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CONFIDENTIAL

Demo Report

Report Issued 06/10/2021 10:58

To: **88888**
Forensic Example Report
Attn: Example Reports
200 Welsh Road
Horsham, PA 19044

Patient Name 8071U-POS
Patient ID 8071U-POS
Chain 20002279
Age Not Given **DOB** Not Given
Gender Not Given
Workorder 20002279

Positive Findings:

Compound	Result	Units	Matrix Source
Diazepam	**Positive**	**ng/mL**	**001 - Urine**
Nordiazepam	**Positive**	**ng/mL**	**001 - Urine**
Oxazepam	**Positive**	**ng/mL**	**001 - Urine**
Temazepam	**Positive**	**ng/mL**	**001 - Urine**
Clobazam	**Positive**	**ng/mL**	**001 - Urine**
Chlordiazepoxide	**Positive**	**ng/mL**	**001 - Urine**
Lorazepam	**Positive**	**ng/mL**	**001 - Urine**
7-Amino Clonazepam	**Positive**	**ng/mL**	**001 - Urine**
Alprazolam	**Positive**	**ng/mL**	**001 - Urine**
Alpha-Hydroxyalprazolam	**Positive**	**ng/mL**	**001 - Urine**
1-Hydroxymidazolam	**Positive**	**ng/mL**	**001 - Urine**
Hydroxytriazolam	**Positive**	**ng/mL**	**001 - Urine**
Hydroxyethylflurazepam	**Positive**	**ng/mL**	**001 - Urine**
Desalkylflurazepam	**Positive**	**ng/mL**	**001 - Urine**
Estazolam	**Positive**	**ng/mL**	**001 - Urine**
Delta-9 Carboxy THC - Total	**Positive**	**ng/mL**	**001 - Urine**
Cocaine	**Positive**	**ng/mL**	**001 - Urine**
6-Monoacetylmorphine - Free	**Positive**	**ng/mL**	**001 - Urine**
Fentanyl	**Positive**	**ng/mL**	**001 - Urine**
Buprenorphine - Total	**Positive**	**ng/mL**	**001 - Urine**
Norbuprenorphine - Total	**Positive**	**ng/mL**	**001 - Urine**

See Detailed Findings section for additional information

Testing Requested:

Analysis Code	Description
8071U	DUID/DRE Panel, Urine (Forensic)

Specimens Received:

ID	Tube/Container	Volume/ Mass	Collection Date/Time	Matrix Source	Labeled As
001	Clear vial	Not Given	Not Given	Urine	Not Applicable

All sample volumes/weights are approximations.

Specimens received on 11/17/2020.

Detailed Findings:

Analysis and Comments	Result	Units	Rpt. Limit	Specimen Source	Analysis By
Diazepam	Positive	ng/mL	20	001 - Urine	LC-MS/MS
Nordiazepam	Positive	ng/mL	20	001 - Urine	LC-MS/MS
Oxazepam	Positive	ng/mL	20	001 - Urine	LC-MS/MS
Temazepam	Positive	ng/mL	20	001 - Urine	LC-MS/MS
Clobazam	Positive	ng/mL	20	001 - Urine	LC-MS/MS
Chlordiazepoxide	Positive	ng/mL	20	001 - Urine	LC-MS/MS
Lorazepam	Positive	ng/mL	10	001 - Urine	LC-MS/MS
7-Amino Clonazepam	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Alprazolam	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Alpha-Hydroxyalprazolam	Positive	ng/mL	10	001 - Urine	LC-MS/MS
1-Hydroxymidazolam	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Hydroxytriazolam	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Hydroxyethylflurazepam	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Desalkylflurazepam	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Estazolam	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Delta-9 Carboxy THC - Total	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Cocaine	Positive	ng/mL	200	001 - Urine	GC/MS
6-Monoacetylmorphine - Free	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Fentanyl	Positive	ng/mL	1.0	001 - Urine	LC-MS/MS
Buprenorphine - Total	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS
Norbuprenorphine - Total	Positive	ng/mL	5.0	001 - Urine	LC-MS/MS

Other than the above findings, examination of the specimen(s) submitted did not reveal any positive findings of toxicological significance by procedures outlined in the accompanying Analysis Summary.

