USEF DRUGS AND MEDICATIONS REGULATIONS, ISSUES, AND RECOMMENDATIONS

by

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(Under the Direction of Randall L. Tackett)

ABSTRACT

The use of drugs and medications in competing performance horses is a common practice that is regulated by governing bodies. This paper analyzes The United States Equestrian Federation's (USEF) rules and regulations regarding the use of drugs and medications in non-racing performance horses, the issues surrounding the current regulations, and recommendations for improvement. USEF categorizes drugs into three categories: permitted, prohibited, and restricted. Chapter 4 of the USEF Rulebook details the regulations surrounding drug administration to competing horses, including dose and time recommendations, persons responsible, drug testing, and penalties for violations. USEF's drug regulations are thorough, although there are several fundamental issues impacting the effectiveness of the guidelines. The analysis of USEF's rules concludes there is a need for harmonization with other governing bodies, continuing education for trainers, owners, and riders, and stricter enforcement policies to ensure a more safe and fair competition environment.

INDEX WORDS: Performance horses, United States Equestrian Federation, Drug Regulation, Equine, Drugs and medications, Regulatory

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CHAPTER 1

INTRODUCTION

The United States Equestrian Federation (USEF) serves as the national governing body for equestrian sport in the US. The main purpose of this organization is to foster growth of equestrian sport while maintaining a safe and equal field for both equine and human athletes. USEF's mission statement is "to provide access to and increase participation in equestrian sports at all levels by ensuring fairness, safety, and enjoyment."[1] In order to earn points at USEF-sanctioned competitions and qualify for national championships, equestrians and horses must have a membership to USEF, which requires them to adhere to certain rules. One way of ensuring safety and equality in the sport includes the regulation of drug substances used in performance horses. The USEF's Equine Drug and Medications Program sets rules and guidelines to protect the welfare of horses and promote a level playing field across the country.[2] As in any sport, certain drugs and medications play a prominent role in the maintenance of equine athletes, as well as the treatment of injury or illness. It is vital for members of USEF to understand the implications of the use and misuse of these substances.

USEF classifies drugs into three broad categories: permitted, prohibited (or forbidden), and restricted.[2] Permitted medications include substances such as vitamins and minerals, antibiotics, antiprotozoals, and antihelmintics (dewormers).[2] Prohibited medications are any substances that may have an effect on the horse at the time of competition, including those that affect the cardiovascular system, the respiratory system, the neurologic system, or are used in pain management. Examples are corticosteroids, short-acting tranquilizers, and antihistamines.[2]

Restricted medications are allowed to be in the horse at the time of competition, but they should not exceed a certain level based on the individual medication. The amounts are provided in the USEF rule book, and in addition, USEF provides recommendations on how to administer restricted medications in order to stay within specifications. Non-steroidal anti-inflammatory drugs (NSAIDs) are classified as restricted medications.[2]

There are many nuances involved when administering drugs to equine athletes including the pharmacokinetics and withdrawal times of the medications. These may vary based on the size of the horse. USEF members must take precautions when using different substances, even if they are therapeutic, due to the risks of performance enhancing and injury masking properties that are associated with many drugs and medications. The rules and regulations provided by USEF are in need of an update to ensure common understanding of proper usage of drugs among trainers, owners, and riders. Education and harmonization concerning drugs and medications regulations is essential to the continuation of a clean, fair sport in the performance horse industry.

CHAPTER 2

DRUG CLASSES MOST COMMONLY REGULATED AND THEIR MECHANISMS

NSAIDS

Non-steroidal anti-inflammatory drugs (NSAIDs) are included in the restricted substances category according to USEF. These drugs are used in the treatment of osteoarthritis, colic, and soft tissue injuries as analgesics, and they can be used for fevers. Currently under USEF rules, seven NSAIDs are approved for use: phenylbutazone "Bute," flunixin (Banamine®), naproxen (Naprosyn®), ketoprofen (Ketofen®), meclofenamic acid (Arquel®), firocoxib (Equioxx®) and the topical anti-inflammatory, diclofenac (Surpass®).[3] Among these, phenylbutazone "Bute" and flunixin meglumine (Banamine®) are the two most commonly used NSAIDs.[3]

NSAIDs block cyclo-oxygenase, therefore suppressing the synthesis of chemical mediators of inflammation.[4] NSAIDs are generally lipid soluble, weak organic acids and are well absorbed following oral administration. The rate and extent of absorption of these drugs can be affected by several factors, which may include formulation, route of administration, or if the drug is administered along with food or not. For example, the bioavailability of ketoprofen is greatly increased from 50% when administered in a gelatin capsule to 88.2% when the injectable formulation is administered orally.[5] A majority of NSAIDs have a low volume of distribution, leading to high plasma protein binding. This leads to an increased duration of action despite a short elimination half-life. High plasma protein binding also contributes to limited glomerular filtration and therefore limited excretion of NSAIDs as the parent compound. Most NSAIDs undergo extensive hepatic metabolism into inactive metabolites. There are exceptions to these parameters.

Firocoxib has an elimination half-life of more than 24 hours in horses, and significant bioaccumulation can occur with steady state concentrations being up to 4 times higher than after a single dose.[5]

NSAIDs are commonly used in horses for treatment regimens, but they also can affect performance in horses. Their ability to mask pain can put the horse at a higher risk for further injury, which is a major concern. Therefore, their use is extensively regulated. USEF rules state that a competitor can only use one NSAID at a time when competing, and only one NSAID can be administered within 72 hours prior to the horse entering the show ring.[2] NSAIDs must also be prescribed by a licensed veterinarian for a specific therapeutic purpose of an existing injury or illness.[2] USEF members must also be aware that some NSAIDs will accumulate in the horse's system when they are administered over consecutive days. Figure 1 shows USEF's recommendations on dose, time, and route of administration should be referenced when administering NSAIDs.

