Case studies for workshop on harmonising the approach to VeDDRA coding

Case study set	Case summary	Suggested coding
Companion animals		
A	1. A young male Labrador Retriever was treated with ear drops and corticosteroid injection for a flare up of otitis externa and inflamed pinnae. Before the owner got home the dog was acting strangely and was poorly responsive. The owner had to carry the dog in to the veterinary surgery. There was facial swelling but no other clinical signs at this stage. The dog was seen 5 times over the next week with intermittent pyrexia, shifting polyarthropathy, shifting limb oedema, head shaking and lethargy. Antibiotics and NSAIDs were administered but the dog developed pneumonia and the owner requested euthanasia.	reduced responses, behavioural disorder NOS, facial swelling, pyrexia, polyarthropathy, oedema of the extremities, head shake, lethargy, pneumonia, death by euthanasia. Note: weakness may be proposed as a VeDDRA code, however the VeDDRA sub-group felt that this term did not added any value to the proposed answer
B	2. After the product was applied between the shoulder blades the cat disappeared and returned 2 hours later with a wet patch on its neck as if it had been grooming itself at the back of neck. The cat became lethargic and very floppy but was able to rouse itself in response to unwanted attention. There was no improvement and the cat was hospitalised 5 days later, by which time it was dehydrated, dull, semi-flaccid, in an altered mental state and was wagging its tail for no apparent reason. Initially the cat improved with fluid therapy but it became sensitive to light and subsequently started fitting. The fits were treated with diazepam but the cat died.	licking at application site, lethargy, weakness, dehydration, hypotonia, behavioural disorder NOS, mental impairment NOS, hypersensitivity to light, fit, death
C	3. A dog became ataxic, lethargic, dull, depressed and off its food after application of an ectoparasiticide authorised for the treatment of demodectic mange. Its sore skin was made worse by treatment and tests were positive for demodex. The product had been used on at least 2 previous occasions with no adverse effects.	ataxia, lethargy, dullness, depression, appetite loss, skin disorder NOS, lack of efficacy. Note: 'sore skin' should not be coded as skin sore
D	4. The product was administered to a cat which had become lame after the owner had sat on it. The owner phoned within a few hours after product administration to report that her cat had been sneezing, had a dilated pupil and sore oral mucous membranes. On re-examination the cat had a systolic heart murmur and a tender abdomen. Antibiotics were started but the owner declined any tests at this stage. The cat was seen a week later. It had not eaten for at least 2 days, and was dehydrated and weak. The third eyelids were up and inflamed, there was a dried serosanguinous bilateral nasal discharge, the owner reported that the cat had sneezed blood, and palpation over the nose was painful. Blood tests showed high urea and a very high WBC count. Fluid therapy was initiated but during the day the cat deteriorated, became apparently blind, and the right pupil was more dilated than the left. There was no peripheral light reflex or menace reflex. The cat became imbalanced, falling to the left and forwards. The owner opted for euthanasia.	sneezing, dilated pupils, unequal pupils, sore mouth, heart murmur, abdominal pain, dehydration, weakness, third eyelid protrusion, nasal discharge, nasal bleeding, localised pain NOS, elevated BUN, leucocytosis, blindness, abnormal pupil light reflex, balance impaired, death by euthanasia

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E	5. A German Shepherd dog was not well and developed pale mucous membranes, stumbling, anorexia and anaemia within 12 hours post administration. The PCV was 10% and a Coombs test was positive. Signs of regeneration on blood smears indicated that the haemolysis had occurred before the product was administered. The dog had been in season 2 weeks prior to treatment and had been given a course of antibiotics 1 week before the product was administered.	pale mucous membranes, stumbling gait, anorexia, regenerative anaemia; abnormal test result. Note: Immune mediated haemolytic anaemia may also be coded (as a result of the positive Coombs test).
