

**FEDERAL DEFENDER
SENTENCING GUIDELINES COMMITTEE**

Lyric Office Centre
440 Louisiana Street, Suite 1350
Houston, Texas 77002-1634

Chair: Marjorie Meyers

Phone: 713.718.4600

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Honorable William H. Pryor, Jr.
Acting Chair
United States Sentencing Commission
One Columbus Circle, N.E.
Suite 2-500, South Lobby
Washington, D.C. 20002-8002

Re: Public Comment on MDMA/Methylone/Synthetic Cathinones

Dear Judge Pryor:

This letter offers the comments of the Federal Defender Sentencing Guideline Committee on issues related to MDMA/Ecstasy, methylone, and synthetic cathinones. We appreciate that the Commission is revisiting the marihuana equivalency ratio for MDMA and the typical dosage weight, along with methylone and other synthetic cathinones. We incorporate by reference our March 2017 letter to the Commission, which offered many comments to the Commission on the issues the Commission is currently considering and included transcripts and declarations from experts involved in litigating these drugs.¹ The remainder of this letter offers additional comments encouraging the Commission to (1) revisit the method it uses to measure drug harms; (2) lower the ratio for MDMA; (3) set a marihuana equivalency ratio no higher than 1:100 for methylone and several other synthetic cathinones; and (4) change the typical weight per unit of MDMA, which takes into account the lowest common dosage rate.

I. The Commission's Study of Drug Offenses

As the Commission undertakes its multi-year study of MDMA/Ecstasy, synthetic cathinones, and synthetic cannabinoids, Defenders highly recommend that it apply a well-defined, consistent harm-based rationale to drug sentencing, while also addressing gaps in the research.

¹ Letter from Marjorie Meyers, Chair, Federal Defender Sentencing Guidelines Committee, to the Honorable William Pryor, Jr., U.S. Sentencing Comm'n 2-4 (Mar. 10, 2017) (*Meyers Letter Mar. 2017*).

A. The Commission’s Theory Behind Drug Sentencing Should be Well Articulated and Consistently Applied.

Defenders have previously noted difficulty commenting on proposed changes to drug sentencing without an explanation from the Commission of how the guideline, and particularly the Drug Quantity Table (DQT), is intended to achieve the purposes of sentencing.²

We believe it is important for the Commission to adopt and consistently apply some theory of drug sentencing. Once articulated, judges can use the rationale when considering and applying the guidelines. Other stakeholders can use the rationale when evaluating and commenting upon proposed changes. And the Commission can use it to guide policy making, and to help ensure that the guidelines achieve the purposes of sentencing. Without such a theory, the guidelines are more vulnerable to piecemeal decision making by Congress and the Commission, which often creates anomalies, disproportionalities, and unjustified disparities among recommended sentences for different drugs.

B. The Commission’s Analysis of Drug Types and Determining Drug Equivalency Should Focus on Direct Harms Rather than Ancillary Harms Associated with Trafficking.

The Commission has requested comment on a number of issues, including distribution and usage patterns and other matters, as well the health effects of the controlled substances under consideration and how their harms compare with those of other drugs. It also has stated that it “anticipates that its work will continue to be guided by the factors the Commission traditionally considered when determining marijuana equivalencies for specific controlled substances, including their chemical structure, pharmacological effects, legislative and scheduling history, potential for addiction and abuse, the pattern of abuse and harms associated with their abuse, and the patterns of trafficking and harms associated with their trafficking.” At the same time, the Commission explicitly asks how it should assess the harms of MDMA relative to those of other controlled substances.

We noted in previous comments that a harms-based analysis might provide a workable rationale for proportionate drug sentencing. When establishing quantity thresholds in the DQT, and the drug equivalencies in Application Note 8, we encouraged the Commission to focus on direct harms caused by the drugs themselves. Comparing one drug to other controlled dangerous substances on all of the criteria the Commission has included in its request for comment will likely result in inconsistent, subjective assessments of the harms associated with a particular drug, especially since the Commission has never adopted a standard methodology for consideration of those factors. Nor should actual patterns of trafficking and harms associated with the trafficking of a particular drug be used to determine the appropriate marijuana

² *Id.* at 2-4.

equivalency. Such patterns and ancillary harms are already addressed in the many specific offense characteristics found in the guidelines.³

C. Addressing Gaps in the Research

Regardless of the theory of sentencing adopted, the available research is likely to fall short of what is ideally needed to write guidelines implementing the theory. Contemporaneous observers of the legislative history of the Anti-Drug Abuse Act of 1986 noted that Congress made serious mistakes in establishing the quantity thresholds in the penalty statutes.⁴ Data may not be available; some preliminary research may turn out to be mistaken or there may be a lack of consensus in the scientific community. For example, we are not aware of data on what quantities of various drugs are reliably associated with “major” versus “serious” traffickers. And scientists have already disagreed on the effects of MDMA.⁵

Even if the Commission is dissatisfied with the research currently available on the comparative harms of the drugs currently under consideration, it needs to try to synthesize the available data. It failed to do this in 2001 when it established the marijuana equivalency for MDMA, opting to dismiss criticisms of certain studies that exaggerated the toxic effects of MDMA.⁶

³ See, e.g., USSG §2D1.1(a) (setting base offense levels when death or serious bodily injury resulted from the use of the substance; §2D1.1(b)(1) (offense level increase for possession of a dangerous weapon); §2D1.1(b)(2) (increase in offense level for using, threatening, or directing the use of violence); §2D1.1(b)(3) (increased offense level and offense level floor for certain importations and exportations); §2D1.1(b)(6) (distribution through mass-marketing by means of an interactive computer service). See also §2D1.2 (increased offense levels for drug offense occurring near protected locations or involving underage or pregnant individuals).

⁴ See *Mandatory Minimum Sentencing Laws – The Issues: Hearing Before the Subcomm. on Crime Terrorism, and Homeland Security of the H. Comm. on the Judiciary*, 110th Cong., 1st Sess., at 166, 169-70 (June 26, 2007) (statement of Eric Sterling). Mr. Sterling has described the legislative process as “like an auction house It was this frenzied, panic atmosphere – I’ll see you five years and raise your five years. It was the crassest political poker game.” Michael Isikoff & Tracy Thompson, *Getting Too Tough on Drugs: Draconian Sentences Hurt Small Offenders More Than Kingpins*, Wash. Post, Nov. 4, 1990, at C1, C2.

⁵ See, e.g., Rick Doblin, et al., *A Reconsideration and Response to Parrott AC (2013) Human Psychobiology of MDMA or ‘Ecstasy: An Overview of 25 Years of Empirical Research*, 29 *Human Psychopharmacology Clinical and Experimental* 105-108 (Mar. 2014) (discussing how Dr. Parrott’s review of the literature on MDMA/ecstasy was inaccurate and failed “to address the central controversies in the literature”).

