Kentucky Horse Racing Commission
Withdrawal Guidelines
Thoroughbred; Standardbred; Quarter Horse,
Appaloosa, and Arabian
KHRC 8-020-2 (11/2018)

General Notice

Unless otherwise specified in these withdrawal guidelines or the applicable regulations and statutes, the following withdrawal guidelines are voluntary and advisory. The guidelines are recommendations based on current scientific knowledge that may change over time. A licensee may present evidence of full compliance with these guidelines to the Kentucky Horse Racing Commission (the "Commission" or "KHRC") and the stewards as a mitigating factor to be used in determining violations and penalties.

These withdrawal interval guidelines assume that administration of medications will be performed at doses that are not greater than the manufacturer's maximum recommended dosage. Medications administered at dosages above manufacturer's recommendations, in compounded formulations and/or in combination with other medications and/or administration inside the withdrawal interval may result in test sample concentrations above threshold concentrations that could lead to positive test results and the imposition of penalties. The time of administration of an orally administered substance, for the purposes of withdrawal interval, shall be considered to be the time of complete ingestion of the medication by the horse via eating or drinking. Brand names of medications, where applicable, are listed in parentheses or brackets following the generic name of a drug.

In addition to the requirements contained in KRS Chapter 13A, the KHRC shall give notice of an amendment or addition to these withdrawal guidelines by posting the change on the KHRC website and at all Kentucky racetracks at least two weeks before the amendment or addition takes legal effect.

Withdrawal Guidelines

1) Furosemide shall be administered pursuant to 810 KAR 8:010.

2) The following substances may be administered or applied up to the scheduled paddock time of the race in which the horse is to compete:

- Topical applications such as liniments, leg paints, salves, and ointments which may contain antibiotics or DMSO, but do not contain steroids, anesthetics, or any other prohibited substances.

3) The following substances may be administered up to 24 hours prior to the scheduled post time of the race in which the horse is to compete as long as their use follows the general notice on page 1 of these withdrawal guidelines:

- Antibiotics (except those containing prohibited drugs such as Procaine);
- Antiprotozoals (e.g., ponazuril [Marquis] toltrazuril [Baycox], sulfamethoxazole/pyrimethamine [Daraprim], etc.);
- Antifungal Agents (specifically Griseofulvin and Ketoconazole);
- Certain Inhalation Agents (specifically cromolyn sodium [Intal], and acetylcysteine [Mucomyst]) that do not exhibit bronchodilator properties;
- Cimetadine (Tagamet), orally at 20 mg/kg twice daily for 7 doses;
- Electrolytes, Vitamins and Minerals (IV, IM or oral), and/or other oral supplements/nutrients not containing drugs;
- Hyaluronic Acid (Legend) IV;
- Misoprostol;
- Non-Androgenic Reproductive Hormones (HCG, Regumate, GnRH, etc.), in fillies and mares only;
- Omeprazole (Gastrogard®), orally at 2.2 g once daily for 4 days;
- Polysulfated glycosaminoglycan (Adequan) IM; and
- Proprionibacterium acnes suspension (Eqstim), or comparable immunostimulants, excluding levamisole;
- Ranitidine (Zantac), orally at 8 mg/kg twice daily for 7 doses; and,
- Sucralfate

4) Non-steroidal anti-inflammatory drugs (NSAIDS):

A) ELECTED NSAID: The applicable regulations require compliance with the following: only one of the following three NSAIDS may be administered up to the manufacturer's maximum labeled dosage until 24 hours prior to the scheduled post time of the race in which the horse is to compete as long as their use follows the general notice on page 1 of these withdrawal guidelines and the requirements of 810 KAR 8:010.

- Phenylbutazone (Butazolidin) 4.4 mg/kg (Intravenous Only)
- Flunixin Meglumine (Banamine)* 1.1 mg/kg (Intravenous Only)
  *__NOTE__: While flunixin administration is permitted up to 24 hours prior to the scheduled post time, a withdrawal interval of 32 hours is recommended.
- Ketoprofen (Ketofen) 2.2 mg/kg (Intravenous Only).

