

CHAI
SUMMARY OF MEDICAL FACTS & CONCERNS
Daily (Keeper) Reports & Medical History (Veterinary) Reports
May 13, 2015 – Jan 30, 2016

April 6, 2016

OCZ REPORTS USED FOR THIS REVIEW:

Our review is based on records provided by the Oklahoma City Zoo in response to public disclosure requests.

- Keeper Records = Animal Area Daily [Keeper] Reports
- Medical Records = Medical History [Veterinary] Report for All Record Types
- Specimen Report
- Emails
- Standard Elephant Down Protocol Jan 2016
- Press Releases
- Video Recording

OUTLINE

- A. Introduction
- B. Major Physical Traumas/Conditions
- C. EEHV Testing
- D. Medications/Supplements
- E. Weight Loss
- F. Diagnostic Blood Tests
- G. Traumatic Lesions & Abscesses
- H. Necropsy Results
- I. Dental Anomalies
- J. Conclusion

A. INTRODUCTION

Dr Jennifer D'Agostino is Board Certified by the American College of Veterinary Zoological Medicine, and is the Director of Veterinary Services in an Association of Zoos & Aquariums (AZA) accredited facility – the Oklahoma City Zoo (OCZ.)

After CHAI was found dead on 1/30/16, Dr D'Agostino made the following entry in the Medical Records: "There were no previous signs of illness."

The Oklahoma City Zoo Press Release on 1/30/16 announcing CHAI's death states, "Chai received regular [veterinary] wellness checkups...and seemed to be healthy."

Tara Henson, spokeswoman for the OCZ was quoted in various media outlets saying: "There hadn't been anything that raised a red flag. She had been in good health" – information she undoubtedly obtained in consultation with the Director of Veterinary Services, Dr D'Agostino.

However, the Medical Records and Keeper Records paint an entirely different picture. Precipitous weight loss, emaciation, shedding high levels of EEHV, difficulty getting up on 4 separate occasions (2 requiring a mechanical hoist), persistent toxic heterophils, 25 clearly visible abscesses - all were (or should have been) "red flags" that something was seriously wrong with CHAI, and that Dr D'Agostino should have recognized as a licensed veterinarian.

Dr D'Agostino was either oblivious to CHAI's deterioration and suffering, OR she knew about it but chose to ignore it, OR she failed to provide proper monitoring, care, and treatment because of general incompetence in her role as Director of Veterinary Services and as a licensed veterinarian in the State of Oklahoma.

The following is a summary of the medical facts, and our concerns over the care and treatment (or lack there-of) that CHAI received from Dr D'Agostino.

B. MAJOR PHYSICAL TRAUMAS/CONDITIONS

SUPPORTING DOCUMENTS ATTACHED:

- 23.OCZ Medical Records 13May15 – 23Feb16
- 24.OCZ Keeper Records 13May15 – 1Feb16

FACTS:

5/13/15	Generalized pruritus (aka itching everywhere)
6/17/15	Precipitous drop in weight of 550 LBS
8/7-10/2/15	Shedding high levels of EEHV-1A (herpes virus)
8/28/15	An additional drop in weight of 201 LBS
11/6/15	Head-butted by a conspecific and knocked over onto her right side, slow to get up
11/19/15	An additional drop in weight of 276 LBS
12/6/15	Contusion (bruise) on front right shoulder from unknown trauma
12/11/15	Abrasions (scrapes) on left side of face, over eye, and on left side of body from an altercation with a conspecific blocking a doorway
12/14/15	Mechanical hoist required to raise her from her right side during bath
12/15/15	Poor Body Condition Score
12/18/15	Mechanical hoist required to raise her from her right side from overnight
12/18/15	Osteoarthritis of right carpus (wrist) and tarsus (ankle) on radiographs
12/21/15	Found down in morning, was eventually able to get up unassisted
12/22/15	Swelling (edema) over pressure point of right scapula (shoulder blade)
12/24/15	Swellings (edema) over bony prominences of right fore and hind legs
12/18/15	Toxic heterophils persistent on repeat CBC's 12/18/15 – 12/29/15 consistent with inflammation or infection in the body
1/3/16	Abscesses on right shoulder, right flank, along right side
1/30/16	Death from emaciation and sepsis (bacterial infection in blood→septic shock→failure of multiple organs→death)

CONCERNS:

- Negligence in the practice of veterinary medicine
- Substandard care
- Careless disregard for health, welfare, or safety
- Inadequate record keeping

CHAI had multiple traumatic events/injuries in November and December 2015, and yet no Plan for comprehensive or enhanced care exists in her Medical Records.

No steps were prescribed by Dr D'Agostino to ensure her daily safety, not only from aggressive encounters with the other elephants, but also because she had repeated difficulty in rising from her right side.

Nothing in the Medical Records indicates that Dr D'Agostino had a list of rule-outs, or a Plan to go forward to find out what was causing her ongoing state of ill-health – or even that CHAI was in a state of ill-health (weight loss, EHV-1A viral shedding, poor Body Condition Score, weakness leading to downer 3 times with resultant swellings, traumatic lesions, abscesses, toxic heterophils, etc.) She didn't find a "marked immune response" in CHAI's blood work, so she didn't look any further.