⁶ USSC, *Report to the Congress: MDMA Drug Offenses, Explanation of Recent Guideline Amendments*, at 8, n.15 (2001) (*MDMA Report*).

The solution is for the Commission to make the best use of the available research, erring on the side of lenity. This approach is consistent with the overriding statutory mandate that sentencing courts impose a sentence sufficient, but not greater than necessary. 18 U.S.C. § 3553(a). It will also avoid guideline amendments that call for an unwarranted deprivation of liberty, particularly given the strong data showing that severe sentences will not promote deterrence⁷ and that less severe sentences will help satisfy the Commission’s obligation to assure that the guidelines meet the purposes of sentencing⁸ and control the prison population.⁹

D. Addressing Unavoidable Imprecision in the Guidelines

Even with adequate research, vagaries in the real world—in matters such as the purity of different batches of drugs and the amounts that constitute typical doses—will ensure that no set of guidelines will lead to the right recommendation in every possible case. This is why it is so important for the Commission to articulate the assumptions underlying its decisions and the rationale for the guidelines, i.e. how they are *intended* to achieve the purposes of sentencing. Armed with that kind of understanding—for example, why the Commission expected the typical weight of a dose of MDMA to be 250 mg—judges and advocates can recognize when those expectations are not met in a particular case and weigh and adjust the guidelines’ recommendation accordingly.

Vagaries such as these are already recognized in the guidelines, but in a limited and unbalanced way. We have previously noted how the inclusion of the weight of “any mixture or substance containing a detectable amount” of a drug in determining the base offense level in the DQT inevitably introduces arbitrariness into drug sentencing.¹⁰ Defendants trafficking in similar

⁷ National Institute of Justice, *Five Things About Deterrence* (Sept. 2014) (“certainty of being caught is a vastly more powerful deterrent than the punishment”; “prisons may have opposite effect of deterring crime”); Daniel Nagin, *Deterrence in the Twenty-First Century*, 42 *Crime & Just.* 199, 201 (2013) (“lengthy prison sentences cannot be justified on a deterrence-based, crime prevention basis”); Brennan Center for Justice, *What Caused the Crime Decline?* 26 (Feb. 2015) (“The National Academy of Sciences (NAS) concluded that ‘insufficient evidence exists to justify predicating policy choices on the general assumption that harsher punishments yield measurable deterrent effects.’”); National Institute of Corrections, *Myths and Facts: Why Incarceration is Not the Best Way to Keep Communities Safe* 2 (2016) (“[r]esearch suggests that incarceration does little to change a person’s behavior”); Patricia Clark, Office of Justice Programs, National Institute of Justice, *Preventing Future Crime with Cognitive Behavioral Therapy*, 265 *Nat’l Instit. of Just. J* 22 (2010) (“Cognitive behavioral skill-building is more effective in reducing future criminal behavior than punishment even among persons at high-risk of reoffending.”).

⁸ 28 U.S.C. § 991(b)(1)(A).

⁹ 28 U.S.C. § 994(g) (“sentencing guidelines prescribed under this chapter shall be formulated to minimize the likelihood that the Federal prison population will exceed the capacity of the Federal prisons”).

¹⁰ *Meyer Letter March 2017*, at 8.

amounts of the actual controlled substance, and thus causing similar harms, may be sentenced very differently if the mixtures for which they are held accountable vary in purity.

USSG §2D1.1, Application Note 27, recognizes that the weight of a mixture may *misrepresent* the relative seriousness of a drug crime, for example, if the mixture is of “unusually high purity”. In such a case, a given amount of the drug represents many more doses than is ordinarily the case, and may indicate something about a defendant’s role or position in the chain of distribution. Application Note 27 authorizes an upward departure in these circumstances. But the complementary problem—mixtures that are especially diluted, and thus represent *fewer* doses, *lesser* harms, and *less* culpability—is not addressed in the guidelines. We encourage the Commission to avoid and address instances like this, where the guidelines show greater concern for excessive leniency than for excessive severity.

We share the Commission’s concern with limitations on the research and believe the problem should be acknowledged explicitly. If the Commission were to conclude, for example, that the available research is insufficient to make finely tuned distinctions among the harmfulness of different drugs, the Commission should say so. It would not be appropriate to suggest that the guidelines’ detailed recommendations about the punishment deserved by different drug crimes are the product of research and expertise if they are not.¹¹ Only by a good faith effort to explain the rationale and evidence for a guideline, including limitations in that evidence, can the Commission provide judges with the appropriate guidance to sentence the individual before them.

E. Addressing Relative Harmfulness

In previous comments, we discussed how the Commission’s harmfulness comparisons have appeared to be *ad hoc*. Relevant factors such as dosage weights and prevalence of use have been ignored or considered inconsistently. Indirect harms not fairly attributable to defendants have been mixed with the direct harms relevant to fair sentencing. Judges are directed to consider matters such as a drug’s chemical structure, despite its highly technical nature and unclear relationship to harms. We have instead encouraged focus on data bearing on direct harms, such as a drug’s role in emergency room visits, overdose deaths, addiction and treatment seeking, and similar medical harms. News reports and other anecdotes (such as the supposed methylene “zombies”), isolated case studies, or even toxicology studies investigating the *potential* harms caused by drugs if taken in concentrations far greater than typical use are of limited value in assessing the relative harmfulness of different drugs as actually used.

¹¹ See *Kimbrough v. United States*, 552 U.S. 85, 109 (2007) (discussing how Commission did not take into account “empirical data and national experience” when formulating guideline ranges for crack cocaine offenses).

Even statistical data, for example, on the frequency of a drug leading to an emergency room admission, or to overdose death, are of little value unless considered in the context of the overall number of users of the drug. For example, the Substance Abuse and Mental Health Services Administration (SAMSHA) reported that “bath salts” were mentioned in nearly 23,000 emergency room admissions in 2011 (out of a total of nearly 2.5 million ER admissions that involved substance misuse and abuse).¹² However, without data on the number of users of bath salts in that year, it is difficult to put the data on emergency room admission in context in order to compare the harm of bath salts with other drugs. Unfortunately, the best source of data on the number of lifetime, past month, and past year users, is the National Survey on Drug Abuse and Mental Health (NSDAMH), and it does not estimate the number of specific methylene users.

