

# Nursing Tips and Tricks for Rabbits, Rodents, and Other Small Mammals

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## 1) Species covered – small mammals AKA pocket pets (focus on private practice)

- a. Rabbits
- b. Rodents
  - i. Includes mice, rats, gerbils, chinchillas, guinea pigs, hamsters
- c. Ferrets
- d. Hedgehogs
- e. Sugar Gliders

## 2) Husbandry

- a. Improper husbandry causes the majority of issues with these animals
- b. Collect and document a history that includes housing, diet, environment at every visit
- c. Have care sheets for each species and give to every new client
- d. Discuss and correct any husbandry issues – explain why these changes are necessary for the health of their pet
- e. Generalities – don't use shavings as bedding, use solid bottom caging, don't house outdoors, avoid pellet mixes

## 3) Supportive Care Tips

- a. Fluids and nutritional support are essential
  - i. Most of these species do well with up to 100ml/kg of fluids per day, split into q8-12hr if SQ.
    1. Butterfly catheters attached to a syringe are a good way to give 5-60 ml of fluids SQ while still letting the animal move.
  - ii. Nutritional support for herbivores
    1. Start at the first sign of inappetence
    2. Oxbow Critical care – 3 TBS dry product/kg/day. Mix with warm water to desired consistency and split into 4-6 syringe feedings.
    3. Use wide bore syringes, insert tip just beyond incisors and angled toward cheek to prevent aspiration.
    4. Some pets will eat Critical Care out of a dish – try the apple-banana flavor.
  - iii. Nutritional support for carnivores and omnivores
    1. Critical care for carnivores, syringe feed a/d, Emerald for carnivores
    2. Omnivores (hedgehogs and sugar gliders) can get a mix of herbivore and carnivore syringe feeding food, various jarred baby foods.
  - iv. Provide water in a dish and bottle
  - v. Provide an assortment of foods
    1. Herbivores often prefer orchard grass over timothy hay. Try different brands of pellets, avoid mixes! Offer dark leafy greens.
    2. Ferrets like a/d, canned kitten food, Duk Soup
    3. Sugar gliders and hedgehogs should be offered a variety of proteins, fruits, vegetables. They can be tempted to eat with live mealworms (in moderation).
      - a. Mealworms are inexpensive and last for a long time in the fridge.
- b. Monitor environmental temperature
  - i. Rabbits and chinchillas overheat easily – provide tile or a granite slab to lay on for cooling, or leave a part of a metal cage exposed.

- ii. Hedgehogs and sugar gliders need warmer temperatures – provide a temperature gradient.
- c. Reduce stress
  - i. Sedate for anything that might cause too much stress
    - 1. Radiographs, blood draws, clip/cleans, wound repair, splinting, oral exams
  - ii. Restrain gently – see below for tips
  - iii. Hospital stays
    - 1. House in a quiet room away from prey animals
    - 2. Use towels over cage doors
    - 3. Provide plastic or card board hiding areas for all prey species
    - 4. Place food in or near hiding areas
    - 5. Provide litter boxes for ferrets and rabbits
    - 6. Ask owners what their home environment is like and try to mimic that
  - iv. Outpatient care
    - 1. If pet is not critical and owner is reliable and trainable
      - a. Syringe feeding and SQ fluids
    - 2. Lower cost if financially concerned
    - 3. Reduces stress and may result in faster recovery.

#### 4) Anesthesia and Nursing tips

- a. Restraint for minor procedures/exams
  - i. Burrito technique for rabbits, guinea pigs, rats, chinchillas
    - 1. Rabbits can be positioned over-the-table (similarly to cats) for jugular blood draws, cephalic and lateral saphenous are also good choices for IVCs.
      - a. Marginal ear vein is easy to access but usually very sensitive
    - 2. Ferrets can be scruffed in ventral recumbency for jugular blood draws (better sedated), can use cephalic also for blood and IVCs.
  - ii. Caution on scruffing – very stressful and can cause proptosis and other injury
  - iii. Many rabbits and guinea pigs can be calmly restrained on a table with a hand over the eyes and the other on the back end.
  - iv. Use clear containers to examine mice, gerbils, hamsters, hedgehogs, sugar gliders
- b. Medication administration
  - i. Oral medication can be compounded/flavored for easy dosing
  - ii. Parenteral administration is preferred over oral for GI stasis
  - iii. SQ injections are easy and tolerated well
  - iv. IM can be given in quads or epaxials
- c. Anesthesia
  - i. Fasting
    - 1. Fasting is not necessary and should be avoided in herbivores
      - a. Can remove food 30 minutes before procedure so mouth is clear
      - b. Most cannot vomit – guinea pigs sometimes regurgitate
    - 2. Ferrets can be fasted for a few hours, often gag/vomit on induction and recovery
  - ii. Premeds
    - 1. Midazolam and buprenorphine combo is popular
    - 2. “Critter magic” – opioid + ketamine + dexmedetomidine
      - a. Use in healthy rabbits, ferrets, mice, rats

