

2005

Utah v. Jeffrey Don Ireland : Brief of Respondent

Utah Court of Appeals

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IN THE UTAH SUPREME COURT

DOCKET NO. 20050279-SC

THE STATE OF UTAH,	:	
	:	
Plaintiff/Petitioner,	:	
	:	
v.	:	Case No. 20050279-SC
	:	
JEFFREY DON IRELAND,	:	
	:	
Defendant/Respondent.	:	

**BRIEF OF RESPONDENT
ON CERTIORARI REVIEW**

This writ of certiorari arises from the court of appeals' decision reversing the conviction of Unlawful Possession of a Controlled Substance, a third degree felony, in violation of Utah Code Ann. § 58-37-8 (2)(a) (1998), in the Third Judicial District Court, in and for Salt Lake County, State of Utah, the Honorable Sheila K. McCleve, Judge, presiding.

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JURISDICTIONAL STATEMENT

This Court granted the State’s Petition for Writ of Certiorari from the Utah Court of Appeals in State v. Ireland, 2005 UT App 22, 106 P.3d 753. The court of appeals’ opinion in Ireland is attached hereto as Addendum A. Jurisdiction is conferred on this Court pursuant to Utah Code Ann. § 78-2-2(5) (2002).

STATEMENT OF ISSUES AND STANDARD OF REVIEW

Issue I: “Whether the term ‘consumption,’ as described by Utah Code Ann. § 58-37-2(1) (dd), includes metabolization of a controlled substance in the human body.” Order dated June 1, 2005.

Issue II: “Whether Utah Code Ann. § 58-37-2(1) (dd) violates the Eighth Amendment to the United States Constitution by subjecting ‘status criminals’ to prosecution.” Id.

Standard of Review: On certiorari, this Court reviews “the decision of the court of appeals and not that of the district court.” State v. Markland, 2005 UT 26, ¶7, 112 P.3d

507 (quoting State v. Brake, 2004 UT 95, ¶11, 103 P.3d 699). This Court reviews the decision of the court of appeals for correctness. Id.

RELEVANT STATUTORY PROVISIONS

The following statutory provisions are in Addendum B:

Utah Code Ann. § 58-37-8(2)(a)(i) (1998),
Utah Code Ann. § 58-37-2(1)(dd) (1998);
Utah Code Ann. §§ 76-1-201, -202, and 501(3) (1999).

STATEMENT OF CASE AND FACTS

On November 3, 2001, the vehicle Mr. Ireland was driving collided with another vehicle resulting in the death of its driver. Ireland, 2005 UT App 22 at ¶2. Responding to the hospital, West Valley Police Officer Buchanan opined that Mr. Ireland was under the influence of an analgesic narcotic based on his observations which included Mr. Ireland's constricted pupils, droopy eyelids, dry mouth, muscle tremors, and his slow speech, and unsteady gait. Id.; R. 77, 185-86. Based on Officer Buchanan's observations, a search warrant was obtained to draw Mr. Ireland's blood. Ireland, 2005 UT App 22 at ¶2. Samples of Mr. Ireland's blood and urine were taken. R. 185. Mr. Ireland's blood results were negative for the suspected narcotic analgesics, as well as for alcohol and benzodiazepines (Valium-type medications). Id.; R. 185. However, his blood sample did test positive for 0.1 mcg/ml methamphetamine and 6 nanograms per milliliter of marijuana metabolite. Id.; Exhibit 3.

Despite the fact that no methamphetamine was found packaged for consumption in Mr. Ireland's possession, Mr. Ireland was arrested and charged with unlawful possession or use of a controlled substance (Count I), a third degree felony and driving with a

measurable controlled substance in the body, a class B misdemeanor. Ireland, 2005 UT App 22 at ¶3.

At the preliminary hearing, Mr. Ireland argued that because no controlled substances were found in his possession, the trial court did not have jurisdiction over Count I. R. 83-84. However, the magistrate declined to hear Mr. Ireland's argument and bound the case over. R. 83-84. In response to Mr. Ireland's argument, the state filed a motion for a pretrial ruling on jurisdiction. R. 83-93. The state argued that even though it could not prove where Mr. Ireland ingested the drug, the trial court had jurisdiction over Count I "[b]ecause a significant quantity of methamphetamine was found in defendant's blood, within Utah, it is reasonable to infer that he owned, controlled, retained, or ingested the substance within Utah. And ingesting the substance (by inhalation, swallowing, or injection) really only *began* the physiological process of 'consumption,' which continued so long as the methamphetamine was being metabolized in defendant's body." R. 85-86. The trial court agreed with the state and ruled that it had jurisdiction over Count I. Ireland, 2005 UT App 22 at ¶4; R. 206-207.

Subsequently Mr. Ireland, with the agreement of both the state and the trial court, entered a conditional guilty plea to both charges, preserving his right to appeal. Ireland, 2005 UT App 22 at ¶4; R. 169-178; 254. Mr. Ireland was sentenced to an indeterminate term not to exceed five years on Count I and 180 days on Count 2 to run concurrently with Count 1. R. 191-196; 255.

On appeal, the court of appeals reversed Mr. Ireland's conviction. Ireland, 2005 UT App 22 at ¶1.

SUMMARY OF THE ARGUMENT

This Court should affirm the court of appeals' holding because it correctly determined that the plain meaning of "consumption" as used within Utah Code Ann. § 58-37-2 (1)(dd) only describes an act of introducing a substance into the body. The court of appeals holding' is consistent with the plain, ordinary, and usual meaning of the term found within the dictionary and as it has been interpreted in case law from other jurisdictions. Furthermore, any other interpretation of "consumption" would create absurd results, rendering portions of Utah's statutes superfluous or inoperative. Finally, this Court need not review the court of appeals' recognition of potential constitutional problems with the state's definition of "consumption" because it is not a holding in this case and because the court correctly recognized the implications of defining "consumption" as an ongoing metabolization of a substance in the body.

ARGUMENT

I. THIS COURT SHOULD AFFIRM BECAUSE THE PLAIN MEANING OF "CONSUMPTION" AS USED WITHIN UTAH CODE ANN. § 58-37-2 (1) (dd) ONLY DESCRIBES AN ACT OF INTRODUCING A SUBSTANCE INTO THE BODY.

In order for Utah to criminally prosecute Mr. Ireland, the trial court had to find that the offense of unlawful possession of a controlled substance was "committed either wholly or partly within the state." Utah Code Ann. § 76-1-201(1)(a) (1999). Contending that Utah had jurisdiction, the state argued in the trial court that "[b]ecause a significant quantity of methamphetamine was found in defendant's blood, within Utah, it is reasonable to infer that he owned, controlled, retained, or ingested the substance within

Utah.” R. 85 (emphasis added). The state theorized that ingesting a substance “really only beg[ins] the physiological process of ‘consumption,’ which continue[s] so long as the methamphetamine [is] being metabolized in [the] body.” R. 85-86. According to the state, “consumption” or “use” is established any time a substance is found in a defendant’s body because the presence of the substance “naturally supports the inference that he had, not long previously, the ability and intent to control it.” R. 86. However, neither statutory construction, case law, nor dictionary definition supports interpreting the plain meaning of the term “consumption” in this manner. Therefore, this Court should affirm the court of appeals holding that “consumption” only describes an act of introducing a substance into the body.

The primary goal of this Court when interpreting statutes “is to evince ‘the true intent and purpose of the Legislature.’” State v. Maestas, 2002 UT 123, ¶52, 63 P.3d 621 (citation omitted). Accordingly, this Court looks to the plain language of the statute which provides the Court “with the road map to the statute’s meaning” Id. “[T]he plain language of the statute [is read] as a whole, and . . . its provisions [are interpreted] . . . in harmony with other statutes in the same chapter and related chapters.” Miller v. Weaver, 2003 UT 12, ¶17, 66 P.3d 592. The Court’s purpose in reading the plain language of the statute is “‘to render all part . . . relevant and meaningful,’ and . . . , ‘presume[s] the legislature used each term advisedly and . . . according to its ordinary meaning.’” Maestas, 2002 UT 123 at ¶52. (citations omitted). In doing so, interpretations rendering “portions of the statute superfluous or inoperative” are avoided. Id. (citation omitted).

Mr. Ireland was convicted of unlawful possession of a controlled substance, a third degree felony, in violation of Utah Code Ann. § 58-37-8 (2)(a). The unlawful possession statute is entitled “Prohibited acts – Penalties.” Section (2) also begins with the phrase “Prohibited acts” and then lists when the “acts” of possession or use of a controlled substance violates this statute. Utah Code Ann. § 58-37-8 (2). Utah Code Ann. §58-37-2 (1) (dd) then defines “possession or use” as follows:

“Possession” or “use” means the joint or individual ownership, control, occupancy, holding, retaining, belonging, maintaining, or the application, inhalation, swallowing, injection, or consumption, as distinguished from distribution, of controlled substances and includes individual, joint, or group possession or use of controlled substances For a person to be a possessor or user of a controlled substance, it is not required that he be shown to have individually possessed, used, or controlled the substance, but it is sufficient if it is shown that . . . the controlled substance is found in a place or under circumstances indicating that the person had the ability and the intent to exercise dominion and control over it.

Id.

In determining the plain, ordinary, and usual meaning of statutory terms, this Court does not look to medical journals or obscure internet sites but instead, “has a long history of relying on dictionary definitions.” State v. Redd, 1999 UT 108, ¶11, 992 P.2d 986; see also State v. Green, 2005 UT 9, ¶42, 108 P.3d 710 (determine meaning “from the ordinary and generally accepted meaning of the statutory language.”); Hercules Inc. v. State Tax Comm’n, 2000 UT App 372, ¶9, 21 P.3d 231 (“When a statute fails to define a word, we rely on the dictionary to divine the 'usual meaning.'” Citations omitted). The term “plain” is defined as “clearly understood,” “evident,” “obvious,” “not complicated,” “simple,” “ordinary.” Webster’s New World College Dictionary (Webster’s) 1100 (4th ed.

1999). “Ordinary” is defined as “customary,” “usual,” “familiar,” “common.” Id. at 1015. “Usual” is defined as “common or ordinary use,” “most often seen, heard, used.” Id. at 1574.

Turning to the dictionary definitions for guidance in construing the statute in this case, Webster’s defines “consume” as “to use up, eat, waste, . . . , to take.” Webster’s at 313. “Consumption” is defined as “a consuming or being consumed” and “the amount consumed.” Id. Black’s Law Dictionary does not define “consume” but defines “consumption” as “[t]he act of destroying a thing by using it; the use of a thing in a way that thereby exhausts it.” Black’s Law Dictionary 254 (Abridged 7th ed. 2000); see also Ireland, 2005 UT App 22 at ¶10. These definitions illustrate that “consumption” is a present tense word, an act that is taking place at the moment a substance is being introduced into the body.

The plain and usual meaning of “consumption” is even more readily apparent when it is viewed in context with the other descriptive words surrounding it. “Application” is “the act of applying” “the act of putting something to use.” Webster’s at 68. “Inhalation” is “the act of inhaling” Id. at 734. “Swallow” is defined as “to pass (food, drink, etc.) from the mouth through the . . . esophagus into the stomach” and as “the act of swallowing.” Id. at 1444. “Injection” is “an act or instance of injecting” “something injected” “a liquid injected into the body.” Id. at 735.

“[W]hen . . . asked to define terms found in [Utah’s] statutes, [appellate courts] often look to other jurisdictions with similar language for guidance.” State v. Wanosik, 2003 UT 46, ¶23, 79 P.3d 937. In looking to other jurisdictions’ definition of the term

“consumption” to divine its plain meaning, the court of appeals noted the following states’ statutory definition of the term.

Michigan’s impaired driving statute defines “consumed” as “to have eaten, drunk, ingested, inhaled, injected, or topically applied, or to have performed any combination of those actions, or otherwise introduced into the body.” Mich. Comp. Laws. § 768.37 (3) (b) (2004). Oregon defines “ingest” as “to consume or otherwise deliver a controlled substance into the body of a person.” Or. Rev. Stat. § 475.984 (3) (c) (2003). And Texas defines “human consumption” as “the injection, inhalation, ingestion, or application of a substance to or into the body.” Tex. Health & Safety Code Ann. § 481.002 (21) (2004).

Ireland, 2005 UT App 22 at ¶13.

The court of appeals correctly determined that these states’ statutory definitions of “consumption” offer further support that the plain and usual meaning of the term does not suggest that it is the continuous process of a substance being metabolized within the body. The court of appeals then turned to case law from this state and other jurisdictions for further guidance regarding the plain meaning of the term “consumption.”

In Utah, the court of appeals looked to State v. Sorenson, 758 P.2d 466 (Utah Ct. App. 1988) for guidance. In Sorenson, an officer smelled a “strong odor of alcohol” when he stopped the defendant, a minor, for speeding. Id. at 467. The officer asked the defendant to blow in his face at which time the officer determined that the alcohol odor was coming from the defendant’s breath. Id. The officer searched the defendant’s vehicle but did not find any alcohol or empty containers. Id. The officer did not administer a field sobriety test or an intoxilyzer test but arrested the defendant, after he became belligerent, for “‘possession’ of an alcoholic beverage by a minor in violation of

[Utah Code Ann.]§ 32A-12-13(1), which prohibits the purchase, possession, or consumption of alcohol by a person under the age of 21.”¹ Id.

At trial, the only evidence the state offered was the officer’s opinion that Sorenson was under the influence of alcohol. Id. The officer testified that “he did not know when or where the alcohol had been consumed, nor did he actually see [the defendant] consume, purchase or possess any alcohol.” Id. The defendant never argued that he did not consume alcohol, in fact, the state’s claim that Sorenson had consumed alcohol was not “[]contradicted” by the defendant. Id. Instead, Sorenson argued that the state had to prove that he “consumed alcohol within the state” and the court could not rely on the state’s theory that “there exists a presumption that consumption occurred in Utah unless rebutted by other credible evidence.” Id. Therefore, the issue in Sorenson was whether, absent any tangible evidence of alcohol in the vehicle, the defendant could be convicted of possessing or consuming alcohol. Id.

The state argued that “while it did not know where the offense occurred, there exists a presumption that consumption occurred within Utah unless rebutted by other credible evidence.” Id. The trial court agreed with the state’s theory that unless the defendant offered some explanation that the alcohol was not consumed in Utah it “created an inference that the drinking occurred near the scene of the arrest.” Id. Based on the trial court’s reasoning that the “natural inference” and “statistical probability” that

¹Utah Code Ann. § 32A-12-13(1) was renumbered to Utah Code Ann. § 32A-12-209 (Supp. 2003) and contains only minor changes.

“the drinking occurred in or about the area where the arrest occurred,” the trial court found the defendant guilty. Id. at 468.

The defendant appealed arguing, inter alia, that the trial court’s inferences and presumptions regarding the location of consumption improperly shifted the burden of proof on the issue of jurisdiction to the defendant violating his due process rights. Id. The court of appeals agreed stating, “The use of any mandatory rebuttable presumption which ‘requires the jury to find the presumed element unless the defendant persuades the jury that such a finding is unwarranted’ is one such evidentiary device found to be unconstitutional.” Id. at 469 (quoting Francis v. Franklin, 471 U.S. 307, 314 n.2 (1985)). The court determined that the defendant’s conviction under the consumption theory “necessarily requires proof of the jurisdictional factor that at least some alcohol was consumed in Utah.” Id. at 470. Instead, the state “put on absolutely no evidence of jurisdiction but relied instead entirely on the presumption that the consumption of alcohol occurred within the state.” Id. The court of appeals held that the presumption or assumption used by the trial court that “Sorenson’s failure to offer some explanation that the alcohol was not consumed in Utah created an inference that the drinking occurred near the scene of arrest” relieved the state of its burden to show jurisdiction in violation of due process. Id. at 467.

Furthermore, although the Sorenson court determined it need not address whether the presence of alcohol in Sorenson’s bloodstream constituted possession, the Sorenson court “agreed with the trial court’s finding ‘that the mere presence of alcohol on the breath or in the bloodstream does not constitute possession under the statute.’” Id. at 466.

