

EQUINE MEDICAL DIRECTOR HEALTH AND SAFETY REPORT TO THE WASHINGTON HORSE RACING COMMISSION 2018

WHRC Medication Threshold Changes

In 2018 The Washington Horseracing Commission (WHRC) adopted lowered thresholds for six commonly used therapeutic medications. These thresholds and the accompanying recommended withdrawal times were based in part upon the recommendation of the Association of Racing Commissioners International (ARCI), and of the Racing Medication and Testing Consortium's (RMTC) research and recommendations. During the public hearings on the lowering of thresholds, the WHRC received testimony that the RMTC withdrawal recommendations were inaccurate and faulty and would result in an excessive number of violations due to the inability of trainers and veterinarians to adapt to the lowered thresholds if they were adopted. The WHRC addressed these concerns by providing assistance to trainers and veterinarians to comply with the lowered thresholds by instituting WHRC Policy Statement 2018-01. This policy granted waivers of penalty under specific criteria for the medications with the newly lowered thresholds, if overages were above the new thresholds but below previous thresholds. Additionally, free pre-race research testing was offered and is discussed below.

The thresholds in serum and plasma for the non steroidal anti-inflammatory (NSAID) phenylbutazone (PBZ), flunixin meglumine (FLN), and ketoprofen (KET) were lowered as follows: PBZ was lowered from 5 mcg/ml to 2 mcg/ml, FLN was lowered from 50 ng/ml to 20ng/ml, and KET was lowered from 10 ng/ml to 2 ng/ml. The threshold in serum/plasma for the corticosteroid dexamethasone (DEX) was lowered from 500 pg/ml to 5 pg/ml, and for the corticosteroid Methylprednisolone acetate (MPA) from 400 pg/ml to 100 pg/ml. The threshold in serum/ and plasma for the bronchodilator clenbuterol (CLN) in Thoroughbreds was lowered from 25 pg/ml to 2 pg/ml, and a threshold in urine of 140 pg/ml was adopted. *(figure 1)*

Figure 1 WHRC Threshold Changes for 2018

AC 260-70-630 changed the following medication thresholds for 2018 (serum/plasma except as noted *)		
Medication	2018	2017
Phenylbutazone (PBZ)	2 mcg/ml	5 mcg/ml
Flunixin meglumine (FLN)	20 ng/ml	50 ng/ml
Ketoprofen (KET)	2 ng/ml	10 ng/ml
Clenbuterol (CLN)	2 pg/ml	25 pg/ml
Thoroughbred	140 pg/ml in urine*	No urine threshold*
Dexamethasone (DEX)	5 pg/ml	500 pg/ml
Methylprednisolone (MPA)	100 pg/ml	400 pg/ml

WHRC Policy Statement 2018-01.

Penalty waiver for overages above new threshold, below previous threshold.

As mentioned above, a waiver of penalties was possible for the six medications with newly adopted lower thresholds. This policy was applied to overages of two medications PBZ and DEX, which were reported in nine (9) overages of post race sample. *(figure 2)*

The PBZ overages were found in five (5) horses, all associated with oral administration by the trainer, none from veterinarian administered injection. Two of these five PBZ overages were from one trainer on different horses, and one

of the PBZ overages was from a trainer who also had with a Stacking violation of PBZ and FLN, all from oral administration. The corticosteroid DEX was reported in four (4) overages, and 3 were associated with trainer oral administration.

Oral administration of medication has variables of time involving digestion and absorption of medication into the bloodstream, which are not present when a medication is injected directly into the bloodstream by intravenous injection. Oral administration of PBZ was also responsible for six (6) horses reported above threshold following ‘clocked works’ to be removed from veterinarian’s list. With more than 1700 horses receiving veterinarian administered PBZ, and more than 700 horses receiving DEX veterinarian administrations, these results would validate the accuracy of the RMTC withdrawal recommendations, which are based on intravenous administrations.

Figure 2 Medications effected by WHRC Policy Statement 2018-01: Penalty exemptions

	Family	RCI Class	2018
Dexamethasone	Corticosteroid	Class 4	4
Phenylbutazone	NSAID	Class 4	5

WHRC Pre-Race Research Testing

As mentioned, another program instituted to assist practicing veterinarians and trainers with compliance of the new threshold levels and adaptation to withdrawal guidelines, was continuation of a research project from 2017 in conjunction with the commission’s contracted testing laboratory –Truesdail Laboratory. This program offered free pre-race testing of blood samples for the medications with the newly lowered thresholds. **(figure 1)**

Blood samples were shipped and tested for the specific therapeutic medications at no cost to the licensee or WHRC. One veterinarian submitted three samples for one trainer from one horse at sequential times (26, 28, 30 hrs) following veterinarian administration of PBZ. All samples were below threshold; the scarcity of submissions is an indication, along with the few violations reported (and discussed below) that adaptation to the lowered thresholds was not a significant concern to trainers or veterinarians.