B) The following withdrawal intervals shall be observed for all NSAIDS, except for the one selected in 4A above, for administration prior to the scheduled post time of the race in which the horse is to compete as long as their use follows the general notice on page 1 of these withdrawal guidelines:

- Flunixin Meglumine (Banamine) 1.1 mg/kg IV — 48 hrs
- Phenylbutazone (Butazolidin) 4.4 mg/kg IV — 48 hrs
- Ketoprofen (Ketofen) 2.2 mg/kg IV — 48 hrs
- Diclofenac Sodium Topical (Surpass® Cream) — 48 hrs
  Single 5" application
- Firocoxib* (Equioxx) 0.1 mg/kg
  Single oral or IV dose — 48 hrs
  Repeated daily administration — 14 days

5) The following substances may be administered up to 48 hours prior to the scheduled post time of the race in which the horse is to compete as long as their use follows the general notice on page 1 of these withdrawal guidelines:

- Acepromazine (Promace) IV at 0.05 mg/kg;
- Beta-2 agonists by inhalation (terbutaline, salmeterol, fenotorol);
- Butorphanol (Torbugesic) IV at 0.1 mg/kg;
- Cetirizine (Zyrtec) orally at 0.4 mg/kg twice daily for 5 doses. **NOTE:** Do not administer ivermectin within 48 hours of a race if horse has been administered cetirizine.
- Corticosteroids by inhalation (Azmacort, Beclovent);
- Dantrolene (Dantrium) oral at 500 mg total dose;
- Detomidine (Dormosedan) IV, 5 mg single dose
- DMSO IV, oral, topical up to 60 ml;
- Ergot Alkaloids (Ergonovine, Methergine, etc.);
- Flumethasone (Flucort) 5 mg IV;
- Glycopyrrolate (Robinol) IV, 1 mg total dose;
- Guaifenesin, orally at 2 g twice daily for 5 doses;
- Ipratropium;
- Isoxsuprine;
- Methocarbamol (Robaxin-V)—Single IV or oral dose at 15 mg/kg;
- Pentoxyfylline (Trental);
- Prednisolone—oral at 1 mg/kg;
- *Procaine penicillin IM at 17 mg/kg; and
- Xylazine (Rompun)—IV, 200 mg single dose

**Mandatory treatment reporting and race day surveillance as described in Threshold section (page11).*

6) The following substances may be administered up to 72 hours prior to the scheduled post time of the race in which the horse is to compete as long as their use follows the general notice on page 1 of these withdrawal guidelines:

- Albuterol (Proventil) - via inhalation at 720 mcg;
- Dexamethasone (Azium) - oral, IV, IM at 0.05 mg/kg;
- Lidocaine--subcutaneous at 200 mg total dose;
- Mepivicaine (Carbocaine) Subcutaneous at 0.07 mg/kg;
- Romifidine (Sedivet) 50 mg IV dose.

7) The following substances may be administered up to 96 hours prior to the scheduled post time of the race in which the horse is to compete as long as their use follows the general notice on page 1 of these withdrawal guidelines:

- Hydroxyzine (Atarax);
- Phenytoin (Dilantin).

8) The following substances may be administered up to 7 days prior to the scheduled post time of the race in which the horse is to compete as long as their use follows the general notice on page 1 of these withdrawal guidelines:

- Betamethasone—Intra-articular (IA) at 9 mg total dose in a single articular space;
  NOTE: Withdrawal time should be increased for use of betamethasone products with a ratio of >1:1 betamethasone acetate to betamethasone sodium phosphate.
  Intramuscular administration is associated with a substantially longer withdrawal time.
- Fluphenazine Decanoate (Prolixin);
- Isoflupredone (Predef 2x)—IA at 20 mg in a single joint space or 10 mg subcutaneous;
- Methylprednisolone (Depo-Medrol)—IA at a total dose of less than 100 mg in a single articular space;
  NOTE: Intramuscular administration is associated with substantially longer withdrawal times and is not recommended.
  The RMTC study administered 100 mg to a single joint. Concentrations in 2 of the 16 study horses did not fall below 100 pg until 10 days post administration.
- Reserpine (Serpasil); and

- Triamcinolone acetonide (Vetalog)—IA at 9 mg total dose in a single articular space.

