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The Facts About SMZ/TMP Tablets Compared To EQUISUL-SDT In The Horse

There is a lot of misinformation regarding the use of human Trimethoprim/Sulfamethoxizole (SMZ) tablets orally in the horse. This has perpetuated misuse and increasing resistance to this combination over the last 25 years. This will serve as a comparison of the SMZ (Sulfamethoxizole/Trimethoprim) tablets to the FDA approved Equisul-SDT® (Sulfadiazine/Trimethoprim).

	DATA FOR 12 HOUR DOSING INTERVAL	
PHARMACOLOGY IN THE HORSE	**EQUISUL-SDT**	**Generic SMZ Tablets - (Multiple Brands)**
Half Life (t½) Average Sulfa Fraction	7.8 hours[2]	3.53 hours[1]
Half Life (t½) Average Trimethoprim Fraction	3.0 hours[2]	1.9-2.5 hours[1]
Doses To Reach Steady State Over MIC_{90}[3] For Both Drugs	2[2]	5[1]
Dosing Interval In Studies	12 hours[2]	12 hours[1]
Ideal Dosing Interval Based On Pharmacology	12 hours (2 times daily)	Every 6-8 hours (3-4 times/day)(Don't recommend due to lack of safety data/studies)
Dose Recommended	24mg/kg	30mg/kg[1]
Material As Delivered To Achieve Dose	27ml/1000 pounds	14.2-960 mg tablets per 1000 pounds
Product Form	Liquid Suspension	Tablets
Accuracy Of Dosing	Yes	No-Variable
Convenient For Client	Yes	No (Significant work required)
FDA Approved For Horses	Yes	No (Human product)
FDA Safety Studies	Yes	No
FDA Efficacy Studies	Yes	No
Prescription Product	Yes	Yes
Proper Directions/Labeling On Bottle	Yes	No- Additional Rx label required
Product Liability Coverage For Use	Yes	No
Robust Scientific Support For The Use	Yes- FDA studies required for licensure 100's of horses- multiple sites	No- One study on 6 horses in 1988[1]

Discussion: The significantly shorter half-life of sulfamethoxizole compared to sulfadiazine makes the SMZ tablets a less convenient choice due to the necessity of shorter dosing interval to achieve similar results to Equisul-SDT. The improved bioavailability of the Equisul-SDT formulation results in a proven twenty percent lower dose which achieves sustained levels above MIC_{90} in the first 12 hours compared to 60 hours(2 ½ days) for the SMZ preparation. This has been reported in the field as observations of a faster response to treatment. Sustained time over MIC_{90} makes Equisul-SDT a bactericidal combination as opposed to the bacteriostatic effect of the SMZ tables when both drugs are not above MIC_{90} the entire time of treatment. The lower dose also results in less drug staying in the gut compared to SMZ tablets. If the goal in treatment is to maximize efficacy and safety and ultimately treatment outcome, then Equisul-SDT is the best treatment choice.

1. Brown M.P., Gronwall, R., Castro, L. 1988. Pharmacokinetics and body fluid and endometrial concentrations of trimethoprim-sulfamethosizole in mares. AM J Vet Res 49:918-922
2. FOI on Equisul-SDT, US FDA NADA 141-360
3. MIC_{90} - Minimum inhibitory concentration where ninety percent of the pathogens are susceptible.