The court noted that “this position is consistent with well-reasoned decisions from other jurisdictions which have addressed the issue.” Id. at 468 n.2.

These cases cited by the Sorenson court from other jurisdictions and referred to by the Ireland court addressed whether a substance can be “used” or “consumed” after it has been assimilated into the body. In State v. Flinchpaugh, 659 P.2d 208 (Kan. 1983), the Supreme Court of Kansas addressed the issue of whether a defendant could be charged with possession of a controlled substance based entirely on positive blood tests for an illegal substance. Id. In Flinchpaugh, the defendant was involved in an automobile accident which resulted in the death of the driver of the other car. Id. at 209-210. While at the hospital, the defendant consented to having her blood drawn which tested positive for cocaine and/or benzoylecgonine. Id. at 210. Although the state did not have any evidence of how, where, or when the substance was “introduced into the defendant’s system,” it charged her with possession. Id. The trial court granted the defendant’s motion to dismiss stating “[a] human being does not possess a narcotic drug which is located in his bloodstream.” Id. at 210. On appeal, the supreme court agreed, determining that the ordinary meaning of “possession” does not include a substance found entirely in the bloodstream. The court concluded that:

Once a controlled substance is within a person’s system, the power of the person to control, possess, use, dispose of, or cause harm is at an end. The drug is assimilated by the body. The ability to control the drug is beyond human capabilities. . . .

Id. at 211 (emphasis added).

Although the Kansas statute did not prohibit the “use” of a controlled substance, the Ireland court found the court’s conclusion that “[o]nce a controlled substance is within a person’s system, the power of the person to . . . use . . . is at an end” instructive. Ireland, 2005 UT App 22 at ¶15 (quoting Flinchpaugh, 659 P.2d at 211).

Similarly, in State v. Hornaday, 713 P.2d 71 (Wash. 1986) superceded by statute on other grounds, the Supreme Court of Washington concluded that “consume” and “possess” “do not include the stage at which [a substance] has already been swallowed but is still being assimilated by the body.” Id. at 76. In Hornaday, the defendant, a minor, was charged with illegal consumption or possession of alcohol, and resisting arrest. Id. at 73. The defendant argued that he could not be guilty of illegal consumption or possession because the arresting officer did not observe him do either. Id. The trial court, denying defendant’s motion to dismiss, concluded “that the defendant ‘was intoxicated and therefore was in possession of liquor because it was in his body.’” Id. On appeal, the defendant argued that “his arrest for illegal consumption or possession of alcohol was unlawful because . . . the alleged commission of the misdemeanor did not occur ‘in the presence’ of the arresting officer.” Id.²

The state first argued that the defendant’s arrest was lawful because alcohol was in the defendant’s system, therefore, defendant was in possession of the alcohol in the presence of the officer. Id. at 76. The supreme court noted that “[w]hether the crime

²Although this appeal concerned whether the defendant was violating the underage drinking statute in the presence of the arresting officer by having alcohol in his body thereby making his arrest lawful, the court’s detailed analysis and interpretation of the terms “possession” and “consume” are directly applicable to the issue in this case.

occurred ‘in the presence of’ the officer turns on the meaning of the words ‘possession’ and ‘consume’ as used in [Wash. Rev. Code] § 66.44.270.³” Id. at 74. Quickly disposing of the state’s first theory, the supreme court stated that like narcotics, once alcohol “is within a person’s system, the power of a person to control, possess, use or dispose of it is at an end. The drug is assimilated by the body. The essential element of control is absent.” Id. at 75 (emphasis added).

Next, the state argued “that consumption is an ongoing process and therefore, as long as alcohol remained in the defendant’s bloodstream, it was in the process of being consumed.” Id. at 76. “Consume” is defined under Washington statute as “the putting of liquor to any use, whether by drinking or otherwise.” Id. The supreme court determined that the statutory definition of “consume” was not helpful in resolving “whether consuming liquor includes the assimilation of alcohol which occurs after the liquor has been swallowed.” Id. Therefore, the court “turned to the common definition of the word [consume] to interpret its meaning.” Id. The court noted that the state’s interpretation was not within the common definition of the term consume. Id. Further, the court reasoned that such an interpretation would subject a minor to arrest in Washington anytime he enters the state “with any trace of liquor still present in his body.” Id. at 77. Thus, although he did not drink any intoxicating liquor within the state, he might still be subject to arrest for “consuming” liquor in the presence of a police officer who happened to notice his condition or who smelled alcohol on his breath.” Id.

³Wash. Rev. Code § 66.44.270 states in part, “It is unlawful for any person under the age of twenty-one years to acquire or have in his possession or consume any liquor”

In State v. Abu-Shanab, 448 N.W.2d 557 (Minn. Ct. App. 1989), the Minnesota Court of Appeals also rejected interpreting “consumption” as a continuing offense so long as the substance remains in the body. Id. In Abu-Shanab, the defendant was convicted of consumption of alcohol by a minor. Id. at 558.⁴ At trial, the state presented evidence that the defendant was under 21 years of age and evidence of the odor of alcohol on the defendant’s breath. Id. at 559. However, the state had no evidence that the defendant had been drinking within any Minnesota county. Id. The state argued that consumption should be treated “as a continuing offense because as long as alcohol remains in the system of a minor, the minor continues to ‘consume’ alcohol, in violation of the statute.” Id. Rejecting the state’s argument, the court of appeals noted that “a continuing offense most commonly arises in response to a statute of limitations defense” citing to examples of such cases as possession of firearms or illegal possession of property. Id. at 559. The court reasoned that

[t]hese [types of cases] suggest that in a “continuing offense” the status of a person or object, rather than the occurrence of a single, time-limited act, determines whether a crime has been or is being committed. A continuing offense is one which can be committed over an extended period of time. It is the nature of the crime itself which distinguishes a “continuing” offense from one which may said to be “completed,” such as an assault.

Id.

Noting the rejection of similar arguments in Hornaday and Sorenson, the Minnesota Court of Appeals concluded that “‘consume,’ in the context of alcoholic

⁴The defendant was convicted under Minn. Stat. § 340A.503 (1988), which states in part “Consumption. It is unlawful for any: (2) person under the age of 21 to consume any alcohol beverages” See State v. Abu-Shanab, 448 N.W.2d 557, 558 (Minn. 1989).

beverages, means to drink, and that once drunk, alcohol is no longer being consumed.” Abu-Shanab, 448 N.W.2d at 559. This reasoning applies with equal force to other substances “consumed.”

The reasoning of these courts illustrates that the ordinary and usual meaning of the term “consumption” is the initial act of introducing a substance into the body and that once an individual has eaten his sandwich or has drunk his coffee he is not still consuming his lunch or beverage an hour later because his body is in the process of digesting it. Moreover, interpreting “consumption” under Utah Code Ann. § 58-37-2(1)(dd), to include a substance being metabolized in the blood without proof of possession or use at a particular time and place would relieve “the state of its burden of proof on the fact of jurisdiction and [would be] unconstitutional under the standard articulated in In re Winship, [397 U.S. 358, 364, 90 S. Ct. 1068, 1072-1073, (1970)] requiring the prosecution to prove beyond a reasonable doubt every fact necessary to constitute the crime charged.” Sorenson, 758 P.2d at 469 (noting that although jurisdiction is not an element of the offense, the Winship rule “is not limited to those facts essential to establish the elements of the offense [as defined by statute]”).

Finally, this Court should affirm the court of appeals’ holding because any other interpretation of “consumption” would create absurd results. The legislature has demonstrated that it knows the language to use to criminalize the metabolizing of a substance in the body and this language is not present in the unlawful possession or use statute. Ireland, 2005 UT App 22 at ¶12 (citing statutes using the term “metabolite” in connection with controlled substances). Interpreting “consumption” as an ongoing metabolic process would subject individuals engaged in less serious behavior than driving under the influence or endangering others to harsher punishment.

For example, the intoxication and DUI statutes clearly manifest the Legislature’s intent to punish a condition or behavior resulting from having a controlled substance metabolizing in the body. See Utah Code Ann. §§76-9-701, 41-6-44.6. If the term

“consumption” were interpreted to mean the metabolizing of a substance in the body, Utah’s possession statute, a felony, would become a lesser- included offense of Utah’s Driving Under the Influence (DUI) and Intoxication statute, misdemeanors. See Utah Code Ann. §§ 76-9-701; 41-6-44; see also, Ireland, 2005 UT App 22 at ¶¶26-27 (Thorne, J. concurring). As effectively pointed out by Judge Thorne’s concurrence,

Under the [s]tate’s view, the penalties associated with the dangers posed by drug use are stood on their head. A pedestrian arrested with a controlled substance in their blood -- regardless of their activities at the time of the arrest -- would be subject to a greater penalty than someone arrested for driving with a measurable amount of a controlled substance in their blood. See Utah Code Ann. §§ 58-37-8 (2) (a) (i) (2003); 41-6-44 (2) (a) (ii) (1998). The [s]tate argues that the legislature intended this result and that the legislature has the right and the authority to make this distinction. I agree that the legislature has both the right and the authority. But, in the absence of an express legislative statement supporting the State’s position, we should avoid drawing problematic conclusions.

Here, adopting the [s]tate’s position would lead to the absurd result that the unlawful possession or use of a controlled substance, a felony, would become a lesser-included offense of driving with any measurable amount of a controlled substance in the blood, a misdemeanor. Moreover, in those cases not involving a vehicle, the [s]tate’s position amounts to imposing a greater penalty upon a sleeping, standing, or walking defendant who is in possession through presence in the blood, than upon a driver who is actively endangering others by operating a potentially deadly vehicle with a measurable amount of a controlled substance in the blood. Driving under the influence of alcohol or drugs creates a grave public safety concern, and the mayhem that results from it is one that the legislature clearly intends to punish harshly. It makes little sense to treat an offender who has prohibited drugs in his bloodstream less seriously if he moves behind the wheel of a vehicle, than if he merely chooses to walk to his destination. Adopting the [s]tate’s position would create just such a result.

Ireland, 2005 UT App 22 at ¶¶26-27 (citations, quotations, and footnote omitted).

Furthermore, adoption of the state’s definition of “consumption” would render portions of Utah’s intoxication statute superfluous or inoperative. Utah Code Ann. § 76-

9-701 (2003). Section 76-9-701 (1) states in part that “[a] person is guilty of intoxication if he is under the influence of . . . a controlled substance . . . to a degree that the person may endanger himself or another, in a public place or in a private place where he unreasonably disturbs other persons. Id. A violation of the intoxication statute is a class C misdemeanor. Id. at § 76-9-701 (5). Under the state’s position, possession or use of a controlled substance would also become a lesser included offense of intoxication. It would also subject a person who is not involved in behavior that is “endanger[ing] himself or another” to a greater penalty than a person who was actively engaging in such behavior. Such a result is absurd and makes little sense.

Instead, the Legislature, by using the terms application, inhalation, swallowing, injection, or consumption intended to punish an act, the act of introducing a substance into the body. The court of appeals correctly held that the plain meaning of “consumption” only “describ[es] the introduction of a substance into the body, and not an ongoing metabolic process.” Ireland, 2005 UT App 22 at ¶11. This holding is consistent with the commonly accepted meaning of the term found by other state’s interpreting the term, as well as, dictionary definitions, and the other terms within the statute surrounding “consumption” that describe how substances are introduced into the body.

II. THIS COURT NEED NOT REVIEW THE COURT OF APPEALS’ RECOGNITION OF POTENTIAL CONSTITUTIONAL PROBLEMS WITH THE STATE’S DEFINITION OF “CONSUMPTION” BECAUSE IT IS NOT A HOLDING IN THIS CASE AND BECAUSE THE COURT CORRECTLY RECOGNIZED THE IMPLICATIONS OF DEFINING “CONSUMPTION” ACCORDING TO THE STATE.

It is not necessary for this Court to review the court of appeal's recognition, but not holding, of the potential problem with interpreting "consumption" as an ongoing metabolization of a substance in the body as potentially subjecting "status criminals" to continuous guilt in violation of the Eighth Amendment. Ireland, 2005 UT App 22 at ¶20. The court's one sentence mention of the potential problem of subjecting "status criminals" to continuous guilt if "consumption" was interpreted according to the state's definition was made merely to add further support for its conclusion that "consumption," as used within the statute, only referred to "a method of introducing a substance into the body," and was not an issue decided by the court. Id. at ¶19.

The issue before the court of appeals was whether the term "'consumption' as used under section 58-37-2 (1) (dd) includes "a substance being metabolized in the body." Ireland, 2005 UT App 22 at ¶5. As outlined above, the court correctly interpreted the term "consumption" according to its plain meaning and avoided creating absurdities within the code by concluding that "consumption" describes the introduction of a substance into the body. Ireland, 2005 UT App 22 at ¶¶11, 23. Therefore, because the court of appeals reference to the potential of an Eighth Amendment violation under the state's interpretation was not a holding in the case, it is not necessary for this Court to reach the issue. Nevertheless, should this Court decide to reach the issue of whether interpreting the term "consumption" as including a substance metabolizing in the body would subject "status criminal" to prosecution in violation of the Eighth Amendment, this Court should hold that it does.

The Eighth Amendment of the United States Constitution applicable to the states through the Fourteenth Amendment provides, “Excessive bail shall not be required, nor excessive fines imposed, nor cruel and unusual punishments inflicted.” U.S. Const. amend. VIII. In Robinson v. California, 370 U.S. 660 (1962), the United States Supreme Court held that California’s statute making it a misdemeanor for a person to “be addicted to the use of narcotics” “for which the offender may be prosecuted ‘at any time before he reforms,’ whether or not he has ever used or possessed any narcotics within the State and whether or not he has been guilty of any antisocial behavior there” violated the Eighth and Fourteenth Amendments. Id. at 660, 666- 67.

The Supreme Court noted that “[i]t would be possible to construe the statute under which the appellant was convicted as one which is operative only upon proof of the actual use of narcotics within the State’s jurisdiction[b]ut the California courts have not so construed this law. Id. at 665. Instead, “the jury were instructed that they could convict [appellant] even if they disbelieved” the evidence presented that “the appellant had used narcotics in Los Angeles.” Id. Based on the way the California courts have interpreted the statute, the Supreme Court concluded that the statute “is not one which punishes a person for the use of narcotics [within the state], for their purchase, sale or possession, or for antisocial or disorderly behavior resulting from their administration” but one “which makes the ‘status’ of narcotic addiction a criminal offense.” Id. Clarifying the holding of Robinson, the Supreme Court, in Powell v. Texas, 392 U.S. 514, 533-35 (1968), explained that “[t]he entire thrust of Robinson’s interpretation of the Cruel and Unusual Punishment Clause is that criminal penalties may be inflicted only if

the accused has committed some act, has engaged in some behavior, which society has an interest in preventing, or perhaps in historical common law terms, has committed some actus reus.” Id.

The Supreme Court’s recognition that California’s statute could have been construed as “operative” if it had been interpreted as requiring “proof of actual use of narcotics within the State’s jurisdiction” and its specific holding “that a state law which imprisons a person thus afflicted as a criminal, even though he has never touched any narcotic drug within the State or been guilty of any irregular behavior there, inflicts a cruel and unusual punishment in violation of the Fourteenth Amendment” [Robinson, 370 U.S. at 666-67] supports the court of appeals’ holding that “consumption” does not include “an ongoing metabolic process” Ireland, 2005 UT App 22 at ¶¶ 11, 19. The court of appeals’ holding is further supported by the Supreme Court’s clarification that the statute in Robinson was unconstitutional as interpreted by the California courts because it punished a condition without any reference to any acts committed within the State. See Powell, 392 U.S. at 533-35.

The court of appeals recognized the far reaching implications of defining “consumption” as an ongoing metabolizing of a substance in the body. See Ireland, 2005 UT App 22 at ¶ 20 (noting a contrary holding would subject “‘status criminals’ . . . to continuous guilt for . . . use of a controlled substance, ‘whether or not [they had] ever used . . . any narcotics within the State.’” (quoting Robinson, 370 U.S. at 666)). The court of appeals noted that with improved drug testing the state’s definition “could subject individuals to prosecution who used drugs months or even years prior because of

the substance's continued presence in their bodies.” Ireland, 2005 UT App 22 at ¶ 20.