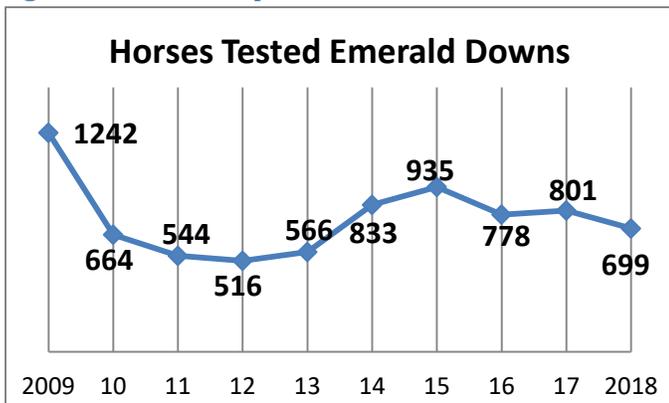
WHRC Total Racing Statistics

Washington had two race meets in 2018, a 67 day meet at Emerald Downs (EMD) from April 21 – September 23, 2018. (72 days in 2017, 70 days in 2016) and a 6 day meet at Sun Downs (SUN). **(figure 3)** Samples from EMD were submitted from all first place finishers, as well as an additional 126 “special” samples selected by the Board of Stewards for testing. Truesdail Laboratories of Irvine, California the WHRC contract laboratory, analyzed samples from seven hundred fifty nine (759) horses, six hundred ninety nine (699) from Emerald Downs and sixty (60) from SUN, a 13% decline from 2017 (801) at EMD. There were sixty eight (68) pre-race TCO₂ tests submitted from EMD in 2018, a 35% increase compared to the forty four (44) samples submitted in 2017. **(figure 4)**

Figure 3 Number of: Race Days, Training Days, Races, Starters 2007-2018

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Racing Days	91	91	91	90	82	81	75	73	70	70	72	67
Training Days	241	240	238	221	208	187	218	215	215	202	210	210
Races	824	827	815	772	778	690	665	641	647	599	604	558
Starters	6252	6362	6058	5429	4898	4390	4427	4022	4438	4450	4223	3927

Figure 4 Blood Samples Submitted EMD 2009-18



During the WHRC hearings for lowering the thresholds in 2018, testimony was offered to the WHRC that if Washington adopted the lower thresholds, it would experience a decline in the number of horses running as well as a sharp increase in violations. The 2018 racing statistics did not reflect those concerns. There were 3,927 total starts, a 7% decrease from the 4,224 total starts in 2017 which is a reflection of the 5 fewer days of racing in 2018. There was an average of 7.04 starters per race in 2018, compared to 6.99 starters per race in 2017. The average races per day in 2018 were 8.61 and

8.38 in 2017. Although both sets of statistics reflect a slight increase, the number of horses racing, did not decline, and remained virtually the same for both years.

Emerald Downs Threshold Violations 2018

There were nine (9) medication violations reported at EMD in 2018, the same as reported in 2017. **(figure 5)**

The most frequently reported medication violations were for Stacking of NSAIDS (with PBZ and FLN), reported three (3) times. Of these Stacking violations 2 were from 1 trainer, on different horses. Flunixin meglumine was reported in one (1) violation, and was associated with one of the Stacking violations, from the same horse/test and was ruled as one violation by the Board of Stewards. The corticosteroid betamethasone was reported in two (2) violations as was the sedative xylazine. The diuretic furosemide was reported in one (1) violation **(figure 6)**