II. Guidelines for MDMA/Ecstasy

The Commission requests comment on whether the marijuana ratio for MDMA is appropriate. As discussed in our March 2017 letter to the Commission,¹³ the marijuana equivalency for MDMA unquestionably needs to be revised. And contrary to the dangers Congress believed were associated with MDMA when it passed the Ecstasy Anti-Proliferation Act of 2000, Public Law 106-310,¹⁴ the DEA’s recent National Drug Threat Assessment concluded that “[u]se of these drugs remains a low threat.”¹⁵ As discussed below, the available data shows that MDMA is one of the least harmful of the major controlled substances and many of the reasons the Commission gave in 2001 for increasing the ratio from 1:35 to 1:500 gm of marijuana are not supported by current data and research.

A. Public Health Data Shows that MDMA Presents a Relatively Low Risk of an Emergency Room Visit.

For MDMA, relatively complete data regarding harmfulness are available, and they lead to one conclusion: by all available measures, ecstasy is much less harmful than most other major controlled substances. The NSDAMH has estimated the prevalence of past month, past year, and lifetime ecstasy use for nearly two decades. The Drug Abuse Warning Network (DAWN) collected data on emergency room admissions involving various drug for many of those years, until being discontinued in 2011 pending development of a new emergency department surveillance system. The most recent year in which both datasets are available is 2011.

¹² SAMHSA, *The DAWN Report* (Sept. 17, 2013), <https://www.samhsa.gov/data/sites/default/files/spot117-bath-salts-2013/spot117-bath-salts-2013.pdf>.

¹³ *Meyers Letter Mar. 2017*.

¹⁴ *See MDMA Report*, at 3.

¹⁵ U.S. Dep’t of Justice, *Drug Enforcement Administration: 2016 National Drug Threat Assessment Summary*, 132 (Nov. 2016).

Importantly, both of these data sources also report findings on other major drugs of abuse, including heroin, cocaine, LSD, PCP, methamphetamine, and marihuana. With these data, it is possible to compare the drugs in terms of the likelihood of an emergency room admission involving the drug, given the overall number of recent users of that drug.¹⁶ The ratio of the number of emergency room admissions involving the drug to the total number of recent users of that drug provides an estimate of the risk of an emergency room visit among recent users of the drug.

Chart1, which is a Table taken from a longer paper that explains the reasoning behind the data, shows these “risk ratios” for nine major drugs of abuse for the two most recent years in which both datasets are available.¹⁷ While showing some fluctuation between the years, the ordering remains the same, and is largely consistent with other measures of the relative harms of different drugs, as discussed below. MDMA is among the *least* harmful drugs in terms of emergency room admission risk, having a risk similar to marihuana, and just a small fraction of the risk of other major drugs of abuse.

Chart 1

Table 6: Emergency Room Risk Ratios 2010, 2011

Drug	Emergency Room Mentions 2011	Risk Ratio 2011	Risk Ratio 2010
PCP	75,538	2.9	1.5
Heroin	258,224	.92	.94
Oxycodone/Oxycontin	151,218	.39	.26
Cocaine	505,224	.37	.33
Methamphetamine	102,961	.23	.27
All Stimulants	70,831	.23	.12
MDMA/Ecstasy	22,498	.04	.03
Marijuana	455,668	.03	.03
LSD	4,819	.03	.02

Emergency room episodes provide the best data on the relative harmfulness of MDMA, both because MDMA mentions are counted separately and because of the availability of national data

¹⁶ See Paul J Hofer, *Ranking Drug Harm for Sentencing Policy* 15 (2015), https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2612654.

¹⁷ *Id.*

on the number of recent MDMA users. Data on admissions to addiction treatment facilities, or on overdose deaths, can be developed for other major drugs of abuse, but are not available for MDMA to the best of our knowledge. There are, however, other types of evidence on the relative harmfulness of ecstasy, and all indicate that MDMA is among the least harmful controlled substances.

B. Drug Harm Rankings Show that MDMA Is Less Harmful Than Many Other Drugs.

Although less than ideal for the purposes of sentencing policy making, drug harm rankings using a variety of methods have been developed by the United Nations,¹⁸ and by researchers in Australia,¹⁹ New Zealand,²⁰ Canada,²¹ Scotland,²² the Netherlands, and the United Kingdom.²³ Only some of these have compared MDMA to other drugs, but those that do have consistently found MDMA to be less harmful to individuals and to society than other major drugs of abuse.²⁴

Van Amsterdam and colleagues provided experts with scientific research on medical harms from chronic drug use, and had them rank the drugs in terms of toxicity and somatic disease

¹⁸ United Nations Office on Drugs and Crime, *2005 World Drug Report* 165-174 (vol. I (2005)).

¹⁹ Michael McFadden, *The Australian Federal Police Drug Harm Index: A New Methodology for Quantifying Success in Combating Drug Use*, Australian J. of Pub.Admin. 65, 68–81 (Dec. 2006); Tim Moore, *Drug Policy Modelling Program, Working Estimates of the Social Costs Per Gram and Per User For Cannabis, Cocaine, Opiates and Amphetamines* (2007), <https://ndarc.med.unsw.edu.au/sites/default/files/ndarc/resources/14%20Working%20estimates%20of%20the%20social%20costs.pdf>.

²⁰ Adrian Slack et al., Business and Economic Research Limited, *New Zealand Drug Harm Index* (2008), <https://fyi.org.nz/request/1213/response/4866/attach/4/BERL%202008%20New%20Zealand%20Drug%20Harm%20Index%20final%20report.pdf>.

²¹ Wayne Hall et al., Addiction Research Foundation, Toronto Canada, *Comparing the Health and Psychological Risks of Alcohol, Cannabis, Nicotine, and Opiate Use*, in *The Health Effects of Cannabis* (Kalant et al., eds.) (1999).

²² Mark Taylor et al., *Quantifying the RR of Harm to Self and Others from Substance Misuse: Results from a Survey of Clinical Experts Across Scotland*, BMJ Open (Aug. 2017), <http://bmjopen.bmj.com/content/bmjopen/2/4/e000774.full.pdf>.

²³ Jan GC van Amsterdam et al., *Ranking the Harm of Alcohol, Tobacco and Illicit Drugs for the Individual and the Population*, 16 Eur. Addiction Research 202 (2010).

²⁴ *Id.* See also David Nutt, et al., *Drug Harms in the UK: A Multicriteria Decision Analysis*, 376 The Lancet 1558-65 (2010).

(psychiatric harms were excluded).²⁵ As shown in the reverse harm ranking in Chart 2,²⁶ among illegal drugs, crack cocaine received the highest scores, followed by heroin and methamphetamine; mushrooms and LSD were ranked the least physically harmful; ecstasy, steroids, and marihuana were in the middle.