Reference Comments:

1. 1-Hydroxymidazolam (Midazolam Metabolite) - Urine:

   Midazolam is a short acting benzodiazepine with sedative/hypnotic properties and is a strong central nervous system depressant. It is metabolized to the less active 1-hydroxymidazolam. It is used for preoperative sedation, as a sedative hypnotic and as an agent for the induction of anesthesia. Alcohol greatly enhances the activity of benzodiazepines and they have significant abuse potential. Common adverse effects of diazepam include drowsiness, fatigue, double vision, sedation, dizziness, weakness, unsteadiness and disorientation. Signs of CNS depression can include horizontal gaze nystagmus, lack of convergence of the eyes, normal pupil size with slow reaction to light and reduced pulse and blood pressure.

2. 6-Monoacetylmorphine - Free (6-MAM; Heroin Metabolite) - Urine:

   6-monoacetylmorphine (6-MAM) is the 6-monoacetylated form of morphine, which is pharmacologically active. When present, it is generally indicative of heroin (diacetylmorphine) use.

3. 7-Amino Clonazepam (Clonazepam Metabolite) - Urine:

   Clonazepam is an intermediate to long-acting benzodiazepine hypnotic used in the treatment of insomnia, and in the prevention and treatment of various seizure disorders. It also possesses anxiolytic and muscle relaxant properties. It shares the actions and adverse reactions of other CNS-depressants including drowsiness, sedation, impairment of cognition, judgment and memory, confusion and disorientation. Initial adult dose typically starts at 1.5 mg daily and should generally not exceed 20 mg daily. The CNS depressant properties and sedating effects confirm that this drug has the potential to significantly impair driving abilities.

Reference Comments:

4. Alpha-Hydroxyalprazolam (Alprazolam Metabolite) - Urine:

   Alpha-Hydroxyalprazolam is an active metabolite of alprazolam.

5. Alprazolam (Xanax®) - Urine:

   Alprazolam is a low-dose benzodiazepine used for the treatment of anxiety disorders and short-term relief of anxiety associated with depressive symptoms. Alpha-hydroxyalprazolam is an active metabolite of alprazolam. They share the actions and adverse reactions of other CNS-depressants. Alcohol greatly enhances the activity of benzodiazepines. Common adverse effects of alprazolam include drowsiness, fatigue, sedation, dizziness, weakness, unsteadiness and disorientation. Signs of CNS depression can include the presence of horizontal gaze nystagmus, lack of convergence of the eyes, normal pupil size with slow reaction to light and reduced pulse and blood pressure. For anxiety, daily doses of 0.8 to 4 mg are effective whereas for phobic and panic disorders, 6 to 9 mg daily is recommended. Studies confirm that alprazolam is capable of causing significant impairment to driving and psychomotor abilities, across a wide range of concentrations.

6. Buprenorphine - Total (Buprenex®) - Urine:

   Buprenorphine is a Schedule III controlled synthetic opioid that has both analgesic and opioid antagonist effects. Clinically it is used for pain treatment and as a pharmacotherapy for opioid dependence. Because buprenorphine has mixed agonist-antagonist activity, there is a ceiling to the subjective and adverse effects of the drug. Buprenorphine is metabolized in the liver by N-dealkylation to norbuprenorphine and both buprenorphine and norbuprenorphine undergo glucuronide conjugation. The reported result represents the total of free and conjugated buprenorphine. The drug has an elimination half-life of 2 to 4 hours.

   Symptoms of overdose include confusion, dizziness, respiratory depression and lethargy. While buprenorphine is well tolerated, even at high doses, fatal interactions with benzodiazepines have been reported.

7. Chlordiazepoxide (Librium®) - Urine:

   Chlordiazepoxide is a benzodiazepine used for the management of seizure disorders, anxiety and alcohol withdrawal. The compound is extensively metabolized to at least 4 active metabolites: Norchlordiazepoxide, demoxepam, nordiazepam and oxazepam. They share the actions and adverse reactions of other CNS-depressants. Alcohol greatly enhances the activity of benzodiazepines. For mild to moderate anxiety, a usual adult oral dosage is 5 to 10 mg given 3 to 4 times a day. Common adverse effects of chlordiazepoxide include drowsiness, fatigue, sedation, dizziness, weakness, unsteadiness and disorientation. Signs of CNS depression can include the presence of horizontal gaze nystagmus, lack of convergence of the eyes, normal pupil size with slow reaction to light, and reduced pulse and blood pressure. Patients taking chlordiazepoxide under a doctor's supervision are less likely to be impaired than if abusing the medication. Single doses of chlordiazepoxide have been shown to significantly impair psychomotor performance for up to 2.5 hours. Chlordiazepoxide may cause impairment in the skills necessary for safe driving.