Figure 5 Number of Violations 2012-18

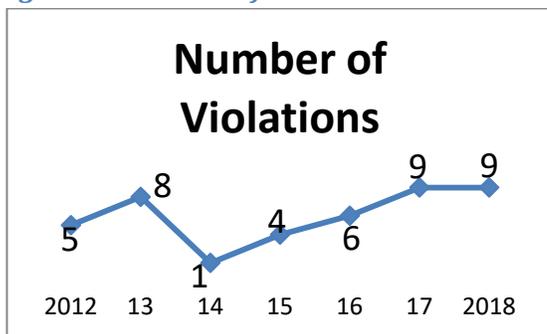


figure 6 Emerald Downs Threshold Violations 2018

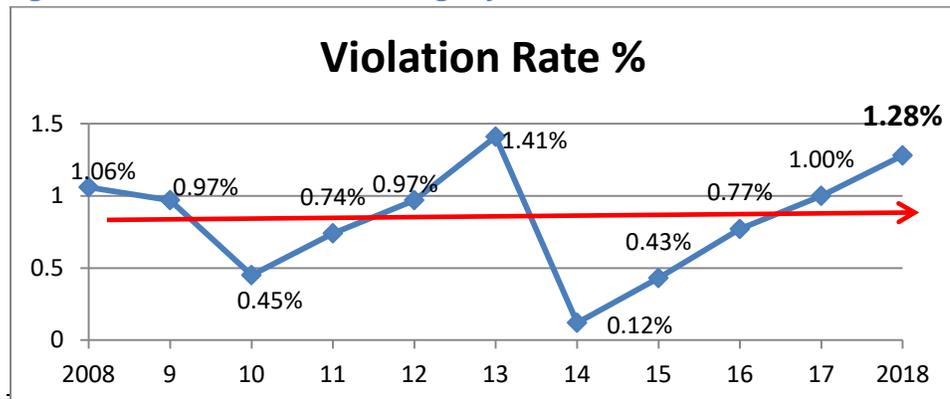
Medication	Family	2018
Betamethasone	Corticosteroid	2
Flunixin	NSAID	1
Stacking nsaid	NSAID	3
Furosemide	Diuretic	1
Xylazine	Sedative	2

A concern was raised from both stakeholders and practicing veterinarians during discussions for lowering thresholds, and following their adoption during the season, that the corticosteroid methylprednisolone acetate (MPA) would be eliminated as a treatment option because of the lower threshold. A review of the veterinarian’s daily treatment reports from 2017 and 2018 revealed that in 2017 MPA was administered 712 times, and in 2018 291 times. Although a significant decrease from the 2017, MPA remained a frequent treatment option in 2018 without any violations reported. Additionally, as previously stated, the reduction in use of MPA did not appear to affect field size in 2018.

Violation Rate (percentage of violations per lab submissions)

Although both 2018 and 2017 both had 9 violations, fewer samples were submitted in 2018. This resulted in 1.28% of all submissions reported as violations in 2018, an increase from the 1% in 2017. This continues a slightly increasing trend in violation rate percentage begun in 2014 and depicted by the red arrow. **(figure 7)**

Figure 7 Violations as a Percentage of Submissions 2009-18



Violations by RCI Class

As RCI Penalty Class increases, penalties decrease; as such, RCI Class 4 violations are less severe than RCI Class 3. With the exception of 2014 and 2017, the predominant violations reported to the WHRC have been RCI Class 3. In 2018 Seven (7) of the nine (9) violations in 2018 were for RCI Class 4 medications, four (4) involving penalties of NSAID’s. In comparison, the majority of violations of 2017 were from Class 3 medications. **(figure 8)**

Figure 8 Violation by RCI Class

Medication	Family	RCI Class	2018	2017
Betamethasone	Corticosteroid	Class 4	2	0
Flunixin	NSAID	Class 4	1	1
Stacking nsaids	NSAID	Class 4	3	0
Furosemide	Diuretic	Class 4	1	0
Xylazine	Sedative	Class 3	2	0
Clenbuterol	Bronchodilator	Class 3	0	6
Methocarbamol	Muscle relaxer	Class 3	0	1
Stanozolol	Anabolic steroid	Class 3	0	2

Health and Safety Statistics

Status at Time of Fatality

There were nineteen (19) fatalities at Emerald Downs in 2018. Twelve (12) fatalities were associated with racing, two (2) associated with training, and five (5) from conditions unrelated to racing or training. **(figures 10, 11)** Of the twelve (12) race associated fatalities, WHRC veterinarians euthanized five (5) horses on track, and one (1) off the track immediately after the race. Practicing veterinarians euthanized three (3) horses off the track within 24 hours of the race, and two (2) horses more than 72 hours after the race** **(these two horses fall outside the 72 hour criteria of the Jockey Club injury data base for inclusion as racing fatalities)**. One (1) horse died on the track without euthanasia.