C. EEHV TESTING

SUPPORTING DOCUMENTS ATTACHED:

- 23.OCZ Medical Records 13May15 – 23Feb16
- 24.OCZ Keeper Records 13May15 – 1Feb16
- 2.Trunk-wash Table
- 3.EEHV Test Results from Medical Records
- 4.EEHV Shedding Results Email 11/3/15
- 5.EEHV DNA Results, Medical Records 3/8/16
- 6.Seattle Times Article on EEHV Results 3/23/16

FACTS:

EEHV is of interest because CHAI was exposed to EEHV at the Dickerson Park Zoo in MO, and at the Woodland Park Zoo where a conspecific died of EEHV. In addition, several elephants at the OCZ have been exposed to, recovered from, or died from EEHV.

The Medical Records and the Keeper Records provide incomplete information with regards to EEHV sample collection, sample testing, and/or test results.

- Elephant Endotheliotropic Herpesvirus (EEHV) was tested for at least 19 times using trunk-wash samples, based on 19 available trunk-wash test results. Of those 19 test results, only 8 are entered in the Medical Records. The other 11 test results were found in an email dated 11/3/15.
- However there are 35 trunk-wash collection entries in the Keeper Records. Of those 35, only 2 have corresponding collection entries in the Medical Records, and of those 2, only one has test results recorded. 24 of the 35 have no results anywhere, or any entry anywhere as to what was done with the samples.
- One trunk-wash result found in the 11/3/15 email has no corresponding collection entry in either the Medical Records or the Keeper Records.
- EEHV was tested for 10 times using blood samples, based on 10 available blood test results, and on 3 different tissues collected at necropsy. These are entered in the Medical Records.
- One saliva swab taken on 10/2/15 is noted in the Keeper Records, but there is no corresponding entry in the Medical Records, and no results were found.

An exhaustive search for herpesvirus cellular inclusions was done by the Histo-Pathologist at necropsy, and no evidence of herpesvirus inclusions were found in any cells. This would lead one to conclude that EEHV was not the cause of CHAI's death.

However trunk-wash test results from the 11/3/15 email, show that CHAI, unlike any of the other elephants, was actively shedding significantly high levels of EEHV-1A viral particles during the months of August, September, and into October 2015. Peak shedding occurred on 8/20/15. This was immediately before, and at the time the conspecific MALEE died from EEHV-1A.

On 3/8/16 an entry was made in CHAI's Medical Records that there was no DNA sequencing differences between CHAI'S EEHV-1A subtype, and MALEE's EEHV-1A subtype. The results were definitive that they both were infected with the *genetically identical* virus subtype, leading to the conclusion that when CHAI was shedding large numbers of virus particles in August and September 2015, she most likely provided an overwhelming exposure to MALEE who then died on 10/1/15.

CONCERNS:

- Inadequate record keeping
- Substandard care

The Medical Records and the Keeper Records provide only scattered information with regards to EEHV sample collection, sample testing, and/or test results.

The Trunk-wash Table provides a visual summary of the missing entries. 24 trunk-wash collection entries have no results recorded anywhere.

Results from when CHAI was actively shedding virus particles, and therefore most at risk to other members of the herd, were never entered into the Medical Records, and were only found in the email dated 11/3/15.

Herpes outbreaks and shedding are known to occur at times of stress. In the 3 months prior to her EEHV-1A viral shedding, CHAI had lost 701 LBS. Something was wrong and her body was stressed, but nothing was ever entered in the Medical Records.

D. MEDICATIONS/SUPPLEMENTS

SUPPORTING DOCUMENTS ATTACHED:

- 23.OCZ Medical Records 13May15 – 23Feb16
- 24.OCZ Keeper Records 13May15 – 1Feb16

FACTS:

A record of all the Prescriptions/Treatments ordered for CHAI is important to review because CHAI suffered a number of traumatic events and injuries during her tenure at the OCZ (contusion, abrasions, swellings/edemas, abscesses, head-butted off her feet, downer 3 times.)

- Within the first 3 weeks after her arrival, she had a progressively worsening allergic reaction to something in her environment, and became severely pruritic (aka itchy.) This was successfully treated with a 6-week course of antihistamines.
- Nutritional supplements and a joint-health supplement were started at various times. This would seem prudent on general principal, but the start-dates appear to be random, and the Medical Records do not explain why these decisions were made when they were made.
- After her second mechanical hoist on 12/18/15 she was started on a 7-day course of anti-inflammatory medication, which was extended to 12 days after leg swelling was discovered on 12/24/15.
- Antibiotics (topical and/or systemic) were never prescribed for any of her wounds/injuries, and no antiseptic/antibiotic flush of any kind was ever prescribed to treat her abscesses (Keeper Staff were instead instructed to flush once a day with the bathing hose.)

Prescriptions/Treatments in the Medical Records:

5/13/15	Mineral Oil prophylactically for constipation upon arrival
6/4/15 – 7/14/15	Diphenhydramine (antihistamine) for severe pruritus (itchy skin)
7/15/15 – Daily	RED CELL (Vitamin/Mineral/Iron Supplement)
12/18/15 – 12/29/15	Firocoxib (NSAID) after second mechanical hoist on 12/18/15
12/20/15 – Daily	Cosequin Equine (joint health supplement)
1/7/16 – Daily	Emcelle Tocopherol (Vitamin E Supplement)

CONCERNS:

- Negligence in the practice of veterinary medicine
- Substandard Care

The start dates for nutritional supplements are introduced without explanation in the Medical Records. There is no comprehensive Plan for dietary supplementation to promote weight maintenance and general health.