- iii. Induction
  - 1. Mask/chamber with isoflurane or sevoflurane
  - 2. If big enough for an IVC – use propofol or alfaxalone
  - 3. Alfaxalone or induction dose of “Crittter magic” IM
- iv. Maintenance
  - 1. Mask
    - a. Be sure to have a selection of tiny masks available – can improvise with a syringe case or glove with a small hole
    - b. Many of these species are obligate nasal breathers – be wary of the mask’s position over the nose and don’t block the nares
  - 2. Intubation
    - a. 2.0-3.0 ET tube for rabbits
      - i. Can intubate using endoscope or aural scope
      - ii. Can try blind intubation
      - iii. For larger breeds, place in ventral recumbency and use a small laryngoscope blade to hold the tongue upwards
    - b. 2.0-3.0 in ferrets
      - i. Similar to cats, use a small curved laryngoscope blade
    - c. Anything smaller can be difficult to intubate
      - i. Can try 14-16g IVC without stylet
      - ii. These catheters can fit on the plastic connector from 2.0 ET tubes, this allows easy hook up to non- rebreather
  - 3. Use a 0.5-1 liter non-rebreather
  - 4. Smaller critters need higher O2 flow rates, respective to their size
- v. Monitoring
  - 1. The most important thing is constant hands on monitoring and quick reactions to changes
    - a. A change in HR or RR is more significant than the actual number
    - b. Can happen in a split second – might be ideal to have one person dedicated to watching breathing and listening to heart
  - 2. Most can be hooked up to SpO2, EKG, end tidal CO2, temperature
    - a. Can try 2-3 sized blood pressure cuffs
  - 3. Many machines have difficulty getting accurate HR
    - a. Use a Doppler to listen to heart sounds
    - b. Vetcorder hand held monitors seem to work well for small patients
- vi. Have everything prepared for your anesthetic event BEFORE you start
  - 1. Minimizing anesthesia time is the key to a good outcome.
- vii. Recovery
  - 1. Constantly monitor until upright and walking normally.
  - 2. Provide preemptive pain control
  - 3. Offer food as soon as upright and swallowing
  - 4. Recover in a quiet, padded area.
  - 5. Send home with specific instructions on what to monitor
    - a. Minimize time in the hospital if possible

## 5) Reference Material

- a. So many different species and conditions necessitates easy to use reference material
- b. Exotic Animal Fomulary by James Carpenter
  - i. The Plumb's of the exotic world
  - ii. Has drug doses, common diseases and treatments, reference ranges, husbandry highlights
- c. Ferrets, Rabbits, and Rodents
  - i. Excellent text for making a diagnosis and more
- d. Online sites
  - i. VIN
  - ii. Lafeber's website has printable care sheets for a variety of species, good for client hand outs
  - iii. AAHA has decent care sheets
  - iv. ASPCA and Human Society care sheets
  - v. Sites for owners
    - 1. House Rabbit Society
    - 2. Guinea Pig Manual
    - 3. ChinchillaCare, Chinchilla City
    - 4. Merck Manual – mice and rats
    - 5. PetGerbils
    - 6. The Hamster House
    - 7. Holistic Ferrets, PetFerretCare
    - 8. HedgehogCare, Hedgehog Club
    - 9. ASGV (Association of Sugar Glider Veterinarians)

