LAW REFORM, DRUGS AND CRIME PREVENTION COMMITTEE

Inquiry into the supply and use of methamphetamines, particularly ice, in Victoria

Canberra — 11 February 2014

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Dr R. McKetin, Fellow, College of Medicine, Biology and Environment, Australian National University.

The CHAIR — Good morning, Dr McKetin, I thank you very much for appearing at this public hearing of the Victorian joint parliamentary Law Reform, Drugs and Crime Prevention Committee. We are currently investigating the supply and use of methamphetamines in Victoria, particularly ice, as part of an inquiry that the Parliament of Victoria has given this committee. I understand you are a fellow in mental health research with the college of medicine, biology and environment at the Australian National University. I also understand you have been given a number of questions in relation to this inquiry, so it is up to you how you wish to address those or in fact just make some introductory remarks and then the committee might ask you a range of questions on which they are wanting some information.

All evidence taken at this hearing is protected by parliamentary privilege in accordance with reciprocal provisions and defamation statutes in Australian jurisdictions as if you were giving evidence in Victoria and as provided by the Victorian Defamation Act 2005 section 27, the Constitution Act 1975 and the Parliamentary Committees Act 2003. Any comments you make outside the hearing may not be afforded such privilege. Any reporting of these proceedings enjoys qualified privilege for fair and accurate reporting as if the proceedings were in Victoria. Have you received the guide to presenting evidence to parliamentary committees?

Dr McKETIN — Yes, I have.

The CHAIR — Thank you. All evidence given today is being recorded. The witness will be provided with a proof version of the transcript in the next few weeks. I thank you again for appearing this morning, and we look forward to hearing from you.

Dr McKETIN — Thank you, Simon. I have received the questions that you sent through — thank you for sending those through — and I have gone through and put some notes together around each of those. I will briefly explain my background, and then maybe we could go through each of those questions and I can tell you or answer them as best I can.

I am a fellow at ANU, and I do a lot of research on substance use but my specialty is methamphetamine use. I did my doctorate back in the 90s on looking at the effect of amphetamine use on the brain when amphetamine use then was kind of a growing problem. Then methamphetamine increased, and after a period of time I went back to doing research on that. I have done a lot of research on mental health, the relationship between methamphetamine and mental health problems, particularly methamphetamine psychosis, and I have also done some research on treatment for methamphetamine dependence. I am very happy to be here, thank you for inviting me, and I will do my best to answer whatever questions you can throw at me.

In terms of the proceedings, do you want me to just go through each of the questions?

The CHAIR — Yes, just to break the ice, if I can use that term. The reason for this inquiry in part is because of an escalation of use of methamphetamines, particularly ice, in Victoria. We have noticed a significant increase in regional areas and in the Indigenous populations, so we have been gathering evidence from clinicians, paramedics, police, drug agencies, users et cetera. Obviously mental health is a significant part of responses required, particularly going from paramedics to hospitals to mental health. So it is an important part of the report where we are dealing with the mental health aspects of this drug. That is why we appreciate your expertise.

Dr McKETIN — Do you mind if I ask you a question? I know I am meant to be answering the questions.

Mr SCHEFFER — You can ask a question.

Dr McKETIN — When I was reading through this one of the questions pre-empted that there had been an increase in methamphetamine use in Victoria, and I wondered on what basis you had come to that conclusion.

The CHAIR — That is data or statistics that are provided through the Department of Health. We are collecting evidence in concert with those findings.

Dr McKETIN — Is the data that was provided of emergency admissions, hospital admissions, ambulance contacts or prevalence data?

The CHAIR — The data we are using is a combination from different departments.

Dr McKETIN — Lots of different indicators.

The CHAIR — Victoria Police and Ambulance Victoria have their own data. All the agencies that have presented to us have specific data in relation to an increase in methamphetamine that is collected by them. I have to say that, given our past witness who had very specific data from the Home Office in the UK which was certainly interesting, we actually posed the question because the data we were trying to get through our national health agencies was somewhat old and not consistent with what the inquiry was discovering.