A	6. Twenty five minutes after annual routine vaccination a Cocker Spaniel bitch became very quiet and reluctant to move. She did not lose consciousness but was very slow to respond to the owner's voice. After a further 5 minutes, she started panting and became more responsive to the owner. The dog was able to walk but preferred to lie down. The owner reported vulval and facial swelling that evening, which had resolved by the next morning.	off colour, reluctant to move, reduced responses, panting, swollen vulva, facial swelling; anaphylactic-type reaction or allergic reaction
B	7. A 9 month old male Border Terrier dog was prepared for routine castration. At 10.30am the dog was given an injectable NSAID intravenously. Seconds after this acepromazine and butorphanol were administered intramuscularly. Within seconds the dog vomited, passed faeces and collapsed. The dog then went blue and became bradycardic. Oxygen was given and intravenous fluids, the latter first by bolus and then as a maintenance dose. The veterinarian decided to postpone surgery and approximately 1-1.5 hours later the dog was coming round. At 1.15pm the dog was back in the kennel but still very sleepy. The dog had fully recovered within 24 hours.	vomiting, involuntary defecation, collapse, cyanosis, bradycardia, anaphylaxis
C	8. An 11 year old terrier developed a soft tissue sarcoma on the tongue which was confirmed by biopsy taken under general anaesthesia for dental treatment 4 years after the start of intermittent administration of prednisolone for the treatment of a recurring skin problem. Polydipsia, hyperglycaemia and glucosuria developed 8 days after recovery from the anaesthetic. Prednisolone was withdrawn and the dog was later reported to have developed a possible metastasis of the sarcoma on the epiglottis.	tongue disorder NOS or neoplasia NOS, polydipsia, hyperglycaemia, glucosuria, metastatic neoplasia. Note: this is an unusual case and highlights the difficulties in coding adverse event reports; where necessary further information may need to be obtained from the reporter.
D	9. A neoplastic mass surrounding a microchip was removed from the back of the neck of an 8 year old domestic short-haired cat approximately 9 months after a routine vaccination had been administered at the same site. Within the next 14 months fibrosarcomas were removed from the site on 2 occasions. On the third recurrence the cat was put to sleep.	injection site sarcoma or implant site sarcoma, implant site reaction NOS, death by euthanasia

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E	10. A 13 year old male neutered cat had a sarcoma removed from the palmar aspect of his left carpus in 2011. The cat had received multiple vaccines, long-acting injectable products and other injectables since 2000 between his shoulder blades. He had also had a cat bite wound to his left metatarsal area as a kitten. At the same time as the sarcoma was removed, a cyst was removed from the flank. The owner had reported the sarcoma as an adverse reaction to the veterinarian who had treated the cat between 2000 and 2009, and had told him that a sarcoma had been removed from the hind leg and that a vaccine had once been given in the hind leg. The veterinarian did not remember ever giving a vaccine in the hind limbs of any animals but reported it to the MAH anyway. After speaking to the new attending veterinarian who had removed the sarcoma, he advised the MAH that the owner was mistaken and that the sarcoma was actually under the carpus and not related to vaccination. He thought that the owner might have confused the cyst with the sarcoma. The sarcoma under the pad was removed surgically.	skin sarcoma NOS. Note: this is an unusual case and highlights the difficulties in coding adverse event reports; where necessary further information may need to be obtained from the reporter.
A	11. A 3 year old Weimaraner collapsed after barking at a visitor who came to the door. The dog seemed dizzy and slightly disorientated, and the owner thought that it started after she had administered the ear drops prescribed to treat ear mites. On examination there was a slight head tilt to the right and both ears were still very inflamed with a lot of wax, so it was impossible to see if the tympanic membranes were intact. Reflexes and other parameters were normal. The ear drops were withdrawn and symptomatic treatment given. Ten days later the dog collapsed again and the head tilt returned. On re-examination the dog had lost weight despite a normal appetite, seemed disorientated with a right-sided head tilt, and was reluctant to walk. Both ears were inflamed and the left ear was full of wax. Reflexes were normal. The next day the dog was very lethargic and slept a lot. A cough developed 5 days afterwards. A further 6 days later the dog collapsed after a meal, was conscious and responsive but was dehydrated and unable to stand. It was hospitalised for observation and fluid therapy. The dog vomited overnight and became calmer and brighter afterwards, continuing to improve from then on.	collapse, disorientation, head tilt, weight loss, lethargy, sleepiness, cough, unable to stand, dehydration, vomiting; reluctance to move. Note: otitis externa may be reported however the VeDDRA sub-group did not consider this an appropriate term to code as this was considered to be a pre-existing condition.