HUSBANDRY CHART

	Diet	Bedding	Cage	Temp/ Humidity	Other
Rabbit	Unlimited grass hay (70%), 1/8 <sup>th</sup> c pellets/kg/day (10%), 1 c dark leafy greens/kg/day (20%). Avoid alfalfa, give fruit sparingly as a treat.	Large litter box w/ edible litter like paper (Carefresh, Yesterday's News), wheat (Ecostraw). Avoid clay and shavings.	Solid bottom or several solid areas for sitting and rest. Large enough for 3 complete hops lengthwise. Most like a resting shelf. Needs a place to hide and safe chew toys.	Overheat easily. Like temperature range of 60-80F. Humidity makes cooling more difficult, even in lower temps.	Should not be housed outdoors. Needs at least 2 hours daily chew and escape proof area. Can be difficult to introduce to new rabbits – territorial. Generally do not enjoy being picked up and may kick/struggle.
Mouse	Pelleted mouse diet, avoid too many seeds or mixes. Vegetables and fruit, treats can be seeds and cereal.	Like to burrow and nest – prefer soft paper bedding like Carefresh or strips of paper. Bedding needs to be changed frequently to prevent ammonia build up.	Cage with solid bottom and plenty of ventilation. May chew out of plastic cages. Aquariums are not acceptable. Wire sides should be escape proof. Small pieces of fabric, fleece, paper, and boxes and provide areas to hide and nest. Safe chew toys and foraging toys provide enrichment. Need water bottles small enough for mice.	Temperature 65-80F, Humidity 50-60%	Escape artists- be sure enclosures are secure. Social – house females together, males may fight.
Rat	Pelleted pet rat diet, avoid too many seeds or mixes. Leafy vegetables daily. Treats can be seeds/nuts, fruit, cereal, protein.	Like to burrow and nest – prefer soft paper bedding like Carefresh or strips of paper. Bedding needs to be changed frequently to prevent ammonia build up.	Rotation of enrichment/toys keep rats interested. Multilevel cages with platforms for sleeping, eating, burrowing are best. Prefer habitats with a lot of enrichment – can use inexpensive things like tissue boxes and paper.	Temperature 65-80F, Humidity 50-60%	Social – house in pairs, males tend to get along better than females.

Hamster	Pelleted hamster diet, hay cubes, leafy vegetables. Limit seed/nut intake – use as treats.	Like to burrow and nest – prefer soft paper bedding like Carefresh or strips of paper. Bedding needs to be changed frequently to prevent ammonia build up. Bedding should be a few inches thick for burrowing.	Cage with solid bottom and plenty of ventilation. May chew out of plastic cages. Aquariums are not acceptable. Wire sides should be escape proof. Small pieces of fabric, fleece, paper, and boxes and provide areas to hide and nest. Safe chew toys and foraging toys provide enrichment. Need water bottles small enough. Use a flat, solid running wheel, at least 6 inches in diameter.	Temperature should be 70-75F. Sudden temperature changes below 60F may cause hibernation.	Nocturnal. May hide food, be sure to check to prevent spoilage. Usually housed singly- may fight. Long haired hamsters may need fur trimmed to prevent it from getting caught.
Gerbil	Pelleted gerbil diet (16-22% protein), hay cubes, leafy vegetables. Limit seed/nut intake – use as treats. May like insects as treats. May not drink much if provided with daily vegetables as they are desert creatures.	Like to burrow and nest – prefer soft paper bedding like Carefresh or strips of paper. Bedding needs to be changed frequently to prevent ammonia build up. Bedding should be a several inches thick for burrowing.	Cage with solid bottom and plenty of ventilation. May chew out of plastic cages. Aquariums are not acceptable. Wire sides should be escape proof. Small pieces of fabric, fleece, paper, and boxes and provide areas to hide and nest. Safe chew toys and foraging toys provide enrichment. Need water bottles small enough. Use a flat, solid running wheel, at least 6 inches in diameter.	Temperature 65-85F. Humidity 30-50%.	Social if introduced early, otherwise house alone, will fight. Excellent jumpers, very fast. Tails deglove easily.