Dr McKETIN — That is why I asked, because there are two issues, if I can bore you with academic things for a while. Firstly, you have indicator data, such as your emergency presentations, which are a reflection of problems from the drug and then you have the number of people using, and they do not always correlate. Then also those data sources are old. Anecdotally I have heard there have been increases and I have seen some data that suggests that that is the case, particularly with ice, in the same way that you are saying is the case in Victoria. However, in terms of prevalence, there is not any data at the moment. That was my first comment. The last data that we have on the prevalence of methamphetamine use in Australia is from the national drug strategy household survey. It was, I think, 2.2 per cent in people aged 14 or older. That is much higher in the 20-to-29-year bracket, where you get most drug use. It was 6 per cent in the past year and that has been declining steadily since 1998. Now I expect it will go up again, but they conduct the survey only every three years, so the last data we have is for 2010.

The CHAIR — That is what we found out yesterday, except that the data that we got this morning from a witness from the UK included figures from 2012–13 from the Home Office. I am not sure how they collected that data. I raised the question and we will get information back. It was old data that we were given in evidence yesterday, which is not useful for getting an understanding of exactly what you asked of us: what is the prevalence and how is the data collected and on what basis? We are just working on the information of the statistics provided to us by the different departments and the national drug survey, which is old as well.

Mr SCHEFFER — Just on that, when you are moving through, could you talk to us about the relationship between indicators and the data from the household survey?

Dr McKETIN — The National Drug Strategy Household Survey is a survey of the general population. It gives you an idea of what proportion of the whole population has used the drug in the past year, and that is useful. If you contact the Australian Institute of Health and Welfare, they may actually have preliminary data, because the survey has been conducted.

The CHAIR — They were here yesterday.

Dr McKETIN — Okay. The indicator data reflects how many people turn up at your treatment centres and your emergency departments, so that is more about the problems from the drug.

Mr SCHEFFER — What I am getting at is that historically, if you look at the 2010 data, prior to 2010 there was also a set of indicator data. Did the 2010 survey data confirm what the indicators were suggesting or did it take you in another direction?

Dr McKETIN — It took us in another direction.

Mr SCHEFFER — Can you talk about why that happens?

Dr McKETIN — It happens because your problems do not necessarily marry with the prevalence of the drug, so overall the number of people in the population who are using the drug can diminish, but it might be the young, recreational drug users who dropped out of that market and who are not really the people who are having the problems. What we saw was that there was a

core group of people who were having a lot of problems, who were dependent on the drug and they did not drop out of the market. So while the overall prevalence declined, that was because the young people had stopped taking up drug use. It had become less popular. The people who are dependent, even when the availability of the drug drops, will still be more likely to keep using.

Mr SCHEFFER — So we should not think that the indicators that we are picking up will necessarily mean that the data that comes from the 2013 household survey will confirm what we suspect?

Dr McKETIN — That is right. I suspect that it will to a limited extent and what you might see is a very small increase in the prevalence of methamphetamines in Victoria, but you will probably say, 'Well, so what?' because it is such a small increase that it does not give you a lot of information. What you have to remember, in terms of addressing the problem of methamphetamine use, is the impact it is having on your health-care system as much as the prevalence of the drug, so those indicators really do matter.

Also, there is a difference in the timing of the indicators. When someone starts using the drug they might try it for the first time when they are 18 or 20 years old. It might be two or three years, say, before they start getting into problems with the drug if they keep using it and they become dependent. It might be another three to five years before they start seeking help or start having serious problems and turning up in the hospital system, in the emergency departments, at their GP or wherever else. Often what you see is that the problems come after the increase in use. What you are seeing now in terms of increasing problems may have actually been provoked partly by increases in availability of methamphetamines some time back.

Mr SOUTHWICK — What about the accuracy of that sort of data? How many people would be likely to disclose that they are a drug user of methamphetamine, ice, particularly if it is on a recreational basis?