B	12. A 6 year old rabbit went off its legs and developed a head tilt 9 hours after vaccination against rabbit Viral Haemorrhagic Disease. The rabbit was being treated for *E. cuniculi* infection and already had a mild head tilt at the time of administration.	unable to stand, head tilt
C	13. A 12 year old Rough Collie collapsed within 12 hours after the start of administration of an anti-hormone agent. Horizontal nystagmus was present and the head was tilted to the right side. After supportive therapy the dog started to stand but was ataxic. Two days later the nystagmus had resolved but the head tilt was more marked and the dog still could not walk	collapse, horizontal nystagmus, head tilt, ataxia, death

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	very well. The head tilt persisted and 2 months later the owner reported that the dog had died.	
D	14. A 15 year old cat vomited, urinated and developed hypersalivation and became lethargic within 30 minutes post vaccination. Collapse with tachypnoea and bradycardia followed, the body temperature was below normal, and the cat was dull on examination 1.5 hours post vaccination. Mydriasis and hypotension were also present. The cat improved after administration of adrenalin and fluids but head pressing was noted. Ataxia, temporary blindness, intention tremor and head tilt were noted the next day.	vomiting, uncontrolled micturition, hypersalivation, lethargy, collapse, tachypnoea, bradycardia, decreased body temperature, dull, mydriasis, hypotension, head pressing, ataxia, temporary blindness, intenion tremor, head tilt, anaphylaxis
E	15. An NSAID product was prescribed for an elderly Border Collie for arthritic pain. Two 10 day courses were administered with no adverse effects. The dog started to vomit intermittently after eating grass 6 weeks after the end of the second course of treatment. Another dog in the same household developed gastroenteritis a few days later and when the Border Collie was re-examined the dog had lost weight and was lethargic. Blood tests showed elevated cholesterol, globulins and serum alkaline phosphatase and low BUN. An abnormally high level of bilirubin was detected in the urine. Ultrasound showed multiple nodules in the liver and spleen but neoplasia was not confirmed by fine needle aspirate. A referral clinic subsequently found small but perfuse neoplastic changes in the lungs and peritoneum. These were not noted in the liver but the referral clinic was of the opinion that the dog's symptoms were related to the neoplasia. The dog was put to sleep 2 months after the start of treatment.	vomiting, weight loss, lethargy, elevated cholesterol (total), elevated SAP, abnormal test result, bilirubinuria, liver disorder NOS, spleen and reticulo-endothelial system disorder NOS, metastatic neoplasia, death by euthanasia
A	16. A Netherland Dwarf rabbit was reported to be sitting hunched 24 hours post vaccination against myxomatosis. It was leaning to one side and had passed soft droppings. One day later the rabbit was not eating very much and still had soft droppings. There was some improvement after a further 4 days when the rabbit was re-examined by the veterinarian, who gave it an injection of an NSAID. This was off-label use. The rabbit deteriorated and died the next day.	lethargy, abnormal posture NOS, loose stool, decreased appetite, death
B	17.A 6 year old cat was treated with a cephalosporin antibiotic for a scratch on the ear. One week later the cat presented with generalised scabs and a worsening of the scratch on the ear where the skin was sloughing off. The cat had scabs all over the body, and was pyrexic, dull and depressed. Tests showed that the cat was FIV positive and the scabs infected with Pseudomonas, Staphylococci and Candida.	skin scab, skin slough, pyrexia, dull, lethargy, bacterial skin infection NOS

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C	18. A 3 year old male Labrador Retriever became confused 6 hours after the subcutaneous injection of an anti-inflammatory product. He looked as though he wanted to jump up onto the bed and then flopped onto the floor in sternal recumbency. He had tired eyes, was unresponsive and appeared to be dropping off to sleep. The only response to the owner was a slight tail wag and then the dog started to recover quickly. He was back to normal after a couple of minutes, having had a long drink of water and passing urine and faeces.	confusion, recumbency, drooping eyelid, reduced responses, sleepiness