It wasn't until after they hoisted her to her feet for the second time on 12/18/15 that anti-inflammatory medications were prescribed. Other than her early-on allergic

pruritus, this was the only other time specific medical treatment was provided for any of her multiple ailments.

Joint-health supplements were also not started until 2 days after her second mechanical hoist, even though it is well understood that virtually all elephants in captivity suffer from some degree of osteoarthritis in their feet and legs, and would benefit from such supplements from day one.

Antibiotics (topical and/or systemic) were not prescribed for the treatment of her abscesses. In fact she received NO definitive treatment for her abscesses – they were allowed to scab over and fester.

There is no documentation anywhere that the Keepers actually *do* any of the treatments or administer any of the medications that are prescribed by the Veterinary Staff, and the “Calendar Items” feature of the Medical Records is only sporadically used to track the duration of the medications prescribed.

E. WEIGHT LOSS

SUPPORTING DOCUMENTS ATTACHED:

- 23.OCZ Medical Records 13May15 – 23Feb16
- 24.OCZ Keeper Records 13May15 – 1Feb16
- 7.WPZ Specimen Report (Weights) 10/31/14 – 5/14/15
- 8.OCZ Specimen Report (Weights) 5/13/15 – 1/30/16
- 9.Weight History Table
- 10.Photo During Hoist Showing Spine 12/18/15
- 11.OCZ Press Release on Necropsy 2/20/16
- 12.Seattle Times Article-Interview Dr D'Agostino 3/19/16

FACTS:

Weight measurements are of interest because CHAI was emaciated with a severe loss of body fat at the time of her death, and this did not happen overnight. She came to the OCZ weighing 8,150 LBS. At the time of her death she was down to only 7,099 LBS, having lost 13% of her original body weight.

The Specimen Reports from the WPZ and OCZ show a precipitous drop in weight of 550 LBS in May/June 2015, followed by a drop of an additional 201 LBS by the end of August 2015. No weights were taken/recorded during all of September/October 2015, but by mid-November she had lost an additional 276 LBS and was by then down to 7,123 LBS. She was next weighed once in December 2015, then again in January 2016, and her weight remained around 7,100 LBS until she died in a state of emaciation.

Neither Keeper nor Veterinary Staff noted/commented on any of this progressive weight loss in their Records, even though there are 15 live weights recorded in the OCZ Specimen Report. And yet in their 2/20/16 Press Release the OCZ clearly stated that they were aware that CHAI had been slowly losing weight.

Notably throughout CHAI's entire 8.5-month tenure at the OCZ, Dr D'Agostino entered and used outdated weights to prescribe medications and treatments on all but 2 occasions. For the first month and a half, she used the weight from the WPZ of 8,150 LBS. Beginning 6/30/15, Dr D'Agostino converted CHAI's 6/17/15 live weight of 7,606 LBS to kilograms, and proceeded to use that number of 3,450 KGS consistently until her death. (This is easily visualized in the Weight History Table.)

Based on the Medical Records, Dr D'Agostino did Body Condition Scoring only *one* time on 12/15/15.

Body Condition Scoring uses a numeric scale to evaluate health and nutritional status. In larger animals it is done by careful visual examination (smaller animals may also include hands-on palpation.) When assigning a Body Condition Score, evaluators look at the amount of muscle present, skeletal features, and fat-cover at important and specific anatomical points. These include the ribs, lumbar vertebrae, pelvic bones, shoulders,

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and all body prominences. It is a subjective practice, but it is usually quite accurate when performed by a trained evaluator.

Body Condition Scoring is done on a 5-point or a 9-point scale – more commonly 9-point in large animals. On a 9-point scale (as was used here) a score of 3 = “thin” and a score of 4 = “moderately thin.” In both a score of 3 or 4, the ribs *are* showing.

On 12/15/15 a note was made in the Medical Records:

- Body condition is slightly thin and scores between 3-4/9.
- Plan is to feed more to increase her body weight by approximately 300-400 LBS.

At the time Dr D’Agostino did this Body Condition Scoring, CHAI weighed only 7,088 LBS – recorded just the day before in the Specimen Report. This was the *same week* that she went down 3 times, and had to be mechanically hoisted to her feet twice.

CONCERNS:

- Negligence in the practice of veterinary medicine
- Substandard care
- Careless disregard for health, welfare, or safety
- Inadequate record keeping
- The use of false or deceptive statements in any document connected with the practice of veterinary medicine
- Conduct likely to mislead the public

Even though CHAI’s recorded weight steadily dropped from the time she arrived at the OCZ, the Medical Records are devoid of any recognition of that fact.

CHAI arrived at the OCZ weighing a healthy 8,150 LBS, and 8.5 months later she died in a state of emaciation at 7,099 LBS without Dr D’Agostino ever even noticing the change (as evidenced by the fact that she consistently used outdated weights when prescribing medications.)

The Seattle Times Article-Interview from 3/19/16 states that Dr D’Agostino said that she relied on a standard, visual scoring system to evaluate CHAI’s body condition, and by that yardstick she didn’t appear to be dangerously underweight. But in 8.5 months she did only *one* Body Condition Scoring, and that wasn’t until 12/15/15.