Dr McKETIN — Our surveys are pretty good because people are quite trusting. But there was a drop in prevalence in the 2007 and 2010 surveys which, when you examine them closely, is partly underreporting. I think because methamphetamine and ice became quite stigmatised, people were less inclined to report. We could see that because the lifetime use of the drug dropped. If you have ever used a drug now, in three years time you will still have used that drug at some point. We actually saw a drop from 9 or 10 per cent of the population saying that they had ever used speed, amphetamine, ice or methamphetamine down to 6 per cent, so 4 per cent of the population suddenly decided that they had not ever tried the drug. So we know that there is underreporting.

Also, those population surveys do not catch the harder end of the population, in terms of heavy use, that would turn up at your emergency departments, because those people are more likely to be in treatment, they are more likely to be incarcerated and they tend to cluster in geographic regions, hot spots for drug use. With the way the national survey is structured, it is a random sample, but they have to randomly sample regions. I do not know what would be the equivalent district in Canberra, but Kings Cross is a cluster for drug use. If they miss Kings Cross and they sample Woollahra, you are going to get a lower prevalence of drug use. So they are great for things like cannabis that are more common; they are little bit problematic for heroin, methamphetamine and cocaine.

The CHAIR — The data collected by triage in emergency departments often does not differentiate between drugs. We have found that in our inquiry so far as well. What presentations are methamphetamine users and what are others? With the self-assessment process they cannot determine that.

Dr McKETIN — One of the big problems with methamphetamine is that you are having most of the impact seen on the front-line services. These people do not necessarily like to go to treatment. There are not specialised treatments. As you said, the data is not of very good quality, not all EDs collect it and they do not collect it systematically. When we talk to speed or ice users in the community, the majority of them are turning up at the emergency departments with some problem or another, but when we go to the emergency departments and ask, 'How many ice users

are you seeing?', they vastly underestimate that. They say, 'Oh, it's just occasional'. If you go through all the records, you do not pick them up. That is because people do not turn up and say, 'Oh, by the way, I'm an ice user'. They just go in and say, 'I've got a sore toe', 'I've been hit' or, 'I've had an accident'.

The CHAIR — Do you think you could respond to the questions, just so we can get that on the record? I think they are additional to the questions we have. I will invite committee members to ask questions after that.

Dr McKETIN — We have talked about the prevalence issues. One thing that is important that you may have covered in your questions is whether it is a recreational drug or a drug of dependence, and with the prevalence, the majority of people who are not using it so heavily. The latest estimate that we have is that 97 000 Australians have a stimulant use disorder. Given that methamphetamine is probably the most common stimulant used in Australia, I would say that that reflects mostly methamphetamine use. Then there are a whole lot of other people who just use the drug less often and have fewer problems with it. It is a highly addictive drug. It is something I noticed here and I was a bit like, 'Okay, so there is a kind of misconception in some circles that this is not a dangerous drug'. But it is highly addictive, particularly if it is smoked or injected. I think the misconception that it is a recreational drug comes from the days of the powder form of amphetamine that was low purity and people were snorting or swallowing it. When it is taken like that, it is not as addictive. The difference with ice is that, firstly, it is higher purity — methamphetamine is a much more potent drug than amphetamine — and also it is smokeable. Speed in the olden days, if you like, was not easily smoked because it was full of sugar and cutting agents that would not evaporate, but when you heat ice it vaporises and people can inhale it and it has a very sudden onset. It is like smoking a cigarette; it comes on straightaway. Basically any drug that comes on more immediately is more reinforcing and more likeable; people get a stronger, faster, more intense high from it, and it is that which makes it more addictive.

Crystal meth came on the market or started to be imported around 1999 to 2000. Since that time we have seen the uptake of crystal meth in populations of drug users who were otherwise fairly recreational. Smoking is not stigmatised like injecting, so these people were going, 'Okay, I can smoke this'. A lot of them came out fine, but because it is more addictive, you have more people in that cohort getting into trouble with it. That is also because of its high purity. I understand that in Victoria — someone told me anecdotally the other day — the price is quite low and it is quite available. When you have a situation like that, more people are using it and it is also being taken up in your existing drug-using populations that already have a problem with other drug use. If you are absorbing the methamphetamine that is available and it is very high potency, then of course you are going to see a lot of problems because of that.

