ncpic e-zine
national cannabis prevention and information centre
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contents

what's new in cannabis?

NCPIC's new factsheet, 'Cannabis and sport', describes the negative impact of cannabis use on sporting performance, the discrepancy in use between the general population and athletes, and testing for cannabis use by the International Olympic Committee and the World Anti-Doping Agency. Click here to download this factsheet. For a more in-depth look at the research on this topic, please click here to download the associated Research Brief.

director's report

Jan Copeland (PhD)
Professor/Director, NCPIC

A belated Happy New Year from NCPIC for a happy and productive 2011!

I haven't contributed to the E-Zine since May last year so there's a lot to catch up on (no holiday photos I promise!). We had a lot of planning activities to undertake in the second half of 2010 so I wasn't away from NCPIC for as much of my Sabbatical Leave as I initially planned. Nonetheless, I would like to sincerely thank A/Professor Alison Ritter who is already extremely busy as Director of the Drug Policy Modelling Program and Acting Director of NDARC, for taking over my executive role for the last quarter of 2010. I would also like to thank Dr Melissa Norberg who expertly managed my administrative role for the second half of 2010. For some reason they seemed quite keen to hand them back at the end of the year!

During this period, the most important activity was the consultative development and finalisation of our 2010-2014 Strategic Plan. This is available on our website at http://ncpic.org.au/ncpic/news/ncpic-news/pdf/strategic-plan-20102014. At the end of the year we finalised our next funding contract and the 2010-2011 Annual Work Plan and accompanying Communications Strategy. It has been a great team effort to develop these documents and I'd like to especially thank Melissa and Paul for their hard work.

I was working in Europe for five weeks last year. The first half was spent with the Trimbos Institute, which is based in Utrecht in the Netherlands. They have a research grant to replicate the Adolescent Cannabis Check-up in a national study. The similarities between the practices of Dutch and Australian research and service delivery personnel were more striking than any differences, despite the prevailing policy environments. The second half of my time was spent with Dr Jim McCambridge at the London School of Hygiene and Tropical Medicine. This was a great opportunity to catch up with colleagues, talk about NCPIC's work at LSHTM and King's College, and to visit the laboratories of GW Pharmaceuticals where they grow the cannabis products for *Sativex*.

This is a nice segue to the great news our small research team had at the end of 2010: we were awarded a highly competitive NH&MRC Project Grant to investigate the use of *Sativex* in the management of cannabis withdrawal. Congratulations to Dr David Allsop who worked so hard on putting this grant together along with Melissa and our external collaborators Dr Nick Linzeris and Dr Adrian Dunlop. This will be a very important study for anyone involved in managing cannabis withdrawal. It's NH&MRC season again already so back on the treadmill for us all!

It is a good time to recap on our achievements for 2010. Our information and clinical resources continue to be very popular with 318,737 distributed this year across the various sectors and nine new resources developed. These include an intervention for marginalised young people, *Clear Your Vision,* which was developed in collaboration with Youth Off The Streets; an update on cannabis and the law; and factsheets on Spice, cannabis and sport, and

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research publications

Relevant publications examining issues to do with cannabis that have been published in the last month include the following:

Abdullaev, Y., Posner, M.I., Nunnally, R., & Dishion, T.J. (2010). Functional MRI evidence for inefficient attentional control in adolescent chronic cannabis abuse. *Behavioural Brain Research 215*, 45-57.

Arbour-Nicitopoulos, K.P., Kwan, M.Y., Lowe, D., Taman, S., & Faulkner, G.E. (2011). Social norms of alcohol, smoking, and marijuana use within a Canadian university setting. *The Journal of American College Health 59*, 191-196.

Battisti, R.A., Roodenrys, S., Johnstone, S.J., Pesa, N., Hermens, D.F., & Solowij, N. (2010). Chronic cannabis users show altered neurophysiological functioning on Stroop task conflict resolution. *Psychopharmacology (Berl) 212*, 613-624.