Chart 2

Table 1: Physical Harms (Amsterdam et al 2013)

Drug	Toxicity	Individual disease burden
Magic mushrooms	0.47	0.50
LSD	0.82	0.75
Methylphenidate	0.73	0.71
Khat	0.98	1.12
Benzodiazepines	0.73	0.94
Buprenorphine	1.11	0.91
Ketamine	1.15	1.23
Ecstasy	1.13	0.88
Anabolic steroids	1.13	1.36
Cannabis	1.04	1.19
Methadon	1.34	1.46
GHB	1.64	1.33
Amphetamine	1.68	1.65
Cocaine	1.75	1.81
Methamphetamine	1.95	2.14
Heroin	1.97	2.31
Tobacco	1.54	2.19
Alcohol	2.02	1.88
Crack cocaine	2.28	2.54

Another type of direct harm is the risk that a drug will cause death by overdose. Robert Gabel reviewed the English-language research on the toxicity of twenty commonly abused substances, using a combination of animal studies, clinical reports, and experimental research. The goal was to create standardized comparisons that would focus on direct pharmacological effects and not be affected by usage prevalence rates.²⁷ Lethality depends on factors such as a user's body weight, habituation, and mode of administration. However, by making reasonable estimates about typical dosage size and user attributes, it was determined that "[d]espite residual uncertainties, the substantial difference in safety ratios suggests that abused substances can be rank-ordered on the basis of their potential acute lethality."²⁸

²⁵ Van Amsterdam, *supra* note 23.

²⁶ Hofer, *supra* note 16, at 11.

²⁷ Robert S. Gable, *The Toxicity of Recreational Drugs*, 94 *Scientific American* 206-208 (2006).

²⁸ Robert S. Gable, *Comparison of Acute Lethal Toxicity of Commonly Abused Psychoactive Substances*, 99 *Addiction* 686 (2004).

Chart 3 displays the rankings of drugs in terms of their “safety ratio,” i.e., the difference between a typical non-medical dose amount and a lethal dose (for a person of normal weight, without tolerance or residue from previous use, and without interactions with other drugs).²⁹ For example, the equivalent of two shots of vodka is a typical dose of alcohol, while 20 shots taken quickly on an empty stomach can be fatal. This yields a safety ratio for alcohol of 10. Heroin and GHB/GBL have the lowest safety ratios, and thus the highest potential lethality. MDMA had a ratio of 16, better than every major controlled substance except “roofies,” marihuana, and LSD, the latter two of which have not been found to have lethal doses.

Chart 3

Table 2: Rank Order of Safety Ratios for Commonly Abused Drugs (Gabel, 2004)

- 6 Heroin
- 8 Gamma-hydroxybutyrate (GHB/GBL)
- 10 Methamphetamine
- 10 Alcohol
- 15 Cocaine
- 16 MDMA (Ecstasy)
- 30 Rohypnol (“Roofies”)
- > 1000 Marihuana, LSD

Another aspect of direct harm is addictiveness. Drugs have been compared on this dimension through the measurement of “capture ratios,” i.e., the portion of users who go on to develop a physical or psychological dependence on the drug. Gabel reported that “[h]eroin and methamphetamine are the most addictive by this measure. Cocaine, pentobarbital (a fast-acting sedative), nicotine and alcohol are next, followed by marihuana and possibly caffeine. Some hallucinogens – notably LSD, mescaline and psilocybin – have little or no potential for creating dependence.”³⁰ A government witness, Dr. Parrot, has testified that cocaine is “far more addictive than MDMA” and the problems associated with MDMA “won’t be as severe as many of the problems of cocaine.”³¹ Dr. Glen Hanson – a pharmacologist and toxicologist – agreed

²⁹ Hofer, *supra* note 16, at 11.

³⁰ Gable, *supra* note 27, at 206-208.

³¹ Transcript of Proceedings, *United States v. McCarthy*, No. 1:09-cr-01136, at 46 (S.D.N.Y. Dec. 6, 2010), ECF No. 39 (attached as Appendix A to *Meyers Letter Mar. 2017*) (*McCarthy Transcript*). *Id.* at 291-92.

that MDMA is less addictive than cocaine and that “unlike cocaine users even heavy users generally decline in their use of MDMA.”³²

Other researchers have compared addictiveness by simply asking users about their experiences. Morgan et al. created an online survey, which was completed by 5791 individuals from over 40 countries.³³ Respondents rated fifteen commonly abused drugs on seven dimensions of risk, including the risks of bingeing, reliance, and craving.³⁴ As shown in Chart 4, among drugs illegal in the U. S., opiates were ranked highest on reliance and craving, while cocaine was first on bingeing.³⁵ Amphetamines also were rated relatively high-risk, while ecstasy, hallucinogens, and cannabis were near the bottom.

Chart 4

Table 3. Mean harm ratings of drugs on each of the seven risk factors.

	Short-term	Long-term physical risk	Risk of injecting	Risk to society	Risk of bingeing	Risk of reliance	Risk of craving
Opiates	1.3	2.1	2.4	1.8	2.3	2.5	2.7
Prescription analgesics	1.1	2.0	1.6	1.5	2.3	2.4	2.5
Cocaine	1.1	2.2	1.4	1.8	2.5	1.6	2.5
Alcohol	1.0	2.1	0.2	2.3	2.6	1.8	2.0
Amphetamines	1.0	1.9	1.2	1.5	2.2	1.7	2.1
Tobacco	0.9	2.4	0.1	1.1	2.0	2.3	2.6
Benzodiazepine	0.9	1.9	0.7	1.1	2.1	2.2	2.1
Ketamine	0.9	1.5	1.4	0.8	1.6	0.8	1.5
Mild stimulants	0.5	1.1	0.5	0.5	1.3	1.4	1.6
Ecstasy	0.8	1.4	0.4	0.6	1.7	0.6	1.2
Nitrous oxide	0.7	1.1	0.1	0.4	1.5	0.4	1.2
Hallucinogens	1.0	1.2	0.5	0.7	1.1	0.3	0.6
Viagra/ Cialis	0.3	0.6	0.3	0.3	0.9	0.6	0.4
Skunk cannabis	0.3	0.7	0.1	0.3	0.6	0.3	1.1
Herbal cannabis	0.3	0.7	0.1	0.3	0.6	0.3	1.0

³² *Id.* at 337, 340, 369.

³³ CJ Morgan, *Harms and Benefits Associated with Psychoactive Drugs: Findings of an International Survey of Active Drug Users*, 27 *J. of Psychopharmacology* 497 (2013).

³⁴ *Id.* at 499 (other ratings included topics such as risks of short- or long-term physical harms, on which better data are available than user ratings).

³⁵ *Id.* at 502.