Mr SOUTHWICK — Can you profile the drug user for us? What would you see? The last witness described users in the UK as 'down and outers' — they were his words — and said that they did not see it as an attractive drug like cocaine. What are your views on that?

Dr McKETIN — That is not the case here. The exposure to this drug in the general population is sufficiently broad that it is very hard to typecast people. Like any drug, it is more prevalent in your 'down and out' population, if you want to describe them like that, so with homeless people or people in low socioeconomic brackets. It is overrepresented in the gay and lesbian population as well. However, it is not restricted to those populations. It is common to find your average working class person involved with use, a housewife who is at home with children involved with use, methadone clients involved with use and people in suits, such as dentists, doctors — —

The CHAIR — Tradies, so I am told.

Dr McKETIN — There are tradies as well. I think it is a good working-class drug in that it is not too expensive and it picks up people's energy levels so they can still be employed. It is probably the difference between that drug and a lot of other sedative drugs where people are just not engaging anymore with their work or with society — you still get them engaging in the workforce.

Mr SCHEFFER — You talked about smoking and injecting.

Dr McKETIN — Yes.

Mr SCHEFFER — There have been moves to ban pipes, for example, from retail sales. We understand that you can make pipes out of anything so maybe it is not such an impediment, but one of the arguments for not banning pipes has been that if they do not have them, people will start injecting. Some of us think that that is a pretty big jump — that injecting is a pretty confronting experience. Is there any evidence around that — —

Dr McKETIN — The transition?

Mr SCHEFFER — Yes.

Dr McKETIN — I am of the same opinion as you in that I think it is a big jump for someone to move straight into injection and I do not see how having a pipe would prevent that transition from happening. In fact once people start smoking with a pipe and they become dependent they would be as likely to move on to injecting as they would anyway — —

Mr SCHEFFER — They would?

Dr McKETIN — There is not a lot of it — —

Mr SCHEFFER — But would the banning of pipes be a catalyst to move on that more quickly?

Dr McKETIN — If they were already smoking the drug independently, perhaps. But you have to weigh that up against people becoming smokers because they can access the pipes. What I see in the data and in interviewing people is that you get people who are both injecting and smoking, so your injectors actually smoke as well. It just depends on the context. They prefer injecting but the pipes are there so they smoke as well. Then you actually see more harm because they are using more of the drug. Personally I cannot see how banning the pipes would cause people to move to injection because it is a more confronting method of administration. The other question is: would banning pipes reduce smoking if people can make their own pipes? We do not have an answer to that.

The CHAIR — Can we allow you to finish your response. I am mindful that we only have 15 minutes left. We have not had a lot of evidence from witnesses on mental health. As part of your contribution, perhaps you could talk about what this committee could recommend in relation to the damage caused by the use of this drug to the brain and the psychosis and mental health issues surrounding it. It is an area we have not really canvassed in much detail. We would like to hear your perspective.

Dr McKETIN — The main mental health problem associated with methamphetamine users is the paranoid psychosis that it can induce. There is research from the 1970s where they experimentally induced it, so we know that methamphetamine can induce psychosis and we know that it is not just because of sleep deprivation, which some people think it is. That is because the psychosis comes on after 2 hours or 3 hours when there has been no sleep deprivation. That is not to say that sleep deprivation does not help the process; it is just saying that it is the drug itself.

One of the research studies I conducted with my colleagues looked at methamphetamine users over time and compared their psychotic symptoms when they are not using the drug to when they are using it. When they used the drug up to 15 days a month, they had a fourfold increase in the odds of psychotic symptoms. That goes up 11-fold if they are using 16 or more days in that month, so it is a very strong dose-related increase in the risk of psychotic symptoms.