Guinea Pig	Require 20mg vitamin C daily. Unlimited grass hay (70%), 1/8 <sup>th</sup> c pellets/day (10%), 1 c dark leafy greens and Vit C rich veggies/day (20%). Avoid alfalfa, give fruit sparingly as a treat.	Some can be litterbox trained. Use edible litter like paper (Carefresh, Yesterday's News), wheat (Ecostraw). Litter box must have very low sides. Avoid clay and shavings. Can use fleece to line cage bottom, wash frequently.	Solid bottom cage, can use large open container with tall sides as they cannot climb/jump well. Fleece bedding may be used. Needs a place to hide, safe chew toys.	Overheat easily. Like temperature range of 60-80F. Humidity make cooling more difficult, even in lower temps.	Very talkative. Needs at least 2 hours daily exercise in a chew and escape proof area. Social – house in pairs or more (separate sexes or get neutered).
Chinchilla	Unlimited grass hay (70%), 2-3 TBS pellets/day (20%), ½ c dark leafy greens and veggies/day (10%). Avoid alfalfa. Give fruit sparingly as a treat.	Some can be litterbox trained. Use edible litter like paper (Carefresh, Yesterday's News), wheat (Ecostraw). Avoid clay and shavings.	Solid bottom cage with wire sides for ventilation. Need several feet of vertical space with shelving as they are excellent jumpers. Tile or granite slab for cooling. Needs a place to hide, safe chew toys. Can use a solid exercise wheel – at least 15 inch diameter.	Overheat easily. Like temperature range of 60-75F, nothing over 80. Humidity should be about 50%.	Active at night. Social – house in pairs or more (separate sexes or get neutered). Dust baths 3-4 times per week. Needs daily exercise out of cage in a safe area (can jump!)
Ferret	Carnivorous, require about 40% protein. Eat small meals frequently throughout the day, so ferret specific kibble can be free fed. Treats made for ferrets, cooked meat can be fed sparingly.	Large litter box w/ litter like paper (Carefresh, Yesterday's News), wheat (Ecostraw). May be able to use clay cat litter. Like hammocks, cloth tubes, towels, and blankets for burrowing.	Large, solid bottom cage with wire sides for ventilation. Shelves and ramps connected to sleeping hammocks expand vertical space. Need a lot of enrichment like toys and tunnels. Be sure the ferret cannot ingest these materials. Will knock over food and water, use a water bottle or secure bowls to cage.	Overheat easily. Will pant when hot. Temperature 60-80F. Humidity 40-60%.	Sleep for most of the day and need a routine dark – light cycle. Extremely playful and curious. Needs several hours of exercise daily, beware of ferrets escaping and hiding in furniture. May ingest foreign material. Social – house in pairs or more. Do not house near prey species. Many like to swim in shallow water. Vaccinate for Rabies and Distemper, regular dental prophies.

Hedgehog	<p>Need 30-40% protein and 10-20% fat. 1-2 TBS of commercial hedgehog food or low fat cat food daily.</p> <p>1-2 TBS of varied wet foods like low fat dog/cat food, fruit or veggies, cooked egg, or jarred baby foods daily. Avoid milk. Insects can be given as treats (no more than 5%)</p>	<p>Some can be litterbox trained. Use edible litter like paper (Carefresh, Yesterday's News), wheat (Ecostraw). Litter box must have very low sides. Avoid clay and shavings. Can use fleece to line cage bottom, wash frequently.</p>	<p>Solid bottom floor with wire top. Can use a large open container with tall, smooth sides as they can climb but not jump. Can use a solid exercise wheel. Needs a tunnel or house to hide.</p>	<p>Temp 75-85F, Humidity around 40%. Low temperatures may cause hedgehogs to go dormant, use a safe under-cage heating device if needed.</p>	<p>Light-dark cycle should be 12h-12h. Requires exercise out of cage, some like to swim in shallow water. Kiddie pools filled with toys can be used for an exercise pen. Do not like bright lights or loud noises. Usually housed singly.</p>
Sugar Glider	<p>Require calcium supplementation. 50-75% pelleted or mixed diet (like Leadbeaters – a pureed mix of egg, honey, fruit juice, cereal, and calcium supplement). 25-50% vegetables and fruits. Insects should be reserved for treats.</p>	<p>Use soft paper bedding like Carefresh, fleece, or towels.</p>	<p>Large cage with vertical space that allows for jumping and gliding. Should be wire mesh with small spacing. Perches should be made of untreated wood. Several food/water stations at different levels. Nest box for sleeping/hiding – line with soft bedding or fleece.</p>	<p>Temp 75-80F</p>	<p>Active at night. Supervise all time out of cage as they can escape easily. Can use a small tent for an exercise pen. Transported in fleece pouches with mesh ventilation – this helps them to feel secure. Social – house in pairs or more, will self-mutilate if alone.</p>