C. Experts In Substance Abuse Have Agreed that MDMA is Less Harmful Than Cocaine and Many Other Drugs.

Dr. Valerie Curran – a psychopharmacologist with extensive knowledge of the research involving MDMA – testified in *United States v. McCarthy*, that MDMA “is less harmful than either ketamine or marihuana.”³⁶ And while not in complete agreement with Dr. Curran, research on the comparative risks of MDMA compared to alcohol, tobacco, cannabis, and other illicit drugs using the “margin of exposure” approach shows that ecstasy (MDMA), cocaine, amphetamine-type stimulants, opiates, and bondeodiazepines fall into a lower risk category than alcohol and cigarettes and a higher risk category than cannabis.³⁷ Another expert, Dr. Charles Grob—a psychiatrist specializing in hallucinogens—has testified that “MDMA causes significantly less risk of injury to users than cocaine.”³⁸

D. MDMA is Punished Far Too Severely.

To evaluate the proportionality of sentencing under the current guideline, the relative harmfulness of different drugs must be compared with the relative severity of punishment. At the April hearing, Dr. Rick Doblin noted that MDMA was punished *more* severely than drugs like methamphetamine that are more harmful. When asked to respond, Dr. Boos assumed that MDMA is sentenced more leniently because it was lower marijuana equivalency.³⁹ But his assumption is flawed because it ignores differences in typical dosage amounts. Under Dr. Boos’ reasoning, sentences for LSD (where one gram equates to 100,000 grams of marihuana) is by far the most severely sentenced drug. But the Commission has determined that the typical dosage weight of one dose of LSD is just .0004 gms, while the typical dose of methamphetamine

³⁶ *McCarthy Transcript*, at 46.

³⁷ See Dirk Lachenmeier & Jurge Rehm, *Comparative Risk Assessment of Alcohol, Tobacco, Cannabis and Other Illicit Drugs Using the Margin of Exposure Approach*, *Scientific Reports* 5 (Jan. 30, 2015) (“margin of exposure” approach is “defined as ratio between toxicological threshold (benchmark dose) and estimated human intake”), <https://www.nature.com/articles/srep08126>. See also David Nutt, et al., *Drug Harms in the UK: A Multicriteria Decision Analysis*, 376 *The Lancet* 1558-65 (2010) (ranking ecstasy in the bottom quarter of 20 drugs).

³⁸ Declaration of Charles Grob, *United States v. Chin Chong*, No 13-CR-570 (E.D.N.Y. Aug. 22, 2014) (attached as Appendix D to *Meyers Letter Mar. 2017*).

³⁹ Transcript of Public Hearing Before the U.S. Sentencing Comm’n, Washington, D.C., at 224 (Apr. 18, 2017). See *USSG* §2D1.1, comment. (n.8.D).

mixture is about 40 times that.⁴⁰ On a per dosage basis, methamphetamine mixture is punished roughly similarly to LSD, but less severely than MDMA.

One method to compare the severity of punishment is to use data on typical dosage weights of various drugs to determine how many doses would receive a five-year statutory minimum or base offense level under the DQT.⁴¹ As Chart 5 shows, the results are striking.⁴² When taking a range of typical dosage amounts into account (low, middle, high), the guidelines treat MDMA more severely than pure PCP, meth mixture, heroin, or powder cocaine. Only meth actual and crack cocaine are treated more severely.

Chart 5

Table 8: Numbers of Doses Resulting in Similar Penalties

Drug	Low Estimate	Middle Estimate	High Estimate
Meth Actual	125	208	312
Crack cocaine	140	186	280
MDMA	320	430	667
Pure PCP	1,000	1,333	2,000
LSD		2,500	
Meth Mix	2,000	3,333	5,000
Heroin	1,000	3,333	6,667
Powder cocaine	3,571	4,166	8,333
Marijuana	500,000	666,666	1,000,000

A striking feature of the punishments recommended for different drugs is that they do not appear to closely track the rankings of drug harms reviewed earlier. Marijuana, the least severely punished drug on a per-dose basis, did indeed rank at or near the bottom of several types of direct harm. But MDMA/Ecstasy, which also ranked low, is among the most severely punished drugs.

⁴⁰ USSG §2D1.1(c), comment. (n.G & n.B).

⁴¹ The minimum quantities at level 24 of the DQT were used for the table in Chart 5. For drugs with mandatory minimums, these quantities correspond to the five year mandatory minimum thresholds in the statutes.

⁴² Hofer, *supra* note 16, at 24, Tbl. 9.

E. Scientific Analysis on Health Effects of MDMA Call into Question Conclusions from the Commission's 2001 Report.

When the Commission increased the ratio for MDMA in 2001, it relied heavily upon research from George Ricaurte, M.D., and his colleagues,⁴³ which concluded that the use of MDMA had a long lasting effect on serotonin cells, negatively affecting memory and other brain functions.⁴⁴ In 2003, Ricaurte retracted his MDMA studies after it was discovered that the studies had not used ecstasy, but methamphetamine.⁴⁵ The Commission also relied upon research from Una McCann,⁴⁶ which modern brain imaging technology has since proven inaccurate.⁴⁷ Other studies the Commission depended on also have been shown to be flawed, as discussed in Dr. Rick Doblin's testimony at the Commission's April 2017 hearing.⁴⁸

Research provided to the Commission by Dr. Doblin shows that MDMA can have positive effects on mental health.⁴⁹ And studies since 2001 have shown that MDMA's impact on cognitive functioning is not nearly what the Commission concluded when it adopted the 1:500 ratio. For example, a 2011 study assessing the cognitive function of ecstasy users "found little evidence of decreased cognitive performance in ecstasy users,"⁵⁰ while acknowledging that "the

⁴³ *MDMA Report*, at 8, n. 15 (discussing research of George Ricaurte and how appearance of the articles in peer-reviewed journals "lends credence to this work"). *See also id.* at 9 (discussing that the Ricaurte study showed "actual loss of serotonin nerve endings").

⁴⁴ *MDMA Report*, at 8, 11.

⁴⁵ *See* Donald McNeil, Jr., *Research on Ecstasy if Clouded by Errors*, NY Times (Dec. 2, 2003), <http://www.nytimes.com/2003/12/02/science/research-on-ecstasy-is-clouded-by-errors.html>. *See also* Multidisciplinary Association for Psychedelic Studies, *Ricarute MDMA Research Controversy* <http://www.maps.org/research-archive/mdma/studyresponse.html>.

⁴⁶ *MDMA Report*, at 9, n.18 (citing an article from the National Institute of Drug Abuse, which relied upon McCann studies).

⁴⁷ Stephen Kish et al., *Decreased Cerebral Cortical Serotonin Transporters Binding in Ecstasy Users: A Positron Emission Tomography/[11C]DSAB and Structural Brain Imaging Study*, 133 *Brain* 1779, 1791 (2010) (study of ecstasy users "did not find a global, massive reduction of brain [serotonin transporter] bindings as reported in the first [serotonin transporter] imaging study of ecstasy users [in 1998]").