Belze, O. Jr., Legras, A., Ehrmann, S., Garot, D., & Perrotin, D. (2011). Cannabis-induced acute pancreatitis. *American Journal of Emergency Medicine 29*, 131.

Charach, A., Yeung, E., Climans, T., & Lillie, E. (2011). Childhood attention-deficit/hyperactivity disorder and future substance use disorders: Comparative meta-analyses. *Journal of the American Academy of Child & Adolescent Psychiatry 50*, 9-21.

Crippa, J.A., Derenusson, G.N., Ferrari, T.B., Wichert-Ana, L., Duran, F.L., Martin-Santos, R., Simões, M.V., Bhattacharyya, S., Fusar-Poli, P., Atakan, Z., Filho, A.S., Freitas-Ferrari, M.C., McGuire, P.K., Zuardi, A.W., Busatto, G.F., & Hallak, J.E. (2011). Neural basis of anxiolytic effects of cannabidiol (CBD) in generalized social anxiety disorder: A preliminary report. *Journal of Psychopharmacology 25*, 121-130.

Dawe, S., Geppert, L., Occhipinti, S., & Kingswell, W. (2011). A comparison of the symptoms and short-term clinical course in inpatients with substance-induced psychosis and primary psychosis. *Journal of Substance Abuse Treatment 40*, 95-101.

Fischedick, J.T., Hazekamp, A., Erkelens, T., Choi, Y.H., & Verpoorte, R. (2010). Metabolic fingerprinting of Cannabis Sativa L., cannabinoids and terpenoids for chemotaxonomic and drug standardization purposes. *Phytochemistry 71*, 2058-2073.

Freeman, J., Maxwell, J.C. & Davey, J. (2011). Unraveling the complexity of driving while intoxicated: A study into the prevalence of psychiatric and substance abuse comorbidity. *Accident Analysis and Prevention 43*, 34-39.

Graef, S., Choo, C.G., Warfield, A., Cullen, M., & Woolhouse, I. (2011). Small cell lung cancer in a 26-year-old man with significant cannabis exposure. *Journal of Thoracic Oncology 6*, 218-219.

Gray, K.M., LaRowe, S.D., Watson, N.L., & Carpenter, M.J. (2011). Reactivity to in vivo marijuana cues among cannabis-dependent adolescents. *Addictive Behaviors 36*, 140-143.

Karschner, E.L., Darwin, W.D., Goodwin, R.S., Wright, S., & Huestis, M.A. (2011). Plasma cannabinoid pharmacokinetics following controlled oral Delta9-Tetrahydrocannabinol and oromucosal cannabis extract administration. *Clinical Chemistry 57*, 66-75.

Miller, J.B., Walsh, M., Patel, P.A., Rogan, M., Arnold, C., Maloney, M., & Donnino, M. (2010). Pediatric cannabinoid hyperemesis: Two cases. *Pediatric Emergency Care 26*, 919-920.

Otten, R., Barker, E.D., Maughan, B., Arseneault, L., & Engels, R.C. (2010). Self-control and its relation to joint developmental trajectories of cannabis use and depressive mood symptoms. *Drug and Alcohol Dependence 112*, 201-208.

Rais, M., van Haren, N.E., Cahn, W., Schnack, H.G., Lepage, C., Collins, L., Evans, A.C., Hulshoff Pol, H.E., & Kahn, R.S. (2010). Cannabis use and progressive cortical thickness loss in areas rich in CB1 receptors during the first five years of schizophrenia. *European Neuropsychopharmacology 20*, 855-865.

Reid, P.T., Macleod, J. & Robertson, J.R. (2010). Cannabis and the lung. *The Journal of the Royal College of Physicians of Edinburgh 40*, 328-334.