To interpret “consumption” in such a way would be to interpret Utah’s possession statute akin to how the California court interpreted the statute at issue in Robinson, making the status of having a substance’s continued presence in the body a crime without reference to any act committed by an individual within the State.

The NHTSA study cited by the state justifies the court of appeals’ concern that individuals who simply have a substance still detectable in their bodies long after they had ingested drugs and no longer experience the “intended and/or adverse effects” would still be subjected to prosecution within Utah.⁵ Respondent’s Opening Brief 18. For example, the NHTSA study on Marijuana indicates that “[d]etection of total THC metabolites in urine . . . only indicates prior THC exposure. Detection time is well past the window of intoxication and impairment.” Dr. Fiona Couper, Ph.D, ET AL, U.S.

⁵ Even the state recognized this problem when reviewing this case for prosecution in a memorandum from one prosecutor to another which was made part of the record. The memorandum states:

The blood was positive for 0.1 mcg/ml methamphetamine. Blood and urine were positive for THC metabolite (inactive), which can remain in the system long after actual use of marijuana. . . .

We independently asked Dr. Caravati of Poison Control and Terry Lamoreaux of State Tox. Lab about the meth level. Both experts state that there is no reliable way to “back-extrapolate” the 0.1 meth level to the time of the crash: the metabolism rate is too variable. A “therapeutic” level for meth would be 0.02 to 0.09; however, the 0.1 level is not *per se* proof of impairment. Determination of impairment would depend upon the suspect’s drug use pattern (chronic or acute), time of does, drug tolerance, and driving/behavioral observations.

R. 185; see also Addendum C.

Dep't of Transportation: Nat'l Highway Traffic Safety Administration, Drugs and Human Performance Fact Sheets – Cannabis/Marijuana (visited August 17, 2005)

<<http://www.nhtsa.dot.gov/people/injury/research/job185drugs/cannabis.htm>>. See Addendum D; see also Addendum C. Positive urine tests generally indicate prior use anywhere from 1 to 3 days; “however, the detection window could be significantly longer following heavy, chronic use.” Id. In addition, positive urine results for “[l]ow concentrations of THC have also been measured in over-the-counter hemp oil products.” Id. The study also warns that “[i]t is inadvisable to try and predict effects based on blood THC concentrations alone, and currently impossible to predict specific effects based on THC-COOH concentrations.” Id. This is because “[c]oncentration of parent drug and metabolite are very dependent on pattern of use as well as dose.” Id. In fact, “it is possible for a person to be affected by marijuana use with concentrations of THC in their blood below the limit of detection of the method.” Id.

Similarly, the NHTSA study on Cocaine that “very low concentrations of cocaine may be detected in urine during the initial few hours, however, benzoylecgonine [a cocaine metabolite] persists in urine at detectable concentrations for 2-4 days.” Dr. Fiona Couper, Ph.D, ET AL, U.S. Dep't of Transportation: Nat'l Highway Traffic Safety Administration, Drugs and Human Performance Fact Sheets – Cocaine (visited August 17, 2005) <<http://www.nhtsa.dot.gov/people/injury/research/job185drugs/cocain.htm>>. See Addendum E. But for individuals who may engage in chronic or heavy use of cocaine, “detectable amounts of benzoylecgonine in urine [can occur] for up to 10 days following a binge.” Id. However, the study indicates that after oral ingestion which the

“effects onset more slowly” generally the longest duration of the effects of cocaine “will persist for 1-2 hours depending on the dose and late phase effects, which include depression, agitation, normal heart rate, normal pupils, following binge use may last several days.” Id. The study warns that “[t]he presence of cocaine at a given blood concentration cannot usually be associated with a degree of impairment or a specific effect for a given individual without additional information. This is due to many factors, including individual levels of tolerance to the drug and antifactual changes in cocaine concentrations on storage.” Id.

The NHTSA study on Morphine also states that “[p]ositive morphine urine results generally indicate use within the last two to three days, or longer after prolonged use.” Dr. Fiona Couper, Ph.D, ET AL, U.S. Dep’t of Transportation: Nat’l Highway Traffic Safety Administration, Drugs and Human Performance Fact Sheets – Morphine (and Heroin) (visited August 17, 2005) <<http://www.nhtsa.dot.gov/people/injury/research/job185drugs/morphine.htm>>. See Addendum F. Yet, “the overall effects [of morphine] wear off in 3-5 hours, depending on dose.” Id. Again, the study warns that “[t]olerance makes interpretation of blood or plasma morphine concentrations extremely difficult.” Id. The NHTSA study on Methamphetamine states “[p]ositive urine results generally indicate use within 1-4 days but could be up to a week following heavy chronic use.” Dr. Fiona Couper, Ph.D, ET AL, U.S. Dep’t of Transportation: Nat’l Highway Traffic Safety Administration, Drugs and Human Performance Fact Sheets – Methamphetamine (and Amphetamine) (visited August 17, 2005) <<http://www.nhtsa.dot.gov/people/injury/research/job185drugs/methamphetamine.htm>>.

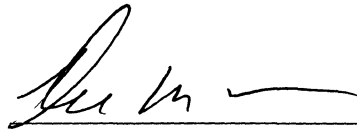
See Addendum G. In fact, the “[r]ate of excretion into the urine is heavily influenced by urinary pH.” Id. Yet, again, the “[o]verall effects [of methamphetamine] typically last 4-8 hours.” Id.

The study’s findings support the court of appeals concern that the state’s definition of “consumption” could subject individuals to prosecution “whether or not [they had] ever used or possessed any narcotics within the State.” Ireland, 2005 UT App 22 at ¶ 20 (quoting Robinson, 370 U.S. at 666). As in Robinson, the state’s broad power “to regulate the narcotic drugs traffic within its borders is not” at issue. Robinson, 370 U.S. at 664. However, like the status offense created as a result of California’s interpretation of its statute in Robinson, the state in this case seeks to subject individuals who have a detectable substance in their body to criminal prosecution even if they are not suffering from its effects and “whether or not [they have] ever used or possessed any narcotics within the State, and whether or not [they have] been guilty of any antisocial behavior” here. Id.

CONCLUSION

For the reasons outlined above, Mr. Ireland respectfully asks this Court to affirm the court of appeals' decision.

SUBMITTED this 23rd day of August, 2005.



DEBRA M. NELSON
LISA J. REMAL
Attorneys for Defendant/Appellant

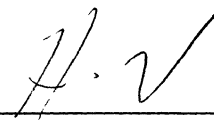
CERTIFICATE OF DELIVERY

I, DEBRA M. NELSON, hereby certify that I have caused to be delivered an original and nine copies of the foregoing to the Utah Supreme Court, 450 South State Street, 5th Floor, P. O. Box 140210, Salt Lake City, Utah 84114-0210, and four copies to the Utah Attorney General's Office, Heber M. Wells Building, 160 East 300 South, 6th Floor, P.O. Box 140854, Salt Lake City, Utah 84114-0854, this 23rd day of August, 2005.



DEBRA M. NELSON

DELIVERED this 23 day of August, 2005.



ADDENDA

Addendum A

Before Judges Greenwood, Orme, and Thorne.

GREENWOOD, Judge:

¶1 Defendant Jeffrey Don Ireland appeals his conviction of unlawful possession or use of a controlled substance, a third degree felony. See Utah Code Ann. § 58-37-8(2)(a)(i) (2002).⁽¹⁾ Defendant alleges that the trial court misinterpreted the meaning of "consumption" under Utah Code section 58-37-2(1)(dd). Utah Code Ann. § 58-37-2(1)(dd) (2002). We reverse.

BACKGROUND

¶2 On November 3, 2001, while driving a car in Salt Lake County, Defendant hit another vehicle, resulting in the death of its driver. While at a hospital following the accident, West Valley Police Officer Buchanan observed Defendant exhibiting what he regarded as symptoms of a person under the influence of a narcotic: constricted pupils, dry mouth, muscle tremors, deliberate, short sentences, and an unsteady gait. On this basis, Officer Buchanan obtained a search warrant to test Defendant's blood and urine for controlled substances. Notwithstanding the absence of any narcotic in Defendant's urine samples, Defendant's blood tested positive for marijuana and 0.1 mcg/ml of methamphetamine.

¶3 While the presence of controlled substances was detected in Defendant's blood, he did not have any paraphernalia or drugs packaged for use with him. Despite this, the State charged Defendant with unlawful possession or use of a controlled substance for the methamphetamine, a third degree felony, and driving with a measurable controlled substance in the body for the marijuana, a class B misdemeanor.

¶4 In a pretrial ruling, the court determined that it had jurisdiction over the possession or use of a controlled substance charge. The trial court concluded that "'consumption' continued so long as the methamphetamine was being metabolized in [D]efendant's body." Furthermore, the trial court reasoned that, because Defendant was metabolizing the methamphetamine before, during, and after the accident, his unlawful possession or use of a controlled substance was committed at least partly within this state, and thus established jurisdiction. Defendant then pleaded guilty to both charges, but reserved the right to appeal the trial court's jurisdiction regarding the felony charge.

ISSUES AND STANDARD OF REVIEW

¶5 Defendant presents two arguments in support of his contention that the trial court misinterpreted the possession or use statute. First, he asserts that the plain meaning of "consumption," as used in section 58-37-2(1)(dd) does not include a substance being metabolized in the body. Utah Code Ann. § 58-37-2(1)(dd). Second, he argues that the trial court violated his right to due process by improperly shifting the burden to him to show that the substance found in his blood was not consumed in Utah.

¶6 Both of Defendant's arguments hinge on his assertion that the trial court misinterpreted the statutory meaning of "consumption." As such, "[t]he proper interpretation of a statute is a question of law which we review for correctness, according no deference to the [judge's] legal conclusion." State v. Redd, 1999 UT 108, ¶10, 992 P.2d 986.

ANALYSIS

I. Plain Meaning of "Consumption" Under Section 58-37-2(1)(dd)

¶7 Defendant contends that the trial court erred in ruling that it had jurisdiction over the felony charge, determining that "consumption," as included in the definition of possession or use of a controlled substance under section 58-37-2(1)(dd), is an ongoing process in which the body physiologically metabolizes the substance. Utah Code Ann. § 58-37-2(1)(dd). This issue presents a question of first impression in Utah.

¶8 "When interpreting a statute, this court looks first to the statute's plain language to determine the Legislature's intent and purpose. We read the plain language of the statute as a whole, and interpret its provisions in harmony with other statutes in the same chapter and related chapters." Miller v. Weaver, 2003 UT 12, ¶17, 66 P.3d 592. When interpreting a statute, this court seeks to "avoid interpretations that will render portions of a statute superfluous or inoperative." State v. Maestas, 2002 UT 123, ¶52, 63 P.3d 621 (quotations and citation omitted).

¶9 Utah Code section 58-37-8(2)(a)(i) makes it unlawful "for any person knowingly and intentionally to possess or use a controlled substance." Utah Code Ann. § 58-37-8(2)(a)(i). The relevant part of section 58-37-2(1)(dd) defines "possession or use" under chapter 37 as "the application, inhalation, swallowing, injection, or consumption . . . of controlled substances." Id. § 58-37-2(1)(dd) (emphasis added).

¶10 We first look to the ordinary meaning of "consumption." Black's Law Dictionary defines "consumption" as "[t]he act of destroying a thing by using it; the use of a thing in a way that thereby exhausts it." Black's Law Dictionary 312 (7th ed. 1999). Webster's defines "consumption" as "the act or process of consuming [.]". Webster's Ninth New College Dictionary 282 (1986). Further, Webster's defines "consume" as "to do away with completely[,]. . . . to spend wastefully[,]. . . . to eat or drink esp. in great quantity [,]. . . . to waste or burn away[.]". Id.

¶11 Defendant argues for a narrow interpretation of "consumption." He suggests that, when looking at the surrounding nouns of the statute, "consumption" is a present tense nominal describing the introduction of a substance into the body, and not an ongoing metabolic process. We agree.

¶12 Had the Utah Legislature wanted to make the metabolization of controlled substances a crime in section 58-37-2(1)(dd), it could have done so by explicitly including it as it has done in other statutes related to controlled substances. Indeed, the Utah Code currently contains nine sections that use the term "metabolite" in connection with controlled substances. See Utah Code Ann. §§ 41-6-44.10(1)(a), -44.12(2)(c), -44.6(2) (Supp. 2004) (dealing with motor vehicles); see also id. §§ 53-3-220(1)(a)(xiii), -223(1)(a) (2002) (concerning public safety); id. §§ 34-41-101(2), -102(2), 34A-2-302(4)(a)(i) (2001) (relating to labor).

¶13 Statutes from other states support a narrow definition of the term "consumption." Michigan's impaired driving statute defines "consumed" as "to have eaten, drunk, ingested, inhaled, injected, or topically applied, or to have performed any combination of those actions, or otherwise introduced into the body." Mich. Comp. Laws. § 768.37(3)(b) (2004). Oregon defines "ingest" as "to consume or otherwise deliver a controlled substance into the body of a person." Or. Rev. Stat. § 475.984(3)(c) (2003). And Texas defines "human consumption" as "the injection, inhalation, ingestion, or application of a substance to or into the body." Tex. Health & Safety Code Ann. § 481.002(21) (2004). The State, on the other hand, cites no statutes in support of their position that "consumption" is defined as including metabolization. Thus, we are unpersuaded that our legislature intended "consumption" under section 58-37-2(1)(dd) to include metabolization of controlled substances.

¶14 In addition, caselaw from this state and others supports this interpretation. In State v. Sorenson, a minor was arrested for unlawfully possessing alcohol when an officer smelled the substance on his breath during a traffic stop. See 758 P.2d 466, 467 (Utah Ct. App. 1988). Notwithstanding the absence of alcohol on his person or a failed sobriety test, Sorenson was convicted of illegally possessing

alcohol. See id. This court agreed with the trial court's finding "that the mere presence of alcohol on the breath or in the bloodstream does not constitute possession under the statute." Id. at 468. Further, this court remarked in a footnote that such a "position is consistent with well-reasoned decisions from other jurisdictions which have addressed the issue." Id. at 468 n.2 (citing State v. Lewis, 394 N.W.2d 212, 217 (Minn. Ct. App. 1986); State v. Hornaday, 713 P.2d 71, 76 (Wash. 1986), superseded by statute on other grounds).

¶15 Other state appellate courts have addressed this issue as well. In State v. Flinchpaugh, the defendant was involved in a car accident that resulted in the death of the other car's driver. See 659 P.2d 208, 209-10 (Kan. 1983). A blood test revealed the presence of controlled substances. See id. at 210. Without presenting evidence as to how the substances were "introduced into the defendant's system," the State charged Flinchpaugh with possession of a controlled substance. Id. Affirming the lower court's dismissal of the charge, the Kansas Supreme Court concluded that "[o]nce a controlled substance is within a person's system, the power of the person to control, possess, use, dispose of, or cause harm is at an end. The drug is assimilated by the body. The ability to control the drug is beyond human capabilities." Id. at 211.

¶16 The Washington Supreme Court reached a similar conclusion in State v. Hornaday, 713 P.2d 71 (Wash. 1986). In Hornaday, a minor was charged with illegal consumption or possession of alcohol. See id. at 73. The court analogized the alcohol in that case with narcotics, noting that "[o]nce a narcotic is injected into the vein, or swallowed orally, it is no longer in the individual's control for the purposes of possession." Id. at 75. Furthermore, the court concluded that "the terms 'consume' and 'possession' . . . do not include the stage at which the liquor has already been swallowed but is still being assimilated by the body." Id. at 76; see also State v. Abu-Shanab, 448 N.W.2d 557, 559 (Minn. Ct. App. 1989) (concluding that to "'consume,' in the context of alcoholic beverages, means to drink, and that once drunk, alcohol is no longer being consumed.").

¶17 Hornaday has been cited as a case that exposes the "absurdity of defining the word 'consume' so as to encompass the metabolization of alcohol in the body." State v. Preston, 832 P.2d 513, 516 (Wash. Ct. App. 1992). In justifying the result, the Hornaday court examined the impact of a contrary ruling. The court suggested that the broader interpretation of "consume" or "possess" would subject minors to prosecution if they ventured across state lines to drink legally in a neighboring state if, upon their return, there was any trace of alcohol still in their system. See Hornaday, 713 P.2d at 77.