  NOTE: Intramuscular administration is associated with a substantially longer withdrawal time.

9) The use of an extra corporeal shock wave therapy or radial pulse wave therapy machine must be done under current KHRC regulations and may be performed until 10 days prior to the scheduled post time of the race in which the horse is to compete.

10) The following substance may be administered up to 14 days prior to the scheduled post time of the race in which the horse is to compete as long as its use follows the general notice on page 1 of these withdrawal guidelines:

- Clenbuterol (Ventipulmin) orally up to 0.8 mcg/kg twice daily.

11) Any horse that has been treated with therapeutic medications found in sections 6 through 10 of this document may, at the trainer's request and expense, and on permission of the Commission veterinarian, have samples of blood and/or urine collected by the Commission veterinarian for analysis by the Commission authorized laboratory prior to entry to race in the state of Kentucky. As a condition of this elective testing, the trainer will be required to disclose the date and time, dose, and route of administration of the substance for which clearance testing is requested. A report from the commission laboratory of a negative finding in this pre-race, elective testing does not provide a safe harbor for the owner, trainer, veterinarian or horse. A report from the commission laboratory of a positive finding in a post-race sample shall be treated as a violation of KHRC regulations even if there was a negative finding by the commission laboratory in the clearance testing sample.

12) Above withdrawal guidelines alphabetized by substance in chart form.

	Substance	Brand name	Recommended Withdrawal	Administration Specifications
	Acepromazine	PromAce	48 hours	0.05 mg/kg IV
	Acetylcysteine	Mucomyst	24 hours	Inhalation
	Albuterol	Proventil	72 hours	720 mcg via inhalation
	Beclomethasone	Beclovent	24 hours	Inhalation only
	Betamethasone	Celestone	7 days	

				9 mg in a single joint space of 1:1 suspension betamethasone acetate to betamethasone sodium phosphate. **NOTE**: Withdrawal time should be increased for use of betamethasone products with a ratio of >1:1 betamethasone acetate to betamethasone sodium phosphate. **NOTE:** Intramuscular administration is associated with a substantially longer withdrawal time.
	Butorphanol	Torbugesic	48 hours	0.1 mg/kg
	Cetirizine	Zyrtec	48 hours	0.4 mg/ml orally twice daily for 5 doses
	Cimetadine	Tagamet	24 hours	20 mg/kg orally twice daily x 7 doses
	Clenbuterol	Ventipulmin	14 days	0.8 mcg/kg oral
	Cromolyn sodium	Intal	24 hours	Inhalation
	Dantrolene	Dantrium	48 hours	500 mg oral
	Detomidine	Dormosedan	48 hours	5 mg IV
	Dexamethasone	Azium	72 hours	IV, IM, oral 0.05 mg/kg
	DMSO		48 hours	Topical, IV or oral up to 60 ml
	Ergonovine		48 hours	No dose specified
	Fenoterol		48 hours	Via inhalation, no dose specified
	Flumethasone	Flucort	48 hours	5 mg IV
	Fluphenazine decanoate	Prolixin	7 days	No dose specified
	Furosemide	Salix	4 hours	150-500 mg single IV dose (admin by KHRC Veterinarian)
	Guaifenesin		48 hours	2 g orally twice daily for 5 doses

