655 tons – in 2010). In 2009, the amount seized in the United States exceeded the amount seized by the Mexican authorities for the first time.

The United States reported that high and increasing levels of domestic eradication could indicate increased domestic production, which is driven by high profitability and demand.⁵⁹ This is similar to what is observed in Europe, where domestically produced cannabis products seem to be increasingly replacing imported cannabis products.

In the United States, eradication of domestic indoor cannabis plants increased from 213,000 in 2002 to 462,000 in 2010; the number of domestic outdoor cannabis plants eradicated more than tripled over the same period, from 3,129,000 in 2002 to 9,867,000 in 2010.⁶⁰

Fig. 32. Cannabis herb seizures in Mexico and the United States, 2002-2011

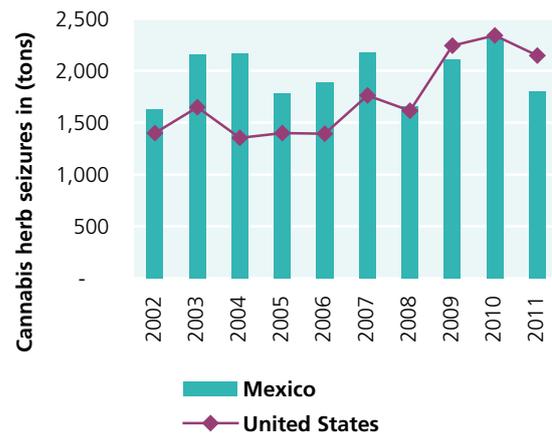
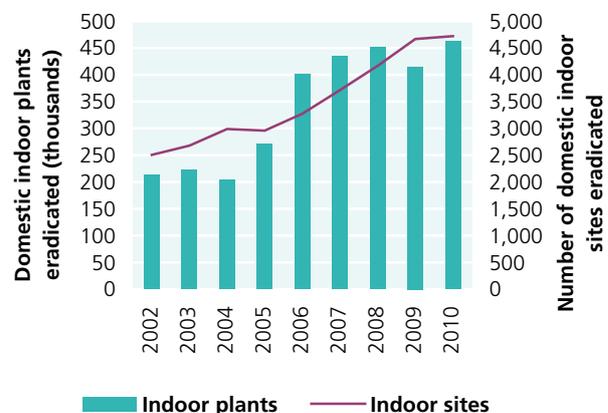


Fig. 33. Number of domestic indoor cannabis plants and sites eradicated in the United States, 2002-2010



56 United Nations Office on Drugs and Crime and Afghanistan, Ministry of Counter-Narcotics, *Survey of Commercial Cannabis Cultivation and Production 2011* (September 2012). Available from www.unodc.org/documents/crop-monitoring/Afghanistan/2011_Afghanistan_Cannabis_Survey_Report_w_cover_small.pdf.