Joint Supplements

Competing equine athletes are often subjected to significant amounts of stress placed on their skeletal system. Injuries and diseases of the joints are the cause of lameness. The care and maintenance of joints is a key factor in maintaining career longevity in performance horses. Veterinarians often recommend the use of a joint supplement, which may be administered orally, intravenously, or intramuscularly.[2] Joint supplements reduce inflammation, improve joint fluid, and improve cartilage.[7] The ingredients most commonly used in joint supplements, such as chondroitin sulfate and glucosamine, may have general anti-inflammatory properties and promote production of proteoglycan and collagen, some of the components that make up the joints.[7]

Figure 1: USEF's Restricted Medication Dose and Time Recommendations:[6]

FEDERATION

MEDICATION GENERIC NAME	MEDICATION TRADE NAME	MAX DOSAGE PER POUND OF BODY WEIGHT	LATEST ADMINISTRATION HOUR PRIOR TO COMPETITION	ADMINISTRATION METHOD (single dose per 24 hours unless specified otherwise)	CLASS OF DRUG
Dexamethasone	Azium®	1.0 mg/100Lb (10 mg/1000Lb) or 0.5 mg/100Lb (5.0 mg/1000Lb) or	>12 hours >*6 hours	Oral, IV, IM *IV	Corticosteroid
Diclofenac	Surpass®	5 inch ribbon, ½ inch thick, one site	>12 hours	Topical, 2 doses each day 12 hours apart	NSAID
Firocoxib	Equioxx®	0.1 mg/kg (0.0455 mg/Lb) (45.5 mg/1000Lb)	>12 hours	Oral	NSAID
Phenylbutazone ("bute")	Butazolidin®	2.0 mg/Lb (2.0 grams/1000Lb) or 1.0 mg/Lb (1.0 grams/1000Lb)	>12 hours AM & PM feed	Oral, IV Oral, 2 doses each day, 12 hours apart	NSAID
Flunixin meglumine	Banamine®	0.5 mg/Lb (500 mg/1000Lb)	>12 hours	Oral, IV	NSAID
Ketoprofen	Ketofen®	1.0 mg/Lb (1.0 gram/1000Lb)	>12 hours	IV	NSAID
Meclofenamic acid	Arquel®	0.5 mg/Lb (500 mg/1000Lb)		Oral, 2 doses each day, 12 hours apart	NSAID
Naproxen	Naprosyn®	4.0 mg/Lb (4.0 grams/1000Lb)	>12 hours	Oral	NSAID
Methocarbamol	Robaxin®	5.0 mg/Lb (5.0 grams/1000Lb)	>12 hours	Oral, IV	Muscle relaxant

* MUST BE ADMINISTERED BY A VETERINARIAN AND A MEDICATION REPORT FORM FILED.

Trainers, owners, and competitors should be working closely with a veterinarian when administering joint supplements to competing horses. Some of these supplements may contain caffeine, so it is vital that participants are reading the labels carefully.[2] In addition, oral joint supplements usually have a wide range of recommended dosages. Label claims often differ from the actual amount of active substance in the drug. These issues can lead to effectiveness issues as well as overdosage during administration. It is important to note that USEF rules state that no injections should be given within 12 hours of competing.[2] Therefore, competitors must use caution when administering joint supplements to comply with regulations.

Corticosteroids

Corticosteroids are prohibited according to USEF rules. Corticosteroids are effective immunosuppressive and anti-inflammatory drugs used across species to treat immune diseases and chronic inflammation. They are often used to treat equine asthma.[8] Some of the common effects of corticosteroids include alteration of cytokine production, decreased adhesion molecule and immunoglobulin receptor expression, and decreased phagocytosis and cell migration.[8] Corticosteroids used in horses include dexamethasone, betamethasone (BetaVet®), triamcinolone acetonide (Vetalog®), and methylprednisolone acetate (Depo-Medrol®).[2] Dexamethasone is a restricted medication with a recommended dose, time, and route of administration for this particular corticosteroid.[2]

Corticosteroids are heavily regulated due to their ability to be performance renewing. These substances can counteract performance-inhibiting symptoms and normalize the function of the horse.[9] The withdrawal times for these medications can vary significantly based on dose, frequency of dosing, route of administration, and size of the horse. Corticosteroids can be used for specific therapeutic purposes, so it is important for competitors to understand how to use these medications prior to competition while still complying with the rules. For example, if a corticosteroid is being used for a legitimate therapeutic purpose, the horse must be withdrawn from competition for a period of at least 24 hours after the final intravenous (IV) or intramuscular (IM) administration.[6] In addition, intra-articular (IA) injections of any substance is prohibited within the 4 days prior to competition.[2] USEF also requires that a medication report form be filed if these substances were administered for therapeutic purposes prior to competition.[2]

Short-Acting Tranquilizers

Short-acting tranquilizers are another example of prohibited substances for USEF competing horses. Commonly used sedatives include acepromazine (VedCo), xylazine (AnaSed), detomidine hydrochloride (Dormosedan), and romifidine hydrochloride (Sedivet).[2]

Similar to corticosteroids, there are legitimate therapeutic purposes for the use of these substances, therefore it is important for competitors to understand the rules associated with their use. USEF does not consider clipping, shipping, shoeing, or dental work as reasons for therapeutic use.[2] The use of short-acting tranquilizers for the previous purposes is prohibited within 7 days of competition.[2] If these substances are being used to treat an existing injury or illness, a medication report form must be filed.