¶18 While the State did not counter with cases supporting its broad conception of "consumption," it attempted to distinguish this

line of cases, suggesting that they apply to consumption of alcohol and not drugs. Thus, the State advocated two definitions of "consumption": one for alcohol and one for drugs. We, however, do not think that the legislature intended two different meanings of "consumption" in the Utah Code. Furthermore, multiple definitions would be potentially confusing to the public's perception of what behavior is prohibited.

¶19 The State next argues that the narrow definition of "consumption" renders the other listed nouns--"application, inhalation, swallowing, injection"--superfluous. Utah Code Ann. § 58-37-2(1)(dd). However, it is more likely that "consumption" was included in section 58-37-2(1)(dd) as a catchall term to encompass novel methods of introducing a substance into the body. Indeed, drug users have proven most creative in discovering new ways to administer substances. Accordingly, we hold that "consumption" under section 58-37-2(1)(dd) is a method of introducing a substance into the body.

¶20 Furthermore, a contrary holding would subject "status criminals," such as drug addicts, to continuous guilt for possession or use of a controlled substance, "whether or not [they had] ever used or possessed any narcotics within the State." Robinson v. California, 370 U.S. 660, 666 (1962) (holding that imprisonment of drug addict in a state where he never used any narcotic drugs would be cruel and unusual punishment in violation of Fourteenth Amendment). Additionally, with improved drug testing, such as hair follicle analysis, the State's broad definition of "consumption" could subject individuals to prosecution who used drugs months or even years prior because of the substance's continued presence in their bodies. See Major Samuel J. Rob, Drug Detection by Hair Analysis, 1991 Army Law. 10, 10-14 (describing the process of drug testing via hair follicle analysis). Hence, the trial court erred by adopting a broad definition of "consumption" to include metabolization.

II. Due Process

¶21 Finally, Defendant argues that the trial court violated the due process clause of Article I, Section 7 of the Utah State Constitution, as well as the Fifth and Fourteenth Amendments to the United States Constitution, by improperly shifting to him the burden to show that the court lacked jurisdiction to hear the possession or use charge. Defendant asserts that the trial court erred by finding that "[i]n order to establish jurisdiction, the State need not prove where the defendant ingested the methamphetamine."

¶22 To prosecute a person in Utah, the State must establish jurisdiction by showing that the offense was "committed either wholly or partly within the state," Utah Code Ann. § 76-1-201(1)(a) (2003),

by a preponderance of the evidence. See id. § 76-1-501(3) (2003). At trial, the court relied on the broad definition of "consumption" that allowed the mere metabolization of a controlled substance while in the state to satisfy the jurisdictional requirements. We have rejected that view. Because the trial court used the broad definition, it improperly asserted jurisdiction over the possession or use of a controlled substance charge. As a result, we need not determine if the trial court erred by requiring Defendant to refute the State's assertion of jurisdiction.

CONCLUSION

¶23 Consistent with statutes and cases from this and other jurisdictions, "consumption" under section 58-37-2(1)(dd) is a method of introducing a substance into the body. Id. § 58-37-2(1)(dd). The trial court erred in concluding that metabolization of a controlled substance earlier introduced constituted "consumption." Furthermore, because the State offered no evidence of where Defendant consumed the drugs, the trial court lacked evidence to establish that the crime of possession or use of a controlled substance took place in whole or in part in Utah. Therefore, the trial court erred in asserting jurisdiction.

¶24 Accordingly, we reverse Defendant's conviction on the felony unlawful possession charge.

Pamela T. Greenwood, Judge

¶25 I CONCUR:

Gregory K. Orme, Judge

THORNE, judge (concurring):

¶26 I wholeheartedly agree with the majority opinion, and write only to highlight my principal difficulty with the State's position. Under the State's view, the penalties associated with the dangers posed by drug use are stood on their head. A pedestrian arrested with

a controlled substance in their blood--regardless of their activities at the time of the arrest--would be subject to a greater penalty than someone arrested for driving with a measurable amount of a controlled substance in their blood. See Utah Code Ann. §§ 58-37-8(2)(a)(i) (2003); 41-6-44(2)(a)(ii) (1998). The State argues that the legislature intended this result and that the legislature has the right and the authority to make this distinction. I agree that the legislature has both the right and the authority. But, in the absence of an express legislative statement supporting the State's position, we should avoid drawing problematic conclusions. See Rowley v. Public Serv. Comm'n, 112 Utah 116, 185 P.2d 514, 519 (1947) (stating "'a purpose to disregard sound public policy must not be attributed to the lawmaking power, except upon the most cogent evidence, and it is the duty of the courts to render such an interpretation of the laws as will best promote the protection of the public'" (citation omitted)); Department of Human Servs. v. B.R., 2002 UT App 25, ¶9, 42 P.3d 390 (accepting parenthetically that "following the literal statutory wording is not required when to do so would defeat legislative intent and make the statute absurd" (quotations and citation omitted)).

¶27 Here, adopting the State's position would lead to the absurd result that the unlawful possession or use of a controlled substance, a felony, would become a lesser-included offense of driving with any measurable amount of a controlled substance in the blood, a misdemeanor. Moreover, in those cases not involving a vehicle, the State's position amounts to imposing a greater penalty upon a sleeping, standing, or walking defendant who is in possession through presence in the blood, than upon a driver who is actively endangering others by operating a potentially deadly vehicle with a measurable amount of a controlled substance in the blood. Driving under the influence of alcohol or drugs creates a grave public safety concern, and the mayhem that results from it is one that the legislature clearly intends to punish harshly. It makes little sense to treat an offender who has prohibited drugs in his bloodstream less seriously if he moves behind the wheel of a vehicle, than if he merely chooses to walk to his destination. Adopting the State's position would create just such a result.

¶28 Accordingly, I concur.

William A. Thorne Jr., Judge

1. Although the legislature has amended this statute since Defendant was charged, the amendments do not affect the outcome of this case. See Utah Code Ann. § 58-37-8(2) (2002). Therefore, for ease of reference, we cite to the most recent version of this statute.

2. A "metabolite" is "a product of metabolism[.]" Webster's Ninth New College Dictionary 745 (1986).

1. In further support of this principle, the Rowley court also stated:

We have not overlooked the legal principle that if the intent of the legislature is by the statute made clear and certain, even though we may believe the legislation absurd and undesirable, we cannot substitute the judgment of the court for the judgment of the legislature. On the other hand, when the legislative intent is not clear and certain, and a literal interpretation of the language of the statute gives an absurd result, then the court is justified in searching the enactment for further indications of legislative intent.

Rowley v. Public Serv. Comm'n, 112 Utah 116, 185 P.2d 514, 519-20 (1947). Here, the majority has ably divined the legislative intent underlying the statute, and in doing so has avoided an otherwise absurd result.

Addendum B

58-37-8

(2) Prohibited acts B — Penalties:

(a) It is unlawful:

- (i) for any person knowingly and intentionally to possess or use a controlled substance, unless it was obtained under a valid prescription or order, directly from a practitioner while acting in the course of his professional practice, or as otherwise authorized by this chapter;

58-37-2

(dd) "Possession" or "use" means the joint or individual ownership, control, occupancy, holding, retaining, belonging, maintaining, or the application, inhalation, swallowing, injection, or consumption, as distinguished from distribution, of controlled substances and includes individual, joint, or group possession or use of controlled substances. For a person to be a possessor or user of a controlled substance, it is not required that he be shown to have individually possessed, used, or controlled the substance, but it is sufficient if it is shown that the person jointly participated with one or more persons in the use, possession, or control of any substances with knowledge that the activity was occurring, or the controlled substance is found in a place or under circumstances indicating that the person had the ability and the intent to exercise dominion and control over it.

76-1-201. Jurisdiction of offenses.

(1) A person is subject to prosecution in this state for an offense which he commits, while either within or outside the state, by his own conduct or that of another for which he is legally accountable, if:

- (a) the offense is committed either wholly or partly within the state;
- (b) the conduct outside the state constitutes an attempt to commit an offense within the state;
- (c) the conduct outside the state constitutes a conspiracy to commit an offense within the state and an act in furtherance of the conspiracy occurs in the state; or
- (d) the conduct within the state constitutes an attempt, solicitation, or conspiracy to commit in another jurisdiction an offense under the laws of both this state and such other jurisdiction.

(2) An offense is committed partly within this state if either the conduct which is any element of the offense, or the result which is such an element, occurs within this state.

(3) In homicide offenses, the "result" is either the physical contact which causes death or the death itself.

(a) If the body of a homicide victim is found within the state, the death shall be presumed to have occurred within the state.

(b) If jurisdiction is based on such a presumption, this state shall retain jurisdiction unless the defendant proves by clear and convincing evidence that:

- (i) the result of the homicide did not occur in this state; and
- (ii) the defendant did not engage in any conduct in this state which is any element of the offense.

(4) An offense which is based on an omission to perform a duty imposed by the law of this state is committed within the state regardless of the location of the offender at the time of the omission.

(5) The judge shall determine jurisdiction.

76-1-202. Venue of actions.

(1) Criminal actions shall be tried in the county, district, or precinct where the offense is alleged to have been committed. In determining the proper place of trial, the following provisions shall apply:

(a) If the commission of an offense commenced outside the state is consummated within this state, the offender shall be tried in the county where the offense is consummated.

(b) When conduct constituting elements of an offense or results that constitute elements, whether the conduct or result constituting elements is in itself unlawful, shall occur in two or more counties, trial of the offense may be held in any of the counties concerned.

(c) If a person committing an offense upon the person of another is located in one county and his victim is located in another county at the time of the commission of the offense, trial may be held in either county.

(d) If a cause of death is inflicted in one county and death ensues in another county, the offender may be tried in either county.

(e) A person who commits an inchoate offense may be tried in any county in which any act that is an element of the offense, including the agreement in conspiracy, is committed.

(f) Where a person in one county solicits, aids, abets, agrees, or attempts to aid another in the planning or commission of an offense in another county, he may be tried for the offense in either county.

(g) When an offense is committed within this state and it cannot be readily determined in which county or district the offense occurred, the following provisions shall be applicable:

(i) When an offense is committed upon any railroad car, vehicle, watercraft, or aircraft passing within this state, the offender may be tried in any county through which such railroad car, vehicle, watercraft, or aircraft has passed.

(ii) When an offense is committed on any body of water bordering on or within this state, the offender may be tried in any county adjacent to such body of water. The words "body of water" shall include but not be limited to any stream, river, lake, or reservoir, whether natural or man-made.

(iii) A person who commits theft may be tried in any county in which he exerts control over the property affected.

(iv) If an offense is committed on or near the boundary of two or more counties, trial of the offense may be held in any of such counties.

(v) For any other offense, trial may be held in the county in which the defendant resides, or, if he has no fixed residence, in the county in which he is apprehended or to which he is extradited.

(2) All objections of improper place of trial are waived by a defendant unless made before trial.

76-1-501. Presumption of innocence — “Element of the offense” defined.

(1) A defendant in a criminal proceeding is presumed to be innocent until each element of the offense charged against him is proved beyond a reasonable doubt. In absence of such proof, the defendant shall be acquitted.

(2) As used in this part the words “element of the offense” mean:

(a) The conduct, attendant circumstances, or results of conduct proscribed, prohibited, or forbidden in the definition of the offense;

(b) The culpable mental state required.

(3) The existence of jurisdiction and venue are not elements of the offense but shall be established by a preponderance of the evidence.

Addendum C

February 6, 2002

TO: Kent Morgan; District Attorney Administration

FROM: Kevin Murphy, Deputy District Attorney

RE: Proposed Automobile Homicide Case *State vs. Jeffrey Don Ireland*

FIRST DISTRICT COURT
Third Judicial District

NOV 18 2002

SALT LAKE COUNTY

By _____ Deputy Clerk

SUMMARY/RECOMMENDATION:

Per your instructions, DDA Bill Kendall and I have carefully reviewed this case. Besides reviewing reports submitted by Detective Mike Leary, we have spoken to other experts and have posed specific questions to Detective Leary. Some of what we relate factually is based on our conversations with Leary and others, and does not appear in the police reports.

Based on our review, we recommend that Ireland be charged with DUI-measurable drug/metabolite, a class B misdemeanor, UCA 41-6-44.6. We may also consider charging him with F3 possession of methamphetamine and class B possession of marijuana, UCA 58-37-8(2)(b)(ii), 58-37-8(2)(e). These latter two charges would be based upon his positive blood and urine tests; caselaw support for this charging theory is undeveloped.

Because of problems proving impairment, negligent vehicle operation, or causation, we cannot recommend that he be charged either with felony 3 automobile homicide, UCA 76-5-207, or with class A negligent homicide, 76-5-206, or with DUI-drug impairment, UCA 41-6-44(2)(a)(ii).

Alternatively, the case could be referred for further investigation, perhaps by this office. However, further investigation would not alleviate the eyewitness problem and impairment issues that underpin the current recommendation.

FACTS/EVIDENCE:

November 3, 2001 approximately 11 pm: Victim Angel Garcia, 19, stops northbound at a red light, on 1300 West at its intersection with 4000 South. There are two northbound lanes; Angel, in her just-purchased white 1991 Honda Accord, occupies the right lane; to her left, in another car, are eyewitnesses Amy (driver) and Cassius (passenger).

Roads were dry. Except for normal darkness, no obstruction of vision noted. Intersection gets some additional illumination from a nearby apartment complex. Speed limit for eastbound traffic on 4000 South is 50 mph. According to Det. Leary's personal observation, the traffic light has a three-second "all red" delay, so that when the light goes

red for one street, the light for the other street stays red an additional three seconds before turning green. (But Leary has recently spoken to a local street authority who says the light has a 4-5 second yellow, followed by one-second "all red.")

After waiting at her red light, victim Angel proceeded northbound into the intersection, where a pickup truck driven by suspect Ireland, traveling eastbound at about 45 mph, hit the driver's side of Angel's Honda broadside, killing her instantly. Detective Leary, called out that night to investigate, observed no pre-impact skidmarks.

Eyewitnesses Amy and Cassius have given conflicting statements about how the collision occurred. Amy originally stated that Ireland's truck entered the intersection while his light was yellow, and that victim Angel moved prematurely into the intersection ("she underestimated the light to change and went truck ran yellow light an hit the white car"). In a January 22 followup interview, she at first gave a consistent account about the travel of suspect's truck ("His light turned yellow, he thought he could make it"). But when asked for clarification, witness Amy became "adamant" that victim Angel did not move into the intersection until her light turned green. (As to why witness Amy did not also enter the intersection on this "green" light, she said "something told me not to go.")

Eyewitness Cassius had been smoking marijuana just before the accident. His original statement omitted any mention of the traffic signal ("the lady was turning going east & the truck was turning at the same time & there it was"). In his January 22 followup interview, Cassius contradicted himself about the signal, stating variously that Ireland's truck entered the intersection when his light was yellow, or red. He also opined that victim Angel entered the intersection too soon ("the girl started moving into the intersection as her light was still red").

There are no other eyewitness statements about the crash. Det. Leary has been unable to locate any other eyewitnesses.

Present information says nothing about suspect Ireland's behavior at the crash scene. He was evidently observed walking around & talking, but we have seen no reports about whether he appeared impaired.

Ireland was taken by ambulance to Pioneer Valley Hospital. Ambulance attendant (name not provided) thought he smelled alcohol on Ireland. At hospital, Ireland was examined & released. We do not have ambulance crew's nor Pioneer Valley's treatment record for the suspect. According to Leary, the hospital did not draw any blood from Ireland. Deputy and DRE at hospital did not smell alcohol on suspect.

Ireland refused to voluntarily give a blood sample. A DRE from West Valley Police tried to assess Ireland, who would not cooperate; indeed, he covered his eyes so the officer

could not completely assess his pupils, which appeared constricted. The DRE, based on his limited observation opportunity, nevertheless opined that Ireland was under the influence of a narcotic analgesic. The deputy who transported Ireland from hospital to jail similarly observed Ireland's constricted pupils, deliberate, short sentences, and unsteady gait, and opined that he was impaired. A search warrant was obtained, blood and urine were taken from Ireland at about 4:30 am, 5 ½ hours after the crash.