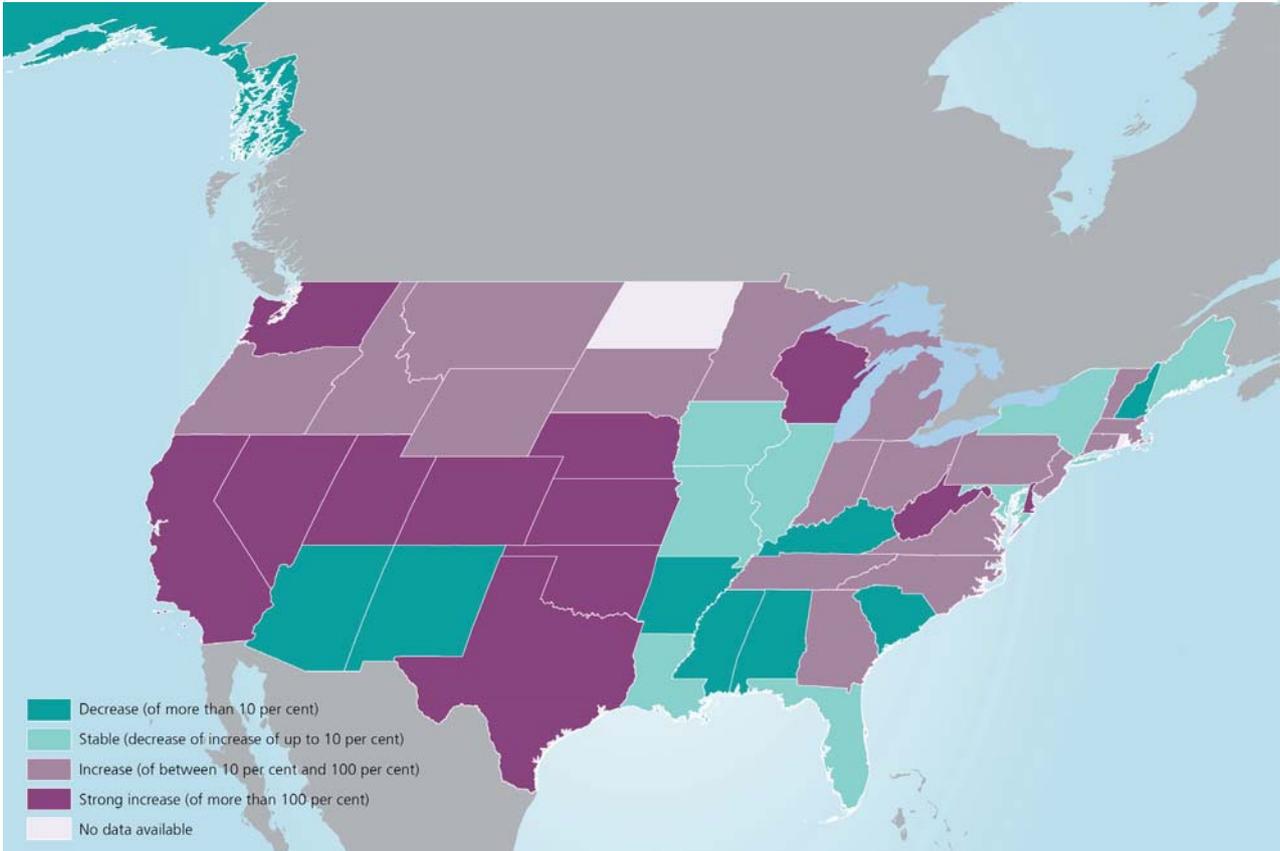
57 To a large extent, farmers who cultivate cannabis in summer also cultivate opium poppy in winter.

58 United States, Department of Justice, *National Drug Intelligence Center, National Drug Threat Assessment 2011* (August 2011).

59 United States, Department of Justice, *National Drug Intelligence*

60 United States, Executive Office of the President, Office of National Drug Control Policy, *National Drug Control Strategy: Data Supplement 2012* (Washington, D.C., 2012).

Map 3. Cannabis plant eradication in the United States of America between the periods 2005-2007 and 2008-2010



Source: UNODC, data from the annual report questionnaire and other official sources.

The number of domestic outdoor cannabis sites eradicated showed a different trend – there was an overall decrease until 2008, after which it increased again slightly. The decrease in the number of outdoor sites eradicated together with the strong increase in the number of plants eradicated indicates a larger average size of the sites that were eradicated. This could be an indication of intensive production

(i.e. larger plantations with more plants) and/or a concentration of law enforcement efforts on very large grow sites.

The average size of eradicated indoor sites has not changed significantly, indicating that most large-scale cultivation occurs outdoors.

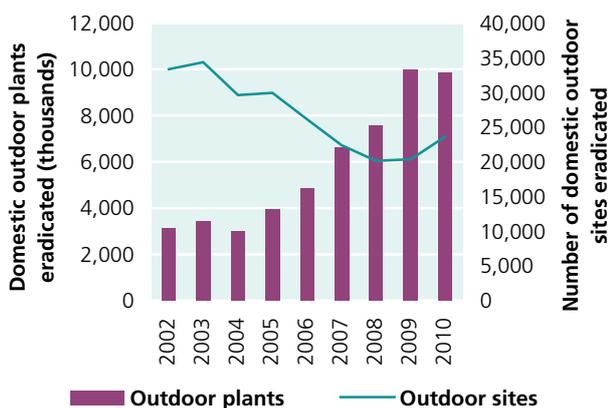
Rest of the world: increased seizures in Latin America and the Caribbean and a continuing trend towards domestically produced cannabis herb in Europe

Most countries in Latin America and the Caribbean have registered increases in seizures of cannabis herb in recent years. Three countries in Latin America (Brazil, Colombia and Paraguay) seized significant quantities of cannabis herb in 2011.