Racing fatalities

During the 67 race days at EMD In 2018 there were 3,927 total starts at EMD. The ten (10) race fatalities occurring within 72 hours of the race resulted in a ‘fatalities per 1000 starts’ rate of 2.55. **(figures 10, 11, 12)** Despite the increase from 2017, it is too early to determine if this increase was an anomaly or a change in the trend of the last 12 years where the average from 2007 through 2018 was 1.96 ± 0.46 fatalities per 1000 starts, and the statistical linear trend during this time was decreasing. **(figure 12)**

Figure 10 Fatalities: Total, Per 1000 Starts, Location 2007-18

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Racing Days	91	91	91	90	82	81	75	73	70	70	72	67
Starters	6252	6362	6058	5429	4898	4390	4427	4022	4438	4450	4223	3927
Racing fatalities	15	11	16	9	10	8	8	5	11	8	6	10
Fatalities/1000 starts	2.40	1.73	2.64	1.65	2.04	1.80	1.81	1.24	2.47	1.80	1.42	2.55
Training	12	11	8	12	5	4	4	8	4	4	4	2
Paddock		0	1	0	1	0	0	0	0	0	0	0
Barn ** (2 after 72 hrs)	8	14	10	10	9	8	4	4	5	3	8	7
TOTAL	35	36	35	31	25	20	16	17	20	15	18	19

Figure 11 EMD Racing Fatalities 2007-18

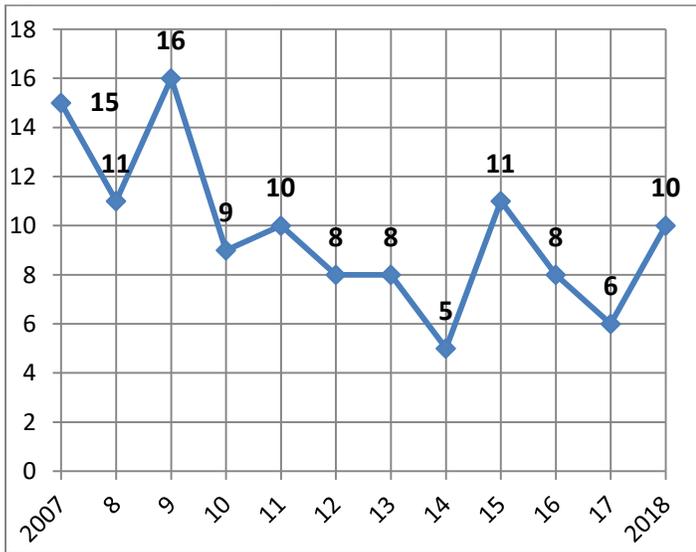
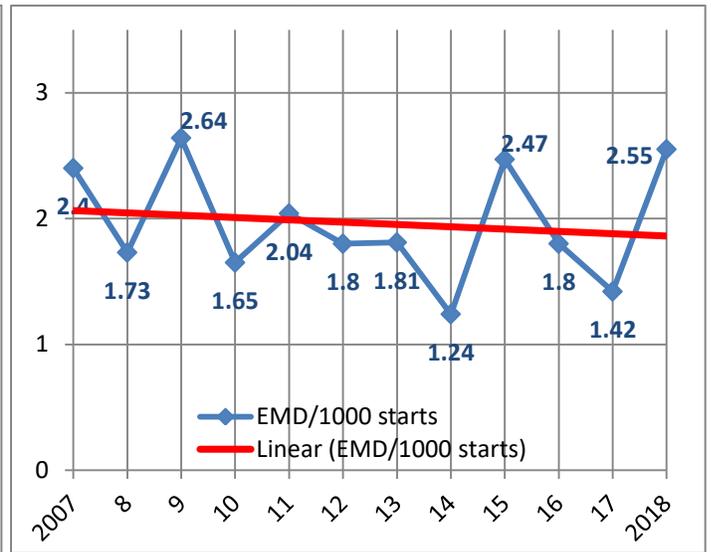


Figure 12: EMD Racing Fatalities/1000 Starts 2007-18



Comparing the rates of fatalities/1000 starts at EMD and nationally on dirt tracks from 2009-2017 (years available nationally) showed a slightly higher, but statistically insignificant different, national rate of 1.98 ± 0.17 with a decreasing linear trend during this nine year interval (red line). (figure 13, 14) (http://jockeyclub.com/pdfs/eid_9_year_tables.pdf)

Figure 13 Fatalities: EMD/1000 starts; National/1000 starts Dirt Tracks 2007-18

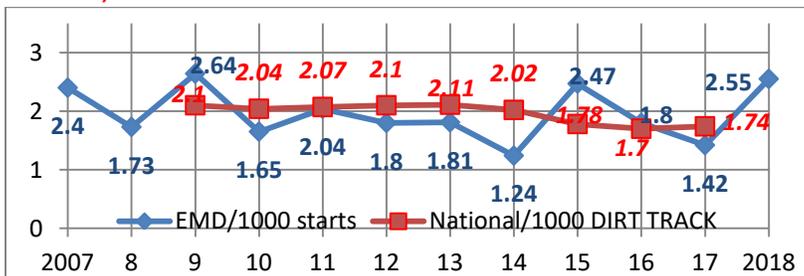
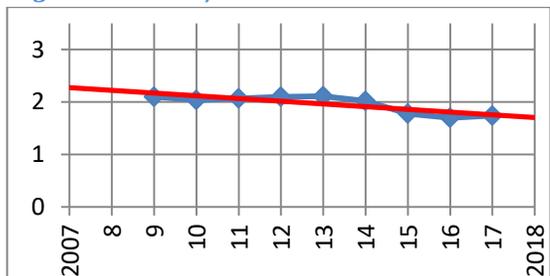


