Office of the Medical Examiner
1360 Indian Lake Road
Daytona Beach, FL 32124-1001

MEDICAL EXAMINER REPORT

Name	**Styffe, William Carl**	Case Number	**13-07-575**
Date of Death (Found)	November 9, 2013	County of Death	Volusia
Date of Exam	November 11, 2013	Time of Exam	1025 Hours

I. Moderate Cardiomegaly (Weight of Heart is 420 Grams)

II. Severe Pulmonary Congestion
   A. Focal areas of green-yellow purulence
   B. Mild pulmonary anthracosis

III. Moderate Hepatic Congestion

IV. Moderate Cerebral Edema and Softening

V. Status Post Recent Tracheotomy

VI. Status Post Percutaneous Enterogastric Tube Placement

Cause of Death:	Anoxic Brain Injury
Due To:	Asphyxiation
Due To:	Hanging by Ligature
Manner of Death:	Suicide
How incident occurred:	Hanged self with ligature

Timothy J. Gallagher, M. D.
Associate Medical Examiner

1/2/2014
Date

XC: State Attorney's Office
Volusia County Sheriff's Office

Name **Styffe, William Carl** **Case Number** **13-07-575**

MEDICAL EXAMINER REPORT
REPORT OF POSTMORTEM EXAMINATION

OFFICIALS PRESENT AT EXAMINATION

None.

EXTERNAL EXAMINATION

The body is that of a 68½-inch, 145-pound adult white male who appears the reported age of 33 years. The Body Mass Index is 21 kilograms per meter squared. The scalp hair is brown and up to 1¼ inches in length. The facial hair consists of a trimmed moustache. The irides are brown, the sclerae are white and the conjunctivae are light pink to gray. The bridge of the nose is midline. The nasal septum is intact.

The lips are slender and symmetrical. The oral mucosal frenula are intact. The tongue is atraumatic. The dentition is natural and in good repair. The neck is symmetrical and has no lymphadenopathy. The trachea is midline; an ostomy is in the lower anterior neck. The external auditory canals have no fluid drainage. The earlobes have no cosmetic piercings.

The chest is symmetrical and has no scars. The upper extremities are symmetrical and have no edema or injury. The fingernails are trimmed to a medium length and are clean. The abdomen is flat and has no masses or hernias.

The musculature of the legs is well formed and symmetrical. The legs have no edema or injury. The toenails are trimmed to a medium length and are clean. The external genitalia are those of an adult white male. The penis is circumcised and the testes are descended within the scrotum. The anus is atraumatic.

Red-purple postmortem lividity is most prominent on the posterior torso especially on the shoulders, lower back and in the proximal lower extremities.

White plastic bands around the right and left ankles have the inscription "13-07-575" and "Styffe, William".

TATTOOS AND OTHER IDENTIFYING MARKS

There is a 3½ x 3 inch area of scarring on the left elbow.

EVIDENCE OF RECENT MEDICAL TREATMENT

An intravenous catheter is in the right medial arm. There is a urinary catheter inserted into the bladder.

EVIDENCE OF INJURY

None.

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EVIDENCE OF ORGAN AND/OR TISSUE DONATION

None.

INTERNAL EXAMINATION

BODY CAVITIES

The anterior chest wall and abdominal wall have no abnormalities. The subcutaneous fat of the anterior abdominal wall is 3.0 centimeters thick.

CARDIOVASCULAR SYSTEM

The intact pericardial sac contains approximately 15 milliliters of pale yellow serous fluid. The 420-gram heart has a smooth epicardial surface. The four cardiac chambers are free of mural thrombi and thromboemboli. The fossa ovalis is closed. The tricuspid, mitral, aortic and pulmonary valves have no deformities or vegetation; they are pliable and translucent. The red-brown myocardium has no fibrosis, necrosis, softening or induration. The mural endocardium is thin, smooth and translucent. The ostia of the left main and right coronary arteries are patent and arise normally from the aortic root. The left anterior descending, left circumflex and right coronary arteries are widely patent. The left ventricle is 1.7 centimeters thick. The interventricular septum is 1.6 centimeters thick and the right ventricle is 0.4 centimeters thick. No atherosclerosis is within the aorta.