BIOLOGICAL DATA

	Lifespan	Vitals	Repro	Weaning & Sexual maturity	Average Weight
Rabbit	5-15y	HR 130-325 RR 30-60 Temp 101-104	Induced ovulators, gestation 33d	Wean 4-6w Sexual maturity 6-8 mos	Depends on breed – 1.5-6kg
Mouse	1.5-3y	HR 200-800 RR 70-220 Temp 97-100	Gestation 19-21 d	Wean 3-4 w	30g
Rat	1.5-3y	HR 250-450 RR 70-120 Temp 97-103	Gestation 19-23 d	Wean 3-4 w	300-400g
Hamster	1.5-3y	HR 200-500 RR 90-120 Temp 98-102	Gestation 15-22d	Wean 3-4 w	Depends on breed - 20-150g
Gerbil	3-4y	HR 260-450 RR 70-130 Temp 98-102	Gestation 25d	Wean 3-4 w	70-130g
Guinea Pig	4-6y	HR 230-380 RR 40-120 Temp 99-103	Gestation 59-72d, must be bred before 7 months of age due to pelvic symphysis closure.	Wean 3-4 w	1000g
Chinchilla	10-20y	HR 200-250 RR 40-80 Temp 95-100	Gestation 110d	6-8 w	600-700g
Ferret	5-10y	HR 200-400 RR 33-36 Temp 100-104	Induced ovulators, female will stay in estrus and can become anemic until bred. Gestation 42d.	Wean 6-8w, sexual maturity 6-12mos. Most pet ferrets come spayed/neutered from Marshall Farms.	1kg
Hedgehog	4-6y	HR 180-280 RR 25-50 Temp 95-98F	Gestation 36 d, induced ovulators?	Wean 6-8w, sexual maturity around 6 months	400g, males larger than females.
Sugar Glider	5-15y	HR 200-300 RR 16-40 Temp 98F	Seasonally polyestrus. Gestation 16d, pouch emergence 60d	Wean around 100d, sexual maturity around 8-12 mos.	120g, males larger than females.

COMMON DISEASE/PROBLEMS

	Disease	Clinical Signs	Diagnosis	Treatment
Rabbit	GI stasis AKA Rabbit Gastrointestinal Syndrome.	Decreased food intake, decreased stool production, lethargy, dehydration, pain, death.	Usually secondary due to teeth issues, stress, FB, improper husbandry, excessive fur ingestion, or infection. May not find original cause. Radiographs can be helpful – whole body.	Correct primary problem if diagnosed. Important to start treating within 12-24h of inappetence. Supportive care – syringe feeding q4-6h if not eating, SQ or IV fluids. Pain control needed – use injectable meloxicam or buprenorphine. Motility drugs can be used – metoclopramide, cisapride. Simethicone for gas reduction. Exercise or vibrations may help with gas pain. May do better with supportive care in home environment if owner is capable and rabbit is not critical. If hospitalized – provide water bowl and bottle, hiding place, different types of hay, pellets, leafy greens.
	Malocclusion	Decreased food intake, change in food preference, GI stasis, drooling, dropping food, teeth grinding, malodorous mouth.	Often effects only cheek teeth, sedate and observe with aural scope or endoscope. Skull rads can reveal root issues.	Trim incisors with dental burr or Dremel tool. Be careful not to leave tooth shards in mouth, smooth sharp points. Cheek teeth can be filed with a small float/rasp or burr. Requires anesthesia/sedation. May need pain control or antibiotics if infection suspected. Provide supportive care if not eating.
	Parasites – ear/fur mites, intestinal, E. cuniculi, cuterebra, fleas	Ear mites – itchy, yellow crusty ears. Fur mites – fur loss, white dandruff on skin. Intestinal parasites – maybe diarrhea. E. cuniculi – neurologic signs like head tilt, rolling, eye ulcers. Cuterebra – swelling under skin, check for movement. Fleas – seen, itchy.	Ear mites/fur mites – scrape, swab, tape prep examined microscopically. Intestinal parasites – float, direct. E. cuniculi – titer. Cuterebra – observation. Fleas – live fleas or flea dirt seen, other pets in the house have fleas.	Ear/skin mites – Selemectin or Ivermectin. Removing ear crusts can be painful, sedate and give pain meds. Intestinal parasites – pyrantel, fenbendazole, Albon. E. cuniculi – fenbendazole x 30d, supportive care if needed. Cuterebra – surgical removal. Fleas – Selemectin.