The blood was positive for 0.1 mcg/ml methamphetamine. Blood and urine were positive for THC metabolite (inactive), which can remain in the system long after actual use of marijuana. Samples were negative for alcohol, negative for narcotic analgesics, negative for benzodiazepines (Valium-type medications). In short, the suspect's most possible source of chemical impairment, 5 ½ hours post-crash, was methamphetamine.

We independently asked Dr. Caravati of Poison Control and Terry Lamoreaux of State Tox. Lab about the meth level. Both experts state that there is no reliable way to "back-extrapolate" the 0.1 meth level to the time of the crash: the metabolism rate is too variable. A "therapeutic" level for meth would be 0.02 to 0.09; however, the 0.1 level is not *per se* proof of impairment. Determination of impairment would depend upon the suspect's drug use pattern (chronic or acute), time of dose, drug tolerance, and driving/behavioral observations.

Ireland refused to talk about the accident, so we do not know about his meth use pattern, time of ingestion, etc. (Reports do not say whether paraphernalia was found in his possession.) As to behavioral observations, Ireland appeared "on the nod," more consistent with painkillers/downers, than with meth use (for example, constricted pupils rather than dilated pupils). The observations are further complicated by two factors: one, he possibly got jolted in the accident itself, causing signs of impairment; two, reasonably reliable history, per Det. Leary via suspect's sister, that suspect has some chronic impairment due to a head injury suffered about 18 years ago (Leary observed the scar on suspect's head), which contributes to his unusual gait. The sister did, however, spontaneously ask Leary something to the effect of "what was [Ireland's] drug of choice this time?"

The truck driven by Ireland was loaded with scrap metal and/or old automobile parts. However, consistent with post-crash photos, Det. Leary does not believe the load was overweight. It does not appear that the truck was inspected for mechanical problems, although Leary believes it is still sitting on an impound lot, and thus possibly available. Leary has not been able to contact the truck's registered owner, who reportedly has a criminal record (possible "Awesome Towing" history).

ANALYSIS:

The crucial elements for auto homicide and DUI-drug impaired, as applied to this case, are (1) drug-caused impairment; (2) negligent or criminally negligent operation of the vehicle; and (3) causation of death/serious injury. Negligent homicide omits the impairment element, but requires criminally negligent operation and causation. As follows, on the presently-known evidence, we are unlikely to prove any of these elements beyond reasonable doubt.

- (1) Drug-caused impairment. The 0.1 mcg/ml meth level, 5 ½ hours post-accident, is inconclusive for impairment. The behavioral signs of impairment are incomplete due to suspect's noncompliance. The signs that were observed—sleepiness, droopy eyelids, constricted pupils, slow speech—are inconsistent with meth intoxication. Those signs can be attributed to the effects of the accident itself. Those signs also may be attributed to defendant's chronic effects from the old head injury. There is also a possibility that Ireland was in the physiological "slump" as the meth effects wore off, but this possibility also is speculative due to the incomplete and contradictory observations. There is no recognized, consistent standard for assessing impairment due to meth use. So, we see no compelling proof of impairment caused by suspect's drug use.
- (2) Negligent or criminally negligent driving. Currently-known witness observations are too contradictory to be helpful: there is no strong proof that Ireland ran a red light. If he entered the intersection while his light was yellow, as suggested by witness statements, he was doing nothing unusual or illegal. "Vehicular traffic facing a steady circular yellow . . . signal is warned that the allowable movement related to a green signal is being terminated." UCA 41-6-24(3)(a). And, according to Detective Leary, Ireland was driving within the posted speed limit. We have no information whether the truck driven by Ireland was in unsafe condition, nor whether Ireland, who did not own the truck, knew of any possible unsafe condition. Thus we see no compelling proof of negligent or criminally negligent driving by Ireland.
- (3) Causation. On the current evidence, it is possible that victim Angel made a tragic mistake that night, moving into the intersection before her light turned green. Evidence of this possibility could persuade a trial judge to give an instruction on superseding intervening cause. *Cf. State v. Hamblin*, 676 P.2d 376 (Utah 1983) (no superseding intervening cause instruction required where evidence compellingly demonstrated defendant's impairment and negligence). Obviously, this would hamper the prosecution.

We do not know whether there are any other eyewitnesses to the accident. Perhaps it would be worthwhile to run some media advertisements, or place some flyers, asking possible eyewitnesses to come forward. If witnesses were found who could clearly

confirm that victim Angel had the *green* light, it would be very helpful (Angel's light did not turn green until defendant's light had been red for three seconds—not to mention the warning time given by defendant's yellow light). But even so, such witnesses would have to overcome the ambiguity in the statements of Amy and Cassius, the only currently-known eyewitnesses. (Confirmation that Ireland's light was *red* would be less helpful, because Angel's light would not turn green until Ireland's was red for three seconds.)

CONCLUSION

The most likely successful prosecution, at this point, would be class B DUI-measurable drugs/metabolite.

It has been suggested that Ireland be charged with F3 possession of meth, based on the positive blood test (class B possession of marijuana might also be charged on the same evidence). Legal research supports using a positive blood/urine test as evidence of drug possession, in the context of probation violations, or termination of supervised release (some cases are attached). But our law clerks found no case where a criminal prosecution was founded on such evidence alone; thus we would be breaking new legal ground were we to proceed on this theory.

I do not know how fertile that ground might be. On the positive side, the quantified meth result should strengthen our position to do this. In response to such prosecution, I would expect the defense to argue that the more specific statute—DUI measurable drugs/metabolite—should govern the case. Success on this “possession by consumption” theory looks like a tossup to me, probably dependent on appellate court review.

Further investigation may be warranted, to try supporting an auto homicide or negligent homicide charge. Such investigation would need to focus on locating and interviewing other, heretofore unknown, eyewitnesses to the accident.

February 6, 2002

TO: Kent Morgan; District Attorney Administration

FROM: Kevin Murphy, Deputy District Attorney

RE: Proposed Automobile Homicide Case *State vs. Jeffrey Don Ireland*

SUMMARY/RECOMMENDATION:

Per your instructions, DDA Bill Kendall and I have carefully reviewed this case. Besides reviewing reports submitted by Detective Mike Leary, we have spoken to other experts and have posed specific questions to Detective Leary. Some of the information relate factually is based on our conversation with the police reports.

Based on our review of the drug/metabolite, a positive blood and urine test, we recommend charging him with F3 possession of marijuana, UCA 58-37-8(2)(b)(ii), and possession of a controlled substance, UCA 41-6-44(2)(a).

Because of probable cause issues, we cannot recommend charging him with DUI Homicide, UCA 76-5-207, or with DUI Homicide, UCA 41-6-44(2)(a).

Alternatively, the court could recommend charging him with DUI Homicide. However, further investigation into impairment issues is needed.

FACTS/EVIDENCE:

On November 3, 2001, at approximately 1:00 PM, a red light, on 1300 N. 1st Avenue, in the eastbound lanes; Angel, in her vehicle, was stopped at the red light. In her left, in another vehicle, was Jeffrey Don Ireland.

Roads were dry. Evidence shows that there gets some additional traffic on the eastbound traffic on 1300 N. 1st Avenue.

According to Detective Leary's personal observation, the traffic light has a three-second "all red" delay, so that when the light goes

*Kevin & Bill -
I agree that
the DUI Homicide is
not supported by the evidence -
File B "41-6-44.6 Drug/metabolite
and possession 3°
of meth -
58-37-8(2)(b)(ii)
See definition of
"possession" use
58-37-2(1)(dd)
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Addendum D



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Introduction

Cannabis/Marijuana

Carisoprocrol (and Meprobamate)

Cocaine

Dextromethorphan

Diazepam

Diphenhydramine

Gamma Hydroxybutyrate (GHB,
GBL, and 1,4-BD)

Amphetamine

Lysergic acid diethylamide (LSD)

Methadone

Methamphetamine and
Amphetamine

Methylenedioxymethamphetamine
(MDMA, Ecstasy)

Morphine (and Heroin)

Phencyclidine (PCP)

Toluene

Zolpidem (and Zaleplon,
Zopiclone)

Biographical Sketches of Lead
Authors and Main Contributors

Cannabis / Marijuana (Δ^9 -Tetrahydrocannabinol, THC)

Marijuana is a green or gray mixture of dried shredded flowers and leaves of the hemp plant *Cannabis sativa*. Hashish consists of resinous secretions of the cannabis plant. Dronabinol (synthetic THC) is a light yellow resinous oil.

Synonyms: Cannabis, marijuana, pot, reefer, buds, grass, weed, dope, ganja, herb, boom, gangster, Mary Jane, sinsemilla, shit, joint, hash, hash oil, blow, blunt, green, kilobricks, Thai sticks; Marinol®

Source: Cannabis contains chemicals called cannabinoids, including cannabidiol, cannabidiol, cannabinolic acids, cannabigerol, cannabichromene, and several isomers of tetrahydrocannabinol (THC). One of these isomers, Δ^9 -THC, is believed to be responsible for most of the characteristic psychoactive effects of cannabis. Marijuana refers to the leaves and flowering tops of the cannabis plant; the buds are often preferred because of their higher THC content. Hashish consists of the THC-rich resinous secretions of the plant, which are collected, dried, compressed and smoked. Hashish oil is produced by extracting the cannabinoids from plant material with a solvent. In the U. S., marijuana, hashish and hashish oil are Schedule I controlled substances. Dronabinol (Marinol®) is a Schedule III controlled substance and is available in strengths of 2.5, 5 or 10 mg in round, soft gelatin capsules.

Drug Class: *Cannabis/ Marijuana:* spectrum of behavioral effects is unique, preventing classification of the drug as a stimulant, sedative, tranquilizer, or hallucinogen. *Dronabinol:* appetite stimulant, antiemetic.

Medical and Recreational Uses: *Medicinal:* Indicated for the treatment of anorexia associated with weight loss in patients with AIDS, and to treat mild to moderate nausea and vomiting associated with cancer chemotherapy. *Recreational:* Marijuana is used for its mood altering effects, euphoria, and relaxation. Marijuana is the most commonly used illicit drug throughout the world.

Potency, Purity and Dose: THC is the major psychoactive constituent of cannabis. Potency is dependent on THC concentration and is usually expressed as %THC per dry weight of material. Average THC concentration in marijuana is 1-5%, hashish 5-15%, and hashish oil ~20%. The form of marijuana known as *sinsemilla* is derived from the unpollinated female cannabis plant and is preferred for its high THC content (up to 17% THC). Recreational doses are highly variable and users often titer their own dose. A single intake of smoke from a pipe or joint is called a hit (approximately 1/20th of a gram). The lower the potency or THC content the more hits are needed to achieve the desired effects; 1-3 hits of high potency sinsemilla is typically enough to produce the desired effects. In terms of its psychoactive effect, a drop or two of hash oil on a cigarette is equal to a single "joint" of marijuana. Medicinally, the initial starting dose of Marinol® is 2.5 mg, twice daily.

Route of Administration: Marijuana is usually smoked as a cigarette ('joint')

or in a pipe or bong. Hollowed out cigars packed with marijuana are also common and are called ` . Joints and blunts are often laced with adulterants including PCP or crack cocaine. Joints can also be dipped in liquid PCP or in codeine cough syrup. Marijuana is also orally ingested.

Pharmacodynamics: THC binds to cannabinoid receptors and interferes with important endogenous cannabinoid neurotransmitter systems. Receptor distribution correlates with brain areas involved in physiological, psychomotor and cognitive effects. Correspondingly, THC produces alterations in motor behavior, perception, cognition, memory, learning, endocrine function, food intake, and regulation of body temperature.

Pharmacokinetics: Absorption is slower following the oral route of administration with lower, more delayed peak THC levels. Bioavailability is reduced following oral ingestion due to extensive first pass metabolism. Smoking marijuana results in rapid absorption with peak THC plasma concentrations occurring prior to the end of smoking. Concentrations vary depending on the potency of marijuana and the manner in which the drug is smoked, however, peak plasma concentrations of 100-200 ng/mL are routinely encountered. Plasma THC concentrations generally fall below 5 ng/mL less than 3 hours after smoking. THC is highly lipid soluble, and plasma and urinary elimination half-lives are best estimated at 3-4 days, where the rate-limiting step is the slow redistribution to plasma of THC sequestered in the tissues. Shorter half-lives are generally reported due to limited collection intervals and less sensitive analytical methods. Plasma THC concentrations in occasional users rapidly fall below limits of quantitation within 8 to 12 h. THC is rapidly and extensively metabolized with very little THC being excreted unchanged from the body. THC is primarily metabolized to 11-hydroxy-THC which has equipotent psychoactivity. The 11-hydroxy-THC is then rapidly metabolized to the 11-nor-9-carboxy-THC (THC-COOH) which is not psychoactive. A majority of THC is excreted via the feces (~65%) with approximately 30% of the THC being eliminated in the urine as conjugated glucuronic acids and free THC hydroxylated metabolites.

Molecular Interactions / Receptor Chemistry: THC is metabolized via cytochrome P450 2C9, 2C11, and 3A isoenzymes. Potential inhibitors of these isoenzymes could decrease the rate of THC elimination if administered concurrently, while potential inducers could increase the rate of elimination.

Blood to Plasma Concentration Ratio: 0.55

Interpretation of Blood Concentrations: It is difficult to establish a relationship between a person's THC blood or plasma concentration and performance impairing effects. Concentrations of parent drug and metabolite are very dependent on pattern of use as well as dose. THC concentrations typically peak during the act of smoking, while peak 11-OH THC concentrations occur approximately 9-23 minutes after the start of smoking. Concentrations of both analytes decline rapidly and are often < 5 ng/mL at 3 hours. Significant THC concentrations (7 to 18 ng/mL) are noted following even a single puff or hit of a marijuana cigarette. Peak plasma THC concentrations ranged from 46-188 ng/mL in 6 subjects after they smoked 8.8 mg THC over 10 minutes. Chronic users can have mean plasma levels of THC-COOH of 45 ng/mL, 12 hours after use; corresponding THC levels are, however, less than 1 ng/mL. Following oral administration, THC concentrations peak at 1-3 hours and are lower than after smoking. Dronabinol and THC-COOH are present in equal concentrations in plasma and concentrations peak at approximately 2-4 hours after dosing.

It is inadvisable to try and predict effects based on blood THC concentrations

alone, and currently impossible to predict specific effects based on THC-COOH concentrations. It is possible for a person to be affected by marijuana use with concentrations of THC in their blood below the limit of detection of the method. Mathematical models have been developed to estimate the time of marijuana exposure within a 95% confidence interval. Knowing the elapsed time from marijuana exposure can then be used to predict impairment in concurrent cognitive and psychomotor effects based on data in the published literature.

Interpretation of Urine Test Results: Detection of total THC metabolites in urine, primarily THC-COOH-glucuronide, only indicates prior THC exposure. Detection time is well past the window of intoxication and impairment. Published excretion data from controlled clinical studies may provide a reference for evaluating urine cannabinoid concentrations; however, these data are generally reflective of occasional marijuana use rather than heavy, chronic marijuana exposure. It can take as long as 4 hours for THC-COOH to appear in the urine at concentrations sufficient to trigger an immunoassay (at 50ng/mL) following smoking. Positive test results generally indicate use within 1-3 days; however, the detection window could be significantly longer following heavy, chronic, use. Following single doses of Marinol®, low levels of dronabinol metabolites have been detected for more than 5 weeks in urine. Low concentrations of THC have also been measured in over-the-counter hemp oil products – consumption of these products may produce positive urine cannabinoid test results.

Effects: Pharmacological effects of marijuana vary with dose, route of administration, experience of user, vulnerability to psychoactive effects, and setting of use.