RESPIRATORY SYSTEM

The right lung weighs 660 grams and the left lung weighs 620 grams. The pleural surfaces are purple-red with a small amount of black pigmentation. The pulmonary parenchyma is dark red and has severe congestion. The right middle and lower lobes have focal areas of green-yellow purulence up to 0.5 centimeters. The lungs are free of neoplasm, granulomata and infarcts. The tracheobronchial tree has a gray-tan mucosal surface and is free of excessive fluid, mucus and foreign objects. The pulmonary arteries are distributed radially and adequately and the branches are free of thromboemboli. The hilar lymph nodes are normal.

HEPATOBILIARY SYSTEM

The 2060-gram liver has a thin, smooth and intact capsule. The homogeneous red-brown hepatic parenchyma is congested and has no nodularity or masses. The portal tract structures are intact and have no abnormalities. The vessels of the porta hepatis are normal and the biliary tree is patent. The gallbladder contains 35 milliliters of thin, green-yellow bile.

UROGENITAL SYSTEM

The 170-gram right kidney and 180-gram left kidney have smooth red-purple cortical surfaces. The cut surfaces of the kidneys, renal calyces, pelves and ureters have no abnormalities. The corticomedullary

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junctions are distinct. The renal arteries are patent. The ureters are patent and enter into the bladder at the usual place at the trigone. The urinary bladder is lined by tan mucosa and contains approximately 160 milliliters of clear yellow urine.

HEAD AND NECK

The tongue is atraumatic. The strap muscles of the neck are soft, red-brown and free of hemorrhage. The larynx is free of foreign objects and contains a small amount of thin gray-pink mucoid material. The hyoid bone and thyroid cartilage are intact. An anterior neck dissection reveals no hemorrhage or muscle injuries.

GASTROINTESTINAL SYSTEM

The esophagus, stomach and duodenum have no ulcers, varices or masses. The stomach contains approximately 50 milliliters of tan-gray, semi-solid food material. The small bowel, vermiform appendix, colon and rectum have no abnormalities on their serosal surface.

HEMOLYMPHATIC SYSTEM

The 240-gram spleen has a wrinkled and intact capsule. The purple-red splenic parenchyma has small follicles of normal white pulp. The body has no peripheral or central lymphadenopathy.

ENDOCRINE SYSTEM

The pituitary gland is normal within the sella turcica. The brown-red thyroid gland has no nodularity. The pale, yellow lobulated pancreas has no ecchymosis, cystic structures, masses or calcifications. The adrenal glands have yellow-orange cortices with distinct brown medullae. The normal-sized prostate gland is tan, soft and has no nodularity. The testes have a tan parenchyma and have no masses or cysts.

MUSCULOSKELETAL SYSTEM

The intact thoracolumbar spine has no abnormalities. The clavicles and ribs have no calluses. The sternum is intact. The long bones of the extremities have no fractures.

CENTRAL NERVOUS SYSTEM

The temporalis muscles are normal. The calvarium is intact. The epidural and subdural spaces are free of hemorrhage. The dura matter is intact. The 1700-gram brain is symmetric and covered by smooth translucent leptomeninges. It has mild, generalized, softening of the right and left cerebral hemispheres. The gyri are moderately widened and the sulci are narrowed. The gray matter is unremarkable and is clearly delineated from the white matter. The ventricles are not dilated and have a normal choroid plexus. The basal ganglia, thalamus, hippocampus, amygdala, substantia nigra and mammillary bodies are symmetric and normally formed. The cerebellum has a normal folia and dentate nucleus. The pons

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and medulla are free of internal and external abnormalities. The vessels of the circle of Willis are patent and free of atherosclerosis and other abnormalities.

MICROSCOPIC EXAMINATION: Two slides examined on December 5, 2013.

HEART: Myocyte hypertrophy.

LUNGS: Vascular congestion, atelectasis, edema, infiltration of acute inflammatory cells, focal anthracotic pigment accumulation.

LIVER: Sinusoidal congestion.

KIDNEY: No specific histopathology.

BRAIN: Changes of global ischemia.

TOXICOLOGY: See separate report from NMS Laboratories.