Fig 14 National/1000 starts dirt tracks trend



The ten (10) racing fatalities (by definition-occurring less than 72 post race) were due to the following causes: six (6) horses with fractures of the sesamoid bones, two (2) horses had open severe fetlock luxations, and one (1) horse an open severe pastern luxation. One (1) horse developed severe exercise induced pulmonary hemorrhage (EIPH) during a race, resulting in fatality. Although not a definitive diagnosis, no other significant lesion was detected.

Pre-existing injuries and fatalities

Correlation and direct links between racing fatalities and potentially contributing factors are sometimes difficult to make, but there is a very strong statistical correlation between catastrophic injuries and pre-existing injury, both in national statistics and in Washington. Although the presence of a pre-existing injury does not necessarily indicate that it was a contributing factor to a fatal injury, they often do. Of the thirteen (13) fatalities resulting from traumatic injuries in racing and training, eleven (11) were found to have pre-existing injuries ranging from osteoarthritis to healed fractures. Of these eleven (11) pre-existing injuries, five (5) horse's pre-existing injuries did contribute to their fatality. Of the five (5) horses with catastrophic injuries warranting humane euthanasia on the track, three (3) had pre-existing injuries contributing to their catastrophic injury. In light of these associations, fatalities are not the only parameter of consequence requiring vigorous evaluation. Detection of active or chronic pre-existing injuries are crucial in addressing not only fatalities, but career ending - or career delaying injuries as well, and will be discussed below in the section of the Veterinarian's List.

Fatalities after 72 hours

Two (2) musculoskeletal fatalities, resulted from racing were euthanized more than 72 hrs after racing. Both horses sustained carpal bone fractures, with one horse also sustaining a sesamoid bone fracture on the contralateral limb. These fatalities are not used in calculations for 'per 1000 starts', as the Jockey Club Equine Injury Database stipulates fatalities occurring within 72 hours of the race. They are included in the descriptions below on fatalities by month.

Training fatalities

Two horses had injuries during training which resulted in fatalities. One (1) horse sustained a pelvic fracture and one (1) horse a sesamoid fracture.

Non racing fatalities

Five (5) horses were euthanized in the barns for non racing illness. Two (2) horses had gastro intestinal conditions; one (1) horse had respiratory disease, one (1) horse with laminitis, and one (1) horse with an undiagnosed cause for its illness and death.

Racing Fatalities by Month

There were two (2) racing fatalities in June, four (4) in July, two (2) in August, and four (4) in September. **(figure 13)** When examined by month in conjunction with number of starts, the calculated fatalities per 1000 starts (no month had 1000 starts) were: June 2.5, July 4.96, August 2.67 and September 5.96. The pattern of incidence is similar to 2017, with a greater frequency of racing fatalities as the race meet progresses, but the magnitude was greater in 2018. **(figure 14)**

Figure 13 Total racing fatalities by month

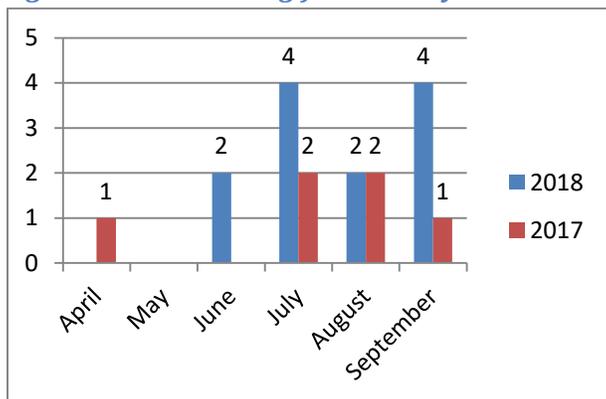
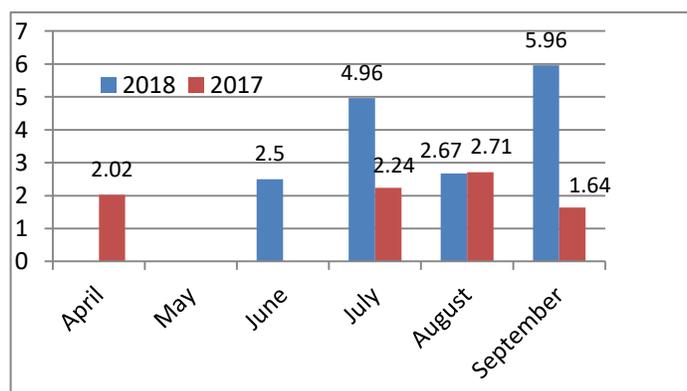