Psychological: At recreational doses, effects include relaxation, euphoria, relaxed inhibitions, sense of well-being, disorientation, altered time and space perception, lack of concentration, impaired learning and memory, alterations in thought formation and expression, drowsiness, sedation, mood changes such as panic reactions and paranoia, and a more vivid sense of taste, sight, smell, and hearing. Stronger doses intensify reactions and may cause fluctuating emotions, flights of fragmentary thoughts with disturbed associations, a dulling of attention despite an illusion of heightened insight, image distortion, and psychosis.

Physiological: The most frequent effects include increased heart rate, reddening of the eyes, dry mouth and throat, increased appetite, and vasodilatation.

Side Effect Profile: Fatigue, paranoia, possible psychosis, memory problems, depersonalization, mood alterations, urinary retention, constipation, decreased motor coordination, lethargy, slurred speech, and dizziness. Impaired health including lung damage, behavioral changes, and reproductive, cardiovascular and immunological effects have been associated with regular marijuana use. Regular and chronic marijuana smokers may have many of the same respiratory problems that tobacco smokers have (daily cough and phlegm, symptoms of chronic bronchitis), as the amount of tar inhaled and the level of carbon monoxide absorbed by marijuana smokers is 3 to 5 times greater than among tobacco smokers. Smoking marijuana while shooting up cocaine has the potential to cause severe increases in heart rate and blood pressure.

Duration of Effects: Effects from smoking cannabis products are felt within minutes and reach their peak in 10-30 minutes. Typical marijuana smokers experience a high that lasts approximately 2 hours. Most behavioral and

physiological effects return to baseline levels within 3-5 hours after drug use, although some investigators have demonstrated residual effects in specific behaviors up to 24 hours, such as complex divided attention tasks. Psychomotor impairment can persist after the perceived high has dissipated. In long term users, even after periods of abstinence, selective attention (ability to filter out irrelevant information) has been shown to be adversely affected with increasing duration of use, and speed of information processing has been shown to be impaired with increasing frequency of use. Dronabinol has an onset of 30-60 minutes, peak effects occur at 2-4 hours, and it can stimulate the appetite for up to 24 hours.

Tolerance, Dependence and Withdrawal Effect: Tolerance may develop to some pharmacological effects of dronabinol. Tolerance to many of the effects of marijuana may develop rapidly after only a few doses, but also disappears rapidly. Marijuana is addicting as it causes compulsive drug craving, seeking, and use, even in the face of negative health and social consequences. Additionally, animal studies suggests marijuana causes physical dependence. A withdrawal syndrome is commonly seen in chronic marijuana users following abrupt discontinuation. Symptoms include restlessness, irritability, mild agitation, hyperactivity, insomnia, nausea, cramping, decreased appetite, sweating, and increased dreaming.

Drug Interactions: Cocaine and amphetamines may lead to increased hypertension, tachycardia and possible cardiotoxicity. Benzodiazepines, barbiturates, ethanol, opioids, antihistamines, muscle relaxants and other CNS depressants increase drowsiness and CNS depression. When taken concurrently with alcohol, marijuana is more likely to be a traffic safety risk factor than when consumed alone.

Performance Effects: The short term effects of marijuana use include problems with memory and learning, distorted perception, difficulty in thinking and problem-solving, and loss of coordination. Heavy users may have increased difficulty sustaining attention, shifting attention to meet the demands of changes in the environment, and in registering, processing and using information. In general, laboratory performance studies indicate that sensory functions are not highly impaired, but perceptual functions are significantly affected. The ability to concentrate and maintain attention are decreased during marijuana use, and impairment of hand-eye coordination is dose-related over a wide range of dosages. Impairment in retention time and tracking, subjective sleepiness, distortion of time and distance, vigilance, and loss of coordination in divided attention tasks have been reported. Note however, that subjects can often "pull themselves together" to concentrate on simple tasks for brief periods of time. Significant performance impairments are usually observed for at least 1-2 hours following marijuana use, and residual effects have been reported up to 24 hours.

Effects on Driving: The drug manufacturer suggests that patients receiving treatment with Marinol® should be specifically warned not to drive until it is established that they are able to tolerate the drug and perform such tasks safely. Epidemiology data from road traffic arrests and fatalities indicate that after alcohol, marijuana is the most frequently detected psychoactive substance among driving populations. Marijuana has been shown to impair performance on driving simulator tasks and on open and closed driving courses for up to approximately 3 hours. Decreased car handling performance, increased reaction times, impaired time and distance estimation, inability to maintain headway, lateral travel, subjective sleepiness, motor incoordination, and impaired sustained vigilance have all been reported. Some drivers may actually be able to improve performance for brief periods by overcompensating for self-perceived impairment. The greater the demands placed on the driver, however, the more critical the likely

impairment. Marijuana may particularly impair monotonous and prolonged driving. Decision times to evaluate situations and determine appropriate responses increase. Mixing alcohol and marijuana may dramatically produce effects greater than either drug on its own.

DEC Category: Cannabis

DEC Profile: Horizontal gaze nystagmus not present; vertical gaze nystagmus not present; lack of convergence present; pupil size normal to dilated; reaction to light normal to slow; pulse rate elevated; blood pressure elevated; body temperature normal to elevated. Other characteristic indicators may include odor of marijuana in car or on subject's breath, marijuana debris in mouth, green coating of tongue, bloodshot eyes, body and eyelid tremors, relaxed inhibitions, incomplete thought process, and poor performance on field sobriety tests.

Panel's Assessment of Driving Risks: Low doses of THC moderately impair cognitive and psychomotor tasks associated with driving, while severe driving impairment is observed with high doses, chronic use and in combination with low doses of alcohol. The more difficult and unpredictable the task, the more likely marijuana will impair performance.

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Addendum E



Incox

Cocaine

Technical Report Documentation
Page

Cocaine hydrochloride is a white to light brown crystalline powder, shiny rather than dull in appearance. Cocaine base is white to beige in color; waxy/soapy to flaky solid chunks.

Introduction

Cannabis Marijuana

Synonyms: Methylbenzoyllecgonine. *Cocaine hydrochloride*: coke, snow, flake, blow, cane, dust, shake, toot, nose candy, white lady. *Cocaine base*: crack, rock, free-base.

Carisoprocil (and Meprobamate)

Cocaine

Source: Naturally derived CNS stimulant extracted and refined from the leaves of the coca plant (*Erythroxylon coca*), grown primarily in the Andean region of South America and to a lesser extent in India, Africa and Indonesia. The picked coca leaves are dried in the open air and then "stomped" as part of the process to extract the alkaloid, resulting in coca paste and eventually cocaine hydrochloride. It is illegal to possess and sell cocaine in the U.S. and cocaine is a Schedule II controlled substance. "Crack" is the street name given to cocaine that has been processed from cocaine hydrochloride. It is prepared by adding baking soda to aqueous cocaine hydrochloride and heating it until the free-base cocaine precipitates into small pellets. The mixture is cooled and filtered, and then the "rocks" are smoked in a crack pipe.

Dextromethorphan

Dacarbazine

D phenhydramine

Gamma-hydroxy butyrate (GHB;
GBL and 1,4-BD)

Drug Class: CNS stimulant, local anesthetic.

Ketamine

Lysergic acid diethylamide (LSD)

Medical and Recreational Uses: Minor use as a topical local anesthetic for ear, nose and throat surgery. Traditionally, the coca leaves are chewed or brewed into a tea for refreshment and to relieve fatigue. Recreationally, cocaine is used to increase alertness, relieve fatigue, feel stronger and more decisive, and is abused for its intense euphoric effects.

Mefenorex

Methamphetamine (and
Amphetamine)

Methylenedioxymethamphetamine
(MDMA, Ecstasy)

Potency, Purity and Dose: In ear, nose and throat surgery cocaine is commercially supplied as the hydrochloride salt in a 40 or 100 mg/mL solution. Depending on the demographic region, street purity of cocaine hydrochloride can range from 20-95%, while that of crack cocaine is 20-80%. The hydrochloride powder is often diluted with a variety of substances such as sugars for bulk (lactose, sucrose, inositol, mannitol), other CNS stimulants (caffeine, ephedrine, phenylpropanolamine), or other local anesthetics (lidocaine, procaine, benzocaine). Commonly abused doses are 10-120 mg. Repeated doses are frequently taken to avoid the dysphoric crash that often follows the initial intense euphoric effects. Cocaine is frequently used in combination with other drugs; injected with heroin ("speedball") or taken with alcohol to reduce irritability; smoked with phencyclidine ("tick"); and smoked in marijuana blunts ("turbo").

Morphine (and Heroin)

Phencyclidine (PCP)

Toluene

Zolpidem (and Zaleplon,
Zopiclone)

Route of Administration: Topically applied for use as a local anesthetic. Recreationally, coca leaves can be chewed, however, cocaine abusers typically smoke "crack" in a glass pipe or inject the hydrochloride salt intravenously. Cocaine hydrochloride can be smoked to some effect but this is very inefficient as the powder tends to burn rather than vaporize. Snorting (insufflation/intranasal) is also popular. Subcutaneous injection (skin-

Biographical Sketches of Lead
Authors and Main Contributors

popping) is rarely used.

Pharmacodynamics: Cocaine is a strong CNS stimulant that interferes with the reabsorption process of catecholamines, particularly dopamine, a chemical messenger associated with pleasure and movement. Cocaine prevents the reuptake of dopamine by blocking the dopamine transporter which leads to increased extracellular dopamine, resulting in chronic stimulation of postsynaptic dopamine receptors. This results in the euphoric 'rush'. When dopamine levels subsequently fall, users experience a dysphoric 'crash'. Similarly, cocaine interferes with the uptake of norepinephrine and serotonin (5-HT), leading to accumulation of these neurotransmitters at postsynaptic receptors. As a local anesthetic, cocaine reversibly blocks the initiation and conduction of the nerve impulse. Cocaine additionally produces vasoconstriction and dilated pupils.

Pharmacokinetics: Cocaine is rapidly absorbed following smoking, snorting and intravenous administration. Bioavailability is 57% following snorting and ~70% following smoking. Cocaine is 91% bound in plasma. Cocaine is extensively metabolized to a variety of compounds: benzoylecgonine, ecgonine, and ecgonine methyl ester are the major metabolites and are centrally inactive. Benzoylecgonine is produced upon loss of the methyl group and is the major urinary metabolite. Norcocaine is a very minor metabolite, but is active and neurotoxic. Cocaethylene, formed following concurrent ingestion of cocaine and alcohol, is also active and is equipotent to cocaine in blocking dopamine reuptake. The apparent half-life for cocaine is short, approximately 0.8 ± 0.2 hours, while the half-life of benzoylecgonine is 6 hours.

Molecular Interactions / Receptor Chemistry: The cytochrome P450 3A4 isoenzyme is responsible for the N-demethylation of cocaine to norcocaine. Potential inhibitors of the 3A4 isoenzyme could decrease the rate of drug elimination if administered concurrently, while potential inducers could increase the rate of drug elimination. Cocaine itself is an inhibitor of the CYP2D6 isoform.

Blood to Plasma Concentration Ratio: averages ~ 1.0

Interpretation of Blood Concentrations: The presence of cocaine at a given blood concentration cannot usually be associated with a degree of impairment or a specific effect for a given individual without additional information. This is due to many factors, including individual levels of tolerance to the drug and artifactual changes in cocaine concentrations on storage. There is a large overlap between therapeutic, toxic and lethal cocaine concentrations and adverse reactions have been reported after prolonged use even with no measurable parent drug in the blood. Typical concentrations in abuse range from 0-1mg/L, however, concentrations up to 5mg/L and higher are survivable in tolerant individuals. After single doses of cocaine, plasma concentration typically average 0.2-0.4 mg/L. Repeated doses of cocaine may result in concentrations greater than 0.75 mg/L.

Following intranasal administration of 106 mg, peak plasma concentrations of cocaine averaged 0.22 mg/L at 30 minutes, while benzoylecgonine concentrations averaged 0.61 mg/L at 3 hours. Oral administration of 140 mg/70 kg cocaine resulted in peak plasma concentrations averaging 0.21 mg/L of cocaine at 1 hour. Single 32 mg intravenous doses of cocaine produced an average peak plasma concentration of 0.31 mg/L of cocaine within 5 minutes. Smoking 50 mg of cocaine base resulted in peak plasma cocaine concentrations averaging 0.23 mg/L at ~ 45 minutes and 0.15 mg/L of benzoylecgonine at 1.5 hours.

Interpretation of Urine Test Results: Urinary excretion is less than 2% for unchanged cocaine, 26-39% for benzoylecgonine, and 18-22% for ecgonine methyl ester. 64-69% of the initial dose is recovered after 3 days. Very low concentrations of cocaine may be detected in urine during the initial few hours, however, benzoylecgonine persists in urine at detectable concentrations from 2-4 days. Chronic, heavy use of cocaine can result in detectable amounts of benzoylecgonine in urine for up to 10 days following a binge.

Effects:

Early phase – Psychological: Euphoria, excitement, feelings of well-being, general arousal, increased sexual excitement, dizziness, self-absorbed, increased focus and alertness, mental clarity, increased talkativeness, motor restlessness, offsets fatigue, improved performance in some simple tasks, and loss of appetite. Higher doses may exhibit a pattern of psychosis with confused and disoriented behavior, delusions, hallucinations, irritability, fear, paranoia, antisocial behavior, and aggressiveness. Physiological: Increased heart rate and blood pressure, increased body temperature, dilated pupils, increased light sensitivity, constriction of peripheral blood vessels, rapid speech, dyskinesia, nausea, and vomiting. Late phase - Psychological: Dysphoria, depression, agitation, nervousness, drug craving, general CNS depression, fatigue, insomnia. Physiological: Itching/picking/scratching, normal heart rate, normal pupils.

Side Effect Profile: Nervousness, restlessness, tremors, anxiety, and irritability. Chronic use may lead to personality changes, hyperactivity, psychosis, paranoia, and fear. Cocaine overdose can be characterized by agitation, enhanced reflexes, hostility, headache, tachycardia, irregular respiration, chills, nausea, vomiting, abdominal pain, rise in body temperature, hallucinations, convulsions, delirium, unconsciousness, seizures, stroke, cerebral hemorrhage, heart failure, and death from respiratory failure. Cocaine excited delirium is a syndrome often caused by excessive cocaine use, and is associated with a dissociative state, violence to persons and property, exaggerated strength, hyperthermia, cardiorespiratory arrest and sudden death.

Burnt lips and fingers from crack pipes are frequently seen, as are rashes and skin reddening from scratching. Smokers may suffer from acute respiratory problems including cough, shortness of breath, and severe chest pains with lung trauma and bleeding. Prolonged cocaine snorting can result in ulceration of the mucous membrane of the nose. The injecting drug user is at risk for transmitting or acquiring HIV infection/AIDS if needles or other injection equipment are shared.

Duration of Effects: The faster the absorption the more intense and rapid the high, but the shorter the duration of action. Injecting cocaine produces an effect within 15-30 seconds. A hit of smoked crack produces an almost immediate intense experience and will typically produce effects lasting 5-15 minutes. Similarly, snorting cocaine produces effects almost immediately and the resulting high may last 15-30 minutes. The effects onset more slowly after oral ingestion (~1 hour). General effects will persist for 1-2 hours depending on the dose and late phase effects following binge use may last several days.

Tolerance, Dependence and Withdrawal Effects: Cocaine is a powerfully addictive drug of abuse and an appreciable initial tolerance to the euphoric high may develop. Cocaine is psychologically addicting, particularly with heavy or frequent use, and possibly physically addicting as well. The short

duration of effects is one reason leading to probability of addiction. As effects wear off, more drug is frequently administered and a pattern of repeated use occurs. Following binge use of cocaine, the "crash" can last from 9 hours to 4 days and may consist of agitation, depressed moods, insomnia to hypersomnolence, and initial drug craving. Withdrawal symptoms can typically last from 1-3 weeks and may consist of alternating low and high drug craving, low to high anxiety, paranoia, dysphoria, depression, apathy, irritability, disorientation, hunger, fatigue, bradycardia, and long periods of sleep.

Drug Interactions: The combined use of cocaine and ethanol forms cocaethylene in the body, a substance which intensifies cocaine's euphoric effects while possibly increasing the risk of sudden death. In laboratory studies, cocaine has been shown to partially reverse some of the adverse effects of alcohol, but may contribute to the detrimental effects of marijuana.