TG/trm

End of Report

NMS LABS

NMS Labs
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Robert A. Middleberg, PhD, DABFT, DABCC-TC, Laboratory Director

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Toxicology Report

Report Issued 11/20/2013 18:01

To: **10277**
Volusia County Medical Examiner Office
Attn: Teri Hanans
1360 Indian Lake Road
Daytona Beach, FL 32124

Patient Name	Styffe, William
Patient ID	13-07-575
Chain	17831
Age	33 Y
Gender	Male
Workorder	13277411

Positive Findings:

Compound	Result	Units	Matrix Source
Lorazepam	**410**	**ng/mL**	**Peripheral Blood**
7-Amino Clonazepam	**36**	**ng/mL**	**Peripheral Blood**
Methadone	**160**	**ng/mL**	**Peripheral Blood**
EDDP	**84**	**ng/mL**	**Peripheral Blood**
Hydromorphone - Free	**28**	**ng/mL**	**Peripheral Blood**
Opiates	**Presump Pos**	**ng/mL**	**Urine**
Benzodiazepines	**Presump Pos**	**ng/mL**	**Urine**
Methadone	**Presump Pos**	**ng/mL**	**Urine**

See Detailed Findings section for additional information

Testing Requested:

Analysis Code	Description
8050U	Postmortem Toxicology - Urine Screen Add-on (6-MAM Quantification only)
8051B	Postmortem Toxicology - Basic, Blood (Forensic)

Specimens Received:

ID	Tube/Container	Volume/ Mass	Collection Date/Time	Matrix Source	Miscellaneous Information
001	Gray Top Tube	10 mL	11/11/2013 10:30	Peripheral Blood	
002	Gray Top Tube	9.85 mL	11/11/2013 10:30	Peripheral Blood	
003	Clear Plastic Container	30 mL	11/11/2013 10:30	Urine	
004	Homogenate Container	Not Given	11/11/2013 10:30	Peripheral Blood	

All sample volumes/weights are approximations.

Specimens received on 11/14/2013.

ORIG. TO TG v.9
COPY TO Thn
DATE 11.21.13

Detailed Findings:

Analysis and Comments	Result	Units	Rpt. Limit	Specimen Source	Analysis By
Lorazepam	410	ng/mL	5.0	004 - Peripheral Blood	LC-MS/MS
7-Amino Clonazepam	36	ng/mL	5.0	004 - Peripheral Blood	LC-MS/MS
Methadone	160	ng/mL	50	004 - Peripheral Blood	GC/MS
EDDP	84	ng/mL	50	004 - Peripheral Blood	GC/MS
Hydromorphone - Free	28	ng/mL	10	004 - Peripheral Blood	GC/MS
Opiates	Presump Pos	ng/mL	300	003 - Urine	EIA
This test is an unconfirmed screen. Confirmation by a more definitive technique such as GC/MS is recommended.					
Benzodiazepines	Presump Pos	ng/mL	50	003 - Urine	EIA
This test is an unconfirmed screen. Confirmation by a more definitive technique such as GC/MS is recommended.					
Methadone	Presump Pos	ng/mL	300	003 - Urine	EIA
This test is an unconfirmed screen. Confirmation by a more definitive technique such as GC/MS is recommended.					

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. 7-Amino Clonazepam (Clonazepam Metabolite) - Peripheral Blood:

   7-Amino-Clonazepam is a major metabolite of clonazepam. Plasma concentrations following chronic therapy with 6 mg/day of clonazepam were found to be 20 - 140 ng/mL.

2. Benzodiazepines - Urine:

   Benzodiazepines are a class of drugs that are prescribed for their anxiolytic, muscle relaxant, anticonvulsant and hypnotic effects. The degree of each effect is dependent upon the specific drug, its pharmacokinetics and any relevant metabolite.

   This result derives from a presumptive test, which may be subject to cross-reactivity with non-benzodiazepine related compounds. A second test is necessary to confirm the presence of benzodiazepine related compounds.

3. EDDP (Methadone Metabolite) - Peripheral Blood:

   EDDP (2-ethylidene-1,5-dimethyl-3,3-diphenylpyrrolidine) is the primary inactive metabolite of methadone.

   Twelve older adult chronic pain patients receiving 10 - 100 mg daily methadone had trough EDDP serum concentrations of 12 - 69 ng/mL.

   The span of methadone concentrations in fatalities overlaps with that of maintenance patients, and it is difficult to distinguish between the two on that basis alone. In some cases, it may be useful to quantitate EDDP, as the presence of the metabolite in substantial amounts may indicate prior usage of methadone and therefore tolerance to its effects.

4. Hydromorphone - Free (Dilaudid®) - Peripheral Blood:

   Hydromorphone is a semi-synthetic narcotic opioid. It is also a metabolite of morphine. Hydromorphone is a strong analgesic for the relief of moderate to severe pain. Its addiction liability is at least that of morphine. This compound should be administered in the smallest effective dose possible. The normal adult oral dosage is 2 mg every 4 to 6 hours. For severe pain, the dosage may be increased to 4 mg every 4 to 6 hours.

