USING BODY TEMPERATURES (BTs), WEIGHTS (W_{kgs}) & BASAL METABOLIC RATES (BMR $_{kcals/kg}$) to COMPARATIVELY SCALE TREATMENT *Rx*-DOSAGES

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From medication monographs published in medicine, prescription strategies (i.e., dose rates, *Rx*-dosages, frequencies and intervals), a clinician must recognize disparate patient body sizes (W_{kgs}) and metabolic intensities ($cohort_{kcals}$) to adjust prescriptions for veterinary patients.

With zoological veterinary medicine (ZVM), a clinician must extrapolate prescription strategies for new patients whose disparate body sizes (W_{kgs}) must be established by the clinician (a published monographs cannot cover all body sizes encountered in ZVM). The prescription comparisons between a proxy and a new, previously unappreciated patient are especially problematic especially where there is great disparity in sizes between the proxy patient and a new patient.

In this respect, the clinical challenges can be particularly noteworthy where the clinician must prescribe comparative *Rx*-dosage strategies for unfamiliar patients such as ruminants (like a tiny $0.8W_{kg}$ chevrotain *Tragulus sp.* or a huge $900W_{kg}$ banteng *Banteng sp.*; or a tiny $0.01W_{kg}$ pigmy dwarf lemur *Allowcebus sp.* primate versis a huge $300W_{kg}$ male gorilla.

A proxy prescription strategy needs to be critically adjusted for each patient encountered in ZVM especially when there are patients of significantly disparate body sizes to be encountered. What, one may ask, is the weight of the tiger? Is it the same as a $7W_{kg}$ domestic cat? The question must be asked: "Which tiger do we have here? Is it a $7W_{kg}$ cub or a $400W_{kg}$ adult?" As clinicians we must be informed that the same dose rate for a $7W_{kg}$ tiger cub would create an over-dosage for a $400W_{kg}$ adult.

Clinicians must be capable of (by-sight) estimating comparative patient weights in ZVM. It's not always possible to weigh an awake tiger on a scale to obtain its weight in kilograms (W_{kgs}) needed to appreciate needed numeric prescription adjustments. Clinicians must be capable of calculating the basal metabolic intensity of ($M_{kcals/kg}$) vertebrates that compose the usual patient constituencies in ZVM practices. In zoological practice clinicians must be aware of a prescription protocol that may not only include *dose rates*, *Rx-dosages* but also *frequencies* and *intervals* as various drugs are called for. For example: in a comparative prescription monograph for the antibiotic ceftizoxime Joyce Mordenti used the $0.023W_{kg}$ mouse (*Mus musculus*) to recognize a *dose rate* of 88 mgs/W_{kg} for an *Rx-dosage* of 2.02mgs and a *frequency* of 20 treatments, an *interval* of q1.2 h; while using a $70W_{kg}$ man (*Homo sapiens*) to receive the *dose rate* of 14.3mgs/W_{kg} an *Rx dosage* of 1001mgs. a *frequency* of 3 treatments for 24 hrs. a q 8 h *interval*. Both (mouse and man) required different prescriptions to achieve a desired clinical outcome of 141.5 micrograms (mcgs) ceftizoxime per ml serum for 24 hours: **Ref.: Dosage regimen design for pharmaceutical studies conducted in animals. J Pharm Sci 75(9):852 856, 1986.** In common, both mouse and man are placental mammals and are therefore of the same body temperature BT @~ 38.1°C – 100.5°F[3] The Mouse ($0.023W_{kg}$) dose rate (mg/W_{kg}) __88__ *Rx*-dosage (mg) __2.02__ Interval q _1.2_h frequencies – 20 per day. The man ($70W_{kg}$) dose rate (mg/W_{kg}) __14.3__*Rx*-dosage (mg)__1001__Interval q_8_h frequencies – 3 per day.

In ZVM, intramuscular (IM) injectable anesthetics employed to sedate, capture, immobilize or anesthetize zoo or free ranging vertebrate wildlife (including use of some of the following drug examples listed below) when comparatively scaled to achieve an expected outcome were seen with the smallest member of a cohort receiving the highest *dose rate*, but the lowest *Rx*-dosage; the largest member of the cohort receiving the lowest *dose rate*, but the highest *Rx*-dosage:

Acepromazine	Carfentanil	Etorphine	Ketamine	Naloxone	Valium
Atipamezole	Ceftizoxime	Fentanyl	Medetomidine	Naltrexone	Xylazine
Atropine	Cyprenorphine	Ganciclovir	Meloxicam	Phencyclidine	Yohimbine
Azaperone	Droperidol	Glycopyrrolate	Midazolam	Telazol	Zolazepam