CHAPTER 3

USEF REGULATIONS

The United States Equestrian Federation describes their drug regulations in Chapter 4 of the USEF rulebook. The rulebook is updated annually and goes into effect on December 1 of each year. In addition, the USEF posts several resources on their website under the Drugs and Medications page. One of these resources is the updated Equine Drugs and Medications Guidelines. This pamphlet includes the entirety of Chapter 4 of the USEF rulebook, as well as additional guidelines, updates, and frequently asked questions.[6] Providing this resource allows USEF members to easily access all drug regulation information in a consolidated format.

The guideline pamphlet begins by listing recent updates for Drug and Medications rules, such as recent prohibition of certain substances. Next, the guideline displays a caution statement against the use of herbal and natural products, as they may contain prohibited substances, and a statement that USEF does not approve or endorse medicinal products of any kind. USEF provides a list of common prohibited substances under USEF Equine Drugs and Medications Rules, including drugs that are permitted with a Medication Report Form and drugs which Medication Report Forms are not accepted. Additionally, the guidelines illustrate restricted medication dose and time recommendations and provide a list of how long certain drugs remain detectable. These withdrawal times cover NSAIDs, anabolic steroids, long-acting tranquilizers and psychotropics, short acting tranquilizers and sedatives, and other medications. The pamphlet provides additional guidelines regarding the most current USEF Equine Drugs and Medications

Rules. The webpage provides Chapter 4 of the USEF Rulebook, and finally, it answers frequently asked questions.

USEF Rulebook Chapter 4

Chapter 4 of the USEF rulebook begins with GR 401, which describes the method for determining the equine drug and medications designation for each breed or discipline. The Board of Directors designates each breed, discipline, and group that competes under USEF into a Prohibited Substance Group or a Therapeutic Substance Group.[6] The group that the breed or discipline is placed in is determined by a majority vote of each Division Committee at USEF's annual meeting. This vote is recommended to the Chief Administrator of the Equine Drugs and Medications Program.[6] The Equine Drugs and Medications Committee will then consider the recommendation, as well as any written recommendations of respective affiliate associations, and the Committee will designate the group for each breed or discipline.[6] Every horse competing at USEF sanctioned events will be subjected to either Prohibited Substance Provisions or Therapeutic Substances Provisions, depending on the designation. Finally, GR401.7 states that if any horse competes under more than one breed or discipline designation, one of which is a Prohibited Substance Group, they must be in compliance with Prohibited Substance Provisions for the duration of that competition.[6]

GR402 discusses the random drug testing process for horses participating in USEF sanctioned competitions or events. These horses, whether they are entered in any class, on the competition grounds, or withdrawn within 24 hours prior to a class for which it had been entered, are subject to examination by a licensed veterinarian.[6] This veterinarian is appointed by the Administrator of the Equine Drugs and Medications Program. They may appoint a technician to perform certain duties with the approval of the Administrator.[6] The examination by the

veterinarian or technician may include physical, urine, blood, or any other type of tests that are necessary. GR402.2 states that failure to submit the horse for examination or failure to cooperate with the testing process is in violation of the rules. The trainer, or an appointee, "must act as a witness to the collection and sealing of blood and urine samples" and sign the drug collection documents.[6] Furthermore, by failure to provide a witness to the sample collection, the trainer waives any "objection to the identification of the horse tested and the manner of collection and sealing of samples."[6] In an ideal drug testing situation, a sufficient amount of blood or urine will be collected to divide the samples into two groups. One group will be labeled Blood or Urine Sample A, and the other group will be labeled Blood or Urine Sample B. If insufficient amounts of blood or urine are obtained after reasonable attempts, samples will be "identified as Sample(s) A only," and the veterinarian will document that Sample(s) B do not exist. In addition, GR402 allows for blood samples to be retested at any time at the discretion of the Federation; however, the retesting of a sample may only constitute a violation if it occurs "within three years from the sample collection date."[6]

GR403 and GR404 outline cooperation and accountability rules. For GR403, cooperation with the veterinarian entails presenting the horse in an adequate manner for testing, assisting the veterinarian in obtaining the sample, preventing unnecessary delays in sample collection, and positive compliance with the veterinarian.[6] According to GR404, "trainers or other persons responsible are accountable under the penalty provisions" of the USEF Rulebook. USEF defines a trainer as "any adult who has or shares the responsibility for the care, training, custody, condition, or performance of a horse and/ or pony."[6] Other persons responsible can include "the individual who rides, vaults, or drives the horse and/ or pony during a competition, the owner, and/ or support

personnel", which may encompass grooms, handlers, longueurs, and veterinarians, or anyone who makes a reluctant decision about the horse or pony.[6]