   After a single 4 mg oral dose, reported average peak plasma concentrations were 22 ng/mL (range 18 - 27 ng/mL) at 0.8 to 1.5 hours.

   Hydromorphone shares the same toxic effects as other opioids, e.g., constipation, nausea, drowsiness, respiratory depression, coma and death. Reported postmortem blood levels in fatalities involving hydromorphone range from 20 - 1200 ng/mL.

Reference Comments:

5. Lorazepam (Ativan®) - Peripheral Blood:

   Lorazepam is a DEA Schedule IV benzodiazepine used 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. This compound does have abuse potential and should be used cautiously with 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. Following a single oral dose of 2 mg, lorazepam concentrations in plasma averaged 20 ng/mL, declining to 10 ng/mL by 12 hours. Chronic oral administration of 10 mg dose resulted in an average steady-state plasma lorazepam level of 200 ng/mL (range, 140 - 240 ng/mL). In blood, the maximum therapeutic effect with lorazepam is reported to be within the range of 30 - 50 ng/mL.

   Fatalities with lorazepam are relatively rare and generally have postmortem blood concentrations exceeding 300 ng/mL; however, such concentrations are not necessarily fatal.

6. Methadone (Dolophine®) - Peripheral Blood:

   Methadone is a DEA Schedule II narcotic analgesic depressant used in the treatment of narcotic (heroin) addiction. Major metabolites of methadone include EDDP and EMDP. Patients receiving methadone as part of a maintenance program may take as much as 180 mg daily. However, doses of less than 50 mg have proven fatal to non-tolerant adults.

   A single 15 mg oral dose of methadone produced a reported peak plasma concentration of 75 ng/mL at 4 hr and the concentration declined slowly until 24 hr when the plasma concentration was about 30 ng/mL. Chronic daily oral doses of 100 to 200 mg produced reported peak plasma levels ranging from 570 - 1100 ng/mL. Methadone has a long elimination half-life, estimated to be between 15 and 55 hr.

   Methadone overdose is characterized by stupor, lethargy, pupillary constriction, hypotension, coma, respiratory collapse and death. Threshold toxic blood concentrations for methadone in the literature range from 100 - 1000 ng/mL. A reported range of blood concentrations in methadone-related fatalities is 400 - 1800 ng/mL. However, in cases of deaths from accidental overdose of methadone, especially in naive (non-tolerant) users, postmortem blood concentrations of methadone as low as 140 ng/mL have been reported.

   Since the reported blood concentration range for individuals on methadone maintenance overlaps that found in fatalities in non-tolerant individuals, it may be difficult to distinguish between the two. It has been suggested that levels of the EDDP metabolite may be indicative of prior usage of the compound and therefore tolerance.

7. Methadone - Urine:

   Methadone is a DEA Schedule II narcotic analgesic depressant used in the treatment of narcotic (heroin) addiction. Major metabolites of methadone include EDDP and EMDP. Patients receiving methadone as part of a maintenance program may take as much as 180 mg daily. However, doses of less than 50 mg have proven fatal to non-tolerant adults.

   Methadone overdose is characterized by stupor, lethargy, pupillary constriction, hypotension, coma, respiratory collapse and death.

   This result derives from a presumptive test, which may be subject to cross-reactivity with non-opiate related compounds. A second test is necessary to confirm the presence of opiate related compounds.

8. Opiates - Urine:

   Opiates are a class of drugs that have effects similar to morphine. These drugs are most commonly prescribed as analgesics for the relief of pain, but are also utilized for sedation, preanesthetic medication and anesthesia in the hospital setting, and as antitussives and antidiarrheals in ambulatory medicine.

   This result derives from a presumptive test, which may be subject to cross-reactivity with non-opiate related compounds. A second test is necessary to confirm the presence of opiate related compounds.

Sample Comments:

001 Physician/Pathologist Name: DR. GALLAGHER T. MALPHURS B. DORTON

001 Blood specimen required homogenization: 13277411-001

004 NMS Labs generated homogenized Blood sample: 13277411-004

Unless alternate arrangements are made by you, the remainder of the submitted specimens will be discarded two (2) years from the date of this report; and generated data will be discarded five (5) years from the date the analyses were performed.