	Glycopyrrolate	Robinol	48 hours	1 mg
	Griseofulvin	Fulvacin	24 hours	No dose specified
	Hyaluronic Acid	Legend	24 hours	IV only; no dose specified
	Hydroxyzine	Atarax	96 hours	No dose specified
	Ipratropium		48 hours	Via inhalation, no dose specified
	Isoflupredone	Predef 2x	7 days	20 mg in a single joint space or 10 mg SQ
	Isoxsuprine	Vasodilan	48 hours	No dose specified
	Ketoconazole	Nizoral	24 hours	No dose specified
	Lidocaine		72 hours	200 mg total dose SQ
	Mepivicaine	Carbocaine	72 hours	0.07 mg/kg SQ
	Methocarbamol	Robaxin	48 hours	15 mg/kg single IV or oral dose
	Methylergonovine	Methergine	48 hours	No dose specified
	Methylprednisolone	DepoMedrol	7 days	100 mg in a single joint space **NOTE:** Intramuscular administration is associated with substantially longer withdrawal times and is not recommended. The RMTC study administered 100 mg to a single joint. Concentrations in 2 of the 16 study horses did not fall below 100 pg until 10 days post administration.
	Misoprostol	Cytotec	24 hours	No dose specified
	Omeprazole	Gastrogard	24 hours	2.2 g orally once daily for 4 days
	Pentoxyfylline	Trental	48 hours	No dose specified
	Phenytoin	Dilantin	96 hours	No dose specified
	Ponazuril / Diclazuril / Sulfadiazine-Pyrimethamine	Marquis / Protazil	24 hours	Oral
	Prednisolone		48 hours	1 mg/kg orally
	Procaine Penicillin		48 hours	17 mg/kg IM

				NOTE: Treatment reporting mandatory AND horse may be required to undergo 6 hour surveillance period (at owner's expense) prior to racing.
	PSGAG	Adequan	24 hours	IM
	Ranitidine	Zantac	24 hours	8 mg/kg orally twice daily for 7 doses
	Reserpine	Serpasil	7 days	No dose specified
	Romifidine	Sedivet	72 hours	50 mg IV
	Salmeterol		48 hours	Via inhalation, no dose specified
	Sucralfate	Carafate	24 hours	No dose specified
	Terbutaline		48 hours	No dose specified
	Triamcinolone	Azmacort	24 hours	Via inhalation only
	Triamcinolone acetonide	Vetalog	7 days	9 mg intra-articular in single joint space **NOTE**: Intramuscular administration is associated with a considerably longer withdrawal time.
	Xylazine	Rompun	48 hours	200 mg IV
NSAIDS				
	Phenylbutazone	Butazolidin	24 hours-- single elected NSAID	4.4 mg/kg IV
	Flunixin	Banamine	32 hours— single elected NSAID	1.1 mg/kg IV
	Ketoprofen	Ketofen	24 hours-- single elected NSAID	2.2 mg/kg IV
	Diclofenac	Surpass	48 hours	5" ribbon of Surpass every 12 hours to one site
	Firocoxib	Equioxx	48 hours	Single IV or oral dose 0.1 mg/kg
	Firocoxib	Equioxx	14 days	0.1 mg/kg once daily for 4 days

MISCELLANEOUS				
	Anthelmintics (except thiazide products)		72 hours	
	Non-androgenic reproductive hormones	Including HCG, Regumate, GnRH, in fillies and mares only	24 hours	
	Proprionibacterium acnes suspension or comparable immunostimulants		24 hours	
	Electrolytes, vitamins, minerals		24 hours	IV / IM
	Antibiotics		24 hours	
	Any injectable other than furosemide		24 hours	**NOTE:** KHRC regulations specifically prohibit any injections at less than 24 hours to post time for any substance (other than furosemide as provided in 810 KAR 8:010.
	Intra-articular injections		72 hours	
NOTE: For products containing multiple medications, the withdrawal time to be used should be no less than the longest identified for any of the individual constituent substances--even if that substance is not present in the highest concentration in the product.				