Rodríguez-Sánchez, J.M., Ayesa-Arriola, R., Mata, I., Moreno-Calle, T., Perez-Iglesias, R., González-Blanch, C., Periañez, J.A., Vazquez-Barquero, J.L., & Crespo-Facorro, B. (2010). Cannabis use and cognitive functioning in first-episode schizophrenia patients. *Schizophrenia Research 124*, 142-151.

Sauvaget, E., Dellamonica, J., Arlaud, K., Sanfiorenzo, C., Bernardin, G., Padovani, B., Viard, L., & Dubus, J.C. (2010). Idiopathic acute eosinophilic pneumonia requiring ECMO in a teenager smoking tobacco and cannabis. *Pediatric Pulmonology 45*, 1246-1249.

Shabani, M., Hosseinmardi, N., Haghani, M., Shaibani, V., & Janahmadi, M. (2011). Maternal exposure to the CB1 cannabinoid agonist WIN 55212-2 produces robust changes in motor function and intrinsic electrophysiological properties of cerebellar purkinje neurons in rat offspring. *Neuroscience 172*, 139-152.

Shapiro, G.K. & Buckley-Hunter, L. (2010). What every adolescent needs to know: Cannabis can cause psychosis. *Journal of Psychosomatic Research 69*, 533-539.

Skinner, R., Conlon, L., Gibbons, D., & McDonald, C. (2011). Cannabis use and non-clinical dimensions of psychosis in university students presenting to primary care. *Acta Psychiatrica Scandinavica 123*, 21-27.

Soares Vde, P., Campos, A.C., Bortoli, V.C., Zangrossi, H. Jr., Guimarães, F.S., & Zuardi, A.W. (2010). Intra-dorsal periaqueductal gray administration of cannabidiol blocks panic-like response by activating 5-HT1A receptors. *Behavioural Brain Research 213*, 225-229.

Thoma, R.J., Monnig, M.A., Lysne, P.A., Ruhl, D.A., Pommy, J.A., Bogenschutz, M., Tonigan, J.S., & Yeo, R.A. (2011). Adolescent substance abuse: The effects of alcohol and marijuana on neuropsychological performance. *Alcoholism: Clinical and Experimental Research 35*, 39-46.

van Leeuwen, A.P., Verhulst, F.C., Reijneveld, S.A., Vollebergh, W.A., Ormel, J., & Huizink, A.C. (2011). Can the gateway hypothesis, the common liability model and/or, the route of administration model predict initiation of cannabis use during adolescence? A survival analysis -The TRAILS study. *Journal of Adolescent Health 48*, 73-78.

commentary on research

cannabis and the lung – a comment on Reid and Colleagues (2010)

Peter Gates

Reid and colleagues (2010) present us with a review of research regarding how cannabis use impacts on our respiratory health. The articles reviewed focus on respiratory health concerns including: chronic obstructive pulmonary disease (COPD), bronchitis and symptoms of coughing and wheezing, lung functioning, obstruction to airway flow, emphysema and lung cancer.

COPD, or loss of lung functioning, is predicted to be the world's third leading cause of mortality by 2030. Reid and colleagues reference several studies that consistently illustrate significant associations between cannabis smoking, compared to non-smoking, and the presence of COPD, and symptoms of chronic bronchitis, phlegm production, coughing, wheezing and chest tightness. Pooled together, the studies numbered over 10,000 participants, aged between 15 and 60 years and each report significant independent effects of cannabis use and additive effects when combined with tobacco smoking.

Research regarding the links between cannabis use and the presence of air flow obstructions, emphysema or tuberculosis, were shown to be much less consistent. Despite several small studies highlighting associations with airflow impairment (including one study suggesting that one joint is equivalent to 2.5–5 tobacco cigarettes), a large New Zealand cohort study (n=1000) showed little evidence for this link. In comparison, very few articles supported the assertion that cannabis smoking causes emphysema, and no article suggested that cannabis smoking causes tuberculosis. Yet Reid and colleagues did refer to several case reports of cannabis (only) smokers who were diagnosed with spontaneous pneumomediastrium, emphysema and tuberculosis. However as the authors implicate, these case reports may refer to individuals involved with particularly risky habits such as sharing bongs or smoking in closed environments (such as inside locked cars).