Performance Effects: Most laboratory-based studies have been limited by the low doses of cocaine that were allowed. At these single low doses, studies have shown performance enhancement in attentional abilities and increased behavioral and cortical arousal, but have no enhancement of effects on learning, memory, and other cognitive processes. Faster reaction times and diminished effects of fatigue have been observed. Improvements were greatest in behaviorally impaired subjects (e.g. sleep deprived, fatigued, or concurrent use of ethanol) and least improvements were observed in well-rested, healthy subjects. More deleterious effects are expected after higher doses, chronic ingestion and during drug withdrawal, and include agitation, anxiety, distress, inability to focus on divided attention tasks, inability to follow directions, confusion, hostility, time distortion, and poor balance and coordination. Laboratory studies have also demonstrated increased risk taking (rapid braking or steering) and deleterious effects on vision related to mydriasis. Self-reported increases in sensitivity to light, seeing halos around bright objects, flashes or movement of light in peripheral field, difficulty focusing, blurred vision, and glare recovery problems have been reported.

Effects on Driving: Observed signs of impairment in driving performance have included subjects speeding, losing control of their vehicle, causing collisions, turning in front of other vehicles, high-risk behavior, inattentive driving, and poor impulse control. As the effects of cocaine wear off subjects may suffer from fatigue, depression, sleepiness, and inattention. In epidemiology studies of driving under the influence cases, accidents, and fatally injured drivers, between 8-23% of subjects have had cocaine and/or metabolites detected in their blood. An examination of 253 fatally injured drivers in Wayne County, Michigan between 1996-1998, found that 10% of cases were positive for blood cocaine and/or metabolites. On review of accident and witness reports, aggressive driving (high speed and loss of vehicle control) was revealed as the most common finding. Ethanol was detected in 56% of these cases, and all of these drivers lost control of their vehicles. In Memphis, Tennessee in 1993, 13% of 150 drivers stopped for reckless driving were determined to be driving under the influence of cocaine based on observations of behavior and appearance, performance on field sobriety tests, and positive urine cocaine tests.

A 25 year-old male driver, who made an improper turn against oncoming traffic, had a blood cocaine concentration of 0.04 mg/L and 0.06 mg/L of benzoylecgonine, 2 hours after the collision. A 30 year-old female caused an accident after failing to stop at a traffic light; the driver admitted to ingesting a large amount of cocaine ~ 2.5 hours prior to the collision, and 0.32 mg/L cocaine was detected in her blood 1 hour post accident.

DEC Category: CNS stimulant.

DEC Profile: Horizontal gaze nystagmus not present; vertical gaze nystagmus not present; lack of convergence not present; pupil size dilated; reaction to light slow; pulse rate elevated; blood pressure elevated; body temperature elevated. Other characteristic indicators may include excessive activity, increased alertness, talkativeness, irritability, argumentativeness, nervousness, body tremors, anxiety, redness to nasal area and runny nose.

Panel's Assessment of Driving Risks: Single low doses of cocaine may improve mental and motor performance in persons who are fatigued or sleep deprived, however, cocaine does not necessarily enhance the performance of otherwise normal individuals. Cocaine may enhance performance of simple tasks but not complex, divided-attention tasks such as driving. Most laboratory studies have been limited by the low single doses of cocaine administered to subjects. At these low doses, most studies showed performance enhancement in attentional abilities but no effect on cognitive abilities. Significant deleterious effects are expected after higher doses, chronic ingestion, and during the crash or withdrawal phase.

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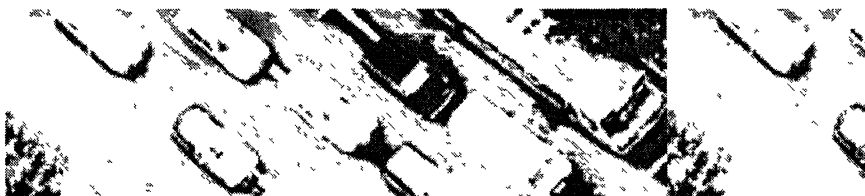
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Physicians' Desk Reference What is MMUCC MMUCC Committee MMUCC Documents What is MMUCC? The Model Minimum Uniform Crash Criteria (MMUCC) is a minimum set of crash data elements with standardized definitions that are relevant to injury control, highway and traffic safety. Not all of the MMUCC data elements need to be collected by police at the scene.

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Addendum F



Morphine (And Heroin)

Technical Report Documentation
Page

Introduction

Cannabis/Marijuana

Carisoprocil (and Meprobamate)

Cocaine

Dextromethorphan

Diazepam

Diphenhydramine

Gamma-Hydroxybutyrate (GHB,
GBL, and 1,4-BD)

Ketamine

Lysergic acid diethylamide (LSD)

Methadone

Methamphetamine (and
Amphetamine)

Methylenedioxymethamphetamine
(MDMA, Ecstasy)

Morphine (and Heroin)

Phencyclidine (PCP)

Toluene

Zolpidem (and Zaleplon,
Zopiclone)

Biographical Sketches of Lead
Authors and Main Contributors

Morphine and heroin are white, crystalline powders. Illicit heroin may vary in color from white to dark brown due to impurities, or may appear as a black tar-like material.

Synonyms: *Morphine:* Astramorph®, Duramorph®, Infumorph®, Kadian®, Morphine Sulfate®, MSIR®, MS-Contin®, Oramorph SR®, Roxanol®. *Heroin:* diacetylmorphine, diamorphine; Mexican brown or Mexican black tar heroin; bags, blue-steel, China white, H, horse, junk, no-name, silk, skag, smack. Scramble (cut heroin), bone (uncut heroin for smoking), chippers (occasional users).

Source: Morphine is a naturally occurring substance extracted from the seedpod of the poppy plant, *Papaver somniferum*. The milky resin that seeps from incisions made in the unripe seedpod is dried and powdered to make opium, which contains a number of alkaloids including morphine. Morphine concentration in opium can range from 4-21%. An alternate method of harvesting morphine is by the industrial poppy straw process of extracting alkaloids from the mature dried plant, which produces a fine brownish powder. Morphine is a schedule II controlled substance and is available in a variety of prescription forms: injectables (0.5-25 mg/mL strength); oral solutions (2-20 mg/mL); immediate and controlled release tablets and capsules (15-200 mg); and suppositories (5-30 mg). Heroin is a schedule I controlled substance and is produced from morphine by acetylation at the 3 and 6 positions. The majority of heroin sold in the U. S. originates from Southeast Asia, South America (Columbia) and Mexico. Low purity Mexican black tar heroin is most common on the West coast, while high purity Columbian heroin dominates in the East and most mid-western states.

Drug Class: Narcotic analgesic.

Medical and Recreational Uses: Morphine is used medicinally for the relief of moderate to severe pain in both acute and chronic management. It can also be used to sedate a patient pre-operatively and to facilitate the induction of anesthesia. Heroin has no currently accepted medical uses in the U.S., however, it is an analgesic and antitussive.

Potency, Purity and Dose: The dosage of morphine is patient-dependent. A usual adult oral dose of morphine is 60-120 mg daily in divided doses, or up to 400 mg daily in opioid tolerant patients. Recreationally, daily heroin doses of 5-1500 mg have been reported, with an average daily dose of 300-500 mg. Addicts may inject heroin 2-4 times per day. Depending on the demographic region, the street purity of heroin can range from 11-72% (average U.S. purity is ~38%). Heroin may be cut with inert or toxic adulterants such as sugars, starch, powdered milk, quinine, and ketamine. Heroin is often mixed with methamphetamine or cocaine ("speedball") and injected; or co-administered with alprazolam, MDMA (Ecstasy), crack cocaine, or diphenhydramine.

Route of Administration: *Morphine:* oral, intramuscular, intravenous, rectal,

epidural, and intrathecal administration. Morphine tablets may be crushed and injected, while opium can be smoked. *Heroin*: smoked, snorted, intravenous ("mainlining"), and subcutaneous ("skin popping") administration. Black tar heroin is typically dissolved, diluted and injected, while higher purity heroin is often snorted or smoked.

Pharmacodynamics: Morphine produces its major effects on the CNS primarily through m-receptors, and also at k- and d-receptors. m 1-receptors are involved in pain modulation, analgesia, respiratory depression, miosis, euphoria, and decreased gastrointestinal activity; m 2-receptors are involved in respiratory depression, drowsiness, nausea, and mental clouding; k-receptors are involved in analgesia, diuresis, sedation, dysphoria, mild respiratory depression, and miosis; and d-receptors are involved in analgesia, dysphoria, delusions, and hallucinations. Heroin has little affinity for opiate receptors and most of its pharmacology resides in its metabolism to active metabolites, namely 6-acetylmorphine, morphine, and morphine-6-glucuronide.

Pharmacokinetics: The oral bioavailability of morphine is 20-40%, and 35% is bound in plasma. Morphine has a short half-life of 1.5 - 7 hours and is primarily glucuroconjugated at positions 3 and 6, to morphine-3-glucuronide (M3G) and morphine-6-glucuronide (M6G), respectively. A small amount (5%) is demethylated to normorphine. M6G is an active metabolite with a higher potency than morphine, and can accumulate following chronic administration or in renally impaired individuals. The half-life of M6G is 4 +/- 1.5 hours. Close to 90% of a single morphine dose is eliminated in the 72 hours urine, with 75% present as M3G and less than 10% as unchanged morphine. Heroin has an extremely rapid half-life of 2-6 minutes, and is metabolized to

6-acetylmorphine and morphine. The half-life of 6-acetylmorphine is 6-25 minutes. Both heroin and 6-acetylmorphine are more lipid soluble than morphine and enter the brain more readily.

Molecular Interactions / Receptor Chemistry: The uridine 5'-diphosphate-glucuronosyltransferase (UGT) 2B7 isoform is primarily involved in the metabolism of morphine. Potential inhibitors of this UGT isoform could decrease the rate of morphine elimination if administered concurrently, while potential inducers could increase the rate of elimination.

Blood to Plasma Concentration Ratio: Morphine 1.02; M6G 0.57; M3G 0.59

Interpretation of Blood Concentrations: Tolerance makes interpretation of blood or plasma morphine concentrations extremely difficult. Peak plasma morphine concentrations occur within an hour of oral administration, and within 5 minutes following intravenous injection. Average plasma concentrations of 0.065 mg/L are necessary for adequate therapeutic analgesia in ambulatory patients. Anesthetic concentrations can reach beyond 2 mg/L in surgical patients. Following oral doses of 10-80 mg, corresponding peak morphine concentrations in serum were 0.05-0.26 mg/L. Following an intravenous dose of 8.75g/70 kg, a peak serum concentration of 0.44 mg/L was reached. In 10 intravenous drug fatalities, where morphine was the only drug detected, postmortem whole blood morphine concentrations averaged 0.70 mg/L (range 0.20-2.3 mg/L). Following a single 12 mg intravenous mg dose of heroin, a peak heroin concentration of 0.141 mg/L was obtained at 2 minutes, while the 6-acetylmorphine and morphine concentrations were 0.151 and 0.044, respectively. A single 5 mg intravenous dose of heroin produced a peak plasma morphine concentration

of 0.035 mg/L at 25 minutes, while intravenous doses of 150-200 mg have produced plasma morphine concentrations of up to 0.3 mg/L. Intranasal administration of 12 mg heroin in 6 subjects produced average peak concentrations of 0.016 mg/L heroin in plasma within 5 minutes; 0.014 mg/L of 6-acetylmorphine at 0.08-0.17 hours; and 0.019 mg/L of morphine at 0.08-1.5 hours.

Interpretation of Urine Test Results: Positive morphine urine results generally indicate use within the last two to three days, or longer after prolonged use. Detection of 6-acetylmorphine in the urine is indicative of heroin use. High concentrations may indicate chronic use of the drug. It is important to hydrolyze urine specimens to assess a urine morphine concentration.

Effects: Depends heavily on the dose of morphine or heroin, the route of administration, and previous exposure. Following an intravenous dose of heroin, the user generally feels an intense surge of euphoria ("rush") accompanied by a warm flushing of the skin, dry mouth, and heavy extremities. The user then alternates between a wakeful and drowsy state ("on the nod").

Psychological: Euphoria, feeling of well-being, relaxation, drowsiness, sedation, lethargy, disconnectedness, self-absorption, mental clouding, and delirium.

Physiological: Analgesia, depressed heart rate, respiratory depression, CNS depression, nausea and vomiting, reduced gastrointestinal motility, constipation, flushing of face and neck due to dilatation of subcutaneous blood vessels, cramping, sweating, pupils fixed and constricted, diminished reflexes, and depressed consciousness.

Side Effect Profile: Drowsiness, inability to concentrate, apathy, lessened physical activity, constipation, urinary retention, nausea, vomiting, tremors, itching, bradycardia, severe respiratory depression, and pulmonary complications such as pneumonia. Medical complications among abusers arise primarily from adulterants found in street drugs and in non-sterile injecting practices, and may include skin, lung and brain abscesses, collapsed veins, endocarditis, hepatitis and HIV/AIDS. Overdose can include slow, shallow breathing, clammy skin, convulsions, extreme somnolence, severe respiratory depression, apnea, circulatory collapse, cardiac arrest, coma, and death.

Duration of Effects: Depending on the morphine dose and the route of administration, onset of effects is within 15-60 minutes and effects may last 4-6 hours. The duration of analgesia increases progressively with age although the degree of analgesia remains unchanged. Following heroin use, the intense euphoria lasts from 45 seconds to several minutes, peak effects last 1-2 hours, and the overall effects wear off in 3-5 hours, depending on dose.

Tolerance, Dependence and Withdrawal Effects: Both morphine and heroin have high physical and psychological dependence. With regular use, tolerance develops early to the duration and intensity of euphoria and analgesia. Withdrawal symptoms may occur if use is abruptly stopped or reduced. Withdrawal can begin within 6-12 hours after the last dose and may last 5-10 days. Early symptoms include watery eyes, runny nose, yawning and sweating. Major withdrawal symptoms peak between 48-72 hours after the last dose and include drug craving, restlessness, irritability, dysphoria, loss of appetite, tremors, severe sneezing, diarrhea, nausea and vomiting,

Drug Interactions: Alcohol increases the CNS effects of morphine such as sedation, drowsiness, and decreased motor skills. There is a higher risk of respiratory depression, hypotension and profound sedation or coma with concurrent treatment or use of other CNS depressant drugs such as barbiturates, benzodiazepines, hypnotics, tricyclic antidepressants, general anesthetics, MAO inhibitors, and antihistamines. Morphine may enhance the neuromuscular blocking action of skeletal muscle relaxants and produce an increased degree of respiratory depression. Small doses of amphetamine substantially increase the analgesia and euphoriant effects of morphine and may decrease its sedative effects. Antidepressants may enhance morphine's analgesia. Partial agonists such as buprenorphine, nalbuphine, butorphanol, and pentazocine will precipitate morphine withdrawal.

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Highway Traffic Safety Administration National Center for Injury Prevention and Control Federal Highway Administration National Highway Traffic Safety Administration InfoGroup, Inc. Northwestern University Traffic Institute University of Michigan Transportation Research Institute National Association of Governors' Highway Safety Reps Northwestern University Traffic Institute March & Associates International Association of Chiefs of Police Transportation Research Board International Association of Chiefs of Police University of Michigan Transportation Research Institute Top of Page MMUCC Documents To visit the MMUCC Homepage, please click on the following link: Model Minimum Uniform Crash Criteria--Improving Crash Data for Safer Roadways The following links will take you to several documents related to the MMUCC effort. Download a PDF of the Final Guidelines (522KB) for Minimum Standardized Crash Data Reporting , sleepiness, and poor performance on divided attention and psychomotor tasks. Late effects may include inattentiveness, slowed reaction time, greater error rate in tests, poor concentration, distractibility, fatigue, and poor performance in psychomotor tests. Subjective feelings of sedation, sluggishness, fatigue, intoxication, and body sway have also been reported. Significant tolerance may develop making effects less pronounced in long-term users for the same dose. In a laboratory setting, heroin produced subjective feelings of sedation for up to 5-6 hours and slowed reaction times up to 4 hours, in former narcotic addicts. Euphoria and elation could also play a role on perception of risks and alteration of behaviors.

