FINAL FINDINGS:

I. Sudden cardiac arrest in the setting of acute cocaine intoxication and physical restraint
   A. Postmortem toxicologic analysis of peripheral blood is positive for cocaine and benzoylecgonine; see Axis Forensic Toxicology Report
   B. Reported aggressive behavior and shouting prior to death
   C. Reported physical restraint prior to death
   D. Reported elevated body temperature during resuscitative efforts

II. Left ventricular hypertrophy with right ventricular dilation, heart weight 520 grams

III. Steatosis of liver, moderate
   A. Hepatomegaly

IV. Blunt force injuries
   A. Abrasions of head
   B. Abrasions of torso
   C. Abrasions and contusion of upper extremities
   D. Abrasions and contusions of lower extremities

V. Therapeutic intervention
   A. Contusion of torso

OPINION:
In consideration of the known circumstances surrounding this death, the available medical history, and the examination of the remains, the cause of death is ascribed to sudden cardiac arrest in the setting of acute cocaine intoxication and physical restraint with cardiac left ventricular hypertrophy as a significant contributing condition.

The manner of death is undetermined.
DATE OF DEATH: April 21, 2020  TIME OF DEATH: 0206 Hours

DATE OF AUTOPSY: April 22, 2020  TIME OF AUTOPSY: 0830 Hours

PLACE OF AUTOPSY: Pima County Office of the Medical Examiner
2825 E District Street
Tucson, Arizona  85714

PERFORMED BY: Ashley L. Lukefahr, M.D.
Forensic Pathology Fellow

WITNESSED BY: Bruce O. Parks, M.D.
Forensic Pathologist

Kristine Clor, Kayla Hare
Forensic Autopsy Technicians

Detective Orozco, Crime Scene Technician Wang,
Crime Scene Technician McGovern
Tucson Police Department

HISTORY
This 27-year-old man was reportedly restrained by law enforcement following erratic behavior, including shouting, at the residence of a relative. He was reportedly restrained in a prone position with a spit hood and became unresponsive. He died despite resuscitative efforts by emergency medical services providers, who reported a body temperature of 101.3 degrees Fahrenheit. A white powdery substance was found within the residence.

His past medical history is significant for cocaine use.

PHOTOGRAPHS
Photographs are taken during the autopsy by Ashley L. Lukefahr, M.D., Forensic Pathology Fellow, and by Crime Scene Technician Wang, Tucson Police Department.

IDENTIFICATION
The body is identified by Tucson Police Department investigators.

CLOTHING AND PERSONAL EFFECTS
No clothing or personal effects accompany the body at the time of autopsy.
EVIDENCE OF MEDICAL INTERVENTION
1. An endotracheal tube inserted in the mouth
2. Three defibrillator pads on the anterior chest
3. A 13 x 6.5 cm red contusion of the anterior midline chest, underlying a defibrillator pad
4. An intraosseous line in the anterior left leg

EXTERNAL EXAMINATION
The body is received in the supine position within a white body bag with intact seal numbered 17799. The body is that of a well-developed, obese (body mass index of 30.62 kg/m²), adult, Hispanic male who weighs 245 pounds, is 75 inches in length, and appears compatible with the reported age of 27 years. The body is cold. Rigor mortis is fully fixed in the muscles of the jaw and extremities. Fixed pink livor mortis extends over the posterior surfaces of the body, except in areas exposed to pressure. Brown paper bags cover the hands and are secured around the wrists with tape.

The head is normocephalic. The scalp hair is brown, straight and approximately 0.4 cm in length over the crown. The irides appear brown. The corneas are clouded. The sclerae and the conjunctivae are clear with red-brown drying artifact. No petechial hemorrhages are identified on the sclerae or conjunctivae. The nose is normally formed and the septum is in the midline. The anterior teeth are natural and in good condition. No petechial hemorrhages are on the oral mucosa. The ears are unremarkable. The decedent wears a brown mustache and beard. The neck organs are in the normal midline position and appear unremarkable.

The thorax is well-developed and symmetrical. The abdomen is flat. The external genitalia are those of a normal adult male. The anus is free of lesions.

The upper extremities are well-developed and symmetrical without absence of digits. The hands have short, clean, regularly trimmed fingernails. The lower extremities are well-developed and symmetrical without absence of digits. The spine is normally formed.