In that same interview, Dr D’Agostino is also quoted as saying “You couldn’t see her ribs, nothing that would indicate the degree of fat loss that was going on,” and noting that 400 – 500 LBS doesn’t represent a significant loss for an animal the size of an elephant. “It wasn’t a huge red flag for us” she said.

But at the time of the Body Condition Scoring in December 2015, CHAI had *already lost 1,062 LBS*, which DR D’Agostino would have know if she had looked at the Specimen

Report or at CHAI. And a Score of 3-4/9 would mean the ribs were most certainly showing, as was her spine and other body prominences. (See photo taken during the mechanical hoist on 12/18/15.)

CHAI was clinically in a weakened state in December 2015. And yet there is no record of a medical Plan to create a list of rule-outs, to search for a cause, to increase her caloric intake or provide feed-stuffs that would be more digestible, to review or increase her weight monitoring, to check her teeth with their "plumber's camera," to conduct a comprehensive physical exam, to schedule a follow-up exam, to do anything definitive *at all* to promote weight gain or improve her body condition.

The only recommendation Dr D'Agostino made was to "feed more."

F. DIAGNOSTIC BLOOD TESTS

SUPPORTING DOCUMENTS ATTACHED:

- 23.OCZ Medical Records 13May15 – 23Feb16
- 24.OCZ Keeper Records 13May15 – 1Feb16
- 13.CBC Notes Toxic Heterophils
- 12.Seattle Times Article-Interview Dr D’Agostino 3/19/16

FACTS:

Diagnostic Blood tests were run on CHAI 11 times between 5/13/15 and 12/29/15. This is noteworthy because starting in December 2015, she had “toxic heterophils” in her blood. These appeared after she began having difficulty getting up from her right side, and twice had to be assisted to her feet with a mechanical hoist. The toxic heterophils persisted through December, and were still present on 12/29/15 - the date of the last CBC done on CHAI before her death 32 days later.

- In elephants, neutrophils are more accurately described as “heterophils” because of the presence of reddish granules inside the cells. Like neutrophils, heterophils are a type of white blood cell (WBC) that ingest and kill microorganisms, and are normally found in the bloodstream.
- When an inflammatory process begins in the body, especially as a result of a bacterial infection, heterophils are one of the first WBCs to congregate at the site of the injury. They are recruited within minutes following trauma, and are the hallmark of acute inflammation. Heterophils are the predominant cells found in pus, accounting for its whitish/yellowish appearance.
- Heterophils exhibit toxic changes in response to severe systemic illness, and are commonly found with sepsis (aka bacterial infection in the bloodstream.)

CONCERNS:

- Negligence in the practice of veterinary medicine
- Substandard care
- Inadequate record keeping

Seven CBCs were done throughout the month of December 2015, but then they just stopped, even though toxic heterophils were still present in significant numbers. On 12/29/15, the date the last CBC was done, the Medical Records state “Recheck slide evaluation performed and toxic changes are still reported.”

The entry goes on to say “will evaluate laboratory methods to ensure correct findings.” But then there is nothing to confirm whether this was done, or what the outcome was. Instead, toxic heterophils are well documented and categorized 4 times in the Medical Records during the month of December 2015, and then they are just discarded from further consideration without explanation.

Toxic heterophils were a clear indication that something somewhere was seriously wrong, even if a clinical illness was not readily apparent to Dr D’Agostino. But there

were no further diagnostics or efforts to investigate a cause for these toxic cells e.g. Blood Culture, C&S of the abscesses, additional CBCs, not even a comprehensive or even basic physical exam. No monitoring, no list of Rule-outs, no Plan, nothing. CHAI was just considered to be “normal.”

G. TRAUMATIC LESIONS & ABSCESES

SUPPORTING DOCUMENTS ATTACHED:

- 23.OCZ Medical Records 13May15 – 23Feb16
- 24.OCZ Keeper Records 13May15 – 1Feb16
- 14.OCZ Standard Elephant Down Protocol Jan 2016
- 15.Necropsy Report, Medical Records 1/30/16
- 12.Seattle Times Article-Interview Dr D’Agostino 3/19/16
- 16.Municipal Counselor Email 3/23/16
- 17.Samples of OCZ Medical & Keeper Records to Compare w/ WPZ Records
- 18.Samples of WPZ Medical & Keeper Records to Compare w/ OCZ Records
- 26.Video of Final Phase of Mechanical Hoist 12/18/15

FACTS:

Reviewing CHAI’s care with regard to her traumatic lesions and abscesses is important because one of the causes for her death determined at necropsy was sepsis likely originating from these lesions in her skin.

CHAI was mechanically hoisted to her feet twice – once on 12/14/15 and then again 4 days later on 12/18/15.

- We were only provided with a short snip-it of video footage from during the 12/18/15 mechanical hoist. The footage is *after* the 2 lifting straps (a girth strap behind her front legs and a flank strap in front of her hind legs) were already in place around CHAI and attached overhead to the hoisting apparatus.
- Therefore we do not know what physical trauma she may have suffered to her body during the placement of those straps.
- The OCZ Standard Elephant Down Protocol Jan 2016 calls for the use of a Bobcat to push a metal strap-pulling bar with a hook under the elephant.
- Within days after her second mechanical hoist, CHAI was examined for right-sided edema over the pressure point of her scapula (12/22/15,) and over the bony prominences of both her fore and hind legs (12/24/15.) These were attributed to her recent overnight recumbent events.