Effects on Driving: The drug manufacturer states that morphine may impair the mental and/or physical abilities needed to perform potentially hazardous activities such as driving a car, and patients must be cautioned accordingly. Driving ability in cancer patients receiving long-term morphine analgesia (mean 209 mg daily) was considered not to be impaired by the sedative effects of morphine to an extent that accidents might occur. There were no significant differences between the morphine treated cancer patients and a control group in vigilance, concentration, motor reactions, or divided attention. A small but significant slowing of reaction time was observed at 3 hours. In several driving under the influence case reports, where the subjects tested positive for morphine and/or 6-acetylmorphine, observations included slow driving, weaving, poor vehicle control, poor coordination, slow response to stimuli, delayed reactions, difficulty in following instructions, and falling asleep at the wheel.

DEC Category: Narcotic Analgesic.

DEC Profile: Horizontal gaze nystagmus not present; vertical gaze nystagmus not present; lack of convergence not present; pupil size constricted; little or no reaction to light; pulse rate down; blood pressure down; body temperature down. Other characteristic indicators may include presence of fresh injection marks, track marks, flaccid muscle tone, droopy eyelids, drowsiness or "on-the-nod", and low raspy slow speech.

Panel's Assessment of Driving Risks: Classification of risk depends on tolerance, dose, time of exposure, acute or chronic use, presence or absence of underlying pain, physiological status of individual, and the presence of other drugs. Moderately to severely impairing in non-tolerant individuals. Mild to moderately impairing if morphine is used as medication on a regular basis for chronic pain. Severely impairing in acute situations if used orally, or as an intravenous medication, or if either drug is taken illicitly.

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Physicians' Desk Reference What is MMUCC
MMUCC Committee MMUCC Documents What is MMUCC? The Model Minimum Uniform Crash Criteria (MMUCC) is a minimum set of crash data elements with standardized definitions that are relevant to injury control, highway and traffic safety. Not all of the MMUCC data elements need to be collected by police at the scene. Instead, some can be created from other data elements, such as the Vehicle Identification Number, to identify a specific vehicle characteristic. Or they can be obtained after linkage to other traffic records, such as injury or roadway inventory data to describe injury outcome or a specific roadway characteristic. FOR MORE INFORMATION ON THE MMUCC, PLEASE CLICK ON www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/MMUCC.html
Top of Page MMUCC Committee Acknowledgements The development of the Guideline for Minimum Uniform Crash Criteria (MMUCC) is being sponsored by the National Association of Governors' Highway Safety Representatives, the National Highway Traffic Safety Administration, and the Federal Highway Administration. Numerous state and local agencies and organizations have contributed staff to its development. The participation of the following individuals is recognized: Frank Carlile David Dickens Doug Donscheski Scott Falb Rosa Gill Dick Harmon Dón Hillis David Kleppe David Lawrence Lance Mathess Creighton Miller David Mosley Phil Salzberg Manu Shah James Templeton Robert Thompson John Watson Ralph Craft Dennis Flemons Carl Hayden Janet Johnson Sandy Johnson Janet Kumer Tina Morgan Ed Milton Jack Oates Barbara Rhea Jackie Schraf David Sleet Carol Tan Esse Dennis Utter David Bozak Noel Bufo Charles Compton Barbara Harsha Roy Lucke Gary March Matt Snyder Richard Pain Charles Peltier Patricia Waller Florida Department of Transportation Charleston West Virginia Police Nebraska State Patrol Iowa Department of Transportation

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Addendum G



Index

Methamphetamine (And Amphetamine)

Technical Report Documentation Page

Methamphetamine hydrochloride is a white to light brown crystalline powder, or clear chunky crystals resembling ice. Methamphetamine base is a liquid.

Introduction

Cannabis/Marijuana

Synonyms: *Methamphetamine*: chalk, chrissy, crank, crystal, glass, go, hydro, ice, meth, rock candy, speed, whiz; *Desoxyn*®; *Amphetamine*: dextroamphetamine; *Dexedrine*®, *Adderall*®, *Benzedrine*®, *DextroStat*®, *Biphetamine*®, *Gradumet*®.

Carisoprocil (and Meprobamate)

Cocaine

Dextromethorphan

Diazepam

Diphenhydramine

Gamma-Hydroxybutyrate (GHB, GBL, and 1,4-BD)

Source: The majority of street methamphetamine is produced in clandestine laboratories (e.g. reduction of *l*-ephedrine or *d*-pseudoephedrine over red phosphorus with hydroiodic acid, or reduction with sodium or lithium in condensed liquid ammonia). Methamphetamine remains concentrated in western U. S. states and some rural areas elsewhere. *d*-Methamphetamine is a schedule II controlled substance (*Desoxyn*®) available in 5 mg white, 10 mg pink, and 15 mg yellow strength tablets. Amphetamine is also a Schedule II controlled substance and is usually supplied as the sulfate salt of the *d*-isomer (*Dexedrine*®), or as the racemic mixture (*Benzedrine*®), or a mixture of the two (*Adderall*®). *Dexedrine*® is available in 5, 10, and 15 mg strength, orange/black capsules, or 5 mg tablets. *Adderall*® is available in 5, 7.5, 10, 12.5, 20, and 30 mg strength, blue or orange tablets.

Ketamine

Drug Class: CNS stimulant, sympathomimetic, appetite suppressant.

Lysergic acid diethylamide (LSD)

Methadone

Methamphetamine (and Amphetamine)

Medical and Recreational Uses: Medicinally, methamphetamine is used in the treatment of narcolepsy, attention deficit disorder (ADD), and attention deficit hyperactivity disorder (ADHD). Typical doses are 10 mg/day or up to 40 mg daily, and a course of greater than six weeks is not recommended. Methamphetamine is infrequently used in the treatment of obesity, overeating disorders, and weight loss due to its abuse potential. Amphetamine is also used in ADD, narcolepsy, and weight control. Recreationally, methamphetamine is abused to increase alertness, relieve fatigue, control weight, treat mild depression, and for its intense euphoric effects.

Methylenedioxymethamphetamine (MDMA, Ecstasy)

Morphine (and Heroin)

Phencyclidine (PCP)

Toluene

Potency, Purity and Dose: Purity of methamphetamine is currently very high, at 60-90%, and is predominantly *d*-methamphetamine which has greater CNS potency than the *l*-isomer or the racemic mixture. Common abused doses are 100-1000 mg/day, and up to 5000 mg/day in chronic binge use. Therapeutic doses of *Desoxyn*® are 2.5-10 mg daily, with dosing not exceed 60 mg/day. To treat narcolepsy, 5-60 mg/day of amphetamine is ingested in divided doses; and in ADD and ADHD doses of 2.5-10 mg/day is administered, depending on age.

Zolpidem (and Zaleplon, Zopiclone)

Biographical Sketches of Lead Authors and Main Contributors

Route of Administration: Methamphetamine users often begin with intranasal or oral use and progress to intravenous use, and occasionally smoking. In contrast to cocaine, the hydrochloride salt of methamphetamine can itself be smoked. Methamphetamine is used sometimes with alcohol or marijuana, particularly during the withdrawal phase.

Pharmacodynamics: Methamphetamine increases synaptic levels of the

neurotransmitters dopamine, serotonin (5-HT) and norepinephrine, and has α and β adrenergic agonist effects. Norepinephrine is responsible for methamphetamine's alerting, anorectic, locomotor and sympathomimetic effects; dopamine stimulates locomotor effects, psychosis, and perception disturbances; and 5HT is responsible for delusions and psychosis. Methamphetamine's effects are similar to cocaine but its onset is slower and the duration is longer. Racemic amphetamine and d-amphetamine have similar chemical properties and actions to methamphetamine but are less potent.

Pharmacokinetics: Following oral administration, peak methamphetamine concentrations are seen in 2.6-3.6 hours and the mean elimination half-life is 10.1 hours (range 6.4-15 hours). The amphetamine metabolite peaks at 12 hours. Following intravenous injection, the mean elimination half-life is slightly longer (12.2 hours). Methamphetamine is metabolized to amphetamine (active), p-OH-amphetamine and norephedrine (both inactive). Several other drugs are metabolized to amphetamine and methamphetamine and include benzphetamine, selegiline, and famprofazone.

Molecular Interactions / Receptor Chemistry: Methamphetamine is metabolized to amphetamine via cytochrome P450 2D6. Potential inhibitors of the 2D6 isoenzyme could decrease the rate of methamphetamine elimination if administered concurrently, while potential inducers could increase the rate of elimination.

Blood to Plasma Concentration Ratio: 0.65 (N=1).

Interpretation of Blood Concentrations: Blood concentrations can generally be used to distinguish therapeutic use from abuse. Concentrations of 0.02-0.05 mg/L are typical for therapeutic use, and up to 0.2 mg/L have been documented. Concentrations greater than this represent abuse. Concentrations do not disclose phase of use. Normal concentrations in recreational use are 0.01 to 2.5 mg/L (median 0.6 mg/L). Concentrations above this range will likely be associated with severe, possibly life threatening, toxicity. There is no evidence for improved performance in any task or test following use of doses greater than 40 mg (or concentrations greater than 0.2 mg/L).

Peak blood methamphetamine concentrations occur shortly after injection, a few minutes after smoking, and around 3 hours after oral dosing. Peak plasma amphetamine concentrations occur around 10 hours after methamphetamine use.

Interpretation of Urine Test Results: Positive results generally indicate use within 1-4 days but could be up to a week following heavy chronic use. Rate of excretion into the urine is heavily influenced by urinary pH. Between 30-54% of an oral dose is excreted in urine as unchanged methamphetamine and 10-23% as unchanged amphetamine. Following an intravenous dose, 45% is excreted as unchanged parent drug and 7% amphetamine.

Effects: Methamphetamine effects are less intense after oral ingestion than following smoked or intravenous use. Early phase – Psychological: Euphoria, excitation, exhilaration, rapid flight of ideas, increased libido, rapid speech, motor restlessness, hallucinations, delusions, psychosis, insomnia, reduced fatigue or drowsiness, increased alertness, heightened sense of well being, stereotypes behavior, feelings of increased physical strength, and poor impulse control. Early phase – Physiological: Increased heart rate, increased blood pressure, increased respiration rate, elevated temperature, palpitations, irregular heartbeat, dry mouth, abdominal cramps, appetite

suppressed, twitching, pallor, dilated pupils, HGN at high doses, faster reaction time, increased strength, and more efficient glucose utilization. Late phase – Psychological: Dysphoria, residual stimulation, restlessness, agitation, nervousness, paranoia, violence, aggression, lack of coordination, pseudo-hallucinations, delusions, psychosis, and drug craving.

Late phase – Physiological: Fatigue, sleepiness with sudden starts, itching/picking/scratching, normal heart rate, and normal to small pupils which are reactive to light.

Binge use of methamphetamine can be broken down into the following phases: Rush – (5 minutes) intense euphoria, rapid flight of ideas, sexual stimulation, high energy, obsessive/compulsive activity, thought blending, dilated pupils; Shoulder –

(1 hour) less intense euphoria, hyperactivity, rapid flight of ideas, obsessive/compulsive activity, thought blending, dilated pupils; Binge use – (1-5 days) the drug is frequently readministered in an attempt to regain or maintain euphoria; Tweaking – (4-24 hours) dysphoria, scattered and disorganized thought, intense craving, paranoia, anxiety and irritability, hypervigilance, auditory and tactile hallucinations, delusions, and normal pupils; Crash – (1-3 days) intense fatigue, uncontrollable sleepiness and catnapping, continuing stimulation, drug craving; Normal – (2-7 days) apparent return to “normalcy” although drug craving may appear; Withdrawal – anergia, anhedonia, waves of intense craving, depression, hypersomnolence, exhaustion, extreme fatigue.

Side Effect Profile: Light sensitivity, irritability, insomnia, nervousness, headache, tremors, anxiety, suspiciousness, paranoia, aggressiveness, delusions, hallucinations, irrational behavior, and violence. In overdose, symptoms may include hyperthermia, tachycardia, severe hypertension, convulsions, chest pains, stroke, cardiovascular collapse, and possible death. Other common side effects following abuse of amphetamines include viral hepatitis, Sexually Transmitted Diseases (STDs), HIV, septicemia, abscesses, collapsed blood vessels, and malnutrition. Chronic abuse generally produces a psychosis that resembles schizophrenia and is characterized by paranoia, picking at the skin, preoccupation with one's own thoughts, and auditory and visual hallucinations. Violent and erratic behavior is frequently seen among chronic abusers. Over time, methamphetamine appears to cause reduced levels of dopamine, which can result in symptoms like those of Parkinson's disease.

Duration of Effects: Onset of effects is rapid following intravenous use and smoking, while effects onset more slowly following oral use. Overall effects typically last 4-8 hours; residual effects can last up to 12 hours.

Tolerance, Dependence and Withdrawal Effect: Methamphetamine has a high potential for abuse and dependence. Tolerance may develop and users may quickly become addicted and use it with increasing frequency and in increasing doses. Abrupt discontinuation of use can produce extreme fatigue, mental depression, apathy, long periods of sleep, irritability, and disorientation.

Drug Interactions: Phenobarbital, propoxyphene, phenytoin and MAOI's slow the metabolism of amphetamines and increases their effect on the release of norepinephrine and other monoamines from adrenergic nerve endings. Amphetamines may counteract sedative effects of antihistamines. Methamphetamine may restore ethanol induced impairment in simple repetitive tasks of short duration, however, there is no restoration of ethanol-

induced deficits of balance and steadiness. In general, high doses of amphetamines are likely to increase the impairing effects of alcohol. Chlorpromazine and haloperidol block dopamine and norepinephrine reuptake, thus inhibiting the central stimulant effects of amphetamines. Amphetamine potentiates the analgesic effect of meperidine.

Performance Effects: Laboratory studies have been limited to much lower doses than those used by methamphetamine abusers. Doses of 10-30 mg methamphetamine have shown to improve reaction time, relief fatigue, improve cognitive function testing, increase subjective feelings of alertness, increase time estimation, and increase euphoria. However, subjects were willing to make more high-risk choices. The majority of laboratory tests were administered 1 hour post dose. Expected performance effects following higher doses may include agitation, inability to focus attention on divided attention tasks, inattention, restlessness, motor excitation, increased reaction time, and time distortion, depressed reflexes, poor balance and coordination, and inability to follow directions.

Effects on Driving: The drug manufacturer states that patients should be informed that methamphetamine and amphetamine may impair the ability to engage in potentially hazardous activities such as driving a motor vehicle. In epidemiology studies drive-off-the-road type accidents, high speed, failing to stop, diminished divided attention, inattentive driving, impatience, and high risk driving have been reported. Significant impairment of driving performance would also be expected during drug withdrawal. In a recent review of 101 driving under the influence cases, where methamphetamine was the only drug detected, blood concentrations ranged from <0.05-2.36 mg/L (mean 0.35 mg/L, median 0.23 mg/L). Driving and driver behaviors included speeding, lane travel, erratic driving, accidents, nervousness, rapid and non-stop speech, unintelligible speech, disorientation, agitation, staggering and awkward movements, irrational or violent behavior, and unconsciousness. Impairment was attributed to distraction, disorientation, motor excitation, hyperactive reflexes, general cognitive impairment, or withdrawal, fatigue and hypersomnolence.

DEC Category: CNS stimulant.

DEC Profile: Horizontal gaze nystagmus not present; vertical gaze nystagmus not present; lack of convergence not present; pupil size dilated; reaction to light slow; pulse rate elevated; blood pressure elevated; body temperature normal to down. Other characteristic indicators may include restlessness, body tremors, talkativeness, exaggerated reflexes, anxiety, and track marks or recent injection sites.

Panel's Assessment of Driving Risks: At lower dose, amphetamines have few effects on cognitive functioning and may result in an enhancement of some psychomotor tasks, but risk-taking increases at higher doses and responses become inappropriate. Drug withdrawal could also lead to the impairment of psychomotor skills required for safe driving.

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