GR405 reviews the guidelines for appeal measurements. Any horse submitted for an appeal measurement is subject to the Drugs and Medications Chapter of the Rulebook and "must have drug testing samples collected at the time of said measurement and concurrent examinations."[6] A sample is only qualified as a drug testing sample if it was collected by USEF drug testing personnel. In addition, any horse "submitted for an appeal measurement must have both a urine and blood sample collected… of sufficient volume for drug testing purposes."[6] Samples collected in connection with an appeal measurement are considered to be the property of USEF, and they must remain in the custody of USEF during measurement and concurrent examinations.[6] The appellant must pay all costs associated with sample collection and testing conducted within 30 days of the submission of an invoice, regardless of the laboratory results.[6]

GR 406 details the guidelines for results, confirmatory analysis, and retests. As mentioned in GR402, sample collections are placed into two separate groups. Blood and urine samples identified as Samples A are subjected to chemical analysis by USEF's Drug Testing Laboratory or a contracted laboratory.[6] Samples B are to be securely stored at USEF's Drug Testing Laboratory in the event that there is a need for confirmatory analysis or other future testing.[6] If no prohibited substance or any metabolite or analogue is found present in Blood or Urine Sample A, Blood or Urine Sample B may be frozen and maintained for potential future analysis.[6] If Sample A tests positive for a prohibited substance, it will be "prima facie evidence that the prohibited substance was administered to the horse or pony, intentionally or unintentionally."[6] If this scenario occurs, the trainer, owner, or persons responsible for the horse will be notified by USEF. The persons responsible have a right to request the analysis of Sample B. If persons responsible fail to submit

a Confirmatory Analysis Request Form within 15 business days, they waive the analysis of Sample B.[6] If the Confirmatory Analysis Request Form is received, USEF will coordinate the analysis of Sample B within 7 days.[6] The confirmatory analysis of Sample B will be performed by a USEF approved drug testing laboratory and agreed upon by the party that submitted the request.[6] All findings will be forwarded to all parties. If no second-party laboratory is agreed upon, the confirmatory analysis will be performed by the Federation Drug Testing Laboratory, and both results of Sample A and Sample B will be used as "evidence in any hearing or proceeding."[6] If Sample B does not exist, or there is an insufficient amount of sample, and there is a sufficient amount of Sample A remaining, the person requesting a retest can make an additional request within 7 days that the remaining Sample A is retested.[6] The person who requests a retest analysis may appoint the retest to be witnessed by a qualified analytical chemist, or if failure to do so, the retest will proceed without a Witnessing Analyst.[6] The persons responsible are required to "pay any and all fees, costs, and expenses relating to confirmatory analysis or retest."[6] If the laboratory's confirmatory analysis of Sample B does not "substantially confirm" the findings from Sample A, then any allegations that prohibited substances were present at the time of sample collection are dismissed.[6] If confirmatory analysis substantially confirms the Federation's findings, the "finding shall be considered conclusive."[6] If a positive report identifying a prohibited substance is received, a hearing will be held according to Chapter 6 of the USEF rulebook, and no suspension or barring from competition will be implemented until an "administrative penalty is assessed or after the conclusion of the hearing."[6] The owner of the horse or pony that is found to contain a prohibited substance may be required to forfeit any prize money, sweepstakes, added money, trophies, ribbons, or points won during that competition.[6] In addition any "points accumulated toward Horse of the Year Award prior to said competition may be nullified," and the owner must pay a $300 fee

to the competition.[6] The trainer of a horse or pony found to be in violation of Prohibited Substance Provisions is subject to administrative penalties issued by the Chairman of the Equine Drugs and Medications Committee, as well as whatever penalty is assessed by the Hearing Committee, including fines and suspension from all participation in Licensed Competitions for a period of time.[6] The horse or pony may also be suspended for a period of time determined by the Hearing Committee.[6] Factors taken into account by the Hearing Committee to determine length of suspension may include "the pharmacology of the prohibited substance, the credibility and good faith of the person charged or of other witnesses, penalties determined in similar cases, past violations of any Federation rules, and reliance upon the professional ability or advice of a veterinarian."[6]

Management procedures in GR407 require that each Licensed Competition collect a fee for each horse or pony entered in the competition "to provide funds for research, inspection, and enforcement of rules regarding the use of drugs and medications."[6] Licensed Competitions must provide suitable facilities and immediate and free access to all areas of the competition for The Federation testing personnel.[6] GR408 recommends that any questions regarding Chapter 4 of the rulebook are directed to the office of the Federation Equine Drugs and Medications Program, and trainers or owners "should not rely on the interpretations or advice by private veterinarians, competition officials, or other personnel."[6]

GR409 and GR410 review the Prohibited Substances Provisions and the Therapeutic Substances Provisions, respectively. GR409 references the Federation Equestre Internationale (FEI) Equine Anti-Doping rules, and this section states that no horse designated as a No Prohibited Substance Group can show in "any class at a competition licensed by USEF if it has been administered a prohibited substance as defined in the FEI Equine Anti-Doping regulations."[6] Both

GR409 and GR410 "caution against the use of medicinal preparations, tonics, pastes, and products of any kind, the ingredients and quantitative analysis of which are not specifically known, as many of them may contain one or more prohibited substances."[6] GR410 defines a prohibited substance as "any stimulant, depressant, tranquilizer, local anesthetic, psychotropic (mood and/or behavior altering) substance, or drug which might affect the performance of a horse and/or pony, or any metabolite and/or analogue of any such substance or drug, any corticosteroid present in the plasma of the horse/pony other than dexamethasone, any nonsteroidal anti-inflammatory drug in excess of one present in the plasma or urine of the horse/pony, any substance permitted by [GR410] in excess of the maximum limit or other restrictions prescribed, any substance, regardless of how harmless or innocuous it might be, which might interfere with the detection of any of the substances defined previously or quantification of substances permitted by this rule, and any anabolic steroid."[6] Therapeutic substances are allowed for the protection and improvement of health of the horse "unless the substance is a stimulant, depressant, tranquilizer, local anesthetic, a substance that may interfere with the performance of the horse, a substance that may interfere with the detection of a prohibited substance, more than one nonsteroidal anti-inflammatory, or the substance exceeds the maximum limit."[6] Maximum plasma concentrations of certain therapeutic substances are listed in GR410 and shown in Table 1.[6]