From the Gross Necropsy Report prepared by Dr D’Agostino:

- There were approximately 25 firm raised nodules (abscesses) in the skin along the right side of the body, from the submandibular area (aka lower jaw) to the lateral flank (aka rear leg.)
- Several of these abscesses were sealed closed with scab material, and contained cream-colored thick purulent material (aka pus.)
- The abscesses appeared to be associated with the incident in December 2015 when CHAI required assistance with a mechanical hoist to be lifted to her feet.
- “The lesions were being flushed daily by [the Keeper Staff,] and were slowly resolving.”

From the Histopathological Report of the skin (abscess) prepared by the Veterinary Pathologist:

(Michael M Garner, DVM, Northwest ZooPath, Monroe WA)

- There was “extensive ulceration of the epidermis subtended by a broad zone of suppurative inflammation and necrosis that extends deep into the underlying connective tissues.”
- In other words, there was an extensive area of skin that was severely ulcerated. Under that ulcerated skin was a wide area of infected and dead tissue characterized by the formation of pus. This inflammatory and necrotic pus-forming process had invaded deep down into other body tissues.
- “The epidermis adjacent to the ulcerated region is hyperplastic and edematous.”
- In other words, the skin next to and around the areas of ulceration was enlarged and swollen with fluid.

In the Medical Records 3/5/16, Dr D’Agostino described these lesions as “simple skin abscesses.” In the 3/19/16 Seattle Times Article-Interview, Dr D’Agostino dismissed the skin lesions as the equivalent of “pimples,” and contrary to the Histopathological Necropsy findings, said she was skeptical they were the actual source of CHAI’s blood infections.

CONCERNS:

- Negligence in the practice of veterinary medicine
- Substandard care
- Careless disregard for health, welfare, or safety
- Inadequate record keeping

Knowing exactly how they actually got the lifting straps in place under and around CHAI, would probably explain how she got the right-sided lesions that were attributed at necropsy to the mechanical hoist procedure.

- Heavy equipment was obviously involved.
- The Histopathological results of severe necrotic tissue damage extending “deep into the underlying connective tissues” are compatible with considerable physical (blunt force) trauma and injury to her right side.
- Veterinary Staff (including Dr D’Agostino on 12/14/15) were present during both mechanical hoists, and made entries in the Medical Records, but there is no mention of what type of equipment was used or how it was used to put the lifting straps in place.
- Especially having observed the mechanical hoist procedure herself, and the physical trauma involved with it, Dr D’Agostino should have anticipated the impending tissue damage and made a Plan to recheck and monitor closely for signs of injury – neither was done.

On 1/3/16 the Keeper Staff noted *one* abscess on CHAI’s right shoulder, which “ruptured under light pressure.”

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Dr D'Agostino did not examine CHAI until 2 days later on 1/5/16. At that time she noted there were *several* abscesses in the skin over the right shoulder and flank areas, and most had already ruptured and now "appeared to be healing normally."

These *multiple* abscesses (firm raised nodules) were not even noted by Keeper Staff even though they had been present long enough to have already gone through at least one development cycle of mature, rupture, drain, and then scab-over and refill.

Dr D'Agostino instructed the Keepers "to continue to flush out the abscesses daily during the morning bath and monitor closely." But she did not schedule a follow-up or recheck exam to verify healing, and there are no entries with regards to progress in either the Keeper Records or the Medical Records.

There also was no antiseptic/antibiotic topical flush prescribed to keep the abscesses clean, open and draining – any "flushing" was being done with the bath hose rather than by using any kind of medical/therapeutic antiseptic/antibacterial procedure.

Monitoring was not adequate, and what Dr D'Agostino prescribed for treatment was not effective – the abscesses certainly were not "resolving" or "healing normally" as was stated in the Medical Records. At necropsy, the abscesses were admittedly scabbed over, full of pus, had increased to approximately 25 in number, and the bacteria had been allowed to spread deeper into the body – all an indication that Dr D'Agostino's bathing hose recommendation was insufficient and ineffective.

Just for comparison: Abscess treatment on orphaned elephants in Kenya at the David Sheldrick Wildlife Trust, involves aggressive "surgical" opening and draining, cleaning and flushing with an antiseptic, topical application of tincture of iodine and oxytetracycline (antibiotic) spray, then packing with "green clay" (which has anti-septic and anti-inflammatory properties).

No "surgical" procedures, and nothing systemic and/or topical was prescribed for CHAI's abscesses - abscesses that eventually caused sepsis and led to her death.

And again, no documentation anywhere that the Keepers actually *do* any of the treatments as prescribed by the Veterinary Staff.

According to the Municipal Counselor's Office 3/23/16 response to our Records Request for potentially missing Medical Records, "if there is no medical entry, sample or treatment listed for a particular day, then nothing medical was done that day and the animal was normal."

Samples of select pages from the Medical and Keeper Records from the WPZ, and samples of pages from the Medical and Keeper Records from the OCZ, are provided as

Attached Supporting Documents. By comparing the Records from the two zoos, it is patently obvious that Dr D'Agostino not only maintains substandard records, but also provides substandard care.