8. Clobazam (Frisium®; Urbanyl®) - Urine:

   Clobazam is a benzodiazepine drug used in the control of seizure disorders. It shares the actions and adverse reactions of other CNS-depressants, although these are generally mild. Adverse effects of clobazam include ataxia, somnolence and double vision. Patients taking clobazam under a doctor's supervision are less likely to be impaired than if abusing the medication. Ten healthy adults given nightly doses of 20 mg clobazam for six days and assessed on a closed driving course. Overall there was little evidence of any impairment in their driving. When used according to directions at moderate doses, clobazam does not appear to cause impairment in the skills necessary for safe driving.

9. Delta-9 Carboxy THC - Total (Inactive Metabolite) - Urine:

   THC (Tetrahydrocannabinol) is the active component of marijuana, and cannabis. THC is extensively metabolized to 11-hydroxy-THC and inactive 9-carboxy-THC. Its combination of CNS depressant, mild hallucinogenic, and psychotropic effects put it in a unique class. Effects following marijuana use include relaxation, euphoria, distorted perceptions, impaired coordination, difficulty in thinking and problem solving and problems with learning and memory. Typical levels of marijuana use produce moderate impairment that may persist for two to six hours. Effects of marijuana use on driving ability may include weaving, inattention, poor coordination, and slowed reaction time with increased error rates in complex tasks. Numerous studies have associated marijuana use with impaired driving performance.

Reference Comments:

10. Desalkylflurazepam (Flurazepam Metabolite) - Urine:

    Flurazepam is a long-acting benzodiazepine sedative/hypnotic used for the short-term treatment of refractory insomnia. The usual adult dose is 30 mg in adults and 15 mg in geriatric and debilitated patients. Flurazepam is metabolized to the active metabolites N-desalkylflurazepam and hydroxyethylflurazepam. They share the actions and adverse reactions of other CNS-depressants. Alcohol greatly enhances the activity of benzodiazepines. Common adverse effects of benzodiazepines include drowsiness, fatigue, sedation, dizziness, weakness, unsteadiness and disorientation. Signs of CNS depression can include the presence of horizontal gaze nystagmus, lack of convergence of the eyes, normal pupil size with slow reaction to light, and reduced pulse and blood pressure. Patients taking flurazepam under a doctor's supervision are less likely to be impaired than if abusing the medication. Both single and repeated doses of flurazepam have been shown to significantly impair psychomotor performance and driving skills for up to several days after administration due to the long half-life of the metabolite desalkylflurazepam.

11. Diazepam (Valium®) - Urine:

    Diazepam is a benzodiazepine used primarily for its sedative anxiolytic and muscle-relaxing effects. It is metabolized to the active metabolites nordiazepam, oxazepam and temazepam. Diazepam and its metabolites are central nervous system depressants. Diazepam is subject to abuse. Alcohol greatly enhances the activity of benzodiazepines. Common adverse effects of diazepam include drowsiness, fatigue, sedation, dizziness, weakness, unsteadiness and disorientation. Signs of CNS depression can include horizontal gaze nystagmus, lack of convergence of the eyes, normal pupil size with slow reaction to light and reduced pulse and blood pressure. Studies confirm that diazepam is capable of causing significant impairment to driving and psychomotor abilities, across a wide range of concentrations.

12. Estazolam (ProSom®) - Urine:

    Estazolam is an intermediate acting benzodiazepine hypnotic used in the treatment of insomnia. It shares the actions and adverse reactions of other CNS-depressants. It also possesses anxiolytic, muscle relaxant and anticonvulsant properties. Its adverse effects can include sedation, respiratory depression, confusion, and disorientation. The recommended adult dosage is 1 mg at bedtime, which may be gradually increased to 2 mg if necessary. There are no specific studies addressing the effects of estazolam on driving, however its CNS depressant properties imply that it has the potential to impair driving performance.

13. Fentanyl (Duragesic®; Sublimaze®) - Urine:

    Fentanyl is a DEA Schedule II synthetic morphine substitute anesthetic/analgesic. It is reported to be 80 to 200 times as potent as morphine and has a rapid onset of action as well as addictive properties.

    Signs associated with fentanyl toxicity include severe respiratory depression, seizures, hypotension, coma and death.