IDENTIFYING MARKS, SCARS AND TATTOOS
1. Monochromatic symbol and numeric tattoos of the right arm
2. A 2.1 x 0.2 cm hyperpigmented scar of the dorsal right hand
3. A 0.8 x 0.3 cm irregular hypopigmented scar of the dorsal right hand
4. A 5 x 2.5 cm irregular hypopigmented scar of the medial left ankle

EVIDENCE OF INJURY
I. Blunt Force Injuries:
   A. Head: A 1.7 cm linear red abrasion is on the midline forehead. Scattered red abrasions of the midline forehead cover a 3.8 x 1.4 cm area. A 2.5 cm linear red
Re: CARLOS INGRAM-LOPEZ

Page 5

abradion is on the midline forehead. A 0.4 x 0.2 cm red abrasion is on the left side of the forehead, at the hairline. A 2.3 x 1.4 cm red abrasion is on the left side of the forehead. Scattered red abrasions of the left side of the forehead cover a 3.9 x 0.7 cm area. A 2.2 x 1 cm red abrasion is on the bridge of the nose. A 1.1 x 0.2 cm red abrasion is on the tragus of the left ear.

B. Torso: A 9.5 cm linear red abrasion is on the left flank. A 0.8 cm linear red abrasion is on the left flank. A 4.5 cm linear red abrasion is on the lower left back.

C. Upper Extremities: A 14 cm serpentine red abrasion is on the lateral right arm. A 10.6 cm linear red abrasion is on the dorsal right arm. A 1.9 cm linear red abrasion is on the dorsal right arm. A near circumferential red abrasion, up to 1.2 cm in width, is around the right wrist. A 1.2 x 0.3 cm red abrasion is on the lateral right wrist. A 1.1 x 0.3 cm red abrasion is on the dorsomedial right wrist. A 1.2 cm linear red abrasion is on the dorsal right hand. A 4 x 2.4 cm purple contusion is on the dorsolateral left arm. A 1 x 0.6 cm red abrasion is on the left elbow. Scattered linear red-purple contusions and irregular red abrasions of the dorsomedial left wrist cover a 4.2 x 4 cm area. Scattered linear red-purple contusions and irregular red abrasions of the dorsolateral left wrist cover a 5.2 x 3 cm area.

D. Lower Extremities: Scattered red and purple contusions of the anterior right knee cover a 5.5 x 3.5 cm area. A 1.5 x 1.5 cm red abrasion is on the right popliteal fossa. A 1.2 x 1.1 cm red contusion is on the anterior right leg. A 0.8 x 0.7 cm red contusion is on the anterolateral right leg. A 1.8 x 1.3 cm purple contusion is on the medial right ankle. A 2.1 x 1.9 cm pink abrasion is on the dorsal right foot. A 0.3 x 0.2 cm red abrasion is on the dorsal aspect of digit 2 of the right foot. A 1.3 cm linear red abrasion is on the dorsal aspect of digit 2 of the right foot. A 0.5 cm linear red abrasion is on the dorsal aspect of digit 4 of the right foot. A 2.1 x 1.1 cm red contusion is on the anterior left thigh. A 2.4 x 2.1 cm purple contusion is on the medial left thigh. Scattered red abrasions and red contusions of the anterior left knee cover a 4.2 x 3.1 cm area. A 1 x 0.7 cm red abrasion is on the left popliteal fossa. Scattered red abrasions of the anterior left leg cover a 2.1 x 1.2 cm area. Scattered red abrasions and red contusions of the dorsal left foot cover a 6.1 x 2.2 cm area.

*These injuries, having been described above, will not be mentioned in the remainder of the report.*

**INTERNAL EXAMINATION**
The body is opened with a routine thoracoabdominal incision. The skeletal muscle has a dark red-brown color and a normal smooth texture.
BODY CAVITIES
No adhesions or abnormal collections of fluid are in the pleural spaces or peritoneal cavity. All body organs are in a normal and anatomic position. The serous surfaces and pericardium are smooth and glistening.

CARDIOVASCULAR SYSTEM
The heart weighs 520 grams. The coronary arteries arise normally and follow the distribution of a right dominant pattern with no significant atherosclerosis. There is dilatation of the right ventricle. The chambers and valves are proportionate. The valves are normally formed, thin, pliable and free of vegetations and degenerative changes. The myocardium is dark red-brown, firm, and free of fibrosis, erythema, pallor and softening. The atrial and ventricular septa are intact and the septum and free walls are free of muscular bulges. The left ventricle measures 1.3 cm and the right ventricle measures 0.2 cm in thickness as measured 1 cm below the respective atrioventricular valve annulus. The interventricular septum measures 1.3 cm in thickness. The aorta and its major branches arise normally and follow the usual course with no significant aortic atherosclerosis. The orifices of the major aortic vascular branches are patent. The vena cava and its major tributaries are patent, return to the heart in the usual distribution, and are unremarkable.