H. NECROPSY RESULTS

SUPPORTING DOCUMENTS ATTACHED:

- 23.OCZ Medical Records 13May15 – 23Feb16
- 24.OCZ Keeper Records 13May15 – 1Feb16
- 15.Necropsy Report, Medical Records 1/30/16
- 11.OCZ Press Release on Necropsy 2/20/16
- 12.Seattle Times Article-Interview DR D'Agostino 3/19/16

FACTS:

According to the Necropsy Report from the Histo-Pathologist, CHAI died from a combination of emaciation with a severe atrophy of body fat, and sepsis. The septic process likely originated from the abscesses in her skin, and there was microscopic evidence of endotoxic shock having occurred.

Sepsis is a serious medical condition that occurs when an infecting agent such as bacteria gets into the bloodstream. The infection activates the entire immune system, which then sets off a chain reaction of events that can lead to uncontrolled inflammation in the body. The whole-body response to this infection produces changes in temperature, blood pressure, heart rate, white blood cell count, and breathing. Severe forms of sepsis cause septic shock, which quickly leads to the failure of multiple organs and death.

Adipose tissue, or fat, is an anatomical term for loose connective tissue composed of adipocytes. Its main role is to store energy in the form of fat. The microscopic analysis of the adipose tissue samples revealed that adipose stores were severely atrophic, or wasted away, leading to the state of emaciation.

CONCERNS:

- Conduct likely to deceive the public
- The use of false or deceptive statement in any document connected with the practice of veterinary medicine
- Negligence in the practice of veterinary medicine
- Substandard care

After CHAI was found dead on 1/30/16, Dr D'Agostino made the following entry in the Medical Records: "There were no previous signs of illness." She also wrote in the Gross Necropsy Report "The lesions [abscesses] were being flushed daily by Keepers and were slowly resolving." Neither was true.

In the OCZ Press Release 2/20/16 regarding the Necropsy results, Dr D'Agostino is quoted as saying "Despite the attentive care provided, animals are very skilled at masking symptoms. It's innate."

It is true that animals can mask symptoms. But CHAI's symptoms were NOT hidden:

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- She died of emaciation (weight loss) which was clearly documented in her Specimen Report over the 8.5 months she was at the OCZ, and which was clearly apparent in the one Body Condition Scoring that was done 12/15/15, and which would have been even more apparent had there been any kind of medical Plan to diagnose, monitor, and address the problem.
- She also died of septicemia from her approximately 25 (!) effectively untreated pus-filled, deeply penetrating abscesses (per the Histo-Pathologist) which were clearly visible all along her right side.

In her interview for The Seattle Times Article on 3/19/16, Dr D'Agostino is quoted as saying "Unfortunately, they can't tell us if they don't feel well. We have to go on what we can detect." True, but Dr D'Agostino did not detect anything because she did not *look*, she did not make a *Plan* to look, she did not *monitor*, she did not *advocate* for CHAI's health in any way.

I. DENTAL ANOMALIES

SUPPORTING DOCUMENTS ATTACHED:

- 23.OCZ Medical Records 13May15 – 23Feb16
- 24.OCZ Keeper Records 13May15 – 1Feb16
- 15.Necropsy Report, Medical Records 1/30/16
- 19.Ele Aid Dentition Article
- 20.Colyer Institute Dentition Captivity Disorders
- 21.Report on Skull/Teeth, Medical Records 3/2/16
- 22.OCZ Press Release on Skull-Teeth 3/14/16
- 25.Link to KOCO TV News Interview Dr D’Agostino re Teeth 3/14/16
- 12.Seattle Times Article-Interview Dr D’Agostino 3/19/16

FACTS:

CHAI’s dental anomalies are of particular interest to look at in detail, because based on OCZ Press Releases and the 3/2/16 Medical Records, Dr D’Agostino has concluded that her death was directly and entirely caused by her *teeth*.

A routine fecal examination was performed on 12/1/15, and the sample was found to be abnormally sweet-smelling with the hay stems still very large and not chopped up. This is important because on the list of causes for abnormal feces and incomplete digestion of hay, is the presence of dental problems.

Two days later on 12/3/15, Veterinary Staff came to discuss CHAI’s “atypical stool appearance” with the Keeper Staff, and *learned from them* that CHAI had an abnormal tooth. Following an opportunistic examination of CHAI’s teeth, a detailed entry was made in the Medical Records, specifically about her upper right arcade:

- The Keeper Staff mentioned that CHAI had an abnormal right upper molar tooth.
- Additionally, this tooth abnormality was known to the WPZ Keeper Staff who said it had been that way “for 20 years.”
- Visual inspection confirmed the right upper molar was abnormal – it was placed more rostrally (forward) in the mouth than the left upper molar, and it deviated medially (toward the center of the mouth) and had a curvature.
- The lower right teeth were not visible during this inspection, but it was suspected that the occlusal surfaces did not match those of the upper molar tooth.
- The teeth on the left side appeared normal.
- With molar attrition (i.e. the normal cycle of tooth eruption/use/wear/loss that is found in elephants) it is likely that all teeth in the upper right arcade have been abnormal throughout her life, and that this will continue to occur with subsequent tooth eruptions.
- No further monitoring of the teeth is needed unless Staff notices a new problem.