GR411 of the USEF Rulebook details the conditions for administration of prohibited substances for therapeutic purposes. If a horse is subject to Therapeutic Substance Provisions at a USEF licensed competition, there are certain requirements to compete if they are administered a prohibited substance. An official Equine Drugs and Medications Report Form must be filed in a timely manner prior to competition.[6]

Table 1: Maximum Plasma and Urine Concentrations for Therapeutic Substances:[6]

Drug	**Drug Class**	**Maximum Plasma Concentration**
Diclofenac	Nonsteroidal Anti-Inflammatory	0.005 micrograms per milliliter
Phenylbutazone	Nonsteroidal Anti-Inflammatory	15.0 micrograms per milliliter
Flunixin	Nonsteroidal Anti-Inflammatory	1.0 micrograms per milliliter
Ketoprofen	Nonsteroidal Anti-Inflammatory	40.0 nanograms per milliliter
Meclofenamic Acid	Nonsteroidal Anti-Inflammatory	2.5 micrograms per milliliter
Naproxen	Nonsteroidal Anti-Inflammatory	40.0 micrograms per milliliter
Firocoxib	Nonsteroidal Anti-Inflammatory	0.240 micrograms per milliliter
Methocarbamol	Muscle Relaxer	0.5 micrograms per milliliter
Dexamethasone	Corticosteroid	0.5 nanograms per milliliter
Drug	**Drug Class**	**Maximum Urine Concentration**
Theobromine	Stimulant	2.0 micrograms per milliliter

The medications administered must have a therapeutic purpose, and administration must be "necessary for the diagnosis or treatment of an existing illness or injury."[6] Members should educate themselves on what USEF does and does not consider a therapeutic purpose for the administration of prohibited substances. In addition, the horse must be "withdrawn from competition for 24 hours" at minimum after administration of the medication.[6] The Medication Report Form must contain the "identification of the medication, including the amount, strength, and mode of administration, the date and time of administration, identification of the horse, including its name, age, sex, color, and competition entry number, the diagnosis and reason for administration, and a statement signed by the person administering the medication."[6] The Medication Report Form must be filed within one hour after administration of the medicine, and "the steward, technical delegate, or competition office representative must sign and record the time of receipt of paper Medication

Report Forms."[6] A table showing the required information to be provided in a Medication Report Form is shown in Figure 2.

Figure 2: Information Required on Paper Medication Report Form:[10]

Medication Report Form Information

Identification of the Horse or Pony:

- Name
- Age
- Sex
- Color
- Weight
- Entry Number
- Trainer's Name
- Owner's Name
- Breed/ Discipline in which the animal competes

Identification of Medication:

- Product Name
- Amount Administered
- Strength
- Route of Administration
- Date of Administration
- Time of Administration
- Whether there was emergency use of flunixin
- Diagnosis and Reason for Administration (Must be for a Therapeutic Purpose Only)
- Name of Veterinarian Prescribing or Administering the Medication
- Phone Number of Prescribing Veterinarian
- Name and Signature of Person Administering the Medication

Administrative penalties are covered in GR412. These penalties "apply to any potential or alleged violation of the Equine Drugs and Medications Rule."[6] However, USEF will not issue penalties or charges for rule violations until determinations are made by the Chairman of the

Equine Drugs and Medications Committee.[6] The Chairman will take into consideration the "seriousness of the alleged violations, precedents in similar cases, and any prior rule violations."[6] The identity of the horse, rider, trainer, and owner will remain anonymous during these considerations.[6] Within 60 days of receiving laboratory drug results, the Chairman of the Veterinary Committee will make a determination to recommend the issuance of charges, a plea agreement, the issuance of administrative penalties, or that no further action is to be taken.[6] Administrative penalties must be approved by the Hearing Committee Co-Chairs, and USEF will give written notification to trainers and owners if administrative penalties are issued.[6] Penalties must be accepted by all parties and will be published to USEF's website.[6]

A small section of Chapter 4 is dedicated to rules regarding human drug testing in GR413. Any USEF member must "comply with in-competition, no advance notice, and other out-of-competition drug testing conducted by the FEI, World Anti-Doping Agency (WADA), US Anti-Doping Agency (USADA), or by a WADA- or USADA- authorized organization."[6] Failure to comply with such testing is considered to be a violation of USEF rules. Any finding of human drugs that are in violation of rules set by WADA or USADA are considered to be violations of USEF rules.