Figure 14: Fatalities/1000 starts by month



Veterinarian's List

The veterinarian's list (VL) provides an indication of the incidence of race related injuries and their impact on the racing career of a horse which occurs in significantly greater numbers than fatalities. Previous studies have reported inclusion on the VL increases the risk for fatal injury, non fatal injury, and significant delays to next race and interruptions to the entire racing career of a horse. Horses appearing on the VL had a significantly longer interval to their next race, significantly more will not race in 6 months or 12 months, and these horses will have a 2-3 times greater interval to their next race compared to horses who have not appeared on the VL. *(Profiling to Prevent Injury. International Conference of Racing Analysts and Veterinarians. Philadelphia 2012. M. Scollay)(Pre-Race Inspections. Welfare and Safety of the Racehorse Summit IV. Lexington 2012. M. Scollay)*

Circumstances when Placed on Veterinarian's List

This report reflects current racing statistics of horses placed on the EMD VL in 2018 for musculoskeletal conditions of unsoundness. These do not include trainer scratches, or starting gate scratches due to trauma which are not placed on the VL and are not required to work off the list.

In 2018 fifty five (55) horses were placed on the VL as unsound for racing. *(figure 15)* Of the three thousand Three thousand six hundred seventy five (3,675) horses examined during morning pre-race inspections, twenty seven (27) or 0.7% of those examined, were placed on the VL for observable lameness or racing unsoundness detected by physical palpation of the front legs. Twenty (20) horses were scratched and placed on the VL from observations of horses from the saddling paddock to the starting gate, and eight (8) horses were observed to be lame after a race and placed on the VL. *(figure 16)*

Figure 15: Examined Horses and Veterinarian's List

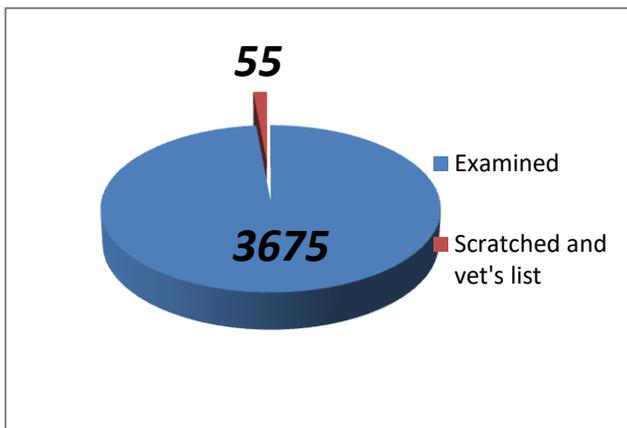
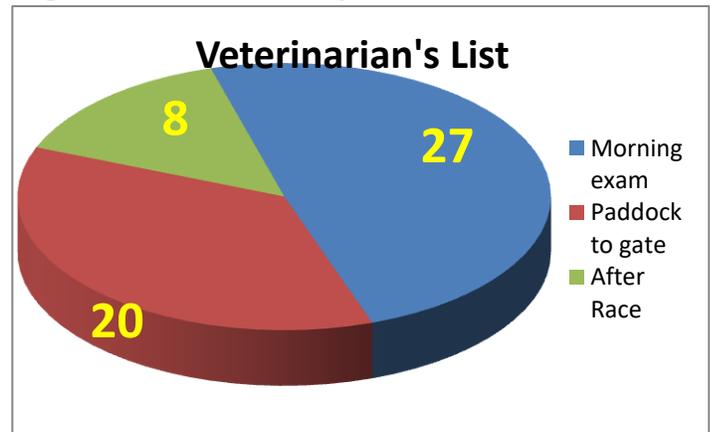