One week later, a repeat fecal sample did not have the same abnormalities of sweet-smelling or large stems. In fact, all prior and all subsequent comments made about fecal

material and fecal tests in the Medical Records (18 in total,) note that her feces was consistently “normal,” even at the time of her death.

On 3/2/16 a detailed entry was made in the Medical Records regarding CHAI’s skull and teeth following processing at the Museum of Osteology:

- Both upper right and left molars are severely deformed and twisted with little or no occlusal surface.
- The lower right molar is impacted causing marked deformation of the incoming molar as it was progressing forward.
- The lower left molar is grossly normal.
- There is some bone change and deformation along the right mandible, which could be due to chronic tooth root infection from molar impaction *or* from pressure from the impacted tooth.

An Addendum on 3/5/16 relates a phone call with Dr Jim Oosterhuis of the Colyer Institute (a center for the study of oral disease and nutrition in exotic animals):

- The upper molars are severely deformed and twisted.
- The lower right molar is impacted causing deformity of the progressing molar behind.
- He has seen deformities like these in several elephants, especially those that were wild born and brought to US zoos in the 1970’s. These animals are now approaching 40-45 years of age and showing significant dental abnormalities. This disease likely has a genetic component, which may be confounded by poor nutrition early in their life of captivity. It appears that once the damage has been done, the teeth progressively worsen with age and with each new set of molars. The process culminates in an inability to masticate food normally.
- Impacted teeth are often chronically infected.
- In this case, there was no medical or surgical treatment to correct the condition.

On The Colyer Institute website there is an article on Captivity Disorders in Elephants by Dr Oosterhuis. “One of the most common dental disorders of elephants living in captivity is impacted or mal-positioned molar teeth.” These clinical problems “are exacerbated when combined with elements not customarily found in the elephant’s natural environment, such as steel or concrete enclosures and, from a dietary perspective, a lack of abrasivity.”

There is also a section that details the clinical signs of molar malocclusion (mal-positioning or impaction.) The first and most common sign of a functionally significant molar malocclusion, aside from the visually obvious mal-position of the teeth, is a change in the texture and coarseness of the animal’s fecal mass usually associated with weight loss. Dr Oosterhuis states “A change in fecal consistency is a direct and absolute indication of a change in the masticatory efficiency of the animal.”

Dr D’Agostino also adds an Assessment/Plan in the Medical Records:

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- It is most likely that CHAI had a congenital abnormality in her dentition that progressively worsened throughout her life.
- The abnormal occlusal surfaces of her molars prevented her from masticating her food properly, which in turn led to the inability to extract caloric content.
- Bony changes in the right mandible suggest the possibility of a chronic tooth root abscess.
- This would be a more likely source of the bacterial septicemia noted on histopathology than the “simple skin abscesses” noted at necropsy.
- Radiographic imaging of an elephant’s teeth is not possible due to the size and density of the skull.
- The OCZ does have a plumber’s camera specifically purchased to allow a thorough inspection of the teeth, but they never used it on CHAI.

CONCERNS:

- Negligence in the practice of veterinary medicine
- Substandard care
- Careless disregard for health, welfare, or safety
- The use of false or deceptive statements in any document connected with the practice of veterinary medicine
- Conduct likely to deceive the public
- Inadequate record keeping

On 3/14/16, the OCZ put out a Press Release where they stated CHAI had “severe tooth abnormalities that were not detectable prior to her death,” then went on to describe her upper molars. As outlined above, this was not the case – Keeper Staff were well aware of her tooth abnormalities for “20 years”, and Veterinary Staff documented them in the Medical Records on 12/3/15.

Also on 3/14/16, Dr D’Agostino was interviewed on KOCO TV News and stated: “When she arrived here at the Zoo from Seattle, we thought wow, she’s got some funky looking teeth. Um. We were actually hopeful that as those teeth would shed out that the ones behind it would be normal, and problem solved. Unfortunately that was not the case.” But again, this is completely contrary to what was written in the Medical Records on 12/3/15, which additionally also notes “No further monitoring of teeth needed unless staff notices a new problem.”

In that same TV interview, DR D’Agostino stated “some of these elephants that were orphaned in the wild in the ‘70’s are starting to have a lot of tooth problems.” She implied that CHAI’s teeth were a result of being “orphaned in the wild” and not the result her life-time of zoo captivity confounded by poor nutrition as was asserted by Dr Oosterhuis not only in the Medical Records 3/2/16, but also in his article on Dental Captivity Disorders from his web site.

In the Medical Records 3/2/16, Dr D’Agostino also distorted Dr Oosterhuis’s comments by stating CHAI’s condition was “congenital” i.e. she was born with it and therefore nothing could have been done to prevent her problems. Dr Oosterhuis actually said the disease likely has a “genetic component” (which is not the same as “congenital”) and is a “captivity disorder” from spending a lifetime in a zoo.

DR D’Agostino additionally stated that CHAI’s teeth “progressively worsened through out her life.” Maybe, but they only became something to talk about after her death under the care of Dr D’Agostino. In the Seattle Times Article-Interview from 3/19/16, Gigi Allianic from the WPZ is quoted as saying that during CHAI’s more than 3 decades in Seattle, CHAI never had problems chewing or maintaining her body weight. “CHAI had oddly shaped teeth, but she didn’t have any abnormalities that rose to the level of a medical concern that required veterinary intervention or discussion.”

