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## Platypus and Echidnas

Kate Bodley

Drug name	Drug dose	Species	Comments
<b>Antimicrobials and Antifungals</b>			
Amoxicillin/ clavulanic acid	20 mg/kg IM SID or PO BID [1, 2]	Short-beaked echidnas	
	Mean 19.51 mg/kg (median 19.89 mg/kg) IM SID for median 7d [3]	Short-beaked echidnas	n = 26 animals, 39 records, one terminated early, no reported adverse effects.
	12.5 mg/kg IM SID [4]	Platypus	
Amphotericin B	0.5 mg/kg injected intralesionally twice weekly [5]	Platypus	For ulcerative mycosis, <i>Mucor amphibiorum</i> .
	Crush 10 mg oral lozenge in water and administer PO TID-QID [2]	Short-beaked echidnas	Gastrointestinal candidiasis.
Ceftazidime	65 mg/kg IM SID [1]	Short-beaked echidnas	
Cephalexin	30 mg/kg PO BID [2]	Short-beaked echidnas	
Doxycycline	5 mg/kg PO SID [1]	Short-beaked echidnas	
Enilconazole	Used as a topical spray, diluted at manufacturer's recommendations [2]	Short-beaked echidnas	Dermatophytosis, as Imaverol™ fungicidal wash for horses and dogs (100 mg/ml enilconazole), Elanco Australia, West Ryde, NSW.
Enrofloxacin	5 mg/kg SC or PO SID [1, 2, 6]	Short-beaked echidnas	Note: In one case, three systemic antimicrobials were administered during a prolonged illness (enrofloxacin, trimethoprim-sulfamethoxazole, and amikacin). The authors commented that this may have contributed to the development of fatal disseminated fungal infection [6].
	5 mg/kg IM SID [1]	Platypus	
Fluconazole	15 mg/kg PO SID-BID, 5–10d [7]	Short-beaked echidnas	For gastrointestinal candidiasis.
Itraconazole	5 mg/kg PO SID [1]	Short-beaked echidnas	Monitoring hepatic enzymes during therapy is warranted [8].
Metronidazole	20 mg/kg IV SC PO SID [1]	Short-beaked echidnas	
Miconazole	0.5–1.0 ml oral gel per Short-beaked echidna, PO BID [2]	Short-beaked echidnas	Mycotic stomatitis. Daktarin® Oral Gel, miconazole 20 mg/g, Janssen-Cilag Pty Ltd., North Ryde, NSW.

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Nystatin	20 000–25 000 IU/kg PO BID [2, 7]	Short-beaked echidnas	GIT candidiasis.
	100 000 IU/kg PO TID-QID [7]	Short-beaked echidnas	GIT candidiasis.
Nystatin-neomycin-triamcinolone	Ointment applied topically [1]	Short-beaked echidnas	
Oxytetracycline	20 mg/kg IM SID [1]	Short-beaked echidnas	
Penicillin with benzathine	10 mg/kg IM SC SID [1]	Short-beaked echidnas	
Procaine penicillin	15 mg/kg IM, SC SID [1]	Short-beaked echidnas	
Trimethoprim-sulfadiazine, trimethoprim-sulfamethoxazole	5 mg/kg of trimethoprim component or 15–30 mg/kg (combined TMS) PO SID-BID for 14d or until clinical resolution [2]	Short-beaked echidnas, platypus	TMS is the treatment of choice for treating clinical coccidiosis in short-beaked echidnas [9]; however, adverse effects have been reported in some patients [8]. Avoid parenteral administration [9].
<b>Analgesia</b>			
Buprenorphine	0.01–0.03 mg/kg IM BID-TID [2]	Short-beaked echidnas	
Carprofen	2 mg/kg PO BID [2]	Short-beaked echidnas	Avoid NSAIDs in clinical coccidiosis (likely dehydration and enteritis) – opioid analgesia is recommended [9].
Gabapentin	5 mg/kg PO SID [7]	Short-beaked echidnas	Analgesia.
Meloxicam	0.2 mg/kg SC or PO SID [1, 2]	Short-beaked echidnas	Avoid NSAIDs in clinical coccidiosis (likely to have dehydration and enteritis) – opioid analgesia is recommended [9].
	Mean 0.17 mg/kg (median 0.18 mg/kg) PO SID, for median 7d [3]	Short-beaked echidnas	n = 70 animals, 149 records (n = 71 doses, dose range 0.09–0.11 mg/kg, n = 29 doses, dose range 0.2–0.22 mg/kg), 3 terminated early, no adverse effects.
Methadone	0.2 mg/kg SC QID [2]	Short-beaked echidnas	
Paracetamol (Acetaminophen)	15 mg/kg PO BID [8]	Short-beaked echidnas	
Prednisolone	5 mg dose PO SID, 5d [8]	Short-beaked echidnas	Immune-mediated blepharoconjunctivitis.
Tramadol	5–10 mg/kg PO, SC/IM BID [7, 10]	Short-beaked echidnas	
<b>Anesthesia and Sedation</b>			
Alfaxalone	3–5 mg/kg IM [11]	Short-beaked echidnas	
Atipamezole HCl	0.5 mg/kg IM [1]	Short-beaked echidnas	
	5X medetomidine dose [12]	Short-beaked echidnas	
Diazepam	1–2 mg/kg IM [13]	Short-beaked echidnas	Sedation.
	0.5–1.0 mg/kg IM [4, 11]	Platypus	Sedation for minor procedures.
Isoflurane	Mask induction [4, 11]	Platypus	Rarely have injectables been used; rather, induction with a face mask via isoflurane is usually employed.
Isoflurane	Mask induction [11]	Short-beaked echidnas	Considered method of choice for anesthetic induction.