	Injuries– musculoskeletal, eye, fighting, sore hocks	Musculoskeletal – limping, paralysis, inactivity, open wounds Eye – discharge, inflammation, discoloration. Sore hocks – fur loss and inflammation of plantar side of hocks.	Musculoskeletal- observation, radiographs. Eye – stain to check for ulcers. Sore hocks – observation.	Pain control like meloxicam or buprenorphine, Cage rest, splinting/amputation, surgical repair. Eye – check for sharp objects in environment, neo-poly-bac or other eye medication, pain control. Hocks – correct husbandry issues, provide softer sitting areas. Fighting – rabbits are territorial, keep separate.
	Repro -Uterine tumors/ pseudopregnancy	Tumors – vaginal discharge, general malaise. Psuedopregnancy – fur pulling, nesting, aggression.	Tumors- ultrasound, radiographs, exploratory surgery. Psuedopregnancy- clinical signs with no exposure to male	Spay
	Otitis Media	Head tilt, purulent discharge, head shaking, facial nerve paralysis, nystagmus	Radiographs, culture	Antibiotics like SMZ-TMP or enrofloxacin/NSAIDs, may need to be a long course.
Mouse	Tumors	Usually mammary tumors that grow SQ	FNA, histopathology	Surgical removal.
	Malocclusion	Crooked or overgrown incisors, weight loss, difficulty eating. Usually cheek teeth are not involved.	Oral exam	Trim incisors with Dremel tool or small scissors. Be careful not to leave tooth shards in mouth, smooth sharp points. Requires anesthesia/ sedation. May need pain control or antibiotics if infection suspected. Provide supportive care if not eating.
	Barbering	Furless areas on body, may inflict skin wounds, usually the fully furred mouse is the culprit	Observation	Increase enrichment in habitat, separate barber, treat wounds if needed, trim teeth on barber
	Ulcerative dermatitis	Scabbed area on body – often neck, ears, and sides. Can progress to full thickness skin loss.	Clinical signs	Nail trim. Treat/prevent infection with antibiotics like Convenia or oral meds. NSAID like meloxicam.

	Parasites – Pinworms and fur mites	Pinworms – might not show signs, diarrhea Fur mites – scratching, fur loss, flaky skin	Fecal float  Scrape/pluck/tape prep	Ivermectin, pyrantel
	Respiratory infections	Increased RR and RE, nasal discharge, sneezing, unkempt coat, weight loss	Radiographs, culture, lung sounds	Oxygen, antibiotics like enrofloxacin, doxycycline, or SMZ-TMP , supportive care
	Injuries/wounds	Musculoskeletal – limping, paralysis, inactivity, open wounds, self-mutilation	Observation, radiographs	Pain control like meloxicam or buprenorphine, Cage rest, splinting/amputation, surgical repair of wounds.
Rat	Parasites – Pinworms and fur mites	Pinworms – might not show signs, diarrhea Fur mites – scratching, fur loss, flaky skin	Fecal float  Scrape/pluck/tape prep	Ivermectin, pyrantel
	Respiratory infections	Increased RR and RE, nasal discharge, sneezing, unkempt coat, weight loss	Radiographs, culture, lung sounds	Oxygen, antibiotics like enrofloxacin, doxycycline, or SMZ-TMP, supportive care
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	Tumors	Usually mammary tumors that grow SQ	FNA, histopathology	Surgical removal.
	Malocclusion	Crooked or overgrown incisors, weight loss, difficulty eating. Usually cheek teeth are not involved.	Oral exam	Trim incisors with Dremel tool or dental burr. Be careful not to leave tooth shards in mouth, smooth sharp points. Requires anesthesia/sedation. May need pain control or antibiotics if infection suspected. Provide supportive care if not eating.
Hamster	Demodex	scratching, fur loss, flaky skin	Skin scrape	Ivermectin
	Wet tail	Diarrhea, dehydration, death	Clinical signs, fecal exam	Supportive care, antibiotics like SMZ-TMP or enrofloxacin, antiparasitics like Albon, fenbendazole
	Cheek impactions	drooling, dropping food, malodorous mouth	Oral exam	Sedate and use cotton swabs to clean out pouches. Antibiotics like Convenia, enrofloxacin or SMZ-TMP.