GR414 covers prohibited practices regarding injectable substances. "No injectable substances may be administered to any horse within 12 hours prior to competition."[6] However, there are 3 exceptions listed in this section of the rulebook, which are only permitted when "the substance is administered by a licensed veterinarian no less than 6 hours prior to competition" and an Equine Drugs and Medications Report Form is filed by the trainer within one hour after administration.[6] The first exception is administration of therapeutic fluids at a minimum of 1 liter of polyionic fluids per 100 pounds of body weight, used according to the manufacturer's

recommendations.[6] The second exception is the administration of antibiotics, except for procaine penicillin G, which is prohibited under this provision.[6] The final exception is the administration of dexamethasone for the treatment of hives where the dose does not exceed 0.5 milligrams per 100 pounds if administered between 6 and 12 hours prior to competition.[6] The dose "must not exceed 1.0 milligrams per 100 pounds within any 24 hour period."[6] The injection of any substance into an intra-synovial space is prohibited within 4 days prior to competition.[6] This section also details the guidelines for administering Shockwave Therapy, which is used to promote speed and quality of tendon, ligament, bone, and wound healing.[11] Shockwave Therapy must be "administered by or on the order of a licensed veterinarian."[6] If sedation is required to administer the Shockwave Therapy, it must be done by a licensed veterinarian to be considered therapeutic. However, no sedation is considered therapeutic "if administered within 24 hours prior to competition."[6] Shockwave Therapy administration is prohibited within 3 days prior to competition.[6] Shockwave Therapy may be administered within 3 days prior to competition, but no less than 12 hours prior to competition, and "is limited to application to the back and dorsal pelvis areas."[6] Under this exception, the trainer must file a Medication Report Form within one hour after administration. Finally, kinesiotape or self-adhesive patches are only permitted "while the horse is unmounted in the stabling area," and they may not be used during competition.[6]

Drugs and Medications Penalty Guidelines

Under the Drugs and Medications page on the USEF website, there is a link to penalty guidelines for drug violations. The purpose of this page is to inform USEF members of the types of penalties that may be issued, as well as assist the Hearing Committee Panels in imposing consistent and fair penalties.[12] The information outlined regarding penalties for rule violations are not mandatory but are to be used as general guidelines. Ultimately, the Hearing Committee has the

discretion to determine if penalties below or above the slated range, or no penalty at all, may be justified.[12] Whether penalties imposed are within the stated range or are outside the stated range of the Penalty Guidelines, Hearing Committees must clearly state the basis for their decisions.[12] USEF provides four categories of drug and medication rule violations and general penalties for first, second, and third offenses for each category, as shown in Table 2.

Table 2: Categories of Rule Violations and Potential Punishments:[12]

Category	Description	First Offense	Second Offense	Third Offense
I	Overages of NSAIDs and other quantitatively restricted medications such as Dexamethasone.	Censure and $750 - $1,000 fine	Censure and $1,500 - $2,500 fine	Suspension of 1 month and $3,000 fine
II	Positives for Forbidden substances that have legitimate therapeutic value in the treatment of horses such as corticosteroids used for joint injections, sedatives, and local anesthetics used for laceration repairs, and those medications commonly used for treatment of colic, etc.	Suspension of 1 - 3 months and $1,000 - $3,000 fine	Suspension of 3 - 6 months and $3,000 - $6,000 fine	Suspension of 6 -12 months and $6,000 - $12,000 fine
III	Forbidden Substances that are not indicated for use in horses but are FDA approved and regulated such as some of the opiates and antipsychotics drugs.	Suspension of 3 - 6 months and $3,000 - $6,000 fine	Suspension of 6 - 12 months and $6,000 - $12,000 fine	Suspension of 12 months or more and $12,000 or more fine
IV	Forbidden substances that may be used to alter the performance of the horse or may be used to avoid detection, and that have not been FDA approved for use in horses. Some examples include but are not limited to GABA and Phenibut.	Suspension of 6 - 12 months and $6,000 - $12,000 fine	Suspension of 12 - 24 months and $12,000 - $24,000 fine	Suspension of 24 months or more and $24,000 or more fine

AAEP Clinical Guidelines for Veterinarians Treating the Non-Racing Performance Horse

The American Association of Equine Practitioners (AAEP) published guidelines for veterinarians treating non-racing performance horses in 2011. These can also be found on the USEF Website under the Drugs and Medications Page. The guidelines state that "accurate diagnostics and development of evidence-based therapeutic regimens" are essential to providing suitable treatments for non-racing performance horses, as these animals participate in various activities.[13] Warnings against non-specific treatments and ignoring individual needs based on competition demands are described to prevent under diagnosis and excessive treatment by veterinarians treating performance horses.[13] Veterinarians should maintain ethical standards in providing the best treatment for performance horses in order to prevent injury and prolong a horse's career without being influenced by owners, trainers, and veterinarians who propagate the excessive use of medications for competition.[13] The main priority should be the welfare of the horse, and the purpose of the AAEP guidelines is to ensure safe and ethical use of medications. AEEP states that "treatment of equine athletes must be directed toward normalizing their performance and avoiding performance enhancement by illegal or unethical means," noting that veterinarians are required to abide by regulations set in place by the governing discipline.[13]

The AAEP medication and treatment guidelines emphasize that specific diagnosis based on a transparent and valid owner-trainer-veterinarian relationship and veterinarian-patient relationship should be the basis for therapeutic treatments.[13] Therapeutic procedures should be performed in a timely manner so that response can be evaluated prior to competing with the animal. The guidelines note that maintenance therapy is an "inappropriate medical concept," and veterinarians must be diligent about the diagnosis and monitoring of administration of systemic or intra-articular medication to determine the appropriate frequency of substance delivery.[13] Non-

therapeutic medications should never be administered to performance horses, as the use of some of these substances is considered unethical prior to competition, especially due to their risks of causing injury or illness.[13] In addition, surgical procedures or treatments that may have an effect on a horse's performance or natural conformation should never be performed by a veterinarian.[13] Veterinarians should become familiar with competition's specific regulations in order to administer treatments that are done so only in accordance with the rules.