Also in the Seattle Times Article-Interview from 3/19/16 Dr D’Agostino is quoted as saying “I think her teeth were really bad for period of time and that she wasn’t able to chew her food very well, so she wasn’t extracting much caloric content from the food.”

If she was prevented from masticating her food properly and therefore could not extract caloric content, then why did the feces come out all chopped up like normal – where was that being done if not in the mouth by the teeth?

And as Dr Oosterhuis in his Dental Captivity Disorders article details, progressive masticatory malfunction is fairly easy to monitor by routine observation and visual analysis of the individual’s fecal material. Doing this is an essential component to monitoring the masticatory efficiency of an elephant’s dentition, especially as they age. And yet there is no evidence in the Records that this was ever done at the OCZ.

In CHAI’s case, she was progressively losing weight, but according to the Medical Records, her fecal mass, texture, and coarseness consistently remained normal. This should have led Dr D’Agostino to look elsewhere (anywhere) for her considerable deterioration and weight loss – had she even noticed that CHAI was wasting away. She also should have considered the obvious potential for dental problems, and actually looked in her mouth with the “plumber’s” camera.

Dr Oosterhuis concluded nothing could have been done *medically or surgically* to correct CHAI’s teeth, but that in no way rules out a host of mitigation strategies that could have been employed to support her nutritionally. [As a note, old elephants in India and Thailand without *any* teeth have been maintained at a healthy weight by providing “processed” feed stuffs and soft foods that allow them to get the nutrition they need and still have normal gut flora and motility.]

Dr D’Agostino led the public to believe:

- She was well informed about CHAI’s teeth.

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- CHAI's dental anomalies were congenital (= present at birth.)
- CHAI was "orphaned" in the wild and therefore needed a home. She was not orphaned (which means her parents were dead,) she was *taken* from her mother to be sold into the zoo trade at the age of 1 year - well before she was even weaned (elephants are milk-dependent until 3-4 years of age.)
- CHAI was not able to chew her food to extract caloric content.
- Nothing could be done because an elephant's skull cannot be x-rayed.
- Nothing could be done because there was no *medical or surgical* treatment to correct her condition.

And then she opined that the Histopathologist was *wrong* when he concluded that CHAI died from sepsis likely originating from the lesions in the skin. She instead decided, with no basis in fact, that the impacted molar was the more likely candidate.

The Gross Necropsy Report states "no oral lesions are present", and, "The upper right front molar was shed several weeks ago and the socket remains open but clean and free of food debris." There is no indication of any gingivitis or infection around the teeth or anywhere else in the oral cavity.

In the 3/19/16 Seattle Times Article-Interview, Dr D'Agostino told the reporter that if they had realized how bad CHAI's problems were, they could have ground up her hay and taken other steps to ensure proper nutrition. Which again begs the question, why *didn't* Dr D'Agostino realize how serious CHAI's problems were, and take the appropriate action to ensure proper nutrition.

J. CONCLUSION

Dr D'Agostino never expressed any concern (or even appeared to notice) CHAI's significant weight loss and emaciation which was listed in the necropsy as one cause of death, in addition to sepsis. She did absolutely *nothing definitive* to address the fact that CHAI was wasting away. If she knew about her "funky looking teeth" when CHAI first arrived in Oklahoma as she claims, then why was there nothing in the Medical Record, and why was checking those "funky looking teeth" with the special "plumber's" camera (specifically purchased for that purpose) not at the top of her list for further investigation to rule them in or out as a potential problem.

As noted, the other cause of death listed in the necropsy was sepsis. The *twenty-five* lesions along her right side were clearly visible – Dr D'Agostino counted them at necropsy and submitted a swab to the lab for a Culture and Sensitivity on the pus. Yet like the weight loss, she never bothered to treat them either, medically *or* surgically. Instead, she left that to the Keepers and a garden hose.

CHAI did have abnormal upper molars "for 20 years", but no signs of gingivitis or infection were ever noted in the WPZ or the OCZ Medical Records, or during the Gross Necropsy when her entire mouth was easily inspected by Dr D'Agostino.

Dr D'Agostino has no excuse for failure to *notice* the weight loss and emaciation, failure to *search* for a cause, and then failure to *take definitive steps* to resolve it.

She has no excuse for failure to *pursue* a cause for the toxic heterophils that were still showing up on her last CBC, or at least *confirm* they were bogus.

And there is no excuse for her failure to *anticipate* the tissue damage, failure to closely *monitor* for signs of traumatic injury, and then failure to ultimately *treat* the extensive traumatic lesions (abscesses) that were caused by being mechanically hoisted up on 12/14/15 and 12/18/15.

Negligence in the practice of veterinary medicine, substandard care, careless disregard for CHAI's health, welfare, and safety, inadequate record keeping, deceptive statements in the Medical Records and to the public – all are concerns that surround the time that CHAI spent under Dr D'Agostino's care.

Dr D'Agostino was finally forced to notice there was something wrong when CHAI was found dead on the ground....and then she wrote in the record: "There were no previous signs of illness."

As described in this Summary of Medical Records & Concerns, Friends of Woodland Park Zoo Elephants alleges that Dr D'Agostino may have violated provisions of the Oklahoma Veterinary Practice Act and therefore should be subject to disciplinary action.

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