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Ketamine + medetomidine	K: 3–5 mg/kg + M: 0.03 mg/kg IM, antagonize with 1.5 mg/kg atipamezole IM [13]	Short-beaked echidnas	This injectable combination is favored over Telazol as induction and recovery are smoother, and medetomidine can be reversed using atipamezole [13]. Bradycardia and bradypnea may occur.
Ketamine + xylazine	K: 5–10 mg/kg + X: 1–2 mg/kg IM, antagonize with 0.1 mg/kg yohimbine IV [1, 5]	Short-beaked echidnas	
Midazolam + butorphanol	MID: 0.2 mg/kg IM + B: 0.2 mg/kg IM [6]	Short-beaked echidnas	n = 1, sedation for transport.
Pentobarbital	200 mg/kg IV [14]	Short-beaked echidnas	Euthanasia.
Telazol	3–10 mg/kg IM [1, 11, 12]	Short-beaked echidnas	Note: Medetomidine-ketamine combination is considered superior [13].
<b>Antiparasitic</b>			
Fenbendazole	10 mg/kg PO q7d for two doses [2]	Short-beaked echidnas	GIT nematodiasis.
Fipronil	10 mg/kg topical (with S-methoprene) once [1]	Short-beaked echidnas	Acariasis, Frontline® Top Spot Plus, Boehringer Ingelheim Animal Health Australia, North Ryde, NSW.
Ivermectin	0.2 mg/kg SC [1, 4]	Short-beaked echidnas and platypus	To treat acariasis.
	0.2 mg/kg SC, PO q7d, repeat twice [2]	Short-beaked echidnas	GIT nematodiasis.
Moxidectin	0.2 mg/kg IM SC q7d [1]	Short-beaked echidnas	
	0.2 mg/kg SC, PO q7d, repeat twice [2]	Short-beaked echidnas	GIT nematodiasis.
Ponazuril	Mean 22.72 mg/kg (median 20.09 mg/kg) PO, once [3]		n = 12 animals, 27 records, none terminated early, no reported adverse effects. To treat coccidiosis; however, oral TMS is considered treatment of choice [9].
Praziquantel	5 mg/kg IM PO once [1]	Short-beaked echidnas	
	10 mg/kg PO [2]	Short-beaked echidnas	GIT cestodiasis.
Selamectin	Topical application at domestic animal dose rates [2, 5]	Short-beaked echidnas	To treat acariasis.
Toltrazuril	20 mg/kg PO SID × 2d [1, 5]	Short-beaked echidnas	To treat coccidiosis, however, oral TMS is considered treatment of choice in clinical cases [9]. Appears less effective than oral TMS [15].
<b>Other</b>			
Barium sulfate	5–10 ml per short-beaked echidna, PO SID [8]	Short-beaked echidnas	To assist with management of intractable diarrhea.
Bromhexine HCl	1 mg/kg PO TID [1]	Short-beaked echidnas	To use as a mucolytic.
Chlorhexidine gluconate as shampoo	As directed by manufacturer [2]	Short-beaked echidnas	Bacterial folliculitis, Pyohex® Medicated Shampoo (chlorhexidine gluconate 30 g/l), Dermcare Vet Pty Ltd., Slacks Creek, QLD.
Cisapride	0.5 mg/kg PO [2]	Short-beaked echidnas	As a GIT motility modifier [10].
Dexamethasone	0.2 mg/kg IM SC SID [1]	Short-beaked echidnas	

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Drug name	Drug dose	Species	Comments
Formic acid 1%	In food at 2% [1]	Short-beaked echidnas	To improve palatability of managed care diet [2]. Smaller amount (1–2 drops applied to side of food dish) may be all that is required to stimulate feeding.
Iodine IV contrast medium	720 mg iodine/kg IV [6]	Short-beaked echidnas	For postcontrast CT scan. Equivalent to 3 ml/kg Omnipaque™ GE Healthcare Inc., Marlborough, MA. 240 mg/ml, delivered into beak sinus using a 23 g butterfly catheter.
Maropitant	1 mg/kg SC [7]	Short-beaked echidnas	Antiemetic used for supportive care (e.g. during treatment for coccidiosis and following gastrotomy) [15].
Omeprazole	Not recommended	Short-beaked echidnas	Short-beaked echidnas appear to lack gastric parietal cells; antacids such as omeprazole, ranitidine alter acid secretion by inhibiting gastric enzymes located in these cells [10].
Phytomenadione	0.1 mg/kg PO [1]	Short-beaked echidnas	

Species	Weight range
Short-beaked echidna ( <i>Tachyglossus aculeatus</i> )	2.5–6 kg
Long-beaked echidna ( <i>Zaglossus bartoni</i> ; <i>Z. attenboroughi</i> , <i>Z. bruijnii</i> )	5–10 kg
Platypus ( <i>Ornithorhynchus anatinus</i> )	0.2–2 kg

## Selected Physiologic Parameters: Echidna and Platypus [12, 16]

Species	Short-beaked echidna	Platypus
Heart rate (beats/min)	4–7 (while in torpor) 50–68 (at rest) 135–145 (activity)	140–230 (conscious) 180–220 (anesthetized)
Respiratory rate (breaths/min)	5–6	20–50
Temperature (°C)	28–33	28–34

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