⁴⁸ Statement of Rick Doblin, Ph.D, Before the U.S. Sentencing Comm'n, Washington, D.C., at 5-11 (Apr. 18, 2017). *See also* Motion for Determination of Appropriate Marijuana-to-MDMA Ratio Pursuant to *Kimbrough v. United States*, *United States v. Kamper*, No. 1:11-CR-3 (E.D. Tenn. Dec. 29, 2011), ECF No. 162 (discussing research on MDMA and why the Commission's 2001 report is inaccurate).

⁴⁹ Dr. Doblin Statement, *supra* note 48, at 12-17.

⁵⁰ J.H. Halpern, et al., *Residual Neurocognitive Features of Long-Term Ecstasy Users with Minimal Exposure to Other Drugs*, 4 *Addiction* 777 (2011). *See also* Daniel Wagner, et al., *Learning, Memory and Executive Function in New MDMA Users: A 2-Year Follow-Up Study*, 9 *Frontiers in Neuroscience* 8, 1 (Dec. 2015) (findings on tests of executive functioning were consistent with the Halpern study; finding no

neurotoxicity of human ecstasy use remains incompletely resolved.”⁵¹ Another study discussed the methodological limitations of the earlier reports that linked the use of MDMA with lowered cognitive function and assessed cognitive functions of ecstasy polydrug users compared to other drug users.⁵² Acknowledging that the “longer-term effects of ecstasy use remain unknown,” the study did not find support for the “hypothesis that ecstasy users would display lower cognition than non-users” and concluded that “[a]lthough the results suggest that heavy use of ecstasy is associated with some lowering of higher-level cognitive functions, they do not indicate a clinical picture of substantial cognitive dysfunction.”⁵³ Yet another study found that “use of Ecstasy/MDMA does not lead to clinically deficient memory performance in the long term.”⁵⁴

Any research suggesting the opposite, upon which the DEA relies,⁵⁵ must be carefully scrutinized. As several experts pointed out in 2009, some studies of heavy ecstasy users concluding that the effect of ecstasy on memory is substantial do not always account for other factors that can impact memory, such as “age, gender, IQ, and other substance abuse,” as well as the prevalence of childhood abuse and neglect among ecstasy users, which is associated with “decreased verbal memory in adulthood.”⁵⁶

significant difference in neuropsychological tests, other than visual paired associates learning, over a two-year follow-up period and noting how the study groups differed in their use of illicit drugs such that “performance differences between the groups cannot [be] completely ascribed to the use of MDMA”).

⁵¹ Halpern, *supra* note 50, at 785.

⁵² Gillinder Bedi & Jennifer Redman, *Ecstasy Use and Higher-level Cognitive Functions: Weak Effects of Ecstasy After Control for Potential Confounds*, 38 *Psychological Medicine* 1319 (Feb. 2008), https://www.researchgate.net/publication/5626135_Ecstasy_use_and_higher-level_cognitive_functions_Weak_effects_of_ecstasy_after_control_for_potential_confounds.

⁵³ *Id.* at 1327, 1319.

⁵⁴ Kim P.C. Kuypers, et al., *Verbal Memory Impairment in Polydrug Ecstasy Users: A Clinical Perspective*, 11 *PLoS One* 1 (2016).

⁵⁵ Statement of Terry Boos and Shontal Linder, DEA, Before the U.S. Sentencing Comm’n, Washington, D.C., at 24-26 (Apr. 18, 2017).

⁵⁶ T.S. Krebs et al., *Letter to the Editor: Importance of Psychiatric Confounding in Non-Randomized Studies of Heavy Ecstasy Users*, 39 *Psychological Medicine* 876-878 (Feb. 2009), <https://www.cambridge.org/core/journals/psychological-medicine/article/letter-to-the-editor-importance-of-psychiatric-confounding-in-nonrandomized-studies-of-heavy-ecstasy-users/92C189AE12C46514326B6F8A309312D0>. See also Laura Moreno-Lopez et al., *Neural Correlates of the Severity of Cocaine, Heroin, Alcohol, MDMA, and Cannabis Use in Polysubstance Abusers: A Resting-PET Brain Metabolism Study*, *PLoS One* (discussing limitations of a study involving poly drug users and why the study could not “yield conclusions about cause-effect relationships between the use of drug and resting BM” and how other findings “could be due to premorbid brain alterations or the results

Lastly, one of the issues the Commission should consider in looking at data on the potential harms associated with MDMA is that MDMA is often mixed with other substances or taken with other drugs (e.g., marijuana, alcohol)⁵⁷ so the information on hospitalization and other information on risk associated with the drug cannot be tied exclusively to MDMA.

F. Distribution and Usage Patterns of MDMA Have Changed Significantly Since 2001.

As noted above, we encourage the Commission to focus on direct harms from MDMA rather than consider tangential issues such as distribution and usage patterns. Marijuana equivalencies should not be affected by the popularity of a drug with specific populations, particularly when sale to or involvement of minors in a drug offense are treated elsewhere in the guidelines.⁵⁸ The frequency of use also is not relevant to the purpose of sentencing an individual defendant. Increasing the marijuana equivalency of a particular drug because of its popularity undermines the just desert rationale and seems to buy into the myth that more serious sentences deter drug trafficking.⁵⁹ The more relevant factor in measuring a drug's harm is to consider the rates of overall use in the context of medical and public health data, which would help compare the direct harms of drugs.

In response to the Commission's specific questions, however, about changes in distribution and usage patterns in deciding whether to amend the ratio for MDMA, we note that the evidence shows that the rate of MDMA use has dropped significantly. Data presented to the Commission from Dr. Eric Wish, Director of the University of Maryland Center for Substance Abuse Research, CESAR, showed that ecstasy use peaked in 2001 (9.2%) and decreased in 2016 (2.7%).⁶⁰

The Monitoring the Future Survey shows significant declines in use of Ecstasy (MDMA) and Ecstasy/Molly for Grades 8, 10, and 12 (Combined):

of the interaction between the premonitory alternations and the neurotoxic effects of drug use”), <http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0039830>.

⁵⁷ U.S. Dep't of Justice, *Drug Enforcement Administration: 2015 National Drug Threat Assessment Summary*, 88 (Oct. 2015).

⁵⁸ See USSG §2D1.1(b)(15)(B); §2D1.2 (Drug Offenses Occurring Near Protected Locations or Involving Underage or Pregnant Individuals); 21 U.S.C. § 859 (Distribution to persons under age twenty-one).

⁵⁹ See, e.g., National Institute of Justice, *Five Things About Deterrence* (Sept. 2014) (“certainty of being caught is a vastly more powerful deterrent than the punishment”).

⁶⁰ Statement of Dr. Eric Wish Before the U.S. Sentencing Comm'n, Washington, D.C., at 2, Fig. 4 (Apr. 18, 2017).