RESPIRATORY SYSTEM
The left and right lungs weigh 780 and 840 grams, respectively. The upper and lower airways are unobstructed and the mucosal surfaces are smooth and yellow-tan. The pleural surfaces are smooth, glistening, and unremarkable. The pulmonary parenchyma is red-purple and free of consolidation and masses. The cut surfaces of the lungs exude moderate amounts of blood. The pulmonary arteries are normally developed and unremarkable. There is no saddle embolus on in situ examination of the pulmonary trunk.

HEPATOBILIARY SYSTEM AND PANCREAS
The liver weighs 3000 grams. The hepatic capsule is smooth, glistening, and intact, covering a red-brown parenchyma. A thin-walled gallbladder contains green watery bile without stones. The pancreas has a normal size, shape, position, and tan lobulated appearance.

GASTROINTESTINAL SYSTEM
The esophagus is lined by a gray-white smooth mucosa. The gastroesophageal junction is unremarkable. The gastric mucosa is arranged in the usual rugal folds and the lumen contains approximately 50 ml of clear fluid. The small bowel has a uniform dimension and appears unremarkable. The vermiform appendix is present. The colon has a uniform dimension and appears unremarkable. There are no diverticula or externally obvious masses.

GENITOURINARY SYSTEM
The left and right kidneys each weigh 180 grams. The renal capsules are smooth, thin,
semitransparent, and strip with ease from the underlying smooth, red-brown, firm, cortical surfaces. The cortices are of normal thickness and delineated from the medullary pyramids. The calyces, pelves, and ureters are non-dilated and free of stones. The urinary bladder contains clear yellow urine. The bladder mucosa is gray-tan and smooth. The prostate has a tan cut surface and is not enlarged. The testicles are of normal size, shape and position with tan homogenous cut surfaces.

**RETICULOENDOTHELIAL SYSTEM**
The spleen weighs 240 grams and has a smooth intact capsule covering a red-purple moderately firm parenchyma. Regional lymph nodes are grossly unremarkable. The thymus is involuted.

**ENDOCRINE SYSTEM**
The thyroid gland is of normal position, size and texture. The adrenal glands have normal cut surfaces with yellow cortex and brown medulla. The pituitary gland is grossly unremarkable.

**NECK**
A layered examination of the soft tissues of the neck, including strap muscles and large vessels, reveals no abnormalities. The hyoid bone and thyroid cartilage are intact. The laryngeal mucosa is unremarkable. The tongue is normal.

**HEAD**
Reflection of the scalp reveals no abnormalities. The skull is of normal thickness and without fracture. The brain weighs 1500 grams. The dura mater and falx cerebri are intact, and not adherent to the brain. The leptomeninges are thin and transparent. There is no epidural, subdural or subarachnoid hemorrhage. The cerebral hemispheres are symmetrical with a normal gyral pattern. The structures at the base of the brain, including cranial nerves and blood vessels, are free of abnormality. Sections through the brain reveal no contusions, hemorrhage or mass lesions within the cerebral hemispheres, brainstem or cerebellum. The cerebral ventricles are of normal caliber.

**MUSCULOSKELETAL SYSTEM**
The bony framework, supporting musculature, and soft tissues are not unusual. Reflection of the skin of the back shows no soft tissue hemorrhage. The cervical spinal column is stable on internal palpation.

**SPECIMENS**
At the time of autopsy, vitreous fluid, peripheral blood, urine and two DNA blood cards are retained.
EVIDENCE
See “Property/Evidence Log Release Form” for evidence transferred to the investigating agency.

RADIOGRAPHS
A full body radiograph shows no radiopaque objects consistent with a projectile.

HISTOLOGY

SLIDE INDEX
Slide #1 Heart
Slide #2 Right lung, Right kidney
Slide #3 Left lung, Left kidney, Liver
Slide #4 Spleen, Brain

MICROSCOPIC DESCRIPTION
Cardiovascular System: Sections of the right ventricle, left ventricle and interventricular septum show no specific histopathologic abnormalities.

Respiratory System: Sections of the right and left lungs show intra-alveolar edema fluid and pulmonary vascular congestion.

Kidneys: Sections of the right and left kidneys show unremarkable glomeruli with autolysis of the tubular epithelium. No polarizable material is seen.

Liver: A section of the liver shows moderate microvesicular and macrovesicular steatosis with sinusoidal congestion.

Hematopoietic System: A section of the spleen shows unremarkable alternating areas of white and red pulp.

Nervous System: A section of the brain shows vacuolation of the neuropil and rare corpora amylacea, without hypereosinophilic neurons with shrunken nuclei.

TOXICOLOGY
See separate toxicology report.