The authors also reviewed several studies regarding the association between cannabis use and lung cancer. Despite a lack of qualitative difference between the tar and carcinogenic content between a cannabis joint and a tobacco cigarette, there is less epidemiological evidence showing a connection between lung cancer and cannabis smoking compared to tobacco smoking. Reid and colleagues suggest that the majority of research in the area lacks the robust sample sizes needed to make conclusive statements. Three case-control studies were reviewed with a pooled sample of 430 lung cancer patients and 778 controls (all male). This research suggested that, compared with non-smokers, ever smoking cannabis resulted in a 2.4 times greater chance of being diagnosed with lung cancer regardless of country, age, tobacco smoking or occupational exposure. This risk increased significantly as the total consumption increased but was not affected by increases in the number of joints smoked per month or the duration in years.

The authors conclude that cannabis smoking, particularly regular smoking over a number of years, has been consistently shown to contribute to the development of COPD, bronchitis, symptoms of coughing and wheezing, and lung cancer, regardless of tobacco smoking.

Reid, P.T., Macleod, J. & Robertson, J.R. (2010). Cannabis and the lung. *The Journal of the Royal College of Physicians of Edinburgh 40*, 328-334.

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director's report

treatment. We are also assisting our colleagues at Johns Hopkins in the US with their survey on Spice so if you know anyone who may have used Spice or related products in the last 12 months the link is at http://ncpic.org.au/ncpic/surveys. As Paul mentioned in last E-zine of 2010, the GP project is to be launched next month with a range of materials and training activities. Our online catalogue with excellent search functionality is also now available at http://ncpic.org.au/ncpic/publications/online-catalogue. This will assist those without academic library access to keep in touch with the latest cannabis publications to supplement those we feature in the E-zines. Many thanks to Peter Gates for taking on this complex project with our web team.

The Clinical Services and Evaluation team is finalising a number of projects and the findings will be made available early this year. These include the Cannabis Withdrawal Scale, interventions delivered by mail, telephone and web, and improved quantification of cannabis use. NCPIC is also a partner of the newly funded Co-operative Research Centre for Young People, Technology & Wellbeing led by the Inspire Foundation which will support further development of our communication and intervention activities. In late 2010, Dr Sally Rooke was promoted to membership of our academic staff as a Lecturer, in recognition of her outstanding achievements. This year, staff provided 51 conference papers/posters and had 18 papers published in the international peer reviewed literature and a further nine accepted for future publication.

The Community and Clinical Training team has also worked extraordinarily hard this year and their efforts have evaluated extremely positively in the three month follow-up interviews. They provided 167 workshops in 2010, 50 of which were delivered in rural and remote settings. As a result of the review recommendations the Centre will no longer be providing face-to-face information-only sessions. This is a necessary budget rationalisation despite their great popularity. Annie Bleeker is to be congratulated for her excellent contribution as Community Training Manager and she will be working with the Communications team in 2011 to deliver alternative models of cannabis education delivery. In 2010 she produced a DVD on cannabis which will soon be available. A brief overview of cannabis psycho-education will continue to be delivered, where requested, in the preamble to Clinical Training workshops.

We look forward to a productive 2011 with our consortium partners on these and related projects.

Jan Copeland (PhD)

media stories this issue

Each issue we will examine some of the cannabis-related stories that have received media attention across the country. The headlines are listed below in bold, with a short summary and/or commentary regarding the content of the news story beneath.