We have recently looked at the risk of violence; that is another big one that people talk about a lot. We have found that the risk of violent behaviour is similarly increased with people who are using the drug heavily — so, say, 16 or more days in the past month. The odds of violent behaviour is 10 times greater than when they are not using the drug. That is the same person. It is not to say that

they are not predisposed to violence, but this is comparing how they are when they are not on the drug to how they are when they are on the drug. That is accounting for polydrug use.

The very strong relationship between these mental health problems and the level of drug use in my mind suggests that reducing the actual drug by treatment would be a very good way to reduce the mental health problems. That is not to say that we do not also need protocols in emergency departments to manage methamphetamine psychosis and the violent behaviour that goes with it. However, that is a bandaid solution. If you really want to fix the problem, you need treatments — —

The CHAIR — Are you going to touch on that, because there is no indication of all a substitution therapy as there is for heroin addicts? Can you update [inaudible] as well?

Dr McKETIN — At the moment it is still very much the same situation where there are a handful of trials that show promise for specific drugs but in that evidence it is not consistent that they can recommend any particular medication. No medications have been approved for use in routine clinical practice. It really needs a big injection of resources to try to work out what drugs are best to treat methamphetamine dependence.

The substitution therapy issue is a complex one. We like the idea because it has worked well for heroin with methadone and buprenorphine, but stimulant use is quite a different beast and there are a lot of questions about whether providing substitution therapy for stimulant use will actually work because you are putting someone on a stimulant drug every day and what you tend to see are a lot of side-effects. It increases the risk of heart attack and it exacerbates the risk of psychosis. There are a lot of problems with substitution therapy. What we really need as a first step are drugs that can manage the withdrawal symptoms. When people turn up at the emergency department they are very messy and ratty — as I am sure you have heard from talking to people who work in that environment — and they are very hard to engage with, even through the detox process.

If they have been using ice heavily, they are craving the drug, they have no emotional regulation, they are very difficult to manage and they are very agitated. What the clinicians say is that it is very hard to engage them in any kind of longer term treatment using the psychological therapies, which are actually effective. What they ask for is some type of medication regime or something that can get those people through the first two to three weeks until they are settled and you can have a proper conversation with them and start to sort out their lives. I think that is where the pharmacotherapies have to focus.

Coming back to the psychological treatments, there is cognitive behavioural therapy and also contingency management, which you did not mention here. Are you familiar with contingency management? In the US they are big on it. Here it is not very popular for cultural and ethical reasons. In a very crude way, it is like paying people for drug-free urine, but it is a little more sophisticated than that, and it can be implemented in various regimes. The idea is to provide people with reinforcement for not using the drug, and that can be in a number of different ways. It usually has to be in some kind of cumulative reinforcing way. It is not just a flat reward but an escalating reward, so that the longer you stay off the drug, the more you get. That has been found to be quite effective in the US.

People do not like it here because of the drug testing issue — it is seen to be punitive. Both that and the cognitive behavioural therapy, the meta-analyses that have been conducted show that they have a moderate impact on methamphetamine use if they are provided in a really good way — so intensively, like once to twice a week over several months, and they are usually tailored treatments provided by clinicians. It is not like a brief intervention you can just throw at someone and expect they are going to suddenly change.

The uptake of these in the general community is limited at the moment. It is hard to assess how many people use them, but if you go out into the community and look at treatment centres, they vary from services that might be residential rehab that have a psychologist and have a multidisciplinary team and they provide really good treatment, to a rehab where — I am not saying

it is bad treatment, but it is a very different approach — there are structured activities and they do not look at drug use specifically, so it is highly varied.

The researchers that I work with, and I did an evaluation of the community-based treatments, the detox alone — putting someone through detox — had no impact on their methamphetamine use. We measured outcomes at three months, one year and three years, and in that framework it did not have any impact. Obviously it is necessary because some people cannot just stop using, they need that help, but it does not stop longer term drug use.

The residential rehab had an impact at about three months. If you took 100 people and put them into the residential rehab, what you saw was that 33 had stopped using at three months compared to if they had not received the treatment, and that dropped to 14 at one year and 6 at three years, so really high relapse rates. That is not to say it does not work for some people, but it could be better.