D	19. A 15 year old female neutered Whippet was reported to have been dull for 2 days after administration of an anti-hormone agent. On examination the dog was dehydrated and smelt uraemic. Blood tests showed high urea, creatinine and ALT. Haematology showed a low WBC count and a relative basophilia. The dog was admitted for fluid therapy and symptomatic treatment. One week after the dog was sent home she had an acute vestibular attack, rolled around, vomited once and was staggering. When examined 45 minutes after the event she was walking well but had horizontal nystagmus.	dull, dehydration, uraemia, elevated BUN, elevated creatinine, elevated alt, leucopenia, basophilia, vestibular disorder NOS, vomiting, ataxia, horizontal nystagmus
E	20. A 3 year old entire male Springer Spaniel was treated topically with an ectoparasiticide by his owner. The product was applied in one spot on the back of the neck. The owner inadvertently stroked the dog after application and the dog may have licked the owner's hand. Two days later the owner reported that since application the dog had been lethargic, but eating and drinking normally. On examination the veterinarian reported lethargy, hypersalivation and hyperaesthesia around the eyes. The rest of the clinical examination was normal. A urine sample had a pH of 7.5 and a SG of 1.045, and showed struvite crystals and cocci. Blood tests were unremarkable. Two days later the dog showed signs of caudal abdominal pain and a urinary tract infection was suspected. Preputial swelling, vocalisation and restlessness developed the next day, followed by dehydration and lip smacking 24 hours later. The dog improved with symptomatic treatment although he was now retching and had suspected tonsillitis.	lethargy, hypersalivation, hyperaesthesia, crystalluria, urinary tract infection, abdominal pain, penile disorder NOS, vocalisation, restlessness, dehydration, lip smacking, retching
	Horses	
A	21.An injectable painkiller was administered intravenously to a 30 year old pony which had colic. The animal collapsed immediately onto its right side and slowly became unconscious. After 10 minutes the pony raised its head and sat up, then got to its feet. It seemed agitated and shied away when the owner approached its head. The next day there was poor vision in the right eye and the animal was still over-reacting to normal sights and sounds.	collapse, unconscious, agitation, impaired vision, hyperaesthesia

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B	22. An 11 year old Irish Draught horse became restless and started sweating heavily 1 hour after intramuscular injection of a polysaccharide product authorised for the treatment of lameness. The horse collapsed and lost consciousness. Whilst collapsed the horse urinated and was unresponsive to voice. On examination 15 minutes later by a veterinarian the horse was quiet but responsive and had pale mucous membranes. The owner reported that the horse had seemed distressed immediately after the product was injected. The horse remained subdued for the next 48 hours.	restlessness, heavy sweating, collapse, loss of consciousness, uncontrolled micturition, reduced responses**,** pale mucous membranes
	Production animals	
C	23. A farmer treated his sheep with an oral anthelmintic. Two weeks later 8 of the sheep were stolen, and 3 days after that the head, limbs and intestines of one of them, identified by the ear tag, were found in a roadside picnic area by the local authority. The butchery of the sheep suggested that it had been used for meat although this could not be confirmed. The farmer was contacted and the name of the anthelmintic was confirmed. The police became involved but could provide no further information.	residues in meat/offal
D	24. Diarrhoea and death were reported in 10 calves an unspecified period after Salmonella, bovine coronavirus and bovine rotavirus vaccinations and a macrolide antimicrobial were administered to all the calves born on the farm. In the opinion of the attending veterinarian, the standard of hygiene on the farm was poor and the feeding of colostrum was erratic. A post mortem examination of one of the dead calves showed enteropathy, dehydration and cryptosporidiosis.	diarrhoea, death, digestive tract disorder NOS, dehydration