If you are interested in obtaining a copy of a particular story, please contact Clare Chenoweth at c.chenoweth@unsw.edu.au

moves to weed out retailers and make bongs a pipe dream

Sunday Age: December 5, 2010

Bongs will no longer be legal to sell or possess in Victoria if Premier Ted Baillieu's election promise eventuates. The "newly-elected Coalition government will introduce legislation out-lawing the sale and possession of bongs." The "required amendments to the Drugs, Poisons and Controlled Substances Act 1981 will be tabled next year in line with previous bans of ice pipes and cocaine kits." Jim Kouts, managing director of the 'Off Ya Tree' chain which sells bongs across Australia, comments that bongs are the "safest way to smoke cannabis because the smoke [is] water cooled."

Paul Dillon, Communications Manager for NCPIC, says that this is a commonly held belief amongst cannabis users. In fact, evidence shows that smoking cannabis in a bong is one of the most dangerous ways to use the drug. Although inhaling smoke through water makes it cooler, this makes it easier for the smoker to inhale a greater volume of smoke more deeply into the lungs. This increases the surface area for tar and other carcinogens to affect the respiratory system.

ice study calls for harm reduction

SX News: December 6, 2010

A study of methamphetamine users, conducted by the National Drug and Alcohol Research Centre (NDARC) and ACON has found that "two-thirds of the respondents were dependent on the drug with one-third also being dependent on cannabis and one-quarter alcohol dependent." The survey involved 90 men and 26 women who identified as gay, lesbian or bisexual.

deadly cocktail

Canberra Times: December 8, 2010

This feature article on former British government advisor, Professor David Nutt, discusses his controversial statements that "alcohol and tobacco were more harmful than LSD, ecstasy and cannabis." Professor Nutt's new foundation recently published a report in *The Lancet*, which "ranked 20 different drugs according to 16 different harms they do, both to users and to wider society."

health check: your weekly medical round-up

Launceston Examiner: December 8, 2010

An Australian Institute of Health and Welfare report shows that "alcohol has again dominated the demand faced by the nation's rehabilitation programs." Cannabis was the second most common drug patients sought treatment for, however "for younger people (10-19 years) the pattern was reversed, with cannabis nominated as the most common principal drug of concern followed by alcohol."

there's a serious side to our youth

Adelaide Advertiser: December 11, 2010

A recent survey, 'SpeakNow', conducted by The Adelaide Advertiser in conjunction with the State Government's Office for Youth, collected information from almost 2700 respondents aged between 12 and 25. Issues such as employment, completing high school and depression were significant concerns for the young people surveyed in October this year. According to the results, 10.4 per cent of respondents felt "peer pressure" to smoke cannabis.

marijuana is more of a problem than so-called 'hard' drugs

Canberra Times: December 18, 2010

In this opinion piece, readers are encouraged not to perceive cannabis as a 'soft' drug without consequences. According to figures from the Australian Institute of Health and Welfare, over 15 per cent of clients in ACT alcohol and other drug programs were dependent on cannabis. Issues such as the effect of cannabis on relationships and mental health are raised in this article.

inside WA's drug scene: the new debate

Scoop: January 1, 2011

In this feature article about licit and illicit drugs, the harmful impact of drug production on developing countries such as Mexico, information about various drugs, and the negative effects of drug use on users are dealt with in depth. Dr Danny Shub, a psychiatrist specialising in adolescent psychiatric disorders, comments that "Brain development is a delicate process, and drugs of any sort can interfere with the trajectory." He goes on to say that despite many people considering cannabis a relatively 'safe' drug, for some young people "the effects can be toxic and dangerous."

dope hunt

Sunday Examiner: January 30, 2011

Tasmanian police are attempting to locate and seize cannabis plants before the upcoming cannabis harvest season in the state. Northern drug squad boss Scott Flude, wants community perception that cannabis is a 'soft' drug to change and warns of the dangers the drug poses to young people, "Their bodies and brains haven't fully matured so it has a significant effect on them, more so than if you start smoking at say 30." Mental health issues, loss of cognitive ability and lifestyle impacts such as loss of employment, are some of the negative effects of cannabis use that Detective Inspector Flude emphasises in the article. He goes on to explain the effectiveness of Tasmania's cannabis diversion process which aims to educate offenders and prevent reoffending.

what do we know?

