ARCI Controlled Therapeutic Medication Schedule for Horses - Version 4.0

Revised – April 20, 2017

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
Acepromazine	10 nanograms per milliliter as 2-(1-hydroxyethyl) promazine sulfoxide (HEPS) in urine	48 hours	Single intravenous dose of acepromazine at 0.05 milligrams per kilogram	University of California at Davis project	Applicable analyte is metabolite HEPS
Albuterol	1 nanogram per milliliter of urine	72 hours	720 micrograms total dose intra-nasal only[1]. Based upon dosing up to 4 times per day	European Horseracing Scientific Liaison Committee Data	See Endnote
Betamethasone	10 picograms per milliliter of plasma or serum	7 days	Intra-articular administration of 9 milligrams of Betamethasone Sodium Phosphate and Betamethasone Acetate Injectable Suspension, USP (American Regent product #0517-0720-01)[2]	RMTC study	Intra-articular dosing only - applicable analyte is betamethasone in plasma or serum
Butorphanol	300 nanograms per milliliter of total butorphanol in urine or 2 nanograms of free butorphanol per milliliter per milliliter of plasma or serum	48 hours	Single intravenous dose of butorphanol as Torbugesic® (butorphanol tartrate) at 0.1 milligrams per kilogram	*Journal of Veterinary Pharmacology and Therapeutics* doi: 10.1111/j.1365-2885.2012.01385.x	Applicable analytes are total butorphanol (drug and conjugates) in urine and butorphanol in plasma (the drug itself, not any conjugate)

[1] Administration of albuterol by any means other than intra-nasally has a high likelihood in resulting in a positive finding. This specifically includes oral administration. Trainers and veterinarians are cautioned against using oral albuterol.

[2] Intramuscular administration of betamethasone acetate will result in plasma or serum concentrations that will exceed the Regulatory Threshold for weeks or even months, making the horse ineligible to race for an extended period.

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
Cetirizine	6 nanograms per milliliter of plasma or serum	48 hours	0.4 milligrams per kilogram twice daily for 5 doses	Kentucky Equine Drug Research Council/University of California at Davis study	Do not administer ivermectin within 48 hours of a race if the horse has been administered cetirizine.
Cimetidine	400 nanograms per milliliter of plasma or serum	24 hours	20 milligrams per kilogram twice daily for 7 doses	Kentucky Equine Drug Research Council/University of California at Davis study	
Clenbuterol	140 picograms per milliliter of urine or Level of Detection in plasma or serum[3]	14 days[4]	Oral administration of clenbuterol as Ventipulmin® syrup (Boehringer-Ingelheim Vetmedica Inc., NADA 140-973) at 0.8 mcg/kg twice a day	University of California at Davis; Boehringer-Ingelheim Vetmedica, Inc.	Applicable analyte is clenbuterol
Dantrolene	100 picograms per milliliter of 5-hydroxydantrolene in plasma or serum	48 hours	Oral administration of 500 milligrams of dantrolene as paste (compounding pharmacy) or capsule formulation (Proctor and Gamble)	*Journal of Veterinary Pharmacology and Therapeutics* 34, 238–246	
Detomidine	2 nanograms per milliliter of carboxydetomidine in urine or 1 nanogram per milliter of detomidine in blood.	48 hours	5 mg IV (once)	*KY EDRC, UC Davis/UF Study.*	Dormosedan ™ used in study.

[3] For Quarter Horses: Level of Detection in any permitted biological sample.
[4] Clenbuterol is a prohibited substance in Quarter Horses and other breeds racing with Quarter Horses; there is no applicable withdrawal guideline for such horses.

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
Dexamethasone	5 picograms per milliliter of plasma or serum	72 hours	Intramuscular and intravenous administration of dexamethasone sodium phosphate or oral administration of dexamethasone at 0.05milligrams per kilogram regardless of route	RMTC study	Applicable analyte is dexamethasone in plasma or serum
Diclofenac	5 nanograms per milliliter of plasma or serum	48 hours	Five inch ribbon topical application of 1% diclofenac liposomal cream formulation. (Surpass Topical Anti-Inflammatory Cream, IDEXX Pharmaceuticals)	*Veterinary Therapeutics* 6: 57-66 (2005)	Applicable analyte is diclofenac in plasma or serum
Dimethyl sulfoxide (DMSO)	10 micrograms per milliliter of plasma or serum	48 hours	Intravenous	ARCI model rule	Applicable analyte is DMSO in plasma or serum
Firocoxib	20 nanograms per milliliter of plasma or serum	14 days	Oral administration of firocoxib as EQUIOXX oral paste at a daily dose of 0.1 milligram per kilogram for four days	RMTC study	Applicable analyte is firocoxib in plasma or serum