The CHAIR — That is quite high. It is not consistent with what we have heard from others in the past in Melbourne [inaudible]

Dr McKETIN — No, it is a good point to bring up because what you will find when you talk to people about whether the treatment works, is that a lot of the evaluations are pre-test versus post-test evaluations. So you look at people when they come in and they are using very heavily, and then you talk to them a year later and they have stopped using. We found that too, but we also found that in the people who did not receive treatment. That is why you do controlled trials, because, when you intervene with anyone and start asking them questions, you get changes in drug use. There are changes in availability that cause changes in drug use. And then there is natural maturation out of the drug use. Also, when you recruit them, people turn up for treatment when they are at a crisis point, but their drug use actually fluctuates over time. Yes of course, when they come in for treatment, they are all using very heavily, but you get that reduction even if you are not giving people treatment.

That is the catch, and if you look at any of the randomised controlled trials, even with the CBT, you will see that the control group improves quite substantially. What you have to look at is the added benefit of putting treatment on top of that. When you look at the cost of providing residential treatment — I am not saying you should not do it — but it is a very costly option given the benefit you get over not providing treatment. Unfortunately, at the moment, that is what we have got, and that is probably the best we have got. We could not evaluate counselling because we could not recruit enough people from the counselling services, so we cannot comment on whether that works, but my suspicion is that it is probably a similar kind of outcome.

Mr SOUTHWICK — What is the solution?

Dr McKETIN — The bigger picture solution, I think, is to appreciate that methamphetamine use comes with a range of harms that actually manifest in quite different contexts depending on the types of users and the types of problems. We are talking about treatment, and I am not saying we should not develop treatment options, we do need to do that; but when you are talking about polydrug use in these questions, one of the problems we are seeing at the moment is that stimulant users — whether it is amphetamines, but I think mostly it is methamphetamine, amphetamine or ecstasy and cocaine — drink quite heavily. They go out and binge drink because the stimulant effects allow them to drink more than you would otherwise. They sober the person up, if you like. They offset the sedative effects of alcohol.

When we talk to stimulant users, they are reporting incredibly high levels of alcohol consumption when they go out binge drinking. This is not your kind of chronic person who would turn up to treatment. This is your 20-something-year-old male on a big night out, and that has got an important risk for alcohol-related violence, because the methamphetamine increases the risk of violence and so does the alcohol, and you have the two together.

In that context you would have, not necessarily treatments, but maybe some other kind of other harm reduction approach because you are targeting a different population. In New South Wales when they went through this process they realised they had an issue with ice use in the party-drug

scene, particularly in the gay and lesbian communities, so they put out ads targeting that particular group. They were very targeted about the negative effects of ice in those communities, for example. You might want to do some things like that.

In terms of the treatment, you need to put some serious funds into developing medications that can be used to help withdrawal. Maybe those will end up being used in substitution therapy, but at least in the first instance if we can manage withdrawal and calm people down, have some protocols for managing methamphetamine psychosis, and there really are not any at the moment, that would be a first step in that area.

The CHAIR — That requires government intervention, doesn't it? The companies themselves would not take responsibility for putting money into it.

Dr McKETIN — The pharmaceutical companies?

The CHAIR — Yes.

Dr McKETIN — I do not know. Personally I do not seek money from the pharmaceutical companies because there is the whole conflict-of-interest thing.

The CHAIR — I did not mean you. I am just talking about them being active in trying to find substitute drugs. It requires government support and initiatives to get the pharmaceuticals to start investing in the solutions.

Dr McKETIN — I cannot comment. I do not know the answer to that. I do not know what process was gone through with buprenorphine and methadone.

The CHAIR — [inaudible]

Dr McKETIN — Yes, I think that would be really important, because there has not been that level of investment. One of the problems in all trials that have been done is that almost all of them are so small-scale that you do not get an effect, and you do not know whether that is because there is no effect or because you do not have enough people in the trial — a really high uptake of the trial. Even though all of the users say that they want a replacement therapy, there has been a problem in recruiting people for those trials as well. I do not quite understand why that is — compliance issues? They have to come in for daily dosing of the drug, and trying to get an ice user to come to a clinic every day is quite difficult. And then the drugs that we have are not necessarily that suitable either, so they drop out very quickly.