Workorder 13277411 was electronically signed on 11/20/2013 17:45 by:

Dawn Sherwood

Dawn N. Sherwood,
Certifying Scientist

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. Please refer to the Positive Findings section of the report for those compounds that were identified as being present.

Acode 50010B - Amphetamines Confirmation, Blood (Forensic) - Peripheral Blood

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

Compound	Rpt. Limit	Compound	Rpt. Limit
Amphetamine	5.0 ng/mL	Norpseudoephedrine	5.0 ng/mL
Ephedrine	5.0 ng/mL	Phendimetrazine	10 ng/mL
MDA	5.0 ng/mL	Phenmetrazine	5.0 ng/mL
MDEA	10 ng/mL	Phentermine	10 ng/mL
MDMA	5.0 ng/mL	Phenylpropanolamine	5.0 ng/mL
Methamphetamine	5.0 ng/mL	Pseudoephedrine	5.0 ng/mL
Methylephedrine	5.0 ng/mL	Selegiline	5.0 ng/mL

Acode 50012B - Benzodiazepines Confirmation, Blood (Forensic) - Peripheral Blood

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

Compound	Rpt. Limit	Compound	Rpt. Limit
7-Amino Clonazepam	5.0 ng/mL	Flurazepam	2.0 ng/mL
Alpha-Hydroxyalprazolam	5.0 ng/mL	Hydroxyethylflurazepam	5.0 ng/mL
Alprazolam	5.0 ng/mL	Hydroxytriazolam	5.0 ng/mL
Chlordiazepoxide	20 ng/mL	Lorazepam	5.0 ng/mL
Clobazam	20 ng/mL	Midazolam	5.0 ng/mL
Clonazepam	2.0 ng/mL	Nordiazepam	20 ng/mL
Desalkylflurazepam	5.0 ng/mL	Oxazepam	20 ng/mL
Diazepam	20 ng/mL	Temazepam	20 ng/mL
Estazolam	5.0 ng/mL	Triazolam	2.0 ng/mL

Acode 50015B - Methadone and Metabolite Confirmation, Blood (Forensic) - Peripheral Blood

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

Compound	Rpt. Limit	Compound	Rpt. Limit
EDDP	50 ng/mL	Methadone	50 ng/mL

Acode 50016B - Opiates - Free (Unconjugated) Confirmation, Blood (Forensic) - Peripheral Blood

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

Compound	Rpt. Limit	Compound	Rpt. Limit
6-Monoacetylmorphine - Free	10 ng/mL	Dihydrocodeine / Hydrocodol - Free	10 ng/mL
Codeine - Free	10 ng/mL	Hydrocodone - Free	10 ng/mL

Analysis Summary and Reporting Limits:

Compound	Rpt. Limit	Compound	Rpt. Limit
Hydromorphone - Free	10 ng/mL	Oxycodone - Free	10 ng/mL
Morphine - Free	10 ng/mL	Oxymorphone - Free	10 ng/mL

Acode 8050U - Postmortem Toxicology - Urine Screen Add-on (6-MAM Quantification only)

-Analysis by Enzyme Immunoassay (EIA) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Amphetamines	1000 ng/mL	Methadone	300 ng/mL
Barbiturates	0.30 mcg/mL	Opiates	300 ng/mL
Benzodiazepines	50 ng/mL	Phencyclidine	25 ng/mL
Cannabinoids	20 ng/mL	Propoxyphene	300 ng/mL
Cocaine / Metabolites	300 ng/mL		

Acode 8051B - Postmortem Toxicology - Basic, Blood (Forensic) - Peripheral Blood

-Analysis by Enzyme-Linked Immunosorbent Assay (ELISA) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Amphetamines	20 ng/mL	Methadone	25 ng/mL
Barbiturates	0.040 mcg/mL	Opiates	20 ng/mL
Benzodiazepines	100 ng/mL	Phencyclidine	10 ng/mL
Cannabinoids	10 ng/mL	Propoxyphene	50 ng/mL
Cocaine / Metabolites	20 ng/mL		

-Analysis by Enzyme-Linked Immunosorbent Assay (ELISA) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Buprenorphine / Metabolite	0.50 ng/mL		

-Analysis by Headspace Gas Chromatography (GC) for:

Compound	Rpt. Limit	Compound	Rpt. Limit
Acetone	5.0 mg/dL	Isopropanol	5.0 mg/dL
Ethanol	10 mg/dL	Methanol	5.0 mg/dL