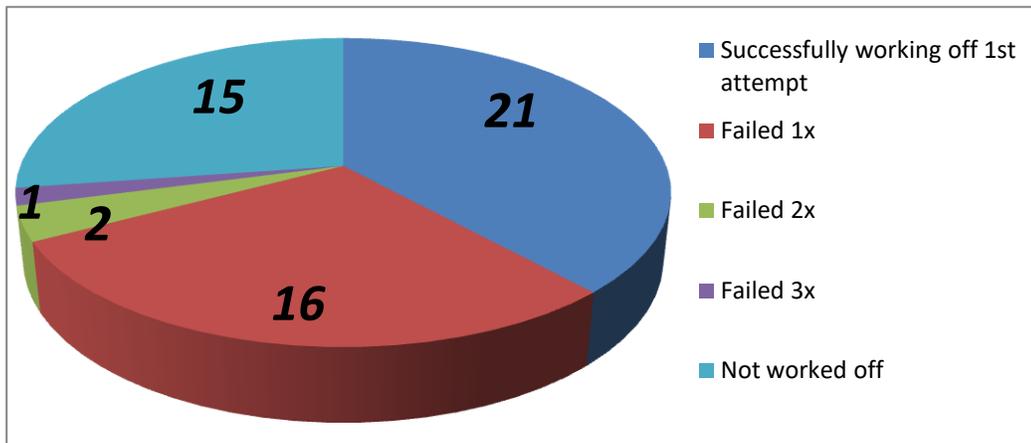
Figure 16: Vet's List Entry Location



Working off Veterinarian's List successfully on first attempt- delays in racing career

Twenty one (21) horses- or 38% on the horses put on the VL at EMD in 2018 successfully worked off the list on their first attempt. The average time between being placed on the VL until working off was 15 days and ranged from 8-73 days. These horses were placed on the VL equally from morning exams and from post parade to starting gate. Fifteen (15) – or 27% did not work off and sixteen (16) – or 29% failed on their first attempt. Two (2) horses failed twice, and one (1) failed three times, and will discussed in greater detail below. *(figure 17)*

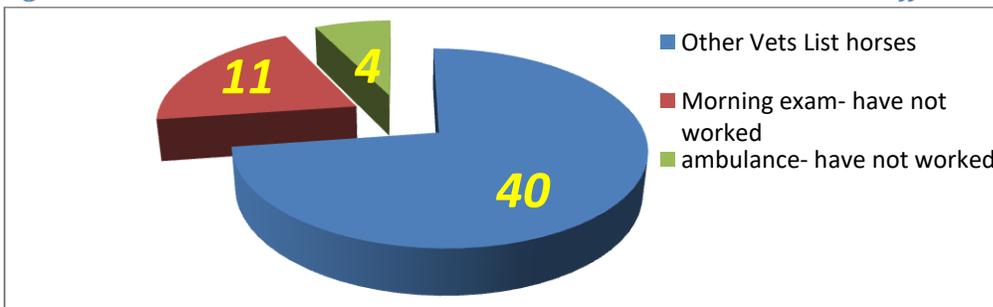
Figure 17 Veterinarian's List totals: working off, multiple attempts, not working off



Horses not working off veterinarian's list

As of the writing of this report at the end of November, of the fifty five (55) horses put on the VL at EMD, fifteen (15) have not attempted to work off the list. Four (4) of these horses- or 7% of the VL, were placed on the list following ambulance removal after a race (these horses do not as yet have an official work reported). Eleven (11) - or 40% of the VL horses, placed on the list from morning exams, have not attempted to work off, and only two (2) of them have official clocked works. **(figure 18)**

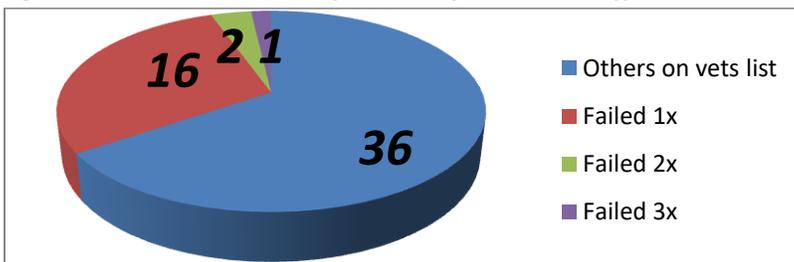
Figure 18: Horses on EMD's veterinarian's list that have not worked off.