In Brazil, the number of seizure cases was roughly the same in 2010 and 2011 (885 and 878 cases, respectively), but the total amount of cannabis herb seized rose from 155 tons in 2010 to 174 tons in 2011, which was the third consecutive increase.

In Colombia, the number of seizures increased from 38,876 in 2010 to 41,291 in 2011, and the amount seized rose for the third consecutive year, from 209 tons in 2009 to 255 tons in 2010 and 321 tons in 2011. Whether this

Fig. 34. Number of domestic outdoor cannabis plants and sites eradicated in the United States, 2002-2010



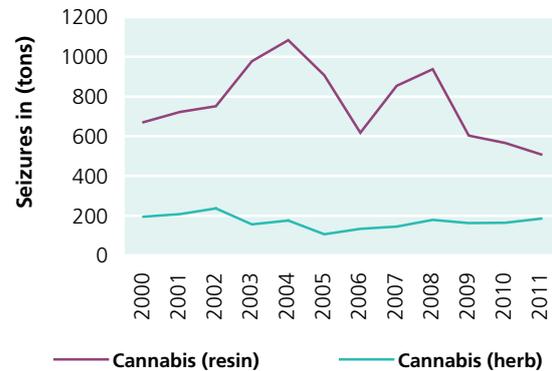
is the result of increased levels of production or increased law enforcement efforts is not clear.

In Paraguay, seizures of cannabis herb more than doubled, from 84 tons in 2009 to 171 tons in 2011 (no data are available for 2010).

In Europe, the trend towards increased seizures of cannabis herb and decreased seizures of cannabis resin continued, which may be an indication of imported resin being increasingly replaced by domestically produced cannabis. Cannabis resin seizures in the whole region decreased from 566 tons in 2010 to 503 tons in 2011. This was mainly the result of reduced seizures in Spain (decrease of 28 tons), Portugal (decrease of 20 tons) and Turkey (decrease of 8 tons). Cannabis herb seizures increased by 12 per cent, from 164 tons in 2010 to 184 tons in 2011.

Nearly all countries in Africa reported the cultivation and seizure of cannabis herb. Nigeria continued to seize the largest quantities of cannabis herb in the region, with 139 tons seized between July 2011 and April 2012.⁶¹ The second largest annual seizure totals were in Egypt, whose authorities reported seizing 73 tons of cannabis herb in

Fig. 35. Cannabis herb and cannabis resin seizures in Europe, 2002-2012



Source: UNODC, data from the annual report questionnaire and other official sources.

2011, down from 107 tons in 2010. Seizures of cannabis herb in Mozambique increased from 3 tons in 2010 to 32 tons in 2011, and authorities in Burkina Faso reported seizures of 33 tons of cannabis herb in 2011, nearly double the 17 tons seized in 2009.

Marijuana in the United States of America

As of February 2013, 18 states of the United States of America, as well as the District of Columbia, have passed laws allowing marijuana to be used for a variety of medical conditions.^a

Many of these states have in place, or are developing, programmes or provisions to regulate the use of medical marijuana by approved patients, as well as the cultivation, sale and possession of marijuana.^b Under the programmes of some states, patients may be assisted by so-called caregivers, who are persons authorized to help patients grow, acquire and use the drug.^c

In 2012, voters in two states—Colorado and Washington state—also passed initiatives legalizing the sale and recreational use of marijuana by adults, aged 21 years and older.

It is important to note that none of these state marijuana laws changes the fact that producing, selling or possessing marijuana continues to be an offence under United States Federal law.^d The position of the United States Federal Government is that marijuana should be subjected to the same rigorous clinical trials and scientific scrutiny that are applied to all other new medications.^e

Medical marijuana laws were passed separately on a state-by-state basis; a wide range of different policies regulating marijuana use exist. Nevada, for example, allows the possession of 1 ounce (28 grams) of usable marijuana, three mature and four immature plants.^f Oregon permits patients to possess up to 24 ounces (672 grams) of usable marijuana and six mature plants.^g Though most states that have decriminalized medical marijuana have also provided legal protections for its users, the majority of these laws have not established mechanisms for dispensing the drug or for regulating its quality and safety.