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
Furosemide	100 nanogram per milliliter of plasma or serum	4 hours	Single Intravenous dose of furosemide up to 500 milligram[5]	ARCI model rule	Must also have urine specific gravity < 1.010 for a violation.
Glycopyrrolate	3 picograms per milliliter plasma or serum	48 hours	Single intravenous dose of 1 milligram of glycopyrrolate as Glycopyrrolate Injection, USP (American Regent product # 0517-4601-25)	RMTC study; *Journal of Veterinary Pharmacology and Therapeutics* doi: 10.1111/j.1365-2885.2011.01272.x	Applicable analyte is glycopyrrolate in plasma or serum
Guaifenesin	12 nanograms per milliliter of plasma or serum	48 hours	2 grams twice daily for 5 doses	Kentucky Equine Drug Research Council/University of California at Davis study	
Isoflupredone	100 picograms per milliliter of plasma or serum	7 days	10 milligrams total dose subcutaneous or 20 milligrams total dose in one articular space	RMTC Study	
Lidocaine	20 picograms per milliliter of total 30H-lidocaine in plasma or serum	72 hours	200 milligrams of lidocaine as its hydrochloride salt administered subcutaneously	European Horseracing Scientific Liaison Committee data; Iowa State University study.	Applies to total major hydroxylated metabolite (i.e., includes conjugates)

[5] ARCI-0110929(F)(2)(d) and ARCI-025-020(F)(2)(d) state that the dose of Furosemide "shall not exceed 500 milligrams nor be less than 150 milligrams."

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
Mepivacaine	10 nanograms total hydroxymepivacaine per milliliter of urine or above Level of Detection of mepivacaine in plasma or serum	72 hours	Single 0.07 milligrams per kilogram subcutaneous dose of mepivacaine	European Horseracing Scientific Liaison Committee data	
Methocarbamol	1 nanogram per milliliter of plasma or serum	48 hours	Single intravenous dose of 15 milligrams per kilogram methocarbamol as Robaxin® or 5 grams orally	*Journal of Veterinary Pharmacology and Therapeutics* doi: 10.1111/jvp.12068	Applicable analyte is methocarbamol in plasma or serum
Methylprednisolone	100 picograms per milliliter of plasma or serum	See Dosing Specifications	Total dose of methylprednisolone acetate suspension in one articular space[6]. The recommended withdrawal for methylprednisolone acetate is a minimum of 21 days at a 100 milligram dose	*Journal of Veterinary Pharmacology and Therapeutics* volume 37, Issue 2, pages 125–132, April 2014	Applicable analyte is methylprednisolone
Omeprazole	omeprazole sulfide - 10 nanograms per milliliter of plasma or serum	24 hours	Orally (2.2 grams) once daily for 4 doses	Kentucky Equine Drug Research Council/University of California at Davis study	GastroGuard™ used in the study

[6] Intramuscular administration of methylprednisolone acetate will result in plasma or serum concentrations that will exceed the Regulatory Threshold for weeks or even months, making the horse ineligible to race for an extended period. Please see Dosing Specifications for recommended withdrawal time.

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
Prednisolone	1 nanogram per milliliter of plasma or serum	48 hours	1 milligram per kilogram orally		Applicable analyte is prednisolone in plasma or serum
Procaine penicillin *(administration must be reported to Commission)*	25 nanograms per milliliter of plasma or serum	Following entry to race	Intramuscular	RMTC – reference notes online	Mandatory surveillance of horse at owner's expense 6 hours before racing
Ranitidine	40 nanograms per milliliter of plasma or serum	24 hours	8 milligrams per kilogram twice daily for 7 doses	Kentucky Equine Drug Research Council/University of California at Davis study	
Triamcinolone acetonide	100 picograms per milliliter of plasma or serum	7 days	Total dose of 9 milligram in one articular space[7]	*Equine Veterinary Journal*, 10.1111/evj.12059 (2013)	Applicable analyte is triamcinolone acetonide in plasma or serum
Xylazine	200 picograms per milliliter of plasma or serum	48 hours	200 milligrams intravenously	University of California at Davis study	Applicable analyte is xylazine.

[7] Intramuscular administration of triamcinolone acetonide will result in plasma or serum concentrations that will exceed the Regulatory Threshold for weeks or even months, making the horse ineligible to race for an extended period.