- 30 day use of Ecstasy dropped from 2.4% in 2001 to .8% in 2014 and use of Ecstasy /Molly dropped from 1.1% in 2014 to .6% in 2016;⁶¹
- annual use of Ecstasy dropped from 6% in 2001 to 2.2% in 2014 and use of Ecstasy/Molly dropped from 3.4% in 2014 to 1.8% in 2016;⁶²
- lifetime use of Ecstasy dropped from 8% in 2001 to 3.5% in 2014 and use of Ecstasy/Molly dropped from 5% in 2014 to 3.1% in 2016.⁶³

G. MDMA Should not be Characterized as Hallucinogenic.

One of the reasons the Commission gave in 2001 for choosing to treat MDMA more harshly than cocaine was that “MDMA acts as both a stimulant and a hallucinogen.”⁶⁴ That conclusion is not supported by expert testimony. Dr. Halpern, a psychiatrist with expertise in hallucinogens, explained that MDMA does not produce the same hallucinogenic effects as drugs like LSD or mescaline.⁶⁵ A government expert, Dr. Parrott, agreed with Dr. Halpern that MDMA’s hallucinogenic effects “are really quite mild” and testified that MDMA should be characterized as a “stimulant and energetic stressor rather than hallucinogen.”⁶⁶

H. The Typical Weight Per Unit Measurement of MDMA Should Be Revised.

The guidelines currently set the typical weight per unit dose of MDMA as 250mg. Evidence indicates that is too high and needs to be revised down. The DEA recently stated that “MDMA use mainly involves swallowing tablets (50-150mg).”⁶⁷ Evidence from Erowid- an organization that collects information on psychoactive chemicals reports a common dosage range of 75-125mg.⁶⁸ Another study found that the “[u]sual recreational doses are 30-150mg/pill, although

⁶¹ Univ. of Michigan, *Teen Use of Any Illicit Drug Other than Marijuana At New Low, Same True for Alcohol* (Press Release), Table 7 (Dec. 13, 2016), http://www.monitoringthefuture.org/pressreleases/16drugpr_complete.pdf. See also Lloyd Johnston et al., Univ. of Michigan Institute for Social Research, *Monitoring the Future National Survey Results on Drug Use: 2016 Overview, Key Findings on Adolescent Drug Use* 36 (2017) (data shows a decline in use and availability of MDMA), <http://www.monitoringthefuture.org//pubs/monographs/mtf-overview2016.pdf>.

⁶² *Teen Use*, *supra* note 61, at Table 6.

⁶³ *Id.* at Table 5

⁶⁴ *MDMA Report*, at 5.

⁶⁵ *McCarthy Transcript*, at 164.

⁶⁶ *McCarthy Transcript*, at 93.

⁶⁷ Drug Enforcement Administration, *Drugs of Abuse: A DEA Resource Guide* 66 (2017).

⁶⁸ Erowid, *MDMA Dosage*, https://erowid.org/chemicals/mdma/mdma_dose.shtml.

purity of the street drug is notoriously poor.”⁶⁹ Accordingly, the typical weight per unit measurement of MDMA should be no greater than 150mg.

III. The Equivalency Ratio for Methylone Should Be Lower than That for MDMA.

The Commission seeks a variety of comments on methylone, which are aimed at determining whether the Commission should establish a marijuana equivalency and a “typical weight per unit” for methylone. Defenders agree with Dr. Dudley that the Commission should set a ratio for methylone and it should be 1:100.⁷⁰ And given the availability of information on the typical dosage weight as discussed below, it would be appropriate to establish a typical weight per unit of methylone.

While research on methylone is limited, what is available shows that methylone does not deplete serotonin like MDMA.⁷¹ Research also shows that methylone is half as potent as MDMA— a fact that some prosecutors, government experts, and the DEA have acknowledged.⁷² Dr. Dudley has explained that “methylone is more similar in chemical structure to cathinone than it is to MDMA.”⁷³ After an extensive review of available research, another expert, Dr. Anthony DeCaprio reported that “[t]he bulk of pharmacological evidence . . . supports a conclusion that

⁶⁹ Erin A. Kolbrich, et al., *Physiological and Subjective Response to Controlled Oral MDMA Administration*, 28 J. of Clinical Psychopharmacology 432 (p.2 on pdf version) (2008), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2587205/pdf/nihms50281.pdf>.

⁷⁰ Statement of Gregory B. Dudley, Ph.D, Before the U.S. Sentencing Comm’n, Washington, D.C., at 1 (Mar. 8, 2017) (*Dudley Statement*)

⁷¹ University of Wisconsin School of Public Health, News and Events: *Study Suggests Possible Therapeutic Use for “Bath Salt” Designer Drugs*, (describing Baumann et al., *The Designer Methcathinone Analogs, Mephedrone and Methylone, are Substrates for Monoamine Transporters in Brain Tissue*, 37 *Neuropsychopharmacology* 1192 (2012), <http://www.med.wisc.edu/news-events/study-suggests-possible-use-for-bath-salt-designer-drugs/36980>).

⁷² See, e.g., *United States v. Marte*, 586 F. App’x 574, 575 (11th Cir. 2014) (relying on DEA pharmacologist’s testimony that “methylone is half as potent as MDMA,” the district court properly used a 1:250 ratio); *United States v. Chin Chong*, 2014 WL 4773978 (E.D.N.Y. Sept. 22, 2014) (1:200 ratio for methylone); Drug Enforcement Administration, Office of Diversion Control, 3,4-Methylenedioxymethcathinone (Methylone) 1 (Oct. 2013) (noting that methylone was half as potent as MDMA in animal studies).

⁷³ Declaration of Dr. Gregory Dudley, (Tallahassee, Florida, July 24, 2014) (attached as Appendix F in *Meyers Letter Mar. 2017*). See also European Monitoring Centre for Drugs and Drug Addiction, *Synthetic Cathinones Drug Profile* (“[s]ynthetic cathinones are related to the parent compound cathinone”), <http://www.emcdda.europa.eu/publications/drug-profiles/synthetic-cathinones>.

methylone is, on average, 5-fold less potent than MDMA for a variety of endpoints relevant to the psychoactive effects of this class of drugs of abuse.”⁷⁴

Accordingly, even if the Commission were to conclude that MDMA is the most closely related substance to methylone, the marijuana equivalency ratio should account for the lesser potency.

The other information the Commission seeks about how methylone compares to other drugs is not readily available. Methylone is not readily available in the United States.⁷⁵ Significantly, the research does not focus exclusively on methylone because it is often ingested with other drugs, such as MDMA.⁷⁶ And research on methylone and mephedrone concluded that the “actual prevalence rates of their use remains difficult to estimate” and [t]he potential chronic health effects of their prolong use remain to date unknown.”⁷⁷ Without information on prevalence, it is difficult to assess relative harm. For example, any clinical examples of serious negative outcomes lack context, such as their frequency among users.