Available Threshold Levels Associated to KHRC Withdrawal Guidelines

SUBSTANCE	THRESHOLD
Acepromazine	10 nanograms per ml in urine of hydroxyethylpromazine sulfoxide (HEPS)
Albuterol	1 nanogram per ml in urine
Betamethasone	10 picograms per ml in serum or plasma
Boldenone Male horses other thanGeldings	15 nanograms per ml in urine of boldenone, free and conjugated OR 200 picograms per ml in serum or plasma of boldenone, free
Boldenone Geldings and female horses	1 nanogram per ml in urine of boldenone, free and conjugated

Butorphanol	2 nanograms per ml in serum or plasma of butorphanol, free OR 300 nanograms per ml in urine of total butorphanol
Cetirizine	6 nanograms per ml in serum or plasma
Cimetadine	400 nanograms per ml in serum or plasma
Clenbuterol	140 picograms per ml of urine OR Limit of detection in serum or plasma
Dantrolene	0.1 nanograms per ml of serum or plasma of 5-OH dantrolene
Detomidine	2 nanogram per ml in urine of carboxydetomidine OR 1 nanogram per ml of detomidine in serum or plasma
Dexamethasone	5 picograms per ml in serum or plasma
Diclofenac	5 nanograms per ml in serum or plasma
DMSO	10 micrograms per ml in serum or plasma
Firocoxib	20 nanograms per ml in serum or plasma
Flunixin	20 nanograms per ml in serum or plasma
Furosemide	100 nanograms per ml in serum or plasma AND Urine specific gravity of < 1.010
Glycopyrrolate	3 picograms per ml in serum or plasma
Guaifenesin	12 nanograms per ml in serum or plasma
Isoflupredone	100 picograms per ml in serum or plasma
Ketoprofen	2 nanograms per ml of serum or plasma
Lidocaine	20 picograms per ml in serum or plasma of Total 3-OH-lidocaine
Mepivicaine	10 nanograms per ml in urine of OH-mepivicaine OR Limit of detection in serum or plasma
Methocarbamol	1 nanogram per ml in serum or plasma
Methylprednisolone	100 picograms per ml in serum or plasma
Nandrolone Male horses other than geldings	45 nanograms per ml in urine of 5α-estrane-3β, 17α-diol OR In urine a ratio of 5α estrane-3β, 17 α-diol to 5α estrene-3β, 17 α-diol of > 1:1
Nandrolone Geldings and female horses	1 nanogram per ml in urine of nandrolone, free and conjugated OR 50 picograms per ml in blood, serum, or plasma of nandrolone, free
Omeprazole	10 nanograms per ml omeprazole sulfide in serum or plasma

Phenylbutazone	2 micrograms per ml in serum or plasma
Prednisolone	1 nanogram per ml in serum or plasma
*Procaine Penicillin Horses reported to have been treated with procaine penicillin	25 nanograms per ml in serum or plasma
*Procaine Penicillin Horses not reported to have been treated with procaine penicillin	Limit of detection in serum or plasma
Ranitidine	40 nanograms per ml in serum or plasma
Testosterone Geldings	20 nanograms per ml in urine of testosterone, free and conjugated OR 25 picograms per ml in serum or plasma of testosterone, free
Testosterone Female horses (unless in foal)	55 nanograms per ml in urine of testosterone, free and conjugated OR 100 picograms per ml in serum or plasma of testosterone, free
Triamcinolone acetonide	100 picograms per ml in serum or plasma
Xyalzine	200 picograms per ml in serum or plasma

**Procaine penicillin treatments must be reported to the stewards no later than 24 hours after the last injection is administered. Horses so treated may be required to be under KHRC-approved, continuous surveillance for the six hour interval prior to the post time for the race in which the horse is entered. The owner of the horse is responsible for all costs associated with the surveillance. Prospective surveillance arrangements must be submitted to the stewards no later than close of business on the day of entry.*

All other NSAIDs not listed on the withdrawal guidelines have a threshold set at limit of detection in serum or plasma.

Approved by the KHRC June 19, 2018