What was the other thing? Yes, getting the effective treatments, like the cognitive behavioural therapy and the contingency management, into practice. One of the things done in New South Wales was with the other stimulant treatment program where they provided counselling. It was kind of cognitive behavioural therapy, but all of the therapists liked doing their own thing, so it was a bit harder to manage, but at least it gave people somewhere to go. When they said there was no treatment for stimulant use, you could go, 'Well, actually, you could go to this clinic' and people did go there. I think it increased treatment coverage, so that would be helpful.

Another big thing that you can do, and I assume you are talking to law enforcement people, but I have got some papers here and included in them is a systematic review of precursor regulations. Most of the evaluations that have been robust have been done in the US. Not all of the regulations that they put in place worked, but those that did actually substantially reduced hospital admissions and arrests for methamphetamine use. The reductions they found wuptakeere between 12 and 70-something per cent. That is because it reduced the availability of the drug that was on the street, reduced the purity of it and consequently reduced the problems associated with methamphetamine use.

I have done a little bit of work on methamphetamine markets, and my observation is that there is very poor data to monitor importation of precursors or the availability of precursors in Australia. It seems to be a bit of a black hole. We have had a problem with methamphetamine use in Australia for a long time. We have one of the highest prevalence rates in the world, and we sit right next to

South-East Asia, which is responsible for the majority of methamphetamine production but also has a higher availability of precursors that are very cheap that can be imported into Australia — that to me is a big one.

The CHAIR — We have been gathering some evidence in respect of buying them through the internet. While we pause there, I invite committee members to raise any questions. Ben, I appreciate that you have joined us today and have not yet had an opportunity, so maybe there is a question you might want to ask.

Mr CARROLL — Thanks, Rebecca, for your presentation. I was going to ask you a question about the effect on the brain and try to get some clarity if possible. With crystal meth, we have heard some evidence — and some of it is quite contradictory — that it does increase your serotonin dopamine levels and all the feel-good chemicals in the brain, but long-term, the longer you stay on the drug it actually starts depleting the serotonin and dopamine levels. Is that your understanding of how it affects the brain?

Dr McKETIN — Yes. What happens with chronic use is that there are two different processes, and this is why it might seem contrary. Yes, you get a big release of dopamine and noradrenaline and serotonin when you use the drug. If you use it heavily, what you get is that the system down-regulates. It is not necessarily brain damage, but your brain adapts to everything in your environment and it very quickly goes, 'There is a lot of that chemical'. Next time it gets the drug it gets ready and it offsets the effect of it. You get chronic down-regulation, and that should recover once you come off the drug, but what you see clinically in people who have stopped using heavily is a withdrawal syndrome. It is quite severe for a week or two, and then they get mood disturbances and so forth for maybe weeks and maybe even months afterwards as the serotonin and dopamine systems recover.

There are also the neurotoxic effects of the drug. In your brain you have cells and little arms that come off the cells that communicate with other cells. Dopamine cells project into your frontal lobes and they are connected with everything, and there are little dendrites at the end, like little tentacles. What happens is that because you have too much dopamine coming out, the oxidative stress that it produces burns them back if you like. It is bit like pruning a tree. That too will recover in time. Whether it comes back the same way or different is hard to say — in the same way that if you prune a tree, it might not be exactly the same but you get recovery.

The most recent evidence is that oxidative stress can actually produce some cell death, both in the dopamine system and in other systems. That is probably not as reversible, and it might be more chronic. There is different evidence about the chronicity of the effects. The best research shows some recovery over time. Other research shows that maybe at a year later there are still decrements compared to controls. But the conundrum is that with these chronic meth users we did not capture them before they started using methamphetamine, so when you see changes a year after they have stopped using the drug you do not know whether that was a pre-existing difference in their brain or a chronic effect of the drug. The take-home point is that heavy use can cause changes in the regulation of these systems; it can cause neurotoxicity. That damage will repair itself to an extent. We do not know whether there are any permanent changes.

