

# MRC ARCI Controlled Therapeutic Medication Schedule for Horses - Version 4.2

MRC Revised Version 2020

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
<b>Acepromazine</b>	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
<b>Albuterol</b>	1 nanogram per milliliter of urine	72 hours	720 micrograms total dose intra-nasal only <sup>1</sup> . Based upon dosing up to 4 times per day	European Horseracing Scientific Liaison Committee Data	See Endnote
<b>Betamethasone</b>	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) <sup>2</sup>	RMTC study	Intra-articular dosing only - applicable analyte is betamethasone in plasma or serum
<b>Butorphanol</b>	300 nanograms per milliliter of total butorphanol in urine or 2 nanograms of free butorphanol per milliliter of plasma or serum	48 hours	Single intravenous dose of butorphanol as Torbugesic <sup>®</sup> (butorphanol tartrate) at 0.1 milligrams per kilogram	<i>Journal of Veterinary Pharmacology and Therapeutics</i> 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)

<sup>1</sup> 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.

<sup>2</sup> 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
<b>Cetirizine</b>	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.
<b>Cimetidine</b>	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	
<b>Clenbuterol</b>	140 picograms per milliliter of urine or Level of Detection in plasma or serum <sup>3</sup>	14 days <sup>4</sup>	Oral administration of clenbuterol as Ventipulmin <sup>®</sup> 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
<b>Dantrolene</b>	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)	<i>Journal of Veterinary Pharmacology and Therapeutics</i> 34, 238–246	
<b>Detomidine</b>	2 nanograms per milliliter of carboxydetomidine in urine or 1 nanogram per milliliter of detomidine in blood.	48 hours	5 mg IV (once)	<i>KY EDRC, UC Davis/UF Study.</i>	Dormosedan <sup>™</sup> used in study.

<sup>3</sup> For Quarter Horses: Level of Detection in any permitted biological sample.

<sup>4</sup> 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
<b>Dexamethasone</b>	Limit of Detection				
<b>Diclofenac</b>	Limit of Detection				
<b>Dimethyl sulfoxide (DMSO)</b>	10 micrograms per milliliter of plasma or serum	48 hours	Intravenous	ARCI model rule	Applicable analyte is DMSO in plasma or serum
<b>Firocoxib</b>	Limit of Detection				

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
<b>Furosemide</b>	100 nanogram per milliliter of plasma or serum	4 hours	Single intravenous dose of furosemide up to 250 milligrams	ARCI model rule	
<b>Glycopyrrolate</b>	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; <i>Journal of Veterinary Pharmacology and Therapeutics</i> doi: 10.1111/j.1365-2885.2011.01272.x	Applicable analyte is glycopyrrolate in plasma or serum
<b>Guaifenesin</b>	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	
<b>Isoflupredone</b>	100 picograms per milliliter of plasma or serum	7 days	20 milligrams total dose in one articular space	RMTC Study	
<b>Lidocaine</b>	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)

Controlled Therapeutic Medication	Threshold	Withdrawal Guideline	Dosing Specifications	Reference Notes	Note
<b>Mepivacaine</b>	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	
<b>Methocarbamol</b>	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	<i>Journal of Veterinary Pharmacology and Therapeutics</i> doi: 10.1111/jvp.12068	Applicable analyte is methocarbamol in plasma or serum
<b>Methylprednisolone</b>	100 picograms per milliliter of plasma or serum	See Dosing Specifications	Total dose of methylprednisolone acetate suspension in one articular space <sup>6</sup> . The recommended withdrawal for methylprednisolone acetate is a minimum of 21 days at a 100 milligram dose	<i>Journal of Veterinary Pharmacology and Therapeutics</i> volume 37, Issue 2, pages 125–132, April 2014	Applicable analyte is methylprednisolone
<b>Omeprazole</b>	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

<sup>6</sup> 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
<b>Prednisolone</b>	Limit of Detection				
<b>Procaine penicillin</b> <i>(administration must be reported to Commission)</i>	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
<b>Ranitidine</b>	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	
<b>Triamcinolone acetonide</b>	100 picograms per milliliter of plasma or serum	7 days	Total dose of 9 milligrams in one articular space <sup>7</sup>	<i>Equine Veterinary Journal</i> , 10.1111/evj.12059 (2013)	Applicable analyte is triamcinolone acetonide in plasma or serum
<b>Xylazine</b>	200 picograms per milliliter of plasma or serum	48 hours	200 milligrams intravenously	University of California at Davis study	Applicable analyte is xylazine.

<sup>7</sup> 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<sup>††</sup>

Controlled Therapeutic Medication	Threshold (Primary)	Withdrawal Guideline	Dosing Specifications	Reference Notes	
<b>Flunixin</b>	5.0 nanograms per milliliter of plasma or serum	48 hours	Single intravenous dose of flunixin as Banamine® (flunixin meglumine) at 1.1 milligrams per kilogram	University of California at Davis/RMTC study	
<b>Ketoprofen</b>	2.0 nanograms per milliliter of plasma or serum	48 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 / University of California at Davis/RMTC	
<b>Phenylbutazone</b>	0.3 micrograms per milliliter of plasma or serum	48 hours	Single intravenous dose of phenylbutazone at 4.0 milligrams per kilogram	University of California at Davis/RMTC study	

<sup>††</sup> Samples collected may contain one of the NSAIDs in this chart at a concentration up to the Primary Threshold. The detection of one or more additional NSAIDs in blood and/or urine constitutes a stacking violation in addition to the violation associated with the detection of each additional NSAID