Non-Steroidal Anti-Inflammatory Drug (NSAID) Rules for Horses††

Controlled Therapeutic Medication	Threshold (Primary)	Withdrawal Guideline	Dosing Specifications	Reference Notes	Threshold (Secondary)
Flunixin	20 nanogram per milliliter of plasma or serum	32 hours	Single intravenous dose of flunixin as Banamine® (flunixin meglumine) at 1.1 milligram per kilogram	University of California at Davis/RMTC study	**Secondary anti-stacking threshold**: 3.0 nanograms per milliliter of plasma or serum (Administration 48 hours prior)
Ketoprofen	2 nanograms per milliliter of plasma or serum	24 hours	Single intravenous dose of ketoprofen as Ketofen® at 2.2 milligrams per kilogram	HFL Sport Sciences/ Kentucky Equine Drug and Research Council/RMTC study	**Secondary anti-stacking threshold:** 1 nanogram per milliliter of plasma or serum (Administration 48 hours prior)
Phenylbutazone	2 micrograms per milliliter of plasma or serum	24 hours	Single intravenous dose of phenylbutazone at 4.0 milligrams per kilogram	ARCI model rule	**Secondary anti-stacking threshold**: 0.3 micrograms per milliliter of plasma or serum (Administration 48-hours prior)

†† Samples collected may contain one of the NSAIDs in this chart at a concentration up to the Primary Threshold. Samples may also contain another of the NSAIDs in this chart up at a concentration up to the Secondary Threshold. No more than 2 of the NSAIDs in this chart may be present in any sample.

Recent Document Revisions

Date	Version	Revision	Revision Description
Apr-17	4.0	Clenbuterol	Added footnotes establishing Clenbuterol as a prohibited substance in Quarter Horses with no applicable withdrawal guideline for Quarter Horses or breeds racing with Quarter Horses.
Apr-17	4.0	Whole document	Re-numbered footnotes throughout document to make them continuous
Dec-16	3.2	Omeprazole	Clarified threshold for omeprazole sulfide.
Sep-16	3.1	Detomidine	Amended threshold and dosing specifications.
Mar-16	3	Omeprazole	Amended threshold and dosing specifications
Mar-16	3	Xylazine	Amended threshold and dosing specifications
Mar-16	3	Guaifenesin	Added as New Substance to Controlled Therapeutic Medication Schedule
Mar-16	3	Cetirizine	Added as New Substance to Controlled Therapeutic Medication Schedule
Mar-16	3	Ranitidine	Added as New Substance to Controlled Therapeutic Medication Schedule
Mar-16	3	Cimetidine	Added as New Substance to Controlled Therapeutic Medication Schedule
Apr-15	2.02	Methylprednisolone	Directed readers to use Dosing Specification column for recommended withdrawal guideline.
Apr-15	2.02	Furosemide	Added clarifying language to Furosemide reflecting ARCI-011- 020(F)(2)(d) and ARCI-025-020(F)(2)(d) minimum and maximum thresholds
Apr-15	2.02	Added “For Horses” to Title	Added the words “for Horses” to document title
Apr-14	2.01	Methocarbamol	Corrected dosage from 0.15 milligrams per kilogram to 15 milligrams per kilogram
Apr-14	2	Dimethyl sulfoxide (DMSO)	Removed “oral” from dosing specifications
Apr-14	2	Xylazine	Changed Note section from “Applies to xylazine and xylazine metabolite” to “Applies to analyte xylazine”

Apr-14	2	Xylazine	Corrected typographical error in Threshold from “0.01ng/mg of plasma or serum” to “0.01 nanogram per milliliter of plasma or serum”
Apr-14	2	Isoflupredone	Added Isoflupredone as New Substance to Controlled Therapeutic Medication Schedule
Apr-14	2	Albuterol	Added Albuterol as New Substance to Controlled Therapeutic Medication Schedule
Apr-14	2	Flunixin, Ketoprofen, Phenylbutazone	Added Secondary Anti-Stacking Threshold
Apr-14	2	Flunixin, Ketoprofen, Phenylbutazone	Created separate section for Non-Steroidal Anti-Inflammatory Drugs at end of Controlled Therapeutic Medication Schedule, Relocated Flunixin, Ketoprofen, and Phenylbutazone to new section
Apr-14	2	<All Substances>	Changed Table Header from “No Pre-Race Treatment Within” to “Withdrawal Guideline”
Apr-13	1	<All Substances>	Original Controlled Therapeutic Medication Schedule Adopted by ARCI Board of Directors