Spice

what is Spice?

'Spice' refers to a brand name of a range of smokable herbal mixtures that are sold over the Internet and in various specialised shops in some countries. Since 2002 when the Spice brand first appeared, a large number of competing products have also come onto the market.

Despite manufacturers' claims that Spice is a blend of plant or herbal materials which contains no illegal substances, European authorities became concerned that the listed ingredients were unlikely to produce its reported effects and efforts were made to analyse the product and its contents.

On December 15, 2008, German pharmaceutical company THCPharm announced that the synthetic cannabinoid JWH-018 had been identified as one of the active components in at least three varieties of the Spice brand. JWH-018 is a synthetic cannabinoid first synthesized in 1995 for experimental purposes. It is a naphthoylindole, which belongs to the aminoalkylindole family, i.e. the chemical structure differs substantially from Δ9-tetrahydrocannabinol (THC), but it produces similar effects in animal experiments and has been reported to be more potent than THC.

Since that time, a number of European countries have tested materials sold as Spice, and up to late 2009, in addition to JWH-018, eight other synthetic cannabinoids have been identified.

is Spice legal?

It is important to remember that these ingredients are not disclosed by the manufacturers, do not feature in the product's information material, and may therefore be purchased and consumed unknowingly. Unfortunately, this could lead to significant problems for any Australian who may attempt to purchase these products online. Some Spice products have been found to contain a controlled ingredient and it is likely that any similar product imported under the name 'Spice' would be subject to seizure on suspicion of being a prohibited import. Spice mixtures that contain synthetic cannabinoids are an illegal substance in Australia and importation can attract a fine or imprisonment. This is why many online stores clearly state that they will not mail their products to Australia.

Since 2009, many European countries have made Spice and some of the synthetic cannabinoids contained in the products illegal. These include the UK, Switzerland, Ireland, Poland, France and Germany.

is Spice safe?

Spice products which contain synthetic cannabinoids or cannabinoidomimetics – substances mimicking cannabis – are often described as 'research chemicals'. Research chemicals are experimental substances created for laboratory research purposes that are not approved for human consumption and in nearly all cases have never been tested on humans. The vast majority of these chemicals have only been recently synthesized and little, if any, data exists currently about their side effects, adverse reactions, long-term damage, or dependence potential. Most importantly, there are no officially published safety data and virtually nothing is known about their effects in humans. Results from animal experiments with these substances are very sparse.

There is currently no way to effectively estimate purity or safe dosage, with the risk of even very small doses causing acute neurotoxic effects.

Based on the information available, it must be assumed that different amounts or combinations of synthetic cannabinoids are added to many of the Spice products currently available online at manufacture, without informing the buyers. It should be also noted there is evidence that identically named or packaged products have been known to change their composition from one batch to another.

This is done to produce the cannabis-like subjective effects that potential users are seeking. Media stories from Europe suggest that some Spice products may have been produced in Asia (e.g. China), but it remains unclear where and how the actual production of the herbal mixtures, the synthetic cannabinoids and their addition to the herbal mixtures takes place. Since the synthetic chemicals involved are very potent, even minor errors in their addition to herbal mixtures may lead to severe toxicity incidents.

It is important to be aware that products containing synthetic cannabinoids are illegal across Australia and importing them into the country could result in a fine or even imprisonment. Resale of Spice products may lead to drug supply (dealing) charges. In addition, we know little about the ingredients contained in these products and as a result the possible health consequences of using them via any route of administration remain unknown at this time.

This article has been adapted from a recently released NCPIC factsheet on the same topic, available to download by clicking here.

To take part in a survey run by Johns Hopkins University aimed at learning more about people's attitudes to and experiences with Spice go to http://ncpic.org.au/ncpic/surveys/

ncpic contact details

NCPIC is a consortium led by the National Drug and Alcohol Research Centre and is an Australian Government Department of Health and Ageing initiative

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