14. Hydroxytriazolam (Triazolam Metabolite) - Urine:

    Triazolam is a low-dose, short acting benzodiazepine used in the treatment of insomnia. It is metabolized to hydroxytriazolam. It shares the actions and adverse reactions of other CNS-depressants. Its adverse effects can include sedation, dizziness, weakness, unsteadiness and disorientation. It is available in 0.125 and 0.25 mg dosage units. The normal adult dose is 0.25 mg at bedtime. Subjects assessed for effects on their driving following administration of 0.25 mg of triazolam showed severe effects between 4 and 8 hours after use, and residual but minor effects at 8 to 12 hours. The literature indicates that triazolam is capable of causing significant impairment to driving and psychomotor abilities up to 12 hours after use. Tolerance reduces the likelihood of impairment with chronic administration.

15. Lorazepam (Ativan®) - Urine:

    Lorazepam is a benzodiazepine used for sedation, in the treatment of anxiety, and for short-term relief of anxiety associated with depressive symptoms. It shares the actions and adverse reactions of other CNS-depressants. Lorazepam can be administered by oral, IV and IM routes; daily divided oral doses of up to 10 mg are generally prescribed for anxiety. Its adverse effects can include sedation, dizziness, weakness, unsteadiness and disorientation. Literature indicates that lorazepam is capable of causing significant impairment to driving and psychomotor abilities across a wide range of concentrations.

Reference Comments:

16. Norbuprenorphine - Total (Buprenorphine Metabolite) - Urine:

    Buprenorphine (Suboxone, Subutex) is a semi-synthetic opiate with partial agonist and antagonist actions. Buprenorphine is metabolized to norbuprenorphine. Buprenorphine is only available in the United States in a formulation which also contains the opiate antagonist naloxone. For this test urine is hydrolyzed to release bound and free buprenorphine and norbuprenorphine which are reported as 'total buprenorphine' and 'total norbuprenorphine'. While buprenorphine can counteract some of the effects of powerful opiates it also has opiate-like effects of its own. These include analgesia, drowsiness, and sedation. Following buprenorphine use, pupils may be constricted. Pulse and blood pressure, and body temperature can be lowered. Following abuse, psychomotor impairment is generally present, with increased body sway, and poor performance in divided attention tests. Users may be 'on the nod', falling asleep in the middle of conversations or at inappropriate times. Tolerance can develop to the effects of opiates, and more experienced users are less susceptible to the impairing effects. Patients taking carefully controlled opiates under a doctor's supervision are less likely to be impaired than if abusing the medication. The narcotic effects of buprenorphine have the potential to cause significant impairment of the skills necessary for safe driving.

17. Nordiazepam - Urine:

    Nordiazepam is a pharmacologically active metabolite of several benzodiazepine anxiolytic/sedative/hypnotic agents, e.g., diazepam (Valium), and has CNS-depressant properties. Nordiazepam is also the major active entity in clorazepate (Tranxene), a benzodiazepine agent used to treat agitation, seizures and anxiety. Alcohol greatly enhances the activity of this and other benzodiazepines. Signs of CNS depression can include horizontal gaze nystagmus, lack of convergence of the eyes, normal pupil size with slow reaction to light, and reduced pulse and blood pressure. Studies confirm that several benzodiazepines which are metabolized to nordiazepam are capable of causing significant impairment to driving and psychomotor abilities, across a wide range of concentrations.

18. Oxazepam (Serax®) - Urine:

    Oxazepam is a benzodiazepine used infrequently for the treatment of anxiety and insomnia and in the control of symptoms of alcohol withdrawal. It is also a metabolite of diazepam, prazepam and temazepam, and most commonly found as a result of metabolism of those drugs. Like other benzodiazepines it is a central nervous system depressant and is subject to abuse. Alcohol greatly enhances the activity of benzodiazepines. Common adverse effects of benzodiazepines include drowsiness, fatigue, sedation, dizziness, weakness, unsteadiness and disorientation. Signs of CNS depression can include horizontal gaze nystagmus, lack of convergence of the eyes, normal pupil size with slow reaction to light, and reduced pulse and blood pressure. Studies confirm that oxazepam is capable of causing significant impairment to driving and psychomotor abilities.