E	25. Injectable oxytetracycline was administered to 12 ewes from a flock of 40 pedigree Shetland sheep. One ewe developed severe symptoms within 2-3 minutes of injection and died within 15 minutes. Symptoms included severe ataxia, dyspnoea, salivation, collapse and death. The farmer purchased a new bottle and started to inject the remaining animals today. The first (and only) ewe which he injected rapidly developed salivation, dyspnoea, and profuse soft mucoid faeces with blood. The animal survived but was looking very sick.	ataxia, dyspnoea, increased salivation, collapse, death, bloody diarrhoea, mucoid stool, general illness
A	26. A beef suckler unit bought in 40 calves which were vaccinated on arrival on the farm with an IBR vaccine and a combined BVD and respiratory virus vaccine. Thirty of the calves developed a cough and elevated temperature within 3 months after vaccination and 2 of these calves died. Four conjunctival swabs were taken, of which one tested positive for IBR. Post mortem examination suggested bacterial pneumonia and *H. somni* was isolated.	lack of efficacy, death

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B	27. A veterinarian reported that he had administered calcium subcutaneously to a cow for the treatment of possible hypocalcaemia. The cow subsequently developed an abscess at the injection site with an area of skin sloughing. The farmer then administered an injectable antibiotic as a treatment for the skin slough and abscess. The product was not authorised for this indication. The cow was later euthanised on welfare grounds. The intervals between treatments are not known.	injection site abscess, skin slough; death by euthanasia. Note: it is preferable to ensure signs are coded only once and not multiple times e.g. skin slough
	Poultry	
C	28. Approximately 22,000 day old broiler breeders were vaccinated against Marek's disease. According to the hatchery's records the chicks received a 4 times overdose due to an error in the reconstitution of the vaccine, and the product was used 1.5 hours after reconstitution, not within 1 hour as recommended in the SPC. One week after vaccination there had been 5% mortality, while at 36 weeks of age there had been 37% mortality. Of the birds that died, approximately 50% died naturally and 50% were culled because they were moribund. Post mortem examination of the birds that died revealed tumours in the liver and spleen typical of Marek's disease. The attending veterinarian reported that the vaccination records were not clear and that some birds might have missed vaccination.	increased mortality rate, death by euthanasia, lack of efficacy
	Fish	
D	29. A producer vaccinated approximately one million Atlantic Salmon before they were transferred to 8 pens at a seawater site. Fish in 4 of the pens came from one freshwater site and a vaccination assessment on these fish showed evidence of improper vaccine use, with anterior and posterior injections, tearing and bruising at the injection site, and missed injections. It was reported that performance at the seawater site had been good but fish size was variable. The site had a history of Pancreatic Disease and it was noted that a neighbouring farm was currently experiencing an outbreak of this condition. Eight months after transfer to the seawater site, fish numbers had almost halved. Ten fish from each pen were sacrificed. 60% of the selected fish had reacted to the vaccination and showed signs of intra-abdominal adhesions, melanisation, or both. Four fish were noted to have melanin on the external surface of their abdomens due to the severity of their adhesions, while one had this as a result of intramuscular injection. Nine of the fish had granulomas.	injection site bruising, injection site complication NOS, adhesion in fish, melanin accumulation in fish, granuloma
E	30. The owner of aquarium fish noticed a fungal growth on a number of his tropical fish and administered a product containing 2-phenoxyethan-2-ol which he purchased at a local pet shop. Within 24 hours after administration the fungal growth had spread to more of the fish, while the water in the tank had started to go cloudy. Fish moved to the top of the aquarium where they were gasping at the water's surface. After this initial reaction, fish started to die. It is not known if the owner followed the manufacturer's instructions	fish gasping, death, lack of efficacy; Note for discussion at plenary: if a similar event occurred in natural environment e.g. sea/loch then adverse event could be used.

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	for dilution of the product.	