	Wounds/injury	Musculoskeletal – limping, paralysis, inactivity, open wounds	Observation, radiographs	Pain control like meloxicam or buprenorphine, Cage rest, splinting/amputation, surgical repair of wounds
	Self-mutilation	Chewing/gnawing, missing limbs or digits	Observation	Find possible source of pain/injury, treat with pain control. Increase amount of environmental enrichment.
Gerbil	Respiratory infections	Increased RR and RE, nasal discharge, sneezing, unkempt coat, weight loss	Culture, radiographs, lung sounds	Oxygen, antibiotics like enrofloxacin, doxycycline, or SMZ-TMP , supportive care
	Abscesses	Swelling/inflammation, purulent discharge	Observation, exploratory surgery	Sedate, lance and drain, pain control like meloxicam, antibiotics like Convenia, enrofloxacin or SMZ-TMP
	Seizures	Twitching, may be typical or atypical, can be in response to light/sound	Observation	No treatment, usually recover after a few minutes.
Guinea Pig	GI stasis	Decreased food intake, decreased stool production, lethargy, dehydration, pain, death.	Usually secondary due to teeth issues, stress, FB, improper husbandry, excessive fur ingestion, or infection. May not find original cause. Radiographs can be helpful – whole body.	Correct primary problem if diagnosed. Important to start treating within 12-24h of inappetence. Supportive care – syringe feeding q4-6h if not eating, SQ or IV fluids. Pain control needed – use injectable meloxicam or buprenorphine. Motility drugs can be used – metoclopramide, cisapride. Simethicone for gas reduction. Exercise or vibrations may help with gas pain. May do better with supportive care in home environment if owner is capable and rabbit is not critical. If hospitalized – provide water bowl and bottle, hiding place, different types of hay, pellets, leafy greens.
	Respiratory infections	Increased RR and RE, nasal discharge, sneezing, unkempt coat, weight loss	Culture, radiographs, lung sounds	Oxygen, antibiotics like enrofloxacin or SMZ-TMP, supportive care
	Abscesses	Swelling/inflammation, purulent discharge	Observation, exploratory surgery	Sedate, lance and drain, pain control like meloxicam, antibiotics like enrofloxacin or SMZ-TMP

	Malocclusion	Decreased food intake, change in food preference, GI stasis, drooling, dropping food, teeth grinding, malodorous mouth.	Often effects only cheek teeth, sedate and observe with aural scope or endoscope. Skull rads can reveal root issues.	Trim incisors with dental burr or Dremel tool. Be careful not to leave tooth shards in mouth, smooth sharp points. Cheek teeth can be filed with a small float/rasp or burr. Requires anesthesia/sedation. May need pain control or antibiotics if infection suspected. Provide supportive care if not eating.
	Dermatitis, mites/lice, ringworm	Scabbed area on body – often neck, ears, and sides. Fur loss, crusty areas.	Skin scrape, tape prep, DTM	Nail trim. Treat with antibiotics, antifungals like griseofulvin. If mites/lice – ivermectin, selemectin.
	Urinary calculi	Bloody urine, straining, obstruction, sludgy urine	UA, radiographs	Cystotomy, antibiotics, pain control
	Tumors	Many different presentations	FNA, histopathology	Surgical removal
	Wounds/injury	Musculoskeletal – limping, paralysis, inactivity, open wounds	Observation, radiographs	Pain control like meloxicam or buprenorphine, Cage rest, splinting/amputation, surgical repair of wounds
	Bumble foot	Swelling/inflammation of plantar sides of feet	Observation	Correct husbandry issues, provide softer sitting areas, antibiotics and NSAIDs if needed.
Chinchilla	Malocclusion	Decreased food intake, change in food preference, GI stasis, drooling, dropping food, teeth grinding, malodorous mouth.	Often effects only cheek teeth, sedate and observe with aural scope or endoscope. Skull rads can reveal root issues.	Trim incisors with dental burr or Dremel tool. Be careful not to leave tooth shards in mouth, smooth sharp points. Cheek teeth can be filed with a small float/rasp or burr. Requires anesthesia/sedation. May need pain control or antibiotics if infection suspected. Provide supportive care if not eating.
	GI stasis	Decreased food intake, decreased stool production, lethargy, dehydration, pain, death.	Usually secondary due to teeth issues, stress, FB, improper husbandry, excessive fur ingestion, or infection. May not find original cause. Radiographs can be helpful – whole body.	Correct primary problem if diagnosed. Important to start treating within 12-24h of inappetence. Supportive care – syringe feeding q4-6h if not eating, SQ or IV fluids. Pain control needed – use injectable meloxicam or buprenorphine. Motility drugs can be used –