In response to the Commission’s question about marketing patterns, as we have previously discussed, the method of marketing should not be a factor in determining the marijuana equivalency because the guidelines already account for trafficking patterns – including “mass marketing by means of an interactive computer service.”⁷⁸ If the Commission, however, deems marketing a relevant factor, the available evidence shows that methylone and other designed drugs are commonly bought online.⁷⁹

⁷⁴ Declaration of Dr. Anthony Decaprio, at 9, *Chin Chong* (July 24, 2014) (attached as Appendix G in *Meyers Letter Mar. 2017*).

⁷⁵ *2016 National Drug Threat Assessment*, *supra* note 15, at Fig. A9. *See also* Drug Enforcement Administration, Diversion Control Division, *Special Report: Synthetic Cannabinoids and Synthetic Cathinones Reported in NFLIS, 2013-2015*, at 1 (from Jan. 2013 through Dec. 2015 forensic lab reports for methylone decreased for all regions).

⁷⁶ *See, e.g.*, Nicholas B. Miner, et al., *The Combined Effects of 3,4-Methylenedioxymethamphetamine (MDMA) and Selected Substituted Methcathinones on Measures of Neurotoxicity*, 61 *Neurotoxicology & Teratology* 74 (2017); Jane Prosser & Lewis Nelson, *The Toxicology of Bath Salts: A Review of Synthetic Cathinones*, 8 *J. of Med. Toxicol.* 33 (2012) (reported effects associated with the use of synthetic cathinones may not all be “related to cathinone use as many users take these substances simultaneously with other drugs and ethanol”).

⁷⁷ Laurent Karila et al., *The Effects of Risks Associated to Mephedrone and Methylone in Humans: A Review of the Preliminary Evidences*, 126 *Brain Research Bull.* 61 (2016).

⁷⁸ USSG §2D1.1(b)(7).

⁷⁹ J. Broséus et al. *Studying Illicit Drug Trafficking on Darknet Markets: Structure and Organisation from a Canadian Perspective*, 264 *Forensic Science Int’l* 7-14 (2016).

Finally, responding to the Commission's question about whether to establish a "typical dosage weight per unit," the available evidence from the two most well-known user report websites converge on common dosage ranges of 100-250mg,⁸⁰ or 150-225mg.⁸¹

IV. Synthetic Cathinones (aka "Bath Salts")

The Commission seeks comment on whether there are "synthetic cathinones, other than methylone, that are substantially similar in their effects to MDMA" and if, and how, it should include marijuana equivalencies for these substances. Given the current limits on the research regarding synthetic cathinones and their effects,⁸² as well as how these drugs change over time,⁸³ Defenders agree with Dr. Dudley's recommendation that the Commission set a 1:40 ratio for MDPV and 1:100 ratio for other synthetic cathinones.⁸⁴

A set ratio for synthetic cathinones would simplify application of the guidelines and promote uniform application of the drug quantity table while acknowledging the lack of information on the specific harms of the multiple kinds of synthetic cathinones. Without a reasonably set ratio for synthetic cathinones, litigation about the "most closely related substance" is inevitable.⁸⁵

We encourage the Commission to avoid reliance on animal drug discrimination studies to assess the "magnitude of the problems that a drug might cause."⁸⁶ While such studies have some preliminary value in assessing the potential for abuse, they cannot "account for the social, cultural, and economic factors that influence drug abuse." The fact that synthetic cathinones are

⁸⁰ Erowid, *Methylone Dosage*, https://erowid.org/chemicals/methylone/methylone_dose.shtml.

⁸¹ Psychonautwiki, *Methylone/Summary*, <https://psychonautwiki.org/wiki/Methylone/Summary>.

⁸² The Congressional Research Service has noted that "synthetic drugs do not fit neatly into one class of drugs for several reasons, including that their precise chemical makeups are often unknown, and their chemical effects on individuals can be both unpredictable and replicative of more than one class of drugs." Congressional Research Service, *Synthetic Drugs: Overview and Issues for Congress* 6 (May 3, 2016). See also Karila, *supra* note 77 (noting that "potential chronic health effects of [] prolonged use [of synthetic cathinones] remain to date unknown").

⁸³ *Synthetic Cathinones and Synthetic Cathinones Reported in NFLIS, 2013-2015*, *supra* note 75, at 1, Tbls. 2 & 5 (in 2015, 35 different synthetic cathinones were reported to NFLIS; ethylone was the most frequently reported).

⁸⁴ *Dudley Statement*, at 1; Transcript of Public Hearing Before the U.S. Sentencing Comm'n, Washington, D.C., at 189 (Apr. 18, 2017).

⁸⁵ See, e.g., *United States v. Ketchen*, 2015 WL 3649486 (D. Me. 2015) (litigation over whether Methylendioxypropylone (MDPV) is most closely related to methcathinone or propylone);

⁸⁶ Lawrence Carter & Roland Griffiths, *Principles of Laboratory Assessment of Drug Abuse Liability and Implications for Clinical Development*, Author Manuscript, *Drug & Alcohol Dependence* 17 (2009), <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2763984/pdf/nihms111668.pdf>.

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not highly available or used as often as other drugs also mitigates the need for the Commission to focus its resources on trying to determine a specific marijuana equivalency for each synthetic cathinone.⁸⁷

Very truly yours,
/s/ Marjorie Meyers
Marjorie Meyers
Federal Public Defender
Chair, Federal Defender Sentencing
Guidelines Committee

cc : Rachel E. Barkow, Commissioner
Hon. Charles R. Breyer, Commissioner
Hon. Danny C. Reeves, Commissioner
J. Patricia Wilson Smoot, Commissioner *Ex Officio*
Zachary Bolitho, Commissioner *Ex Officio*
Kenneth Cohen, Staff Director
Kathleen Cooper Grilli, General Counsel

⁸⁷ See 2016 National Drug Threat Assessment Summary, *supra* note 15, at 158, Fig. A9, A 10, (synthetic cathinones, along with MDMA, are the least available drugs). The Monitoring the Future Survey has a single category of “Bath salts (synthetic stimulants).” That data shows that 8th, 10th, and 12th graders used Bath salts far less frequently (.8) in 2016 than many other drugs (e.g. alcohol (36.7), marijuana/hashish (22.6%), adderall (3.9), hallucinogens (2.8%), oxycontin (2.1%), cocaine (1.4)). *Teen Use of Any Illicit Drug Other than Marijuana At New Low, Same True for Alcohol*, *supra* note 61, at Tbl. 6.