Veterinarians should have access to the horse's medical record that they are treating. A medical record should be kept for each horse documenting all medical treatments and procedures performed on a horse that is in competition or training.[13] It is recommended that these records include the results of examination, working diagnosis and specific treatments, and dosages and routes of administration of medications.[13] Another major aspect of treating non-racing performance horses is drug compounding and extralabel drug use and how the use of these concepts can affect compliance with competition drug regulation. AAEP guidelines explain that compounded medications may only be used when an equivalent FDA-approved drug is not available.[13] However, the use of compounded medications should be limited and require a valid veterinarian-client-patient relationship.[13] Increased risks of overdosage, therapeutic failure, and toxicity may be associated with compounded drug use due to the lack of quality control.[13] Withdrawal times are only calculated for FDA-approved medications, so the AAEP cautions about the use of such practices in the regulated competition environment. Furthermore, the AAEP guidelines explain that extralabel medication use is when an FDA-approved product is used for a purpose other than that which it is labeled for use in a different species.[13] Veterinarians must follow FDA requirements when prescribing drugs in an extralabel manner, and the use of such practices should be limited to situations where there is a threat that the animal may suffer or die without

treatment.[14] The FDA describes conditions which must be met in order for a veterinarian to legally practice extralabel drug prescribing on their website. The conditions include that "there is no animal drug approved for the intended use, there is an animal drug approved for the indented use, but the approved drug does not contain the active ingredient needed, the approved drug is not in the required dosage form, the approved drug is not in the required concentration, or the approved drug is clinically ineffective when used as labeled."[14] In addition, records must be kept for extralabel drug use that entails the established name of the drug including its active ingredient, condition treated, animal species treated, dosage administered, treatment duration, and number of animals treated.[14] The FDA has prohibited extralabel uses of certain drugs and drug classes in all food-producing animals.[14] However, "no approved drugs are prohibited from extralabel uses in companion animals."[14] Appropriate use criteria of therapeutic substances apply to extralabel use of medications.

CHAPTER 4

ISSUES WITH REGULATIONS AND RECOMMENDATIONS

USEF vs FEI

USEF is the main governing body for equestrian sport in the United States. The Federation Equestre Internationale (FEI) is the governing body for international equestrian sport. The FEI takes a very similar approach to USEF regarding drug regulation in equine athletes. FEI classifies drugs into similar categories as USEF with banned substances, that are "deemed by the FEI to have no legitimate use in the competition horse," and controlled medications, that have "therapeutic value."[15] FEI uses similar methods related to testing horses and collecting samples for analysis. In contrast, the FEI imposes stricter punishments for doping rule violations. The initial suspension period enacted by the FEI for violations is two years and can lead up to a lifetime ban on competing under the FEI.[17] For cases where no fault or negligence is found, the FEI states that sanctions can be eliminated only if persons responsible or support personnel can establish how the prohibited substance entered the horse's body.[17] A third rule violation automatically results in a lifetime ban.[17] Although the regulations for both agencies are related, the FEI provides a more extensive list of prohibited substances and detection times than USEF.[17] The FEI also lists longer withdrawal times for certain medications compared to the ones USEF has listed.[17] Overall, FEI is much stricter with the drugs they allow, as well as punishments for rule violations. Creating more strict punishments for drug violations is not preferable, but may be necessary to prevent the illegal use of certain substances. Further collaboration among governing bodies such as USEF and FEI will create more harmony and less confusion at competitions that may be sanctioned by both.

Training

One of the main concerns with compliance of USEF drug regulations stems from fundamental issues with the qualifications and accountability of persons responsible for the equine athletes. USEF rules state that "the trainer is held responsible and accountable for the condition of the horse or pony and for compliance with the rules," and ultimately, trainers are responsible for preventing administration or exposure to any prohibited substance.[6] However, the process for becoming a USEF trainer is as simple as declaring oneself a "professional" on the USEF website. There are no certifications or courses that must be completed, no fees associated, and no provisions required. Any person over the age of 18 may declare themselves a professional and become responsible for any horse in their care. There are certification programs for trainers through organizations that are affiliated with USEF, such as the United States Dressage Federation, United Stated Eventing Association, and the United States Hunter Jumper Association.[16] However, trainers certified through these organizations are independent entities from USEF, and USEF does not require these certifications.[16] This creates a complicated environment where professionals who may lack proper knowledge on horsemanship, drug administration, and regulatory complexities take on the responsibilities of complying with all USEF rules and regulations while caring for the horses they become responsible for.

With all the complexities involved with caring for horses, and more specifically administering drugs and medications in a performance equine athlete, education on horsemanship and basic equine management is necessary. Fortunately, there are many trainers in the equine profession who take it upon themselves to learn about horsemanship, veterinary practices, and the rules and regulations of USEF. However, education and training are not required. When administering medications to a competing horse, the implications of drugs' mechanisms of action,

pharmacokinetics, administration routes, and withdrawal times must be understood in order to properly comply with competition regulations. One cannot expect all trainers, owners, and riders to have a deep understanding of these concepts, as they are not trained veterinarians. Therefore, this requires governing bodies, such as USEF, to provide adequate information, resources, and support to assist individuals in following regulations.