				metoclopramide, cisapride. Simethicone for gas reduction. Exercise or vibrations may help with gas pain. May do better with supportive care in home environment if owner is capable and rabbit is not critical. If hospitalized – provide water bowl and bottle, hiding place, different types of hay, pellets, leafy greens.
	Overheating	Drooling, lethargy, increased respiratory rate	Rectal temperature	IV or SQ fluids, avoid cooling too rapidly.
	Ringworm	Fur loss, crusty areas, scratching	DTM	Griseofulvin
	Self-mutilation	Chewing/gnawing, missing limbs, tail, or digits	Observation	Find possible source of pain/injury, treat with pain control. Increase amount of environmental enrichment. If housed alone, consider adding another chinchilla.
Ferret	Dental disease	Drooling, bleeding from mouth, decreased appetite, gingivitis and calculi, loose teeth	Oral exam – scruff or sedate	Dental prophylaxis +/- extractions.
	Parasites – intestinal, fleas	Diarrhea, weight loss, observance of fleas/scratching	Fecal float, direct. Observation of fleas/flea dirt.	Albon, fenbendazole, metronidazole. Selamectin for fleas.
	Infectious viral diseases	Rabies, distemper, influenza	Similar clinical signs as the diseases in dogs. Human strains of influenza can be passed to ferrets.	Yearly vaccinations.
	Adrenal disease	Alopecia on back and tail base, weight loss, swollen vulva	Blood to reference lab, UTenn's adrenal panel	Surgery, Suprelorin implant, Lupron injection, specific dark-light cycles, melatonin may help
	Insulinoma	Episodic weakness, tremors, drooling	Low blood glucose, ultrasound, exploratory surgery	Long term therapy with prednisolone, diazoxide, surgery
	Lymphoma	Enlarged lymph nodes, weight loss	Ultrasound, radiographs, exploratory surgery and histopathology, CBC	Steroids, chemotherapy

	Injuries	Musculoskeletal – limping, paralysis, inactivity, open wounds	Observation, radiographs	Pain control like meloxicam or buprenorphine, Cage rest, splinting/amputation, surgical repair of wounds
Hedgehog	Dental disease	Drooling, bleeding from mouth, decreased appetite, gingivitis and calculi, loose teeth	Oral exam - sedate	Dental prophylaxis, increase hard/crunchy foods in diet
	Wobbly hedgehog syndrome	Ataxia, neurologic signs, sometimes transient	Clinical signs	Supportive care if needed, may resolve on its own
	Quill mites	Quill loss, flaky skin	Skin scrape/tape prep/microscopic quill exam	Ivermectin
	Obesity	Increased BCS, can't fully curl up	Observation and palpation	Strict diet plan, correct husbandry issues, increase exercise time.
	Tumors	Many presentations	FNA, histopathology	Surgical explore/removal. Spay or neuter if reproductive organs involved.
Sugar Glider	Dental disease	Drooling, bleeding from mouth, decreased appetite, gingivitis and calculi, loose teeth	Oral exam - sedate	Dental prophylaxis, increase hard/crunchy foods in diet
	Hypocalcemia	Hind leg paralysis/weakness, seizures, low bone density	Clinical signs, chemistries, radiographs	Calcium Glubionate, supplements, correct husbandry problems
	Self-mutilation	Chewing/gnawing, missing limbs, tail, or digits	Observation	Find possible source of pain/injury, treat with pain control. Increase amount of environmental enrichment. Do not house alone.
	Abscesses	Swelling/inflammation, purulent discharge	Observation, exploratory surgery	Sedate, lance and drain, pain control like meloxicam, antibiotics like enrofloxacin, amoxicillin, or SMZ-TMP
	Cystitis	Bloody urine, straining, urinary obstruction	UA	Antibiotics, NSAIDs, fluids
	Wounds/injuries	Musculoskeletal – limping, paralysis, inactivity, open wounds	Observation, radiographs	Pain control like meloxicam or buprenorphine, Cage rest, splinting/amputation, surgical repair of wounds