Mr CARROLL — Is that also part of the problem that, long-term, if you have been taking that drug for six years or so and are quite addicted to it, you keep taking it because you are trying to get back to what it was like originally — upping your levels or injecting it more, trying to get back to that feel-good that you had originally?

Dr McKETIN — That is one of the hypotheses, but like I said, the chemicals do tend to restore themselves over time. You really find that in the first few months after people come off the drug. After a year or two they should actually be pretty much back to normal. What usually causes people to relapse to using the drug is a craving, so it is a memory of how good it felt to be on the drug, and they go, 'Oh, I want that back', so they will go back to using it.

Mr CARROLL — Thank you, Rebecca.

The CHAIR — You are talking to a former smoker; I remember it well.

Mr SCHEFFER — Can I just follow on from what Ben asked you; I am interested in this notion of violent behaviour. I still do not understand violence. I guess it is kind of an uncontrolled exertion, for want of a better way of describing it; secondly, is it yourself or even somebody else. It seems to me that it is in some way transactional. Are you and others saying that the drug produces violence like that and it is a direct physiological effect that happens non-contextually? The thing we wrestle with is that ambulance officers and police officers tell us that there is a violent situation. The dilemma is: is that because it is on the street or in an emergency ward or because something has happened before? Or is it that if you are alone at home and you are using the drug all of the sudden there would be an outburst where you would kick a door in or hit yourself on the head?

Dr McKETIN — I am going to preface what I say by saying that obviously there are contextual factors that provoke violence; it is not like someone is going to jump up and suddenly start banging their head on the wall. Having said that, that is actually what happens in some cases. The drug does seem to have a physiological effect, and because it stimulates the person, if there is a violent situation they have more energy to respond and they feel more aggressive, more confident, more arrogant, if you like, more cocky and less inhibited.

There is also an issue with chronic use of the drug in that it deregulates the brain chemicals that are involved with controlling our emotions. Even though we do not have a good handle on the physiology underlying methamphetamine-related violence, it seems to be that chronic users have a decrement in serotonin. It has been shown that that happens in their frontal lobes, and that then is correlated with the level of violence that you see in that population. So you have chronic changes in the brain from the drug, and then you have the drug on top of that, which is increasing dopamine — that is, the stimulating, active drug. If you then add that to the context, where you might have someone who is carrying a drug and they are frightened of losing it or they might be having a terse interaction with someone over a deal that has gone wrong, they are in an environment where there are weapons and there is a lot of hostility and they are also the type of person — a lot of people who are heavily involved with drug use have a predilection towards violent behaviour in any case — all of these factors come together.

Then you have the paranoia, which is just the icing on the cake, so you have somebody who not only is quite hyped up and has chronic changes in their brain from using the drug that mean they are unable to regulate their emotions — they have all of the contextual factors there — but then they also have this delusional belief going on that you are out to get them; they are disinhibited. All of these things come together.

Mr SOUTHWICK — Just leading on from that, is any evidence of psychotic episodes leading to suicides, and are they any more or any less than any other drug user?

Dr McKETIN — To answer that, I am just going to explain that we followed a group of 501 different methamphetamine users over three or four years, and I think we got about 10 deaths that we identified, and a couple of those were suicides for which we did not get the details. The numbers are so small that it is kind of hard to say whether that is more or less than any other drug. In fact we do not have good data on mortality from amphetamine use.

Anecdotally there is all the depression that is associated with suicide risk. Delusional thought cannot help. If you are paranoid and you think everyone is watching you and out to get you on top of being depressed, it would certainly be a catalyst. When people come down from methamphetamine they go into quite a deep depression, and that is often confounded by these delusional thoughts.

The CHAIR — Dr McKetin, we might have to leave it there. Thank you very much for your evidence. Would you be prepared to table those documents?

Dr McKETIN — Yes.

The CHAIR — Thank you very much.

Dr McKETIN — Thank you.

Witness withdrew.