The definitions of what qualifies patients for medical marijuana can vary greatly among these states. New Mexico, for instance, permits the use of medical marijuana only for a limited set of conditions (including cancer, glaucoma, HIV/AIDS, epilepsy, multiple sclerosis, spinal cord damage and terminal illness).^h California, on the other hand, has an extensive list that includes general ailments such as migraines, severe or chronic pain and “any other illness for which marijuana provides relief”.ⁱ

⁶¹ Information contained in the country report by Nigeria presented at the Twenty-second Meeting of Heads of National Drug Law Enforcement Agencies, Africa, Accra, 25-29 June 2012.

Data on numbers of and trends among medical marijuana patients are limited by the absence of a standard method of collecting and disseminating data. Many states have a mandatory registration system of patients; in California, the most populous United States state, registration is voluntary. Only some states, such as Colorado,^j provide detailed statistics online.

A recent study^k examined a number of state medical marijuana registries as of June 2011 (in states with mandatory registration only) and highlighted some key information about those enrolled in medical marijuana programmes. The study concluded that the majority of persons registered appeared to be young, male and registered for chronic pain. There was a significant difference between states in the proportion of the adult population registered for medical marijuana, ranging from 4.1 per cent (Montana) to 0.07 per cent (Vermont). Possible explanations given for these differences were differences in disease burden, social acceptance of marijuana and ease of marijuana registration and acquisition. The study was limited by a lack of or limited data from several states.

There is an ongoing discussion on the impact of medical marijuana laws on overall levels of marijuana use and on risk perception of consumption. Several articles on that topic are listed below.

Further reading

Sunil K. Aggarwal and others, "Medicinal use of cannabis in the United States: historical perspectives, current trends, and future directions", *Journal of Opioid Management*, vol. 5, No. 3 (2009), pp. 153-168.

Magdalena Cerdá and others, "Medical marijuana laws in 50 states: investigating the relationship between state legalization of medical marijuana and marijuana use, abuse and dependence", *Drug and Alcohol Dependence*, vol. 120, No. 1 (2012), pp. 22-27.

Dennis M. Gorman and Charles Huber, Jr., "Do medical cannabis laws encourage cannabis use?", *International Journal of Drug Policy*, vol. 18, No. 3 (2007), pp. 160-167.

Sam Harper, Erin C. Strumpf and Jay S. Kaufman, "Do medical marijuana laws increase marijuana use? Replication study and extension", *Annals of Epidemiology*, vol. 22, No. 3 (2012), pp. 207-212.

Shereen Khatapoush and Denise Hallfors, "'Sending the wrong message': did medical marijuana legalization in California change attitudes about and use of marijuana?", *Journal of Drug Issues*, vol. 34, No. 4 (2004), pp. 751-770.

Robin Room and others, *Cannabis Policy: Moving Beyond Stalemate* (Oxford, Oxford University Press, 2010).

^a See www.whitehouse.gov/ondcp/state-laws-related-to-marijuana (accessed February 2013).

^b Mark Eddy, *Medical Marijuana: Review and Analysis of Federal and State Policies*, Congressional Research Service Report for Congress (2 April 2010). Available from http://assets.opencrs.com/rpts/RL33211_20100402.pdf.

^c Ibid.

^d See www.whitehouse.gov/ondcp/state-laws-related-to-marijuana (accessed February 2013).

^e See www.whitehouse.gov/ondcp/frequently-asked-questions-and-facts-about-marijuana#opposed (accessed February 2013).

^f Nevada Revised Statutes (NRS), chapter 453A, "Medical use of marijuana" (<http://leg.state.nv.us/NRS/NRS-453A.html>).

^g Oregon, Senate Bill (SB) 161 (www.leg.state.or.us/07reg/measures/sb0100.dir/sb0161.en.html).

^h New Mexico, Medical Cannabis Program (<http://nmhealth.org/mcp> (accessed February 2013)).

ⁱ California, Proposition 215 (<http://vote96.sos.ca.gov/bp/215text.htm> (accessed February 2013)).

^j See www.colorado.gov/cs/Satellite/CDPHE-CHEIS/CBON/1251593017044 (accessed February 2013).

^k Daniel W. Bowles, "Persons registered for medical marijuana in the United States", *Journal of Palliative Medicine*, vol. 15, No. 1 (2012), pp. 9-11.