In order to create a safer environment, USEF must enact rules for the certification of trainers. At minimum, there should be a certification that individuals must complete to become classified as a USEF trainer. The certification should test basic horsemanship skills and equine management. Examples of questions that could be asked on a certification test are shown in Figure 3. USEF could collaborate with the affiliated associations that already have certifications in place to create an over-arching program for USEF professionals. Furthermore, USEF could enact a fee to become certified in order to fund a certification program. While there may be some resistances against paying a fee, it would provide additional assurance that only qualified individuals are being declared professionals in the sport. In addition, trainers should have to complete a training course involving the administration of drugs and medication for competing horses. Trainers should also be trained on the use and administration of drugs in emergency and non-emergency situations. Trainers should not administer any prescription drug item to an animal unless it is prescribed by a veterinarian. Furthermore, USEF should collaborate with licensed veterinarians to facilitate the training of USEF members. Creating an educational program led by veterinarians would give great benefit to trainers and others involved in the care of equine animals. This will give credibility to trainers in their ability to understand and comply with the USEF rules. Additionally, training will proactively help prevent miscommunication and misuse when using drugs and medications on competing horses.

Figure 3: Examples of Questions to be Asked for USEF Training:

1. A trainer is required to have a medical bag that travels with them to competitions. What are some essentials to keep in an equine medicine kit?'
    - **a) Phenylbutazone (Bute)**
    - **b) Dexamethasone**
    - **c) Acepromazine**
    - **d) Banamine**
    - **e) Thermometer**
2. Can a trainer administer a prescription drug item to a horse that has not been prescribed to that horse by a veterinarian?
    - a) Yes
    - **b) No**
3. As a trainer, what are the first three things that should be done if you see a horse is suffering from colic?
    - **a) Remove all food and get the horse to stand up if they are laying down**
    - **b) Check all vital signs**
    - **c) Call a vet**
4. Which of the following is a prohibited drug class under all circumstances at the time of competition?
    - a) NSAIDs
    - b) Anthelmintics
    - **c) Corticosteroids**
    - d) Antibiotics

Persons Responsible

Another problem occurring in the realm of competing non-racing performance horses is the ambiguity of who is deemed responsible if a horse tests positive for a prohibited substance. When a horse's drug test comes back positive, the trainer on the entry form is immediately deemed responsible, and this is where the investigation begins. However, the person who signs the entry form as the trainer may not necessarily be the person who is actually responsible for the horse. In addition, many individuals may contribute to the management of and control of the horse. Furthermore, there are many instances where the trainer may blame someone else and claim ignorance. For example, an individual may say the groom administered the drug, the feed got

switched with another horse, or some other incident happened. This uncertainty of who is actually responsible creates confusion, and ultimately, can lead to too lenient or too harsh punishments.

The FEI takes a different approach than USEF. The FEI initially holds the athlete who competes the horse as the person responsible if a drug test comes back positive, as there is no ambiguity on who competed the horse.[17, 18] At the receipt of a positive test for prohibited substances, the athlete is suspended automatically based on set suspension periods provided by the FEI.[17] If the athlete can prove that the person responsible was not at fault or that they had no ability to prevent the violation, then the suspension can be reduced or eliminated.[17] In addition, an athlete may request a preliminary hearing to lift the provisional suspension pending a full hearing.[17] The FEI uses this strict liability approach because it provides a starting point for investigation and avoids delays and uncertainty regarding the penalties. One concern regarding this approach is the concept of catch riding. Catch riding occurs when an individual competes a horse in a show that they do not own or train. A catch rider would not be responsible for a drug violation if they simply show up and ride the horse, as they do not have any responsibility regarding the horse's care or management. However, in this case, a rider could prove to USEF they have no fault in the situation to avoid any punishment or penalties. If USEF were to adopt this approach, more certainty on who is responsible can be established, and harmonization with other regulatory bodies would create a more robust and fairer environment where the welfare of the animal is at the forefront.

CHAPTER 5

CONCLUSION

USEF strives to create an environment that is equitable and honest for competitors to promote the health of all horses, riders, and people involved. This goal is supported by the rules and regulations set in place by USEF. While regulators aspire to produce regulations that are thorough and fair, there are fundamental issues that USEF must address to improve upon current guidelines. The use of drugs and medications are an essential part to the maintenance and health of any athlete, including equine athletes. However, the complexities and dangers involved in administering drugs to competition horses is extensive. Each drug used has a unique purpose, mechanism of action, and withdrawal time that can vary based on each individual animal. Taking preventative measures against unfair advantages in competition and ensuring the safety of the horse and competitors must be at the forefront of regulations.

By updating the current regulations and creating more training requirements, USEF can create a safer environment. Without further training for USEF members, drugs and medications, even if they are considered therapeutic, will continue be misused and abused for the sake of competition success. This is a dangerous situation, and there is an ethical obligation to prevent the occurrence of misuse. In addition, harmonization with other regulatory bodies, such as the FEI, will create more simplicity and clarity regarding rules, enforcement, and penalties. Since there is much ambiguity with who is actually responsible for a particular horse, it becomes difficult to determine who administered a prohibited substance and under whose direction. A strict liability approach would be the most ideal situation, and it is already adopted by the FEI. Drug regulation

has already been addressed in racehorses, even at the federal level, so it is time that the same amount of importance be placed on regulating drugs and medications in non-racing performance horses. The promotion of fair and safe competition can only be beneficial to all humans and animals involved.

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