19. Temazepam (Normison®; Restoril®) - Urine:

    Temazepam is a benzodiazepine hypnotic agent used in the short-term relief of insomnia. Its major metabolite, oxazepam, is also a pharmacologically active central nervous system depressant. Temazepam itself is a minor metabolite of diazepam (Valium). Temazepam is subject to abuse and its activity is enhanced by alcohol. Common adverse effects of temazepam include drowsiness, fatigue, slurred speech, sedation, dizziness, weakness, unsteadiness and disorientation. Signs of CNS depression can include horizontal gaze nystagmus, lack of convergence of the eyes, normal pupil size with slow reaction to light, and reduced pulse and blood pressure. The usual adult dosage of temazepam is 30 mg, however, 15 mg may be adequate. Laboratory studies have shown short-term effects on psychomotor skills, which are largely gone eight hours after normal use.

Analysis Summary and Reporting Limits:

All of the following tests were performed for this case. For each test, the compounds listed were included in the scope. The Reporting Limit listed for each compound represents the lowest concentration of the compound that will be reported as being positive. If the compound is listed as None Detected, it is not present above the Reporting Limit. Please refer to the Positive Findings section of the report for those compounds that were identified as being present.

Acode 54002U - Benzodiazepines Confirmation (Qualitative) (DUID/DRE), Urine

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
1-Hydroxymidazolam	5.0 ng/mL	Alpha-Hydroxyalprazolam	10 ng/mL
7-Amino Clonazepam	5.0 ng/mL	Alprazolam	5.0 ng/mL

Analysis Summary and Reporting Limits:

Compound	Rpt. Limit	Compound	Rpt. Limit
Chlordiazepoxide	20 ng/mL	Hydroxytriazolam	5.0 ng/mL
Clobazam	20 ng/mL	Lorazepam	10 ng/mL
Desalkylflurazepam	5.0 ng/mL	Nordiazepam	20 ng/mL
Diazepam	20 ng/mL	Oxazepam	20 ng/mL
Estazolam	5.0 ng/mL	Temazepam	20 ng/mL
Hydroxyethylflurazepam	5.0 ng/mL		

Acode 54003U - Cannabinoids Confirmation (Qualitative) (DUID/DRE), Urine

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Delta-9 Carboxy THC - Total	5.0 ng/mL		

Acode 54004U - Cocaine and Metabolites Confirmation (Qualitative) (DUID/DRE), Urine

-Analysis by Gas Chromatography/Mass Spectrometry (GC/MS) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Benzoylecgonine	150 ng/mL	Cocaine	200 ng/mL
Cocaethylene	200 ng/mL		

Acode 54006U - Opiates - Free (Unconjugated) Confirmation (Qualitative) (DUID/DRE), Urine

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
6-Monoacetylmorphine - Free	5.0 ng/mL	Hydromorphone - Free	5.0 ng/mL
Codeine - Free	25 ng/mL	Morphine - Free	25 ng/mL
Dihydrocodeine / Hydrocodol - Free	25 ng/mL	Oxycodone - Free	25 ng/mL
Hydrocodone - Free	25 ng/mL	Oxymorphone - Free	5.0 ng/mL

Acode 54142U - Fentanyl and Acetyl Fentanyl Confirmation (Qualitative) (DUID/DRE), Urine

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Acetyl Fentanyl	0.50 ng/mL	Norfentanyl	1.0 ng/mL
Fentanyl	1.0 ng/mL		

Acode 54334U - Buprenorphine and Norbuprenorphine - Total (Conjugated/Unconjugated) Confirmation (Qualitative)

-Analysis by High Performance Liquid Chromatography/ Tandem Mass Spectrometry (LC-MS/MS) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Buprenorphine - Total	5.0 ng/mL	Norbuprenorphine - Total	5.0 ng/mL

Acode 8071U - DUID/DRE Panel, Urine (Forensic)

-Analysis by Enzyme Immunoassay (EIA) for:

Analysis Summary and Reporting Limits:

Compound	Rpt. Limit	Compound	Rpt. Limit
Barbiturates	0.30 mcg/mL	Methadone / Metabolite	300 ng/mL
Benzodiazepines	50 ng/mL	Opiates	300 ng/mL
Cannabinoids	50 ng/mL	Oxycodone / Oxymorphone	100 ng/mL
Cocaine / Metabolites	150 ng/mL	Phencyclidine	25 ng/mL

-Analysis by Enzyme Immunoassay (EIA) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Amphetamines	500 ng/mL	Fentanyl / Acetyl Fentanyl	2.0 ng/mL
Buprenorphine / Metabolite	5.0 ng/mL	MDMA	300 ng/mL