Horses with multiple attempts to work off veterinarian's list

Of the Horses placed on the EMD VL in 2018, fifty five (55) attempted to work off the list, many had one or numerous failed attempts. Sixteen (16) horses- or 29% failed to successfully work off on their first attempt, being lame after the work. Two (2) horses failed to work off a second time, were lame after the works, and were layed up. One (1) horse failed to work off a third time, being lame following all the works. Cumulatively, nineteen (19) or 34% of the horses who attempted to work off the VL were unsuccessful in one or more of their attempts because examination following the work revealing continuing lameness. **(figure 19)**

Figure 19 Horses with Multiple Attempts to Work off Veterinarian's List

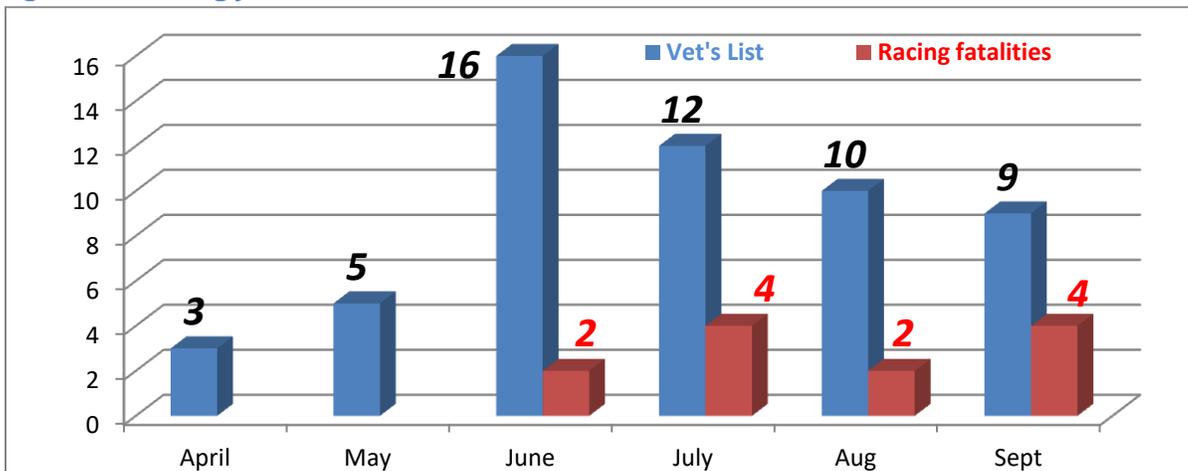


There are no direct or statistically powerful correlations between catastrophic injuries and any potential causes. There are however, strong correlations between these fatalities and pre-existing musculoskeletal pathology as well as inclusion on the VL. This correlation exists in horses with fatal injuries at EMD in 2018: nine (9), or 81% of these horses, had pre-existing injuries, and two (2), or 18%, had been on the EMD veterinarians list in 2017, both requiring multiple attempts to work off the vets list due to PBZ overages above the historic threshold of 5mcg.

Racing fatalities and veterinarian's list combined

When we examine the numbers of both racing fatalities and horses on the VL for musculoskeletal conditions, it is evident that as the race meet progresses more issues of concern appear from June onward. This should not be viewed as a surprise because athletes of any species and athletic competition will experience more incidents of injury at the end of a rigorously competitive season than at the beginning. All these horses are clearly our "at risk" individuals. **(figure 20)**

Figure 20: Racing fatalities and veterinarian's list



Equine Medical Director Concerns and Recommendations

Concerns:

- Injuries increase in incidence as the meet progresses.
- There are strong correlations between injury and inclusion on the veterinarian's list.
- Horses on the veterinarian's list are at higher risk of extended delays in their racing careers and career ending injuries.
- Most horses with race related fatalities have pre-existing injuries, many are a contributing factor to the fatality.
- Trainers and practicing veterinarians have a day to day understanding of which injuries require further examination, intervention, diagnostics and treatment. This informational resource has not been historically accessed by WHRC veterinarians although WHRC Rule WAC 260-70-540 specifically stipulates such access.

Recommendations:

- ✓ *Unresolved or chronic problems should be examined and reviewed differently as the meet progresses.*
- ✓ **Because of the prevalence of horses on the veterinarian's list having a delay in their racing career, in depth diagnostics are warranted. Increasing this vigilance following the midpoint of the racing meet is prudent.**
- ✓ **Evaluating a horse's pre-race soundness is essential, as is the detection and assessment of any clinical signs of an existing injury. The value of 'cold therapy' in relieving heat, pain, and swelling is uncontested. Because of these reasons, the current WHRC Rule (WAC 260-70-570 (e), prohibiting "freezing, icing, or prolonged hosing with cold water, or any other means of reducing the temperature of the legs within one hour of the inspection", should be amended to prohibit this practice "until the inspection has been completed"**
- ❖ **As the meet progresses, increased attention to seemingly minor issues is warranted. What was a minor issue earlier may have a greater significance later in the meet.**
- ❖ **The necessity for repeated administrations of joint injections and analgesic to a horse should be viewed and addressed as an unresolved problem, not